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Transactions of the Northern Wisconsin Agricultural and Mechanical Association, for the year ending April 1, 1875. Vol. II 1875

Northern Wisconsin Agricultural and Mechanical Association
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TRANSACTIONS

OF THE

NORTHERN WISCONSIN

Agricultural  Mechanical

ASSOCIATION,

FOR THE YEAR ENDING APRIL 1, 1875.

VOL. II.

Compiled by R. D. TORREY, Secretary.

OSHKOSH:
ALLEN & HICKS, PRINTERS AND STATIONERS.

1875.

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PREFACE.

The second volume of the TRANSACTIONS OF THE NORTHERN WISCONSIN AGRICULTURAL AND MECHANICAL ASSOCIATION presented to its friends and patrons and to the public at large, it is believed, will be of real value to all industrial interests.

This volume contains a record of all of the business meetings of the Society for the year ending April 1, 1875, together with a carefully prepared account of the Fair of 1874.

It also contains the proceedings of the second Agricultural Convention, held under the auspices of the Society, at Fond du Lac, Feb. 23, 24 and 25, 1875, in which will be found many valuable essays read at the time, together with all discussion had upon the same. It may not, therefore, be assuming too much to bespeak for the volume a careful reading and preservation in the libraries of all who receive it.

R. D. TORREY, *Secretary.*

OFFICERS FOR 1875.

President :

J. M. SMITH, - - - Green Bay.

Vice-Presidents :

DANA C. LAMB, - - - Fond du Lac.
K. M. HUTCHINSON, - - - Oshkosh.
A. A. LOPER, - - - Ripon.
P. S. BENNETT, - - - Appleton.
JONATHAN STODDARD, - - - Greenbush.
G. F. WHEELER, - - - Waupun.
J. H. FELCH, - - - Amherst.
GEO. PETERSEN, - - - Stockbridge.

Secretary :

R. D. TORREY, - - - Oshkosh.

Treasurer :

J. H. JONES, - - - Winchester.

Auditing Committee :

DANA C. LAMB, - - - Fond du Lac.
K. M. HUTCHINSON, - - - Oshkosh.
R. D. TORREY, - - - Oshkosh.

CONSTITUTION.

ARTICLE 1. The name of this Society shall be the NORTH-ERN WISCONSIN AGRICULTURAL AND MECHANICAL ASSOCIATION. Its object shall be the promotion of Agricultural, Mechanical and Household arts.

ART. 2. *Membership.*—The Association shall consist of such citizens of the State as shall pay to the Treasurer One Dollar and Fifty Cents annually. And the Presidents of all Agricultural, Mechanical, Horticultural and Stock Growers' associations within the jurisdiction of this Association shall be *ex-officio* members; and any person may become a life member by the payment of Ten Dollars, without the payment of any annual sum thereafter, and be entitled to free admission to any fair or exhibition forever.

ART. 3. *Officers.*—The officers of this Association shall be a President, eight Vice-Presidents, a Secretary and a Treasurer, who shall be elected at the annual meeting by ballot. The President, Vice-Presidents and Secretary shall constitute the Executive Committee, five of whom, including the President and Secretary, shall constitute a quorum for the transaction of business; and not more than two Vice-Presidents shall be residents of the same county.

ART. 4. *President.*—The President shall preside at all meetings of the Association and of the Executive Committee, and shall exercise a general supervision of the Fairs and matters and interests of the Society, performing such duties as are usual for such officers. In the absence or inability of the President, one of the Vice-Presidents shall perform such duties.

ART. 5. *Secretary.*—The Secretary shall keep a record of the proceedings of the Association and have charge of the

books and papers pertaining to such office; conduct the correspondence and perform all the duties usually performed by such officer.

ART. 6. *Treasurer.*—The Treasurer shall have charge of the funds of the Association, and pay the same out on orders of the President, countersigned by the Secretary; attend the Fairs of the Society to receive the entrance and admission fees; keep a correct account of the receipts and disbursements and perform all the duties usually performed by such officer; and give bonds for the faithful discharge of said duties in such sum as the Executive Committee may from year to year direct.

ART. 7. *Executive Committee.*—The Executive Committee shall have full power to manage the affairs of the Association so far as arranging the details of the Fairs and determining the premiums and expenditures to be made, appointment of Superintendents, Judges and subordinate officers, except such as the general laws require to be done by the President or acting president. And an Auditing Committee of three shall be elected annually by the Executive Board to audit all accounts and expenditures.

ART. 8. *Orders.*—All orders on the Treasurer are to be drawn by the President and countersigned by the Secretary, the Secretary keeping a record of all orders drawn each year, and the Treasurer shall file them all in the order of their number as vouchers.

ART. 9. *Annual Meeting.*—The annual meeting of the Association shall be held on the second Tuesday of January in each year, at such place and hour of the day as a quorum of the Executive Committee may direct. At such annual meeting each Agricultural, Mechanical, Horticultural and Stock Growers' association, and County Council of Patrons of Husbandry, within the jurisdiction of the Association, shall be entitled to three delegates, who shall be allowed to cast one vote each in the election of officers and transaction of necessary business proper to be done at annual meetings. Notice

shall be given as required by Section 4, of the Act of incorporation, approved March 23, 1871, General Laws.

ART. 10. *Amendments.*—This Constitution may be altered or amended at any annual meeting of the Association by a majority vote.

LIFE MEMBERS.

ELI STILSON,	-	-	-	-	Oshkosh.
J. H. HICKS,	-	-	-	-	"
FRED. SUYDAM,	-	-	-	-	"
A. K. OSBORN,	-	-	-	-	"
E. W. SANDERS,	-	-	-	-	"
M. C. WILSON,	-	-	-	-	"
R. D. TORREY,	-	-	-	-	"
K. M. HUTCHINSON,	-	-	-	-	"
J. M. SMITH,	-	-	-	-	Green Bay.
DANA C. LAMB,	-	-	-	-	Fond du Lac.
J. H. JONES,	-	-	-	-	Winchester.
JONATHAN STODDARD,	-	-	-	-	Greenbush.
GEO. KEYS,	-	-	-	-	Empire.
J. C. SHERWOOD,	-	-	-	-	Dartford.
W. S. CATLIN,	-	-	-	-	Elo.
A. QUICK,	-	-	-	-	"
W. J. JENNINGS,	-	-	-	-	Rosendale.

EXECUTIVE MEETINGS.

MINUTES OF EXECUTIVE MEETING HELD AT THE OFFICE OF
THE SECRETARY, FEB. 25, 1874.

Present: J. M. Smith, P. S. Bennett, S. Bowron, L. S. Blake, J. Stoddard, J. H. Jones, R. D. Torrey.

Meeting was called for a general review of the Premium List and to fix time and place of Fair of 1874.

Motion prevailed to strike out "or agent" in Rule 5, of Entries.

Motion prevailed to amend Rule 6, of Entries, by inserting "The name of the owner and" after the word "specifying," and the following rule was adopted:

RULE 2. No article or animal shall compete for more than one premium, except as a part of a herd or for a sweepstake premium: provided that horses may compete for either general class and also for speed.

A committee duly accredited from the Northern Poultry Association was invited to take seats to assist in making up the poultry list.

Motion prevailed to appropriate \$175 to poultry. Also, to add herd premium of \$36 on sheep.

Resolution of D. C. Lamb adopted, as follows:

No exhibitor of fruits be permitted to display sign-boards or retail fruits previous to noon of the last day of the Fair.

An addition of \$20 was added to premium on swine.

Time of Fair was fixed for Sept. 28, to continue five days. The location was referred to a Special Committee of three, viz.: D. C. Lamb, P. S. Bennett and R. D. Torrey.

Bills of Jno. Stoddard, L. S. Blake and the *Times* office were presented and allowed.

Motion prevailed that all necessary expenses of the Appleton Convention be paid by the Society.

Adjourned.

R. D. TORREY, *Secretary*.

MINUTES OF EXECUTIVE MEETING HELD AT THE SOCIETY'S
OFFICE, OSHKOSH, APRIL 17, 1874.

Present: J. M. Smith, S. Bowron, P. S. Bennett, J. H. Jones and R. D. Torrey.

Object of the meeting was to determine whether the Society would publish a volume of Transactions.

Motion of P. S. Bennett to so publish was carried unanimously.

Bids for doing the work were received from the following parties:

From the Sentinel Company, Milwaukee, 500 volumes, 400 pages.....	\$ 575.00
One thousand volumes.....	810.00
From the Democrat Company, Madison, 500 volumes, 400 pages.....	700.00
One thousand volumes.....	1,000.00
From the State Journal, Madison, 500 volumes, 400 pages.....	700.00
One thousand volumes.....	1,050.00
From the Milwaukee News, Milwaukee, 500 volumes, 400 pages.....	550.00
One thousand volumes.....	800.00
From Allen & Hicks, Oshkosh, 500 volumes, 400 pages.....	645.00
One thousand volumes.....	815.00
From the Appleton Post, Appleton, 500 volumes, 400 pages.....	740.00
One thousand volumes.....	1,350.00

J. H. Jones moved that the contract be closed with Allen & Hicks, which motion prevailed.

The resolution of P. S. Bennett was adopted, as follows:

Resolved, That the President and Secretary be, and are hereby, appointed a Committee on Publication with full power to close a contract with Allen & Hicks for the publication of the Transactions of the Northern Wisconsin Agricultural and Mechanical Association, and also to procure cuts and devices to be inserted at their discretion.

Motion prevailed to instruct the President and Secretary to procure speakers for the Fair of 1874.

The sum of \$15 was appropriated for a plowing match.

Motion prevailed to adjourn, subject to call of the President.

Minutes were read and approved, and on motion, meeting adjourned.

R. D. TORREY, *Secretary.*

MINUTES OF EXECUTIVE MEETING HELD AT THE HOUSE OF
THE PRESIDENT, PURSUANT TO CALL, JUNE 30, 1874.

Present: J. M. Smith, D. C. Lamb, S. Bowron, J. Stoddard, P. S. Bennett and R. D. Torrey.

A communication of Hon. J. G. Blaine, announcing his willingness to be present at the Fair of 1874 and speak, was read by the Secretary, and that officer was instructed to secure the presence of Mr. Blaine.

The President and Secretary were instructed to secure such other speakers as they thought proper.

Motion prevailed to direct the Secretary to send each active Vice-President six complimentary tickets for distribution.

Motion prevailed to adopt the sample of complimentary ticket offered by Morgan & Co., of Cleveland, O.

The following bills were allowed and ordered paid:

Tytus, Hamilton & Co.....	\$ 7.20
Allen & Hicks.....	20.00
W. J. Morgan.....	40.00

On motion a committee on improving the grounds at Oshkosh for the Fair of 1874 was appointed, as follows: J. V. Jones, Eli Stilson, S. Bowron and R. D. Torrey, with power to add to their number, and report at the next meeting.

Mr. Lamb moved that a sub-executive committee of five, with the President as chairman, be appointed by the chair to transact all necessary business for the Fair of 1874, to save the expense of convening the entire board. Adopted. J. M. Smith, S. Bowron, D. C. Lamb, P. S. Bennett and R. D. Torrey were appointed.

Eli Stilson was chosen Superintendent of Watchmen, and Fred Zentner, Superintendent of Gates.

Minutes read and approved.

Adjourned, subject to call.

R. D. TORREY, *Secretary.*

MINUTES OF EXECUTIVE MEETING HELD ON THE FAIR GROUNDS, PURSUANT TO CALL, TO TAKE INTO CONSIDERATION THE MATTER OF DIFFERENCE OF C. W. ROGERS VS. THOS. DAVIS, OCT. 1, 1874.

P. S. Bennett, J. M. Smith, S. Bowron, S. Blake, D. C. Lamb and R. D. Torrey were present.

Mr. Bennett made a statement that Thos. Davis exhibits grain not of this year's growth, and made a motion that a committee of five be appointed to examine into the case. Motion was, after some remarks, withdrawn, and a resolution of D. C. Lamb adopted, as follows:

Resolved, That in the matter of protest against Thos. Davis, that the complaint be heard by the Executive Board, at 10 o'clock Friday, Oct. 3, 1874, and that the parties interested be cited to appear.

On motion, adjourned. R. D. TORREY, *Secretary*.

A MEETING WAS HELD OCT. 3, BUT AS NEITHER OF THE PARTIES WERE PRESENT, ADJOURNED TO FRIDAY, OCT. 16, 1874.

Before adjournment J. M. Smith, S. Bowron and R. D. Torrey were chosen Auditing Committee, (Rule 7, Constitution.)

R. D. TORREY, *Secretary*.

MINUTES OF EXECUTIVE MEETING HELD OCT. 16, 1874, PURSUANT TO ADJOURNMENT.

Present: P. S. Bennett, S. Bowron, J. Stoddard, J. H. Jones and R. D. Torrey.

The President being absent, J. Stoddard was chosen president *pro tem*.

The protest of C. J. Coon vs. C. Hazen, on the grounds of non-compliance with the rule of Class 12, was read; also the answer of C. Hazen. The question raised was considered at length, and the protest was sustained. Following is the complaint:

*To the Executive Committee of the Northern Wisconsin
Agricultural and Mechanical Association:*

The undersigned begs leave to call your attention to the following facts in connection with Class 12, Milch Cows of any breed: I filed my statement with the committee instead of the Secretary, early in the week, supposing that that was all the entry required. My statement gives the amount of butter made, as required by the Premium List, while that of Chester Hazen omits the amount of butter made, which appears to be the vital point in offering such premium. This protest is made for the purpose of calling your attention to it, that you may take such action as your rules and justice may require.

(Signed)

C. J. COON.

Oshkosh, Oct. 3, 1874.

STATEMENT OF C. J. COON,

Competitor for the prize offered in B Class, No. 12, for the best milch and butter cow:

My cow is a cross from the White Durham, age 8 years; came in on the 6th of November, 1873; time of trial, from the 25th of May to the 4th of June; quantity of milk, 180 quarts, making 16½ pounds of butter; feed, white clover pasture.

C. J. COON.

Sworn and subscribed to the above before me this day, the 1st of October, 1874.

W. P. COOLBAUGH,
Notary Public, Wisconsin.

ANSWER OF CHESTER HAZEN.

LADOGA, *Oct. 12, 1874.*

R. D. TORREY:

Dear Sir:—Yours of the 7th is received. I cannot conveniently meet with your Board on Friday, the 16th. As regards Mr. Coon's protest that I did not state to the Judges the amount of butter made from my cow, I will state to you the same as I did to the Judges: That I keep a

dairy of forty-five cows and run a cheese-factory, and do not make butter in the summer season, and have not the convenience of doing so; but gave them the amount of milk the cow gave during the seven months from the time she calved, Feb. 15, 1874, to Sept. 15, 1874, which was not less than 30 pounds per day, making for the seven months over 7,000 pounds of milk, or 3,294 quarts, which, made into cheese, would have been 700 pounds curd cheese, or 300 pounds of butter. This cow will give 2,000 pounds of milk from Sept. 15, before I have to dry her off in December, making in all for the season, 9,000 pounds of milk. I have all the improved instruments for testing the quality of milk, and this cow gives as good a quality of milk as any cow in my dairy of forty-five cows. After making my statement to the Judges, they, together with the Superintendent, decided to waive the question of the butter made in ten days, and awarded me the premium; which I think is a just decision. If your Board insists upon complying strictly with your printed instructions, I could enter a protest against the Devonshire herd that was awarded second premium, giving me third on the grounds that they were not herd-book registered animals. They were good Devon stock, and, in the opinion of the Judges, deserved the second premium. Mine was a good cow and her milk would make the amount of butter I have stated, and, in the opinion of the Judges, deserved the premium, although there was no competition. With this explanation, I submit the question to your Executive Board.

Yours truly,

CHESTER HAZEN.

The next in order was the protest of L. S. Jones and C. F. Rogers vs. Thos. Davis. L. S. Jones and Thos. Davis being present, the complaint was read, which is as follows:

COMPLAINT OF L. S. JONES.

I hereby protest against paying any premiums to Thos. Davis on these accounts: 1st. A lack of quality in several

instances; 2d. Presenting grain not the growth of this year;
3d. Presenting grain, as I believe, not grown by himself.

(Signed)

L. S. JONES.

I join in the above.

C. F. ROGERS.

Motion prevailed that the complainant, Mr. Jones, be
called upon for proofs sustaining the protest.

Mr. Jones proceeded to say that he had not examined the
grain on exhibition, and had signed his name by request of
Messrs. Bennett and Rogers.

Question by Mr. Stoddard: "Do you know anything as to
whether the grain was raised this year?"

Answer: "I do not; I examined the farm of Mr. Davis,
but did not find any evidence of their having threshed."

Question: "What do you know about the grain not being
grown by him?"

Answer: "Not anything."

Question by Mr. Davis: "What did you say to me when
you visited my farm?"

Answer: "I said as far as I could see, it was all right."

Question by Mr. Bennett: "What do you mean by 'all
right?'"

Answer: "I mean that all I saw was right."

Mr. Jones here called upon Mr. Bennett for a statement.

Mr. Bennett said that himself and J. M. Smith had meas-
ured the grain and found it short of measure, some consider-
ably so.

R. D. Torrey stated that he examined the grain as to its
being raised the current year, and gave it as his opinion that
it was raised in 1874.

Mr. Davis was called for a defense, and said he had no
written defense to make, but was willing to be sworn and
would answer any question the Board might see fit to ask him.

Question by Mr. Bowron: "Do you say you raised all of
the grain you exhibited on your own place this year?"

Answer: "I do."

Question: "When did you pick the corn you exhibited?"

Answer: "Before the Milwaukee Fair."

Question: "Did you raise the rye?"

Answer: "Yes."

A motion to sustain the protest was lost by unanimous vote.

Motion prevailed to award a silver medal to the model steam engine exhibited at the last Fair.

Motion prevailed to pay Thos. Davis second premium on sow with litter of pigs, in Class 22. Also, \$4 to L. S. Jones on cross in swine, as per Judges' recommendation; also \$3 on breeding sow, Class 22. Also, to Wm. Elsworth, \$2.50 on B. B. Game Poultry. Also, to pay Peter Davy, for Fair of 1873, one-half short-horn, premium on corresponding specifications.

Motion unanimously prevailed to pay the Secretary \$500 salary for the current year.

Motion carried to procure a silver medal for the Champion Fire Extinguisher.

The following accounts were allowed:

Bigger & Hill, ribbons, etc.....	\$ 4.00
P. A. Dale, assistant superintendent of horses.....	20.00
E. D. Kellogg, water bill.....	1.50
Faber, errand boy.....	2.50
S. M. Hay & Bro., hardware.....	86.15
Athearn & Co., 'bus fair.....	4.00
S. Lodge, labor.....	8.12
Sheldon, lumber.....	58.92
Leonard & Hicks, printing.....	4.00
Kimberly, Clark & Co., paper.....	10.34
P. S. Bennett, services.....	22.00
J. Goodland, services.....	8.00
T. Reed, labor.....	1.50
James E. Sanders, labor.....	2.50
Ira Kezertee, horse hire.....	2.00
S. O. Carlton, drayage.....	14.00
Ernst Rudditz.....	1.00

A vote of thanks was extended to Hon. P. Sawyer and Hon. J. G. Blaine for the presence of the latter at the Fair.

Motion prevailed to allow the Treasurer \$100 for his services; also, \$100 to President Smith.

The time for the fifth annual meeting was fixed at 10 o'clock A. M. of the second Tuesday of January, 1875.

On motion, adjourned, after reading and approving the minutes.

R. D. TORREY, *Secretary.*

MINUTES OF AUDITING COMMITTEE HELD AT THE OFFICE
OF THE SOCIETY, OSHKOSH, NOV. 26, 1874.

Present: Smith, Bowron, Jones and Torrey.

The following accounts were allowed and paid:

J. H. Jones, disbursements.....	\$ 5.00
A. A. Loper, superintendent.....	15.00
J. H. Johnson, repairing seal.....	1.50
Allen & Hicks, printing.....	925.69
R. D. Torrey, disbursements.....	85.03
R. Parkinson, horse drawn from race.....	7.50
Wm. Hall, horse drawn from race, 187 6	7.50

R. D. TORREY, *Secretary.*

SIXTH ANNUAL MEETING.

The sixth annual meeting of the Northern Wisconsin Agricultural and Mechanical Association was held at the Court-House, in the Supervisors' Room, in the city of Oshkosh, Tuesday, Jan. 12, 1875.

The President, J. M. Smith, of Green Bay, called the meeting to order at 10 o'clock A. M.

On motion of D. C. Lamb, a committee of three was appointed on credentials.

The Chair appointed D. C. Lamb, D. Huntley and L. S. Randall.

The meeting took a recess while the Committee on Credentials were making up their report.

The meeting was again called to order and the Committee on Credentials reported the following-named persons as duly accredited delegates and entitled to seats, which was, on motion of E. W. Viall, adopted.

Following is the list of delegates as reported by the Committee on Credentials:

Brown County Agricultural Society.—J. M. Smith, C. D. Robinson and M. Stewart.

Brown County Horticultural Society.—J. M. Smith, C. D. Robinson and E. L. Kendall.

Outagamie Agricultural Society.—L. L. Randall, T. V. Smith and John Dey.

Outagamie Stock-Growers' Association.—P. S. Bennett, Harmon Jones and J. W. Horton.

Grand Chute Farmers' Club.—John Goodland, G. J. Johnson and Erastus Saxton.

Outagamie Bee-Keepers' Association.—A. H. Hart, S. Parmer and John Dey.

Grand Chute Horticultural Society.—D. Huntley, P. S. Bennett and W. Gurnee.

Oshkosh Stock-Growers' Association.—Eli Stilson, G. M. Paine and E. W. Viall.

Winnebago County Agricultural Society.—M. C. Bushnell, Asher Hubbard and J. P. Roe.

Fond du Lac County Agricultural and Mechanical Association.—George Keys, J. H. Schofield and H. Bristol.

Fond du Lac Stock-Growers' Association.—D. C. Lamb, J. C. Bishop and E. S. Hammond.

State Dairymen's Association.—C. Hazen (three votes),
Winnebago County Council of Patrons of Husbandry.—S. R. Kellogg, Milan Ford and J. C. Smith.

Fond du Lac Council of Patrons of Husbandry.—J. C. Bishop, A. C. Whiting and John Braly.

Ripon Agricultural Society.—A. A. Loper (three votes).

Sheboygan County Agricultural Society.—Jno. Stoddard (three votes).

Northern Wisconsin Poultry Association.—J. V. Jones, T. R. Goe and N. M. Reynolds.

Winnebago County Horticultural Society.—I. J. Hoile, E. S. Hayden and J. O'Brien.

The Chair on motion appointed E. W. Viall, John Goodland and A. A. Loper Committee on Finance.

The Secretary, R. D. Torrey, read his report, which was, on motion, accepted and referred to the Committee on Finance.

The Treasurer, J. H. Jones, also read his report, which took the same reference.

Mr. Stilson offered the following amendments to the by-laws: To strike out Article 3 and substitute as follows: The officers of this Association shall consist of a President, three Vice-Presidents, a Secretary, a Treasurer, and two additional members of the Executive Board, and all of whom, together with the ex-president latest in office, shall constitute the Executive Board.

After some discussion, Mr. Lamb offered, as a substitute

for Mr. Stilson's amendments, as follows: The officers of this Association shall consist of a president, secretary, treasurer and eight vice-presidents, to be taken from the counties that were the largest contributors to the last Fair.

The entire matter was, on motion, referred to a Select Committee of three consisting of D. C. Lamb, Jno. Goodland and Eli Stilson.

The Committee on Finance reported that they had carefully examined the Secretary's and Treasurer's reports, and found them correct.

On motion of Mr. Kellogg, the report was adopted and the vouchers burned in the presence of the meeting.

Adjourned to 1:30 P. M., at which time the meeting was again called to order by the President.

The committee to whom was referred the amendments to the by-laws reported as follows, which, on motion of Mr. Kellogg, was adopted:

"Your Special Committee to whom was referred the proposed amendment, report as follows: The officers of this Association shall consist of a President, eight Vice-Presidents, a Secretary and a Treasurer, who shall be elected at the annual meeting by ballot, and the President, Vice-Presidents and Secretary shall constitute the Executive Committee, five of whom, including the President and Secretary, shall constitute a quorum for the transaction of business; and not more than two of the Vice-Presidents shall be residents of the same county."

(Signed)

JNO. STODDARD,

D. C. LAMB,

ELI STILSON,

Committee.

The meeting, on motion, proceeded to the election of officers.

Motion prevailed that when delegations were not full, those present should cast the entire vote for the society they represent.

The meeting proceeded to cast an informal ballot for President, resulting as follows:

Whole number of votes cast was 44, of which J. M. Smith received 30, and D. C. Lamb 14.

Mr. Lamb withdrew his name, thanking the meeting for the vote he had received.

On the first formal ballot J. M. Smith received 39 votes, the whole number cast, and was duly elected.

Motion prevailed to proceed to a formal ballot for Secretary, resulting as follows:

Whole number of votes cast was 43. R. D. Torrey receiving the whole number was declared elected for the ensuing year.

Motion prevailed to take an informal ballot for Treasurer, which resulted as follows:

Eli Stilson.....	3
J. H. Jones.....	12
J. C. Bishop.....	1
A. C. Whiting.....	3
D. C. Lamb.....	8
C. Hazen.....	4
M. C. Bushnell.....	3
J. M. Stoddard.....	3
Blank.....	1

Whole number of votes cast..... 38

Messrs. Stilson, Lamb, Stoddard, Hazen and others declined.

The first formal ballot resulted as follows:

J. H. Jones.....	20
Eli Stilson.....	12
E. W. Viall.....	5
M. C. Bushnell.....	3
Scattering.....	3

Whole number of votes cast..... 43

Second ballot:

J. H. Jones.....	36
Scattering.....	4

Whole number of votes cast..... 40

J. H. Jones was duly elected.

Motion prevailed that the delegates from each county con-

fer and choose one of their number who should constitute a committee to nominate the Vice-Presidents.

The following committee was chosen: C. Hazen, L. R. Randall, Eli Stilson and Jno. Stoddard, who reported nominations as follows: D. C. Lamb, Fond du Lac; K. M. Hutchinson, Oshkosh; A. A. Loper, Ripon; P. S. Bennett, Appleton; J. Stoddard, Greenbush; G. F. Wheeler, Waupun; J. H. Felch, Amherst; Geo. Peterson, Stockbridge.

On motion, the Secretary was unanimously instructed to cast the ballot of the meeting for the same, which was done, and they were declared elected.

Motion prevailed to hold an agricultural convention, time and place to be decided hereafter.

Mr. Geo. Keys, president of the Fond du Lac Agricultural and Mechanical Association, extended an invitation, seconded by D. C. Lamb, secretary of the same, to the Society to hold the convention at Fond du Lac, which was unanimously accepted, with thanks.

The following persons were chosen a committee of arrangements: D. C. Lamb, J. M. Smith, R. D. Torrey, E. S. Hammond and P. S. Bennett.

Motion prevailed to secure the services of a phonographic reporter.

TREASURER'S REPORT.

J. H. Jones, in account with the Northern Wisconsin Agricultural and Mechanical Association:

RECEIPTS.

To balance on hand January, 1874.....	\$ 677.79
Receipts from Fair of 1874.....	7,683.56
" " State, 1874.....	1,000.00
" " Interest, 1874.....	2.20
	----- \$9,363.85

DISBURSEMENTS:

By paid orders.....	\$8,175.59
Balance on hand.....	\$1,188.26

On motion, the meeting adjourned *sine die*.

R. D. TORREY, *Secretary*.

SECRETARY'S REPORT.

Report of R. D. Torrey, Secretary, for the year ending January 12, 1875.

Gentlemen:—In submitting to you this annual report, it is gratifying to be able to state that our Society is in so good a condition, and I shall not stop to write an essay as a report, but proceed at once to give you the figures, which speak for themselves and are submitted for your consideration. First, the assets of the Society are as follows:

Cash on hand, as per Treasurer's report.....	\$1,188.26
Two shares of stock in Fair Grounds.....	100.00
Office furniture.....	80.00
Total.....	\$1,368.26

I herewith submit my warrant account, showing to whom and for what all warrants have been drawn on the Treasurer:

LIST OF WARRANTS DRAWN ON THE TREASURER FOR THE
YEAR ENDING JANUARY 12, 1875.

<i>No.</i>	<i>Date.</i>	<i>To Whom and For What.</i>	<i>Amount.</i>
1.	Jan. 24.	J. L. Fisk, premium, 1873.....	\$ 4 00
2.	Feb. 26.	Jno. Stoddard, expense bill.....	12 00
3.	"	L. S. Blake, ".....	11 40
4.	"	J. M. Smith, ".....	10 00
5.	"	D. C. Lamb, ".....	4 30
6.	"	P. S. Bennett, ".....	4 10
7.	"	Fernandez & O'Bryan, printing bill.....	5 00
8.	March 6.	Reed & Miller, printing.....	5 50
9.	" 10.	E. W. Saunders, disc. premium.....	6 00
10.	" 12.	P. H. & J. D. Bertsey, use of hall.....	25 00
11.	April 23.	Webb, Alberts & Co., premium, 1873.....	2 00
12.	May 2.	W. P. Taylor, services as superintendent.....	7 00
13.	" 6.	Mrs. Robinson, premium.....	1 00
14.	" 8.	W. H. Walker, printing.....	2 20
15.	" 12.	Allen & Hicks, printing.....	34 70
16.	June 1.	Thomas Davis, premium, 1873.....	2 00
17.	" 29.	J. D. Vandoren, premium, 1873.....	4 00
18.	July 23.	Tytus, Hamilton & Co., stationery.....	7 20
19.	Aug. 12.	Fernandez & O'Bryan, printing posters, etc.....	55 00
20.	" 13.	Allen & Hicks, printing.....	20 00
21.	" 27.	W. J. Morgan, diplomas and cards.....	58 00
22.	"	Oshkosh post-office, wrappers.....	11 28
23.	"	R. D. Torrey, salary in part.....	250 00

No.	Date.	To Whom and For What.	Amount.
24.	Oct. 3.	C. Westbrook, premium, 1874.....	140 00
25.	"	C. Tously, premium, 1874.....	110 00
26.	"	C. Westbrook, telegraphing.....	7 75
27.	"	S. A. Bower, premium.....	45 00
28.	"	D. B. Pierce, premium.....	15 00
29.	"	H. Floyd, premium.....	31 00
30.	"	D. Huntley, premium.....	21 00
31.	"	Jerome Huntley, premium.....	9 00
32.	"	Mrs. D. Huntley, premium.....	11 50
33.	"	— Brockway, premium.....	3 00
35.	"	R. H. Randall, premium.....	1 00
36.	"	L. Perrot, premium.....	1 00
37.	"	Crand Chute Club, premium.....	15 00
38.	"	Mrs. H. M. Jones, premium.....	3 00
39.	"	H. Jones, premium.....	8 00
40.	"	John Myers, premium.....	4 50
41.	"	J. McGillen, premium.....	1 06
42.	"	H. M. Jones, police.....	14 00
43.	"	H. Jones, police.....	12 00
44.	"	T. M. Fay, assistant superintendent of horses.....	20 00
45.	"	D. C. Lamb, superintendent fine arts and ex.....	35 94
46.	"	W. E. Angell, asst. " ".....	6 00
47.	"	J. L. D. Eyclesheimer, supt. of horses and premium....	47 00
48.	"	J. Lutsey, premium.....	60 00
49.	"	A. McNaughton, premium.....	150 00
50.	"	J. B. Hayes, premium.....	6 00
51.	"	Mrs. E. Nye, premium.....	5 00
52.	"	D. McAllister, police.....	13 50
53.	"	John Kusler, labor.....	12 00
54.	"	J. E. Wheeler, premium.....	50
55.	"	O. E. Carrier, rent of show-case.....	2 75
56.	"	J. E. Saunders, labor on buildings.....	43 75
57.	"	Sam Wagstaff, premium.....	4 00
58.	"	" labor on buildings.....	78 00
59.	"	F. Suydam, premium.....	6 00
60.	"	Wm. Bell, labor on buildings.....	41 00
61.	"	R. Behrend, " ".....	5 25
62.	"	J. D. Vandoren, premium.....	103 00
63.	"	R. Behrend, labor on buildings.....	9 62
64.	"	Frank Theno, " ".....	9 62
65.	"	J. H. Hicks, bill for barrels.....	3 50
66.	"	Frank Theno, labor on grounds.....	50
67.	"	G. M. Hasbrouck, painting signs.....	12 00
68.	"	Wm. Bradley, premium.....	6 50
69.	"	Thomas Davis, premium.....	2 50
70.	"	W. L. Rickard, watchman.....	10 00
71.	"	W. W. Lake, assistant treasurer.....	15 00
72.	"	S. Lodge, labor and team.....	30 00
73.	"	N. M. Reynolds, premium.....	8 00
74.	"	James Bowen, labor with team.....	14 40
75.	"	H. B. Jackson, premium.....	8 00

Sixth Annual Meeting.

No.	Date.	To Whom and For What.	Amount.
76.	Oct. 3.	J. D. Curran, "	115 00
77.	"	F. L. King, "	95 00
78.	"	Eli Stilson, straw and services.....	21 50
79.	"	W. C. Hubbard, premium.....	2 50
80.	"	A. W. Shaw, labor.....	3 50
81.	"	G. E. Williams, labor.....	8 50
82.	"	Fernandez & Co., printing.....	31 75
83.	"	W. H. Walker, "	8 00
84.	"	James Monahan, watchman.....	8 00
85.	"	Charles Kellogg, clerk.....	15 00
86.	"	Follett & Stanley, water bill.....	14 00
87.	"	Wm. Bell, police.....	2 00
88.	"	N. Conrad, clerk.....	21 00
89.	"	M. Carrigan, hay.....	13 12
90.	"	C. D. Robinson, superintendent.....	14 95
91.	"	N. Conrad, disbursements	75
92.	"	E. W. Saunders, premium.....	58 50
93.	"	O. P. White, "	40 00
94.	"	H. D. Sloat, telegraphing.....	2 68
95.	"	Mrs. O. P. White, premium.....	1 50
96.	"	S. Bowron, superintendent and ex.....	21 80
97.	"	A. Bowron, asst. "	10 00
98.	"	D. Miller, sawdust.....	3 50
99.	"	T. E. Crane, premium.....	5 00
100.	"	N. G. Sturtevant, premium.....	23 00
101.	"	A. B. Smith, assistant superintendent.....	5 00
102.	"	E. P. Sawyer, premium.....	3 00
103.	"	Emily Smith, "	5 00
104.	"	J. M. Smith, "	32 00
105.	"	H. W. Hawley, "	8 00
106.	"	Emma Jones, "	50
107.	"	Hannah Slack, "	1 50
108.	"	Mary Ann Clark, "	50
109.	Oct. 5.	G. A. Levy, labor.....	4 50
110.	"	T. Reed, carpenter.....	9 62
111.	"	D. B. Alverson, band bill.....	135 00
112.	"	George W. Reeves, carpenter.....	31 25
113.	"	E. M. Brainerd, 'bus hire for band.....	25 00
114.	"	Brainerd Bros., premium.....	6 00
115.	"	A. C. Austin, premium.....	6 00
116.	"	" marshal acct.....	25 00
117.	"	J. L. Williams, police.....	10 00
118.	"	Wm. Wagner, assistant marshal.....	20 00
119.	"	Miss Weidner, premium.....	2 00
120.	"	Tnomas Dowling, labor on buildings.....	46 00
121.	"	John Howard, police.....	8 00
122.	"	Alex Rickey, assistant superintendent.....	14 00
123.	"	Brand & Cole, office desk.....	35 00
124.	"	J. F. W. Decker, use of crockery.....	16 77
125.	"	Eli Stilson, premium.....	388 00
126.	"	" "	27 00

No.	Date.	To Whom and For What.	Amount.
127.	Oct. 5.	Chas. Williams, premium.....	10 00
128.	"	James Brainerd, ".....	14 00
129.	"	V. Potter, police.....	8 00
130.	"	E. O'Shaughnessy, carpenter work.....	16 00
131.	"	Mrs. Asa Rogers, premium.....	3 50
132.	"	W. A. Boyd, premium.....	4 00
133.	"	J. O'Brien, superintendent.....	15 00
134.	"	" premium.....	56 00
135.	"	D. Hutchinson, premium.....	6 00
136.	"	N. Fletcher, premium.....	8 00
137.	"	I. W. Cross, premium.....	8 00
138.	"	D. Atherton, premium.....	1 00
139.	"	Chas. Vessey, hay.....	168 66
140.	"	Mrs. J. Stauvon, premium.....	1 00
141.	"	Andrew Raino, ".....	2 00
142.	"	W. W. Daggett, ".....	4 00
143.	"	E. Humphrey, ".....	12 00
144.	"	George Kellogg, bill.....	8 50
145.	"	James Brainerd, asst. supt. bill.....	20 25
146.	"	Mrs. James Brainerd, premium.....	9 00
147.	"	Asa Worden, assistant marshal.....	20 00
148.	"	C. B. W. Ryckman, premium.....	4 00
149.	"	Albert Turk, clerk.....	18 00
150.	"	J. McCune, premium.....	1 50
151.	"	E. Owens, straw.....	35 75
152.	"	M. W. Robinson, drayage.....	3 10
153.	"	J. McCune, premium.....	3 00
154.	"	M. Towers, watchman.....	3 00
155.	"	Howard & Towers, premium.....	63 00
156.	"	Thomas Davis, premium.....	25 00
157.	"	R. H. Lee, premium.....	4 00
158.	"	C. Stevenson, premium.....	4 00
159.	"	J. E. Austin, premium.....	4 50
160.	"	Mrs. W. H. H. Woe, premium.....	3 00
161.	"	W. S. Sandon, asst. fine art.....	10 00
162.	"	Thomas Davis, premium.....	2 00
163.	"	George Booth, carpenter work.....	57 00
164.	Oct. 6.	Charles Nevitt, premium.....	3 00
165.	"	Willie Nevitt.....	3 50
166.	"	M. Snell, premium.....	14 00
167.	"	Henry Sarau, bill-posting.....	8 50
168.	"	Fred Badger, clerk.....	21 00
169.	"	Isaac Miles, premium.....	26 00
170.	"	C. P. Mallett, carriage hire.....	10 00
171.	"	Mrs. Rollins, work.....	15 00
172.	"	L. S. Jones, premium.....	19 00
173.	"	" ".....	4 00
174.	"	J. H. Johnson, premium.....	2 00
175.	"	C. J. Coon, premium.....	1 50
176.	"	Sarau & Weidner, printing.....	23 00
177.	"	Asher Hubbard, gate-keeper.....	20 00

No.	Date.	To Whom and For What.	Amount.
178.	Oct. 6.	Allen & Hicks, printing.....	143 51
179.	"	" " premium.....	3 00
180.	"	Mrs. Bliss, premium.....	4 50
181.	"	B. H. Soper, premium, \$8; use of furniture, \$4.....	12 00
182.	"	W. H. Green, labor.....	2 00
183.	"	E. Chase, premium.....	19 00
184.	"	" police.....	10 00
185.	"	Mary B. McKoy, premium.....	1 00
186.	"	S. Beckwith, premium.....	16 00
187.	"	Mary Torrey, premium.....	1 00
188.	"	Anna Breeze, ".....	2 00
189.	"	F. Zentner, superintendent of gates.....	30 00
190.	"	Mr. and Mrs. O. E. Carrier, asst. supts. of fine arts.....	20 00
191.	"	C. C. Hamer, premium.....	1 00
192.	"	Hobart & Holmes, carriage hire.....	16 00
193.	"	S. Bowron, expenses.....	6 00
194.	"	J. Stoddard, premium, \$1.06; supt. \$21.00.....	127 00
195.	"	G. A. Cunningham, premium.....	24 50
196.	"	I. W. Mears, premium.....	12 00
197.	Oct. 7.	A. Hansen, carpenter work.....	25 00
198.	"	A. Miller, " ".....	21 25
199.	"	J. Haw, " ".....	21 25
200.	"	J. Nelson, premium.....	11 00
201.	"	Elihu Hall, premium.....	3 00
202.	"	" ".....	2 00
203.	"	Henry Curran, ".....	12 00
204.	"	Champ Brasted, premium.....	15 00
205.	"	—Wilson, premium, 1873.....	6 00
206.	"	Mrs. W. H. Burtis, premium, 1874.....	1 00
207.	"	W. Lane, police.....	6 00
208.	"	M. Cleveland, premium.....	10 00
209.	"	D ^r W. Vincent, premium.....	28 00
210.	"	Sarah Vincent, premium.....	3 00
211.	"	John Litfin, premium.....	4 00
212.	"	George Beardmore, premium.....	12 00
213.	"	C. W. Green, premium.....	12 00
214.	Oct. 8.	Cameron & Worden, premium.....	14 50
215.	"	Chas. Griffin, gate-keeper.....	20 00
216.	"	Allen & Hicks, selling tickets.....	9 38
217.	"	Foster & Jones, lumber.....	337 94
218.	"	Smith & Goe, premium.....	9 00
219.	"	A. Howard, police.....	8 00
220.	"	J. D. Jones, assistant treasurer.....	9 00
221.	"	John Beardmore, premium.....	6 00
222.	"	E. R. Martin, superintendent.....	22 00
223.	"	" premium.....	19 00
224.	"	G. S. Church, premium.....	12 00
225.	"	M. B. Green, premium.....	10 00
226.	"	J. W. Duke, premium.....	12 00
227.	"	G. A. Cunningham, premium.....	2 50
228.	"	John Cross, premium.....	15 00

No.	Date.	To Whom and For What.	Amount.
229.	Oct. 8.	E. W. Viall, assistant treasurer.....	6 00
230.	"	Schmidt Bros., premium.....	4 00
231.	"	R. J. Harney, premium.....	3 00
232.	"	Mrs. T. S. McFarland, premium.....	3 00
233.	"	H. A. Gallup, premium.....	4 50
234.	Oct. 9.	Sarah Fisher, premium.....	3 00
235.	"	G. H. Fisher, premium.....	3 00
236.	"	Jewell, Lawrence & Co., premium.....	10 00
237.	"	Mrs. F. Thrall, premium.....	1 00
238.	"	Lillie J. Kimball, premium.....	1 00
239.	Oct. 10.	Clorina Ernst, premium.....	1 00
240.	Oct. 12.	Chas. Stevenson, assistant treasurer.....	9 00
241.	"	W. Remington, premium.....	5 00
242.	"	Wm. Storey, premium.....	30 00
243.	"	Mrs. H. B. Knapp, premium.....	2 00
244.	"	J. V. Jones, premium.....	8 00
245.	"	Foster & Jones, premium.....	5 00
246.	"	W. S. Catlin, premium.....	10 00
247.	"	Miss J. Voorhees, premium.....	1 00
248.	"	E. Vanderen, premium.....	1 50
249.	"	Mrs. S. Sturtevant, premium.....	1 00
250.	"	J. H. Sturtevant, premium.....	4 00
251.	"	S. G. Derby, premium.....	3 00
252.	"	P. Zentner, gate-keeper.....	20 00
253.	Oct. 13.	Mrs. G. Moulton, premium.....	9 50
254.	"	Jennie Moulton, premium.....	1 00
255.	"	Kate Peffer, premium.....	4 00
256.	"	Mattie Goe, premium.....	1 00
257.	Oct. 14.	F. Powers, assistant treasurer.....	9 00
258.	"	Mrs. A. E. Coffin, premium.....	1 00
259.	"	M. S. Holly, premium.....	9 00
260.	"	Barna Haskell, assistant treasurer.....	9 00
261.	"	Wm. Tipler, premium.....	12 00
262.	Oct. 15.	H. White, premium.....	28 00
263.	"	R. Stiles, premium.....	1 00
264.	Oct. 16.	A. H. Forman, premium.....	5 00
265.	"	Jessie Cowles, premium.....	1 00
266.	"	E. Faber, errand boy.....	2 50
267.	"	P. S. Bennett, superintendent's expenses.....	22 00
268.	"	" " " ".....	1 60
269.	"	Mrs. E. Briggs, premium.....	1 00
270.	"	John Goodland, assistant superintendent.....	8 00
271.	"	T. Reed, labor.....	1 50
272.	"	J. E. Saunders, labor.....	2 50
273.	"	S. Lodge, labor.....	3 12
274.	"	Tilton, Steele & White, premium.....	2 00
275.	"	A. Buntin, premium.....	6 00
276.	"	L. P. Sheldon, lumber.....	58 02
277.	Oct. 17.	A. B. Wade, premium.....	2 00
278.	"	S. E. Elsworth, premium.....	2 50
279.	"	L. S. Jones, premium.....	9 00

No.	Date.	To Whom and For What.	Amount.
280.	Oct. 17.	E. Hall, premium.....	4 00
281.	"	Mrs. E. T. Jones, premium.....	5 00
282.	"	E. T. Jones, premium.....	6 00
283.	Oct. 20	E. D. Kellogg, drawing water.....	1 50
284.	"	C. E. Lewis, premium.....	12 00
285.	"	John Berger, premium.....	6 00
286.	"	S. J. Perry, premium.....	14 00
287.	"	T. W. Rhodes, premium.....	4 00
288.	"	Wm. Worden, premium.....	42 00
289.	"	Luther Rawson, premium.....	106 00
290.	"	P. Baker, police.....	8 00
291.	"	R. L. Dale, assistant superintendent horses.....	20 00
292.	"	H. S. Janes & Co., premium.....	2 00
293.	"	Kimberly, Clark & Co., white paper.....	10 34
294.	"	R. L. Bigger, ribbons &c.....	4 00
295.	"	J. McKeen, premiums.....	21 50
296.	"	C. F. Rogers, premiums.....	19 50
297.	Oct. 21	Thos. Davis, premiums.....	23 50
298.	"	P. L. Smith, premiums.....	40 00
299.	"	Miss F. A. Jones, premium.....	3 00
300.	Oct. 22	Miss Armour Brown, premium.....	4 00
301.	"	Ira Kezertee, teaming.....	2 00
302.	"	Mrs. Henry Strams, premium.....	2 00
303.	Oct. 23	C. H. Wilcox, premium.....	12 00
304.	"	S. O. Carlton, labor.....	14 00
305.	Oct. 26	G. W. F. Thompson, premium.....	6 00
306.	Fet. 27	Emil Rudditz, water bill.....	1 00
307.	"	Fanny Brown, premium.....	1 00
308.	"	J. A. McNeil, premium.....	6 00
309.	Oct. 29	Mrs. A. L. Brockway, premium.....	2 00
310.	Oct. 30	E. Baker, watchman.....	9 00
311.	"	Phelps & Co., premium.....	12 00
312.	"	S. Maxwell, premium.....	12 00
313.	Oct. 31	H. Richardson, premium.....	4 50
314.	Nov. 1	G. W. Minkler, premium.....	8 00
315.	Nov. 4	Ida E. Chappel, premium.....	2 00
316.	"	Daniel Roberts, premium.....	5 00
317.	"	H. Homiston, premium.....	16 00
318.	Nov. 5	Geo. Rogers, premium.....	3 00
319.	"	Reichert, premium.....	6 00
320.	"	Mrs. & Miss Curran, premium.....	7 00
321.	"	Mrs. C. H. Root, premium.....	26 60
322.	"	C. L. Rich, premium.....	5 00
323.	Nov. 6	J. M. Rollins, premium.....	10 00
324.	"	M. A. Searl, premium.....	50
325.	Nov. 12	Joseph Stroper, premium.....	4 50
326.	Nov. 13	Jas. Webb, premium.....	1 50
327.	Nov. 16	W. W. Wright, premium.....	1 50
328.	Nov. 22	J. Blake, premium.....	2 40
329.	"	A. P. Saunders, premium.....	2 00
330.	Nov. 24	J. H. Johnson, repairing seal.....	1 50

No.	Date.	To Whom and For What.	Amount.
331.	Nov. 24.	A. H. Hart, premium.....	3 00
332.	"	Athearn & Co., bus line.....	4 00
333.	Nov. 25	A. Loper, superintendent.....	15 00
334.	"	R. D. Torrey, disbursements.....	85 03
335.	"	R. D. Torrey, balance of salary.....	250 00
336.	"	J. M. Smith, salary.....	100 00
437.	"	Geo. Keyes, premium.....	40 00
338.	"	W. Mott, premium.....	1 00
339.	Nov. 27	P. Davey, premium.....	66 00
340.	"	D. P. Imson, premium.....	12 00
341.	"	Goulds Nursery, premium.....	25 00
342.	"	C. B. Manville, premium.....	3 00
343.	"	John Stoddard, expenses.....	6 42
344.	"	A. H. Hart, premium.....	1 00
345.	Nov. 28	D. J. Parkinson, entrance money see record.....	7 50
346.	"	Wm. Abrams, premium.....	5 00
347.	"	Thos. Davis, premium.....	8 00
348.	Nov. 30	Eli Stilson, premium.....	10 00
349.	Dec. 5	M. Harris, premium.....	12 00
350.	Dec. 7	A. M. Weber, premium.....	4 50
351.	"	Allen & Hicks, publishing transactions.....	925 69
352.	Dec. 10	Lizzie Montgomery premium.....	1 00
353.	Dec. 11	Chester Hazen, premium.....	74 00
354.	Dec. 12	K. M. Hutchinson, premium.....	7 00
355.	Dec. 14	H. C. Jewell, premium.....	4 00
356.	Dec. 17	H. M. Quick, premium.....	1 00
357.	"	Eliza Washburn, premium.....	1 00
358.	"	Lucy Spore, premium.....	2 00
359.	"	Mrs. A. Rodgers, premium.....	50
360.	"	E. W. Saunders, premium.....	7 00
361.	"	E. W. Viall, merchandise.....	7 15
352.	"	Rudolph, labor.....	9 62
363.	"	S. M. Hay, hardware.....	86 15
364.	"	R. D. Torrey, disbursements.....	8 61
365.	"	J. H. Jones, salary and disbursements.....	105 00
Total,.....			7,915 19
Add Redeemed dinner tickets,.....			260 40
Total drawn on Treasurer,.....			8,175,59

THE FAIR OF 1874.

A Successful Week—Best Exhibition Ever Given in Northern Wisconsin—Whole Number of Entries, 4,200; Receipts, \$7,800.

[Report of the Oshkosh' Northwestern.]

THIRD DAY.

The third day of the Fair opened with the brightest sun that could be hoped for, and the weather was unexceptionably fine in every particular. At an early hour the whole city was astir and the bustle and activity on the streets gave evidence that everybody expected a big day.

The string of people that began to file towards the Fair Ground was simply immense, and before noon the grounds were perfectly crowded with teams and visitors, and the jamming through the various buildings was pretty toughly carried on.

THE GRANGE DAY.

Wednesday had been set down, or, at least, a part of it, for the exclusive use of the Grangers. About 9 o'clock the Grangers from all parts of the county began to assemble on the common opposite the grand entrance until the space was a floating sea of banners and ladies' ribbons floating in the breeze. It took considerable time for tickets to be secured and distributed so that the procession might not be interrupted while passing through the gates. This made the whole arrangements very late, and while the speeches were advertised to take place at 10 o'clock, they did not commence until near noon.

The procession ready, it passed through the gates and around the track to the left, to the opposite side of the grounds, where tables had been erected for the reception of the picnic dinner. The procession proceeded around the track to the

grand-stand, which had been reserved especially for members of the order. This filled, the speakers were driven up in front of it in an open barouche. Considering that it wasn't democratic enough for the Governor to speak from a fine carriage, the managers made the speakers get out of the carriage and mount an old lumber-wagon filled with hay. From this the speeches were made.

COL. COCHRANE

was first introduced. He said that they had expected Mr. Smith, of Illinois, to be present to deliver the principal address, but Mr. Smith had failed to arrive and they would have to speak without preparation. He went on to allude more particularly to the Grange organization. When it started, a year or so ago, a great many scoffed at the idea that farmers had stability enough about them to complete an organization, much less carry it through successfully. They had demonstrated the fact that they were capable of forming such an organization, and, moreover, instead of "petering out," as had been predicted, the order had grown tenfold per annum. From a few who first assembled to organize the first State Grange their numbers had grown first to be counted by thousands and then by millions. Not only so in this State, but in every State and Territory in the United States, and even in Canada, and the order was now spreading into Europe. The order had been instituted merely for social purposes. Heretofore the farmers were isolated beings, with but little or no communication among themselves or the outside world. The necessity for more social culture and profit began to be felt, and from this grew the Grange. He wanted it distinctly understood that it was for no war upon any class or any industry. In this respect the Grange had been much misrepresented. It was true that they had certain matters of business to transact in their Grange pertaining to their best interests, but that was their business and the same privilege was accorded to every other class. Every class had its orders and its societies, both business and social, and the farmers had a right to have theirs.

Mr. Cochrane's address consisted of but repetitions of the above sentiments, and, after speaking for a few minutes, sat down, as he was feeling very unwell and the hot sun was painful to him.

GOV. TAYLOR

was next introduced. He said he had been requested to discourse upon the railroad question, and he would attempt to enlighten the people on the subject. This was the second time in his life, he said, that he had essayed to speak, and the first time he had been prevented by the rain. So he wasn't much of a speaker. He was a man of action, not of words; what he excelled was in thought, judgment and action, and not in speech. He sometimes wrote articles for newspapers, and sometimes wrote on agricultural subjects and read them, but he never made a public speech. He then went on to tell the history of the Potter law, the disobedience of the railroads, the suit before the court, and the final decision. The roads claimed that by the Potter law their gross earnings would be reduced 25 per cent., and that they could not stand under it, and that obedience to the law would ruin them. If this fact was so it was no greater depression on their business than now exists in other industries throughout the State, embarrassed this year 50 per cent. The lumber interests in the northwestern part of the State were greatly depressed, and if it were a fact that the roads would suffer 25 per cent. it was no more than their share of the general depression. But it was shown by the Railroad Commissioners that the Potter law would only cover about 20 per cent. of the total extent of the two great roads of the State, and on account of exemptions, etc., the actual influence on the business of the roads would be but a small percentage of even this. All through freight, mail, merchandise freight, elevator business, and several other items were exempt from the action of the Potter law. He went on to show the gross earnings last year and the corresponding ones of this year, showing that the St. Paul road did \$773,000 more business this year so far than during the corresponding time last year. The Northwestern

road's business was \$558,000 greater. With this great increase the roads could well stand the slight influence of the Potter law.

MR. DWIGHT,

of Dane County, was next introduced. Mr. Dwight pulled off his overcoat, then his coat, and waded into his speech with vigor and effect. He kept the crowd in a constant state of laughter and mirth, and delivered one of the squarest addresses ever listened to. He told the farmers openly and fearlessly that they were a set of fools for allowing themselves to be gulléd and duped by political rings. The farmers were crying and howling about their rights, and wrong legislation, and yet they would turn around and vote for pimps, blacklegs, thieves and scoundrels to fill their offices. So long as they did this, they would cry for their rights and cry in vain. They themselves were the people, and if they suffered wrongs it was their own fault. They should carry their rights and their self-reliance in their ballots and elect nothing but honest men to their legislatures—men whom they knew to be men of honor and uncorrupted by rings or cliques.

It was not those good natured, sociable fellows that they should send to Madison. Such men spent too much time in playing seven-up and drinking cocktails with the boys. They should send sturdy, earnest men, crabbed men, independent men, who could not be forced or coaxed or bought or sold.

His address was eloquent, able and humorous throughout, and he closed amid great applause.

AGRICULTURAL IMPLEMENTS.

The display of agricultural implements surpasses by thrice anything of the kind ever before witnessed at our exhibitions. Tall windmills whirl in upper air, while patent devices, from a self-acting milking-stool to an automatic grain-binder, are scattered over a large area below; reapers and mowers of almost every description, feeders, cutters, cultivators, patent gates, portable engines, and every implement which a farmer's field is heir to. The tremendous increase in this department is a most favorable omen for the increasing popularity of

the Fair, for agents and manufacturers are men of close observation, so far as fairs are concerned, and will go any considerable distance only when they apprehend a large attendance and a successful fair.

CATTLE DEPARTMENT.

The entries in this department fully come up to the former exhibitions; for while some who have usually exhibited are not upon the grounds this year, others with as large and fine herds have taken their places.

Mr. L. Rawson, from Oak Creek, Milwaukee County, is here for the first time with the handsomest herd of Devons we ever looked at. The herd consists of twenty-one, which is arranged in pairs, ranging from spring calves to the old cows and noble-looking bulls. This is one of the most interesting features of the Fair, and the herd is attracting much attention for its beauty, symmetry and the exactness with which cattle of the same age are matched.

A. Homiston, of Fond du Lac, exhibits a fine Devonshire bull and two cows.

Davy's herd of Galloway black woolly cattle are upon the grounds again this year and are as much a curiosity as ever.

The noted Glendale herd of Short-horns, owned by Eli Stilson, are attracting the usual amount of attention.

John Cross also exhibits a Short-horn bull.

The exhibit of Ayreshires is unusually large.

D. Huntley has a herd of five head; J. Stoddard, of Greenbush, a fine herd of fourteen; C. Hazen a herd of several head; G. W. Winckler several entries, and the Grand Chute Club a valuable bull.

There are several entries of Jerseys by Nelson Fletcher and H. B. Jackson, of Oshkosh.

HORSES.

The exhibition of horses would be all that could be wished if Mr. Sherman were here with his Normans and Clydes. It was impossible for Mr. Sherman to be here this year, but there are several other fine Clyde and Norman horses here

which make up, together with other additions, a finer display than we had last year.

J. D. Vandoren, of Fisk's Corners, is on the grounds with his stud of fine Norman horses, so celebrated in this vicinity. He has six in all, four mares and two stallions. The finest of his stallions, Bob Ridley, is particularly deserving of mention. He is but three years old and weighs 1,700 pounds. He was purchased from E. Dillon & Co., of Normal, Ill. He was sired by the imported Norman stallion St. Laurent, imported from France in 1870 by Dillon & Co. Bob Ridley's dam was the noted premium mare, Polly Ann. Polly Ann was sired by the imported Norman stallion, Old Louis Napoleon, imported from France in 1851. Polly Ann's dam was sired by Gen. Taylor, and he by the old imported Flanders, imported from England by Col. Oakley, of Tremont, Ill. Bob Ridley was bred and raised by Messrs. Dillon & Co., and sold to J. D. Vandoren in April, 1874. He is a fine specimen of the Norman stock, and has taken the first premiums at the principal fairs in the Western country, among which are the Illinois State Fair, Centralia, the McLean County Fair, the Fulton County Fair, and the St. Louis Fair. Bob Ridley is half brother to the celebrated mare Rosa Bonheur; she has been shown at twenty-one fairs and has received twenty-eight first premiums. St. Laurent, the sire of Bob Ridley, is the largest and most powerful Norman stallion ever imported to the United States. He weighs 2,100 pounds and has proved himself an excellent breeder, his colts at one year old selling for \$500, at two and three years old, from \$1,500 to \$2,000.

Mr. Warden, of Minnesota Junction, exhibits nine head of fine Norman horses. There are six stallions; four are imported. The mares are extraordinary beasts.

J. R. Paddleford enters two Norman stallions.

Cameron & Worden have one Norman stallion on exhibition.

James Bunker exhibits a beautiful Clyde imported stallion of much merit.

Chas. Green exhibits a fine Norman stallion, Le Grand

Monarque, Jr., sired by H. B. Sherman's noted horse, Le Grand Monarque.

J. A. McNeal enters a stallion; J. A. Hoys a handsome road stallion; Robert McMillen, a pair of matched horses; David Roberts, of Fond du Lac, a pair of mules; D. W. Cole a Jack, and James Matteson a fine pair of Jennies.

C. Remington, of Omro, enters a fine stallion, two years old, and G. W. Turner, of Appleton, another under the same head.

Entries are also noticed as follows: J. W. Mears, matched horses under 5 years and over 4. A. Buntin, brood mare with colt; pair of yearling colts broke and driven into the grounds. Wm. Alranes, stallion, 2 years old. Wagstaff, a pair of brood mares with colt. P. M. McLean brood mare with colt. E. T. Jones, Elo, 2-year old gelding, very large. John Berger, of Brown County, chestnut brown stallion of mammoth proportions, 3 years and under 4.

The handsomest Clyde horses on the ground, both in color and in build, are owned by Wm. Storey, of Waupun. There are four of them, perfect beauties. They are of dapple brown and that dark, rich color, with skin glossy and beautiful as a leopard's.

CARRIAGE DEPARTMENT.

In the carriage department one is readily struck by the very fine display exhibited by Wm. Servis, of Sheboygan Falls, consisting of one beautiful pony-sleigh, magnificently finished, trimmed with moquet, which took the first prize of the State Fair, Milwaukee; also a splendid E spring phaeton, pronounced by many as surpassing in style and finish anything of the kind ever exhibited in the West, and which also took first premium at the State Fair; one very light open buggy; one top buggy, and one single top phaeton.

HORTICULTURAL HALL.

There are many additional attractions in the Horticultural hall, and this department is in flushed and excellent condition.

Mr. W. A. Springer, of Fremont exhibits a show of seedling apples, which beat anything of the kind for size ever

brought here. It would not take many of them to make a bushel.

Mrs. Sawyer has a fine display of house plants.

Emily Smith, of Green Bay makes a handsome show of cut flowers. Isaac Miles has a pretty display of the same. Several displays have no name or tag attached to them and of course can not expect to be noticed.

H. Floyd, of Berlin makes a very extensive show of apples in all varieties. The Gould Nursery, of Beaver Dam makes a beautiful display.

Messrs. Tilton, Steele & Badger have some fine specimens of Burnett County cranberries on exhibition.

The Ripon Packing Company is represented by a full display of their bottled goods of all kinds.

Seth J. Perry, of Greenville has a nice exhibition of apples and J. W. Arndt shows some grapes best adapted for the Northwest.

Brockway, of Appleton owns a squash marked 142½ pounds which is a very large animal of its kind.

A. B. Wade, Algoma, shows a variety of vegetables.

The one-stave barrel, the manufacture of which is about being commenced in this city, attracts much attention as being something new and useful.

Stroud has a sample oil can on the grounds. It is an excellent thing for oils and kerosene.

THE FINE ARTS.

This department is crowded from early till late and the jam through it is fearful. The exhibition is unusually interesting, to the ladies especially. All sorts of nick-nacks, fancy work and tasty handiwork are here displayed in their most attractive form. It would be next to impossible to make an individual mention of all the fine things and beautiful attractions in this pretty department. Many, however, which we would gladly mention, are poorly supplied with facilities for giving information as to who they belong to. The tags are dropped down behind many articles, out of sight or do not

seem to be appended at all, and our reporters have got tired of breaking their necks in trying to reach over trying to find out who certain articles belong to. If people have not sufficient interest to label their goods plainly and conspicuously, we have less interest in mentioning them.

Half the pleasure of the exhibition is lost by this inexcusable carelessness and stupidity on the part of exhibitors.

We especially noticed, however, some exquisite wax work among which was an elaborate work of fruitage in a frame entered by J. M. Rollins. Every form or species of fruit that can be thought of is interwoven in the collection in the most natural and beautiful manner. It is worth the seeing.

Mrs. Bloss has a show case of beautiful wax work.

There is a beautiful piece of autumn leaves in wax, but, alas! there is no name attached to them.

W. N. Coleman & Co., Fond du Lac, have a fine display of woolen goods.

THE RACES.

The races on Wednesday afternoon attracted an immense crowd. The grand stand was crowded, the space opposite was filled with carriages, while the fences along the track were black with roosting men and the police could keep the track clear only with the utmost difficulty.

The following were the entries:

O. P. White enters "Pet;" D. B. Pierce enters "Dan;" J. Holmes enters "Dolly C.;" A. Bowe enters "Henry C.;" D. J. Parkinson enters "Topsy;" Sam Lawrence enters "Black Billy."

On account of the number of horses it took considerable scoring before it was declared a "go." Topsey took the pole and kept it with persistency until reaching the home stretch when Pet took it from her and gained the heat. Time 2:56.

In the second heat by an oversight on the part of the Judges the horses were started while Topsey was on the other side of the course and she was thus thrown out of the race. Pet took the pole and kept it the entire race. Time 2:56.

On the the third heat Black Billy took the pole as far as

the first quarter post when Dolly C. took the lead and kept it to the home stretch although pressed hard by Pet. Much of the course the two were neck and neck. On the home stretch however, she fell to the third place, Henry C. coming in second, as he had done in every heat. Time of third heat, 2:56. Won by Pet.

SUMMARY.

First race, for horses that have never beaten three minutes best three in five, three to start; purse \$75; first horse \$40, second \$20, third \$15.

Pet.....	1	1	1
Henry C.....	2	2	2
Dolly C.....	4	4	3
Dan.....	3	3	4
Black Billy.....	6	5	5
Topsey.....	5		
Time 2:56	2:56	2:56	3/4.

RUNNING RACE.

For the half mile running race there were two entries, Williamsport, by F. L. King, and Walter D., by Willie Kendall.

Williamsport took two straight heats.

The race was very exciting, the horses being so evenly matched. On the second heat Walter D. kept the lead until within five rods of the wire where Williamsport made a desperate effort and dropped under the wire but a nose ahead.

SUMMARY.

Second race, running race, half mile and repeat; purse \$75; \$50 to the first horse, \$25 to second; three to enter and two to start.

Williamsport.....	1	1
Walter D.....	2	2
Time 55	52	3/4.

FOURTH DAY.

The fourth day of the fair opened with darker prospects than any of the others, so far as weather was concerned, and yet terminated with greater success than any day ever expe-

rienced at our previous exhibitions. The morning opened lowery and dark, foreboding and chilly weather. About ten o'clock the rain did commence falling, and fell sufficiently to lay the dust, when the sky cleared up, the storm clouds broke and drifted to north and south of us and the day resulted in fine weather after all. A raw, chilly wind, however, prevailed during the day but this did not at all interfere with the attendance. In accordance with the recommendation of the Mayor in his proclamation issued, the mills and manufacturing establishments pretty generally shut down and allowed their employees to attend the fair.

It was thus a city holiday in every sense of the word, so far as this city was concerned, and the volume of people that poured into the fair grounds from early till late, was simply astonishing. Five ticket offices at the grounds and one ticket office at the NORTHWESTERN counting rooms were fairly besieged all day dealing out the red pasteboards, on which were the magic words "admit one." By noon the number on the grounds was unprecedented. The space of ground on which the display and different buildings were situated, was one solid mass of crowding humanity. The vacant space towards the north end of the grounds was thickly packed with teams and buggies, while the inside of the track, opposite the grand stand was black with carriages in which people were anxiously awaiting to hear the speakers of the day and see the races.

In the meantime the judges were over head and heels in business attending to their thankless duty in awarding premiums. The cattle and horse rings were the scenes of activity and interest, as the herds of cattle and studs of horses were brought in, to compete for the different premiums for which they were entered.

The exhibitors of agricultural implements and machinery were excitedly demonstrating the superiority of their different devices to crowds of surrounding lookers on, while vendors of small articles were crying the virtue of their wares with extraordinary lung efforts to entertain the open mouthed assemblage about them.

The horsemen were brushing about the track, exercising their favorite horse flesh while the exhibitors of matched and carriage horses were proudly showing off their fancy stock before the judges on the track. Thus the scene was one of ceaseless moving life and search after pleasure and sight seeing. It was a varied panorama of colors, and moving things, both animate and inanimate.

At two o'clock the rush for the grand stand was enormous and long before the speakers appeared, the seats were solidly packed and the aisle in front filled with standing people.

But a small proportion of the people could get within hearing distance of the speakers.

Hon. Jas. G. Blaine was first introduced. His address will be found *verbatim* in another part of this paper.

GOV. SEYMOUR'S SPEECH.

President Smith then introduced the Hon. Horatio Seymour, Ex-Governor of New York, who proceeded to address the crowd. He said that it gave him a great deal of satisfaction to talk to the farmers of Northern Wisconsin, and he would say a few words on the manufacture of Butter and Cheese. Statistics show that there are in the United States about three thousand factories for the manufacture of cheese, and that one thousand are located in Central New York. In the locality where the speaker resided, dairy business was the principal interest, and he desired to call the attention of the farmers of Wisconsin to some of its advantages. In the city of Utica can be seen something found nowhere else on the face of the globe—an exchange for farmers, where they meet together every morning and discuss the price of the staple article, and receive quotations from New York and London by telegraph. They are thus beginning to solve many of the mooted questions which are attracting the attention of the producer and the consumer all over the country. In Wisconsin when the farmer takes his wheat to market, the wheat buyer, before establishing his price for the article, must ascertain the price ruling in Chicago, the price in Buffalo, then the

price in New York, the price in London, and after that the rate of transportation and the ruling rate of freights. With all these before him, he makes his own terms to the farmer. With us in Central New York it is different. The farmers meet in the exchange, with a large blackboard before them on which is written the price of cheese in London. Then with the cost of transportation added, our farmers know just the price to ask for their products, thus avoiding all intervention by middlemen and placing the profit where it belongs, in the pockets of the producer. The manufacture of cheese also tends to develop the interests of the farmer in other ways. In our country, cheese factories are as thick as school-houses, and thus the farmer has brisk competition on all sides. The necessity of promptness, cleanliness and good business habits becomes apparent. Several years ago, "I was unfortunate enough," said the speaker, "to be a candidate for public office, and many unpleasant things were said against me, but I console myself with the reflection that the harsh things said about me, which were untrue, were no greater than the many which might have been said against me but were not said. I was accused of being disloyal, dishonest, hypocritical and intriguing, but my neighbors cared little for that. But if my enemies had accused me of watering my milk, I would have been eternally ruined in the estimation of my Oneida County friends."

The Governor then compared the situation in England with that of this country. In the old country labor is cheap and land high. Consequently when a large amount of labor is required, that country has the advantage. But in this country labor is high and land cheap. Consequently stock raising and dairying, which require but little labor and much land can more than compete. He said he was not himself a practical farmer, but lived on a farm. He thought the present tendency would result in the American boys leaving the paths of agriculture, which would be filled up with industrious people from other countries, and who would control the wealth of the country.

The Governor closed with a reference to the advantages

of an intelligent farming population as the defenders and preservers of free institutions in this country.

SENATOR HOWE.

A letter was received from Senator Howe in the morning, stating that on last Saturday he had been speaking in Jackson County, and on account of rainy weather and exposure, had caught a very bad cold and was now in the hands of his physician. He therefore was unable to be here, but expressed his sincere regret at being obliged to disappoint the people here who had expected to hear him speak.

GÖVERNOR WASHBURN,

whom we had every reason to hope would be here on the occasion, was also unable to get here on account of pressing business elsewhere.

SPECIAL ATTRACTIONS.

There are many especial attractions on the grounds, which are deserving of a passing mention. Among them is the display of flowers and plants by Mrs. G. Moulton, who entered under the head of amateurs. This display took the first premium under this head, while several other premiums were awarded her on specialties. She took first premium on best three fuchsias. She also received first premium on a very handsome Mrs. Pollock, variegated geranium, and on a beautiful *furfugium*. The last two specimens are said to be the only ones in the state and are exceedingly beautiful. Mrs. Moulton's display was very excellent, and ought to be an inducement to other amateurs to make an effort in this direction for another year.

CARRIAGES AND SLEIGHS.

P. L. Smith & Co. were again fortunate this year in their display of carriages and sleighs, and in the amount of premiums taken. They took sixteen premiums in all on their different entries—first premium on the best display, first and second on single sleigh, first and second on platform carriage, first and second on two seated carriage, first and second on top buggies, first on single harness, first on double harness,

and second premiums on several unimportant items. Among the vehicles which elicited the most attention from admiring visitors, was a fine pony phaeton of most beautiful workmanship and finish, and inlaid about the body with pearl. A California wagon was "a thing of beauty," especially to the gentlemen. In taste of painting, colors, proportion and build, it was the noblest thing for the road that anybody could ask for. Great admiration was showered upon a most elegant, extension-seated, platform carriage, for one or two horses, as desired. Especially the ladies were charmed by it as a family and easy carriage. It is upholstered in dark brown broadcloth of the richest hue and finest quality; and indeed deserved the first premium which it received.

WINDMILLS.

The competition in windmills is unusually large, and the great fans air in an endless whirl. This is becoming an important item of power in all sorts of manufacturing industries, and almost an indispensable piece of profit and convenience on the farm. Water may be pumped, the fodder cut, the wheat cleaned, the butter churned, and a thousand and one other things done, with the proper arrangement, all to save the hard work of a farm life. They are coming more and more into general use, and will soon be a brother to the reaper in the labor of the farm.

Among the most meritorious on the ground for simplicity and perfection, are the Halladay and U. S. wind mills, for which Messrs. Luce & Culver are agents in this city. The Halladay mill is manufactured at Batavia, Illinois, and a sample of it can be daily seen whirling over the Beckwith House in this city. The mill is graded in horse powers, same as any motor, and claimed to be the only one susceptible of this advantage. It is self-governing, and runs at a steady and unaltered speed. The greater pressure of the wind opens the fans, thus making it self regulating.

The U. S. star mill is made in Delavan, and is by far the simplest mill made. The fans fold back parallel with the tail, folding further as the wind blows harder, thus regulating itself

to perfection. It matters not what weight or labor may be attached to the rod, the motion is always regular and the same.

Messrs. Luce & Culver also made a speciality of the celebrated Delavan pumps with metal cylinders. The piston and valves work in this metal cylinder with such perfection and exactness as to be durable, with little wear and no loss by poor fitting pistons.

PIANOS AND ORGANS.

The greatest attraction to musical people, was the piano stop organ exhibited by Prof. F. A. Beckel, 68 Main Street. This organ is so arranged that by pulling a stop the tone drifts to that analogous to a piano, the piano action being substituted for the bellows, and the hammers striking on metal tongues like a music box producing the most beautiful and bell toned sounds.

THE RACES.

The races on Thursday elicited lots of sport, not that there was any particular fine trotting or running, but on account of the miscellaneous character of the race. In the 2:50 trotting race, it would have been difficult for a total stranger to have discovered whether it was a trotting or a running race. Half the horses ran all the time, while the other half ran about half the time.

Dick Turpin, however, was an exception to the rule, and kept his feet through the entire race, never breaking once, we believe.

It was no sign because a horse came in ahead that he would be given the heat. Lee came in second once, but was not allowed second on account of the running done. He also came in ahead on the third heat, but was denied the heat on the same ground.

As a whole it was a pretty mixed up race, and the drivers seemed to care only for some fun, and the crowd caught the disease, and the result was lots of sport and fun all around. The following is a summary, so far as those horses which came in anywhere among the first:

SUMMARY.

First Race—For Trotting Horses that have never beaten 2:50, best 3 in 5. Purse \$100. 1st horse, \$60; 2d, \$25; 3d, \$15.

Dick Turpin.....	1	1	1
Waupun Belle.....	2	4	2
Pet.....	3	5	5
Lee.....		3	3
Limber Jim.....		3	

Time, 2,46 $\frac{1}{4}$, 2,46, 2,43.

RUNNING RACE.

The running race was about the same character. Evidently Walter D. was to let Williamsport win the race if possible, but to take the heats himself in case Nail Rod was likely to win. The trouble was, Nail Rod was too apt to take the heats, and Walter D. was thus obliged to drop himself, and secured the race. In the second heat Williamsport got the lead, and Walter D. quietly drew back and let him have it. The following is the

SUMMARY.

Running race, mile heats, best 3 in 5, purse \$150. 1st horse, \$90; 2d horse, \$45; 3d horse, \$15.

Walter D.....	1	3	1	1
Williamsport.....	2	1	2	2
Nail Rod.....	3	2	3	3

Time, 1,54, 2,00, 1,50, 2,02.

FIFTH DAY.

The closing day of our exposition was not behind any of the others in point of fine weather and clear skies. It is somewhat remarkable, considering the rainy, drizzly, uncomfortably, suicidal weather which had prevailed for the past several weeks, that we struck for our fair the finest weather which we have experienced since July or August. It could hardly have been better.

On Friday the attendance was good, considering that it was the last day of the Fair, and that many exhibitors had begun early in the day to pack up their goods and take them from the grounds. Before noon the grounds were half

stripped, and by the middle of the afternoon there was little to be seen except the races.

THE RACES.

The races, of course, were the only attractions of importance for the afternoon, and a large crowd remained to witness them. The grand stand was comfortably well filled with spectators, and the track and adjacent areas were stuck with people leisurely standing about waiting for the next heats, or discussing horse subjects generally.

The entries in the 2:40 race, were Tommy Dodd, Countess and Kitty Lewis. There was but little interest in this race as everybody knew that Countess was perfectly able to take the race if she was let out. Westbrook did not wish to give her a record, and consequently held her only for second money. On the first start in the first heat, Charley managed to have her break, and she fell to the rear, which position she kept through the heat. Tommy Dodd won the heat, Kitty Lewis coming in second. Time 2:44.

In the other two heats, however, Countess came in second without any difficulty and carried off second money.

SUMMARY.

Tommy Dodd.....	1—1—1
Countess.....	3—2—2
Kitty Lewis.....	2—3—3
Time, 2,44, 2,41½, 2,46.	

SWEEPSTAKES.

The sweepstakes was interesting and important in one or two particulars. It gave Countess an opportunity of showing her speed beside the best horse in Wisconsin, and that too without fear of a record and at the same time take second money.

There were three entries, Badger Girl, Countess and Tommy Dodd. In the first two heats there was no effort to make time, and the Girl had almost a "walk around" time of it. Countess of course only cared to take second money, while Tommy Dodd was somewhere in the rear running like fury. In fact Tommy Dodd did nothing but run almost every step during the entire race. On the third heat, however,

there was a little speculation. It was announced from the Judges' stand that on this heat the Badger Girl would be driven for all she was worth, regardless of other horses. Immediately betting commenced as to her time. Oshkosh men bet that she would make less than 2:28, while Beaver Dam men took them up solidly and seemed to be eager for more. Oshkosh men were confident, and perhaps, for certain reasons, thought they had a sure thing. Beaver Dam men felt doubly confident and very likely, for certain reasons, thought they had a sure thing. Both sides were equally confident and betting was spirited and considerable money pooled. In the heat, however, she made but 2:30 and Oshkosh men caved.

The murmurs of dissatisfaction were bitter and the Oshkosh betters felt that they had been sold out, especially since the men who had won their money were from Beaver Dam, where the Girl is owned. Others claim, however, that the race was perfectly fair and that this track is several seconds slow which makes the difference. The Girl's record is 2:25½ and it was expected by Oshkosh men that if let out she could certainly come under 2:28. But horse betting is "mighty unsartin."

SUMMARY.

Badger Girl.....	1	1	1
Countess.....	2	2	2
Tommy Dodd.....	3	3	3
Time 2:33½	2:35	2:30	

COUNTESS.

To the utter astonishment of the crowd, as well as her driver, Countess followed Badger Girl only two seconds behind and dropped under the wire at 2:32. The admiration for the little mare was perfectly unbounded. She is only six years old and never was put upon the track until last year. With a year's training the result of 2:32 is certainly flattering for the future prospects of the mare, and the predictions were strenuous that by another year she would give the Girl a pretty hard rub. And moreover Countess has never been given a record and could trot in any three minute race to-day.

She is owned by Mr. Hoyt, residing in the town of Manchester.

A MENTION.

It would hardly be justice to pass over this subject without alluding to the able and efficient manner in which the fair has been managed throughout by the officers and superintendents. They have each and all labored hard and earnestly for the good of the association and the success of the fair. It is gratifying to see such interest and such devotion, and with it continued, our Northern State Fair can never be anything but a success.

FINIS.

Thus closes by far the most successful exhibition ever given by the Northern Wisconsin Agricultural and Mechanical Association. The entries reached nearly 4,200. Our first figure was 412, but a large number were added afterwards, which had come by mail and had been mislaid or overlooked. Moreover there were a large number of articles on exhibition which were not entered at all, and it can be justly estimated that had every article on the ground been entered, and no entries overlooked, the number would have swelled to nearly 4,500. The receipts for the week, as near as can be figured at this writing, will amount to about \$8,000, which is an increase over last year of over \$1,000.

ANOTHER ACCOUNT.

[*Oshkosh Times Report.*]

The Fifth Annual Exhibition of the Northern Wisconsin Agricultural and Mechanical Society has come and gone, and will be remembered as the largest and most successful ever given by this Society. It seemed as though the weather was made on purpose for the occasion, for it was all that could be wished, with the exception of a high wind and some dust on Thursday.

The show was the best ever seen in this section, and all

unite in saying that it was far ahead of the State Fair. The number of entries exceeded that of the State Fair, being 4,012. The crowd in attendance was simply immense, and it was estimated that on Thursday, during Speaker Blaine's speech, there was from eight to ten thousand people on the ground, and certainly any attempt to get through the different halls, or to get near the speaker, would warrant a person in concluding that there was at least that many.

To the thousands who, during the twelve long months of the year, labor early and late, that the millions may have the wherewithal of subsistence, these five days were as sunshine through the clouds. They threw off all care, and it was not a hard matter that, whatever others might think of it, that great crowds was to them a thing not soon to be forgotten.

During the entire summer, Secretary Torrey, the Executive Board, and all connected with the society, have labored hard, to make, if possible, the fair of 1874 surpass anything ever before seen in the State, and that their efforts have been in the highest degree successful, is admitted by all.

It did not seem that anything could be possibly done to make the fair more attractive, or to add anything to general comfort and convenience. To attempt to mention in detail all the articles on exhibition, would require far more space than we could possibly give, and would necessitate a sheet about four times the size of the *TIMES*, and all devoted to the fair, an arrangement that would not please the most of our patrons. We can only give a hasty summary of the leading articles on exhibition, from the standpoint of an independent journalist.

HORSES.

The executive committee have added many new stalls for horses, and it was supposed that there was enough for any contingency, but the result showed that even the committee were liable to be mistaken, as all of the box stalls were filled and many horses for want of other accommodation were placed in cattle stalls. The horses made a magnificent appearance.

ENTRIES.

William Story, of Waupun entered 4 Clydsedale stallions, viz: Young Miriman, two years old, a dark bay, weight 1,500 pounds. Wetherby four years old, dark bay, weight 1,700 pounds. This horse took the first premium at the Ripon fair and the sweepstakes at the State fair. England's Glory, dark bay, 5 years old, and weighs 1,650 pounds. Heart of Oak, dark bay, 14 months old, and weighs 900 pounds. This lot of horses attracted a great deal of attention, and the general expression among farmers and lumbermen was "they are just the kind of horses that are wanted for heavy work, as they are strong and of good action.

E. J. Jones, brood mare with colt. P. McLeod 2 brood mares with colts by side. Fred Suydam, sucking stallion colt. Sam. Wagstaff, 2 brood mares with colts by side, and one gelding one year old. W. Abrams, stallion 2 years old. W. Cleveland, 2 year old stallion. J. W. Dake, 2 stallions one year old. Alonzo Bunton, brood mare with colt. J. W. Mears, pair of matched horses five years old. John Bergen, stallion three years old. M. Zacaditch, three geldings. W. R. Lewellen, stallion 2 years old. J. W. Cross, stallion 2 years old. F. W. F. Thompson, stallion 3 years old. M. Snell, mare colt 14 months old, and 2 mares. J. Maxwell, brood mare with colt. G. W. Turner, stallion 2 years old. C. Remington, stallion 2 years old. C. E. Lewis, mare 2 years old. J. W. Potter, stallion 4 years old. G. W. Beardmore gelding 4 years old. J. Madison, 2 spanish jennys. D. W. Cole, one jack. D. Roberts, pair of mules. S. Bradley, stallion 4 years old. J. E. Cram, 1 jack. J. L. Kinsley, mare 4 years old. Robert McMillen, 2 spans matched horses. V. Eaton, 2 year old colt. S. Lodge, 3 year old colt. J. B. Hayes, stallion four years old. J. A. McNeal, stallion four years old. Thad. Lawrence, three year old stallion. J. D. Vandoren, three year old stallion, and 1 four year old stallion. W. Worden, mare three years old, stallion four years old, stallion three years old, 1 four years old, and another three years

old, all imported Perchreon horses. Cameron & Worden, stallion four years old. John R. Paddleford, imported Norman stallions Pedro and Sam. Lawrence, both four years old. Jas. McKone, mare one year old. John Beardmore, pair of matched mares. B. H. Woodledge, four year old mare. H. Floyd, mare 4 years old. Jewell, Lawrence & Co., pair of mules. H. White, 2 geldings 2 years old, and 1 stallion three years old. Thos. Davis, 1 stallion three years old. Marshall Harris, Oshkosh, pair of matched draft horses, six years old.

CATTLE.

Here as in almost every department the show was splendid, and shows that the interest in cattle growing is gradually increasing. First among the Short Horns came the magnificent herd of Eli Stilson, showed 8 full blooded cows, 8 heifers, 3 bulls, 4 bull calves, 2 grade cows and 9 grade heifers. This herd attracted much attention and they richly merited the high commendations they received. Eli Hall, of Oshkosh 1 cow and 1 heifer calf.

H. Snell, 4 cows.

S. J. Perry, 1 bull and 1 bull calf.

Thos. Davis, 1 bull, 1 cow and 1 heifer.

JERSEYS.

T. W. Rhodes, of Weyauwega, 1 bull and 1 heifer. N. Fletcher, Oshkosh, Jersey cow and 1 heifer. Edgar P. Sawyer, 1 heifer. H. C. Jewell, Oshkosh, 1 cow. Chester Hazen, Ladoga, 1 bull and 2 heifers.

AYSHIRE.

Chester Hazen, 1 bull two years old, and 2 three years old, and 1 cow. J. Stoddard, Green Bush, 2 bull calves, 3 heifer calves, 2 yearling heifers, 1 two year old heifer, 4 three year old heifers, 1 old cow and 1 yearling bull. Grand Chute club, 4 year old bull. D. Huntley, Appleton, 1 bull, 2 cows and 3 heifer calves. G. W. Minkler, Oshkosh, 1 bull. James Brown, 1 bull. John McCure, Oshkosh, 1 cow and calf. John Cross, 1 bull.

DEVONS.

Luther Ransom, 1 bull calf, 2 heifer calves, 2 yearling heifers, 1 bull, 3 cows, 4 two year old heifers and 2 yoke of working cattle. A. Homiston, 1 bull and 2 cows.

GRADES.

N. M. Reynolds, 2 heifers. A. G. Sturtevant, 2 cows, 1 heifer and 1 yoke of working cattle. L. S. Jones, 1 cow and calf. C. Coon, 1 cow.

SHEEP.

Every pen in the sheep department was filled, and generally by first-class animals. They attracted much attention.

ENTRIES.

John O'Brien, 3 Lester bucks, 5 buck lambs, 4 pens of ewes and 1 pen of grades. B. L. Lee, 1 Lester buck. Howard and Towers, 2 Lester bucks, 3 pens of ewes. Thomas Davis, 1 Southdown buck, 3 pens of ewes and 1 pen of grades. Geo. Keyes, 1 Cotswold buck and 3 pens of ewes. J. D. Vandoren, 2 Spanish Merino bucks, 2 pens ewes and 3 pens of grades. Eli Stilson, as usual, was on hand with his favorite Spanish Merinos, as follows: 4 pens bucks, 4 pens of ewes and 1 pen of lambs. M. B. Green, 3 pens of grades. A. B. Green, 3 pens of grades. A. B. Wade, 2 pens of grades. C. R. Martin, 2 pens of grades. E. Potter, 3 pens of grades. W. Tiplu, 1 Cotswold buck and 2 pens of ewes. W. S. Catlin, 1 pen of Cotswold ewes.

HOGS.

The display of hogs was much better than former years, and speaks well for the interest our farmers are taking in introducing first-class stock.

ENTRIES.

J. D. Vandoren, 7 Essex boars, 1 sow and pigs. Thos. Davis, 3 Essex sows and 1 boar, besides some pigs. Eli Stilson, 3 Berkshire sows, 2 boars and some pigs. A very fine display, E. Humphrey, Berkshire breeding sow and pigs. E.

Hall, Berkshire sow pig. Howard and Towers, 2 Berkshire boars, 4 sows and some pigs. C. H. Wilcox, Berkshire sow and pigs. Thomas Davis, 3 Essex sows, 1 boar and some pigs. E. R. Martin, Chester white boar, 2 sows and some pigs.

POULTRY.

The interest in poultry matters seems to increase, and the show is yearly larger. This year it was superb, and was far ahead of the exhibition at Milwaukee.

ENTRIES.

Cameron & Worden, pair bronze turkeys. J. McKeen, white Holland turkeys, Sea bright bantams, pea fowls, rabbits, duck, white Polands, black Javas, Dominiques, Leghorns, buff Cochins, Houdans, black Spanish, guinea fowls, light and dark brahmas. John Blake, B. B., red game. A. Richardson, leghorns, buff cochins, light brahmas, partridge cochins and black Javas. C. Stevenson, black Spanish and leghorns. J. Webb, guinea fowls. J. C. Coon, red game, geese and four varieties of ducks. John O'Brien, black Tartar game, bronze turkeys, Bremen geese, B. B. red game, African geese, golden spangled hamburgs, 2 varieties of ducks and Irish blue game cocks. Smith & Goe, Plymouth Rocks, white crested Polands, white cochins and light brahmas. Albert Hooper, rabbits. John McCune, game cock. C. C. Ryckman, hamburgs and white Polands. Willie Nevitt, ducks and houdans. Freddie Austin, houdans. Jerome Huntley, white leghorns. J. McCune, 2 varieties of game. J. E. Austin, S. S. hamburgs. Dr. Sanders, speckled hamburgs and white leghorns. S. Lodge, game cock. Thos. Davis, 2 varieties of game. Samuel Ellsworth, game and houdans. N. E. Reynolds, light brahmas. E. W. Sanders, 3 varieties ducks, 5 varieties of hamburgs, happy family, B. B. red game bantam, golden Polish, white crested black Polish, white and gray dorkings, Plymouth Rocks, white leghorns, dominiques and black African bantams. G. A. Cunningham, partridge cochins, 4 varieties bantams, brown, black and white leghorns, dark

brahmas, light brahmas, white cochins, silver Polish, houdans and buff cochins.

FARMING IMPLEMENTS.

It was a matter of general remark that the display of agricultural and farm implements was at least double that of any other year. Everything imaginable in the way of improved and labor-saving machinery was on exhibition, and the remark that farming had come to be a mere pastime, was not so far out of the way. Wood's harvester and self-binder, exhibited by Williams & Fuller, attracted much attention. H. S. Hollenbeck, of Ripon, had Wood's Eagle Mower and sweepstakes reaper. C. W. Wheeler, of Chicago, exhibited a Marsh Harvester. Walter, Mitchell & Co., had a most excellent display of reapers and mowers, as did E. J. Lindsley. R. D. Darsler exhibited the Buckeye. Emerson & Co., of Rockford, Ill., and Linderman, of Ripon, also made most excellent displays. N. Adams, of Oshkosh, exhibited a Mower that was very light and simple. In the Seeder line, there was the Van Brunt, of Horicon, Rowell & Co., of Appleton, and the "Fountain City," of Fond du Lac. G. D. Wyman, of Oshkosh, and M. K. Dahl, of Waupun, both made good displays. T. H. Chapman, of New York, exhibited a power hay fork, that attracted much attention. In the windmill line there was a great variety; Halladay's, of Batavia, Ill., Aulhouse, Wheeler & Co., of Waupun, and Hazen Bros. & Judd, of Ripon, had mills set up and running, making a fine display.

Several automatic driving gates, designed for lazy folks, were exhibited:

The Wooster, of Harvard, Ill., R. Miller, of Stevensville, Wis., and O. P. Clinton, comprised this display.

The "Common Sense" feed cutter excited much admiration, and it was common sense.

Wm. Bell, of Oshkosh, had two lawn mowers, that would make haying easy work for anybody.

Wm. Sheldon exhibited a two horse Cultivator, and Con-

rad Coon, of Oshkosh, a Rotary Harrow, both excellent for the purposes designed.

A. J. Turner, of Berlin, and L. S. Blake, of Racine, had Fanning mills of the latest improved patterns.

Boyle & Murphy, of Berlin, exhibited a grub puller, warranted to pull everything, from a rotten tooth to the largest kind of a root.

Blackstone & Elmer, of Berlin, had one of their celebrated turbine water wheels.

CARRIAGES.

There was a fine show in this department, the most noticeable of which was that of P. L. Smith & Co., of Chicago, who have a branch in this city.

McLean & Haas, of Fond du Lac, had five carriages, and Wm. Servis of Sheboygan Fall, also had a fine lot.

G. Olds, of Neenah, had one of his superb busses, that was pronounced a perfect gem.

John Litfin, of Oshkosh, had a pair of lumber sleighs and a pair of bobs.

Sam Beckwith, of Oshkosh, also exhibited a pair of lumber sleighs.

H. S. Janes & Co., had samples of their glazed sash.

FARM AND GARDEN.

The display in this department was particularly fine, and spoke well for Northern Wisconsin.

ENTRIES.

B. L. Perrot, blood beets, long orange carrots, parsnips, rutabagas, red onions and drumhead cabbage.

H. Jones, marblehead squash, fall squash, watermelons, yellow onions, Hubbard squash, buckwheat and clover seed.

J. H. McMillan, onions, turnips, red yams, yellow nansamond, sweet potatoes and late rose potatoes.

Jerome Huntley, peerless potatoes, early rose, lady Vermont, Compton's surprise and Brownell's beauty potatoes.

R. H. Randall, cauliflower.

John Meyer's, early cabbage, orange globe beets, mangel wurzel beets, corn and timothy seed.

E. D. Brockway, large squash, weight 142½ pounds.

L. S. Jones, field beans and yellow dent corn.

W. Mott, citron.

Brainerd Bros., large squash, citron, parsnips, onions, short horn carrots, tomatoes and flat turnips.

John Nelson, early horn carrots, cauliflower, egg plant, parsnips, orange carrots, vegetable oysters, blood beets, short horn carrots and yellow onions.

George Church, short horn carrots and sweet corn.

W. A. Boyd, neshanic, fluke and peach blow potatoes.

S. G. Derby, watermelons, rutabagas, beets, citron and Hubbard squash.

E. Humphrey, mammoth squash, pumpkin, citron, sugar beets, mangel wortzel beets, early bassano beets and rutabagas.

Elihu Hall, Hubbard squash, fall squash, early rose potatoes and corn.

E. Buckstaff, tomatoes and blood turnips.

John Hamm, cauliflower.

Earl Netlan, watermelons.

G. M. Smith, winestadt, drumhead and hubbard squashes, turbine, fall squash, crook-neck squash, citron watermelon, egg-plant, dwarf celery, pie-plant, horse radish, red pippins, white pop-corn, vegetable oysters, tomatoes, rutabagas, turnips, parsnips, four varieties of carrots, four varieties of beets, three varieties of sweet potatoes, five of potatoes and three of onions.

E. Church, tomatoes, winestadt cabbage, cauliflower, hubbard squash, muskmellons, onions, and four varieties of beets.

J. W. Cross, corn and wheat.

C. F. Rogers, squash and pumpkins.

Tim Strong, big squash.

H. White, peerless potatoes, corn and wheat.

L. S. Jones, timothy seed and oats.

H. A. Gallup, peerless potatoes, corn and wheat.

H. A. Gallup, squash, corn and early wheat.

A. W. Hanby, corn.

W. C. Hubbard, corn.

L. Lets, corn and barley.

G. W. Fisher, lima and navy beans.

Sam Wagstaff, Egyptian corn.

J. C. Allen, corn.

J. D. Vandoren, lima beans, eight varieties of potatoes, sweet corn, dent corn, tomatoes and melons.

James Schobe, barley and spring wheat.

Mrs. M. B. Green, wheat.

D. Hutchinson, wheat.

Thomas Davis, three varieties of peas, oats, barley, pumpkins, watermelons, beans, buckwheat, four varieties of corn, three of wheat, flax-seed, timothy and Hungarian grass-seed, two varieties of squash and one large squash.

C. F. Rogers, Ripon; four varieties of wheat, timothy seed, peas, buckwheat, barley and beans.

A. B. Wade, beets, pumpkins and turnips.

A. P. Sanders, peerless potatoes.

J. G. Pickett, potatoes, corn and squash.

E. W. Sanders, four varieties of potatoes, onions, citron, tomatoes, three varieties of squash, beets, turnips, beans, pumpkins and melons.

BUTTER, BREAD, CAKE AND CHEESE, ETC.

E. W. Sanders, bread and seven varieties of cake.

E. B. Ransom, cake.

L. S. Jones, two varieties of cake.

Mrs. Hall, six varieties of bread.

Mary Breezy, six varieties of bread.

Mrs. S. Sweet, six varieties of bread.

Emily F. Smith, samples of honey.

D. J. Bardwell, samples of extracts of honey.

Edwin Nye, maple sugar.

George S. Church, samples of honey and bee-hive.

A. D. Hart, bee-hive.

D. J. Bardwell, honey extractor.

A. W. Hawley, butter.

N. M. Reynolds, butter.

Mrs. Nye, butter.

E. F. Jones, butter.

The following named persons exhibited cheese: J. G. Pickett, Mr. Brockwell, Bristol & Orvis and J. W. Pugh.

HORTICULTURE.

The display of fruits, flowers and plants was fine indeed, and a sight of the endless array of grapes, apples and other things of that nature was enough to make one's mouth water for a month. The show demonstrated very clearly that there is no country in the universe better adapted for raising fruit than Wisconsin, and that farmers have discovered that fact and are taking advantage of it.

Gould's Nursery, of Beaver Dam, had an excellent variety of all kinds of fruits, as well as a large display of trees for transplanting.

Tilton, Steele & Badger, of Oshkosh, exhibited several very fine samples of cranberries from their Burnett County marshes.

W. A. Springer, of Fremont, made a good display of choice fruit, and Edmund Chase, of Omro, exhibited 104 different varieties of apples.

Appleton occupied a large space in that department. Among those represented were J. D. Hamm, Geo. Johnson, H. Jones and G. L. Letts, all of whom made very creditable displays.

N. M. Reynolds, of Oshkosh, was on hand with a fine variety.

D. W. Vincent, of Oshkosh, perhaps made the finest display of grapes, having fourteen different varieties, and all giving evidence of careful culture.

James Brainerd, of Oshkosh, fairly outdid himself and made one of the most beautiful displays ever seen in the state. His show of fruits and canned goods was worth going a long distance to see.

Seth J. Perry, of Greenville, also had a fine variety of fruit.

The array of canned goods showed that there were some folks in the country who have something good to eat in the winter.

Mrs. C. H. Root has done considerable in this line, judging from the large number of cans and jars she has on exhibition.

Appleton rather monopolized a good deal of this department, also, and the ladies of that wicked city are evidently good housekeepers. Mrs. H. M. Jones, Mrs. E. D. Brockway, Mrs. D. Huntley and Mrs. Emma Briggs are the principal ones who keep their husbands good-natured with preserves, while Mrs. C. C. Beenach knows how to make good wine.

The display of house-plants was enough to set every lady crazy with delight—or envy.

Vick's display of cut flowers attracted much attention, for their variety and tasteful arrangement.

Mrs. Sarah Vincent, of Oshkosh, had an excellent variety, and Mrs. G. Moulton, also of Oshkosh, had devoted her hours to add to the attractions of the hall.

Mrs. Tyrell, Mrs. Brown and Mrs. Bliss, of Oshkosh, added much to the display by their show of plants and flowers.

Mrs. Sawyer had a most unique variety of plants on exhibition. They were not only very rare, but they were set and arranged in a manner which excited universal admiration. A lemon tree bearing fruit was the great curiosity of all.

Clara Hamer had a novel piece of work in the shape of a house and door-yard, with fence, pump and everything complete, all made from moss and flowers.

By far the largest display of plants and flowers was by Isaac Miles, of Oshkosh. Mr. Miles' greenhouse is evidently in a flourishing condition, for a larger or finer show it would be difficult to imagine.

FINE ARTS.

But it was in the Fine Art Hall that was seen the greatest display, and the immense room was crowded each day from morning until night with a surprised and delighted throng.

Every inch of room was occupied, and in some places things were a little too crowded to be seen to advantage. Everything that art could conceive or skill produce was here on exhibition, and the sight-seers would turn in rapture from one thing only to be thrown into ecstasies at the sight of something else more rare and beautiful.

If we don't mention all the articles, it must not be thought that our intentions are not right, but attributed to the fact that it was an utter impossibility to take note of all the beautiful and useful articles there exhibited.

Smith Bros., of Oshkosh, had a fine display of trunks and valises from the Eagle trunk factory, which showed that theirs was no second-class institution.

B. H. Soper, of Oshkosh, had a magnificent display of furniture, fit for the palace of a king.

Reid & Miller, of Appleton, showed what their office could do in the way of printing, and Allen & Hicks of Oshkosh, did the same.

M. Reichert, of Fond du Lac, and G. M. Hasbrouck, of Oshkosh, exhibited some very fine samples of painting, showing that each understood his business.

Hough's patent mitre box was interesting to those engaged in that line of business.

J. H. Johnson exhibited a case of very fine samples of stencil and door plates.

Hugh Stevenson had his patent steam canal boat on exhibition, and it was pronounced the best thing out in the way of steam canal navigation.

Holly had a fine display of fine photographs, and Manville, of Neenah, presented some very good oil paintings.

B. J. Musser & Co., of Oshkosh, had a fine display of baking powder and essences, manufactured by them.

G. R. Lampard and F. A. Beckel gladdened the hearts of the music-loving parties, by a superb display of pianos and organs.

In the line of sewing machines, a person must have been very particular if they could not be suited. The Wheeler &

Wilson, American, Wilson, Remington, Domestic and others were on hand to show their merits.

There was a lovely display of wax work, and it seems almost impossible to work wax into such a variety of beautiful figures.

Mrs. O. P. White contributed many things in the way of worsted work, patch work, rugs etc.

The many articles in this line were almost too much for us; we forbear mentioning any other names, for fear we may omit some one, but all were entitled to much credit for their skill and ingenuity.

Miss Clara Washburn exhibited a basket that was a curiosity in itself, being composed of almost everything, from a paper of tacks to a steam engine. It shows much skill and patience.

A box of carved wood, by Mrs. T. S. McFarland, was very nice, and Mrs. Moulton's shells from the West Indies and Australia were much admired.

Several very fine samples of bead work were exhibited.

Mrs. C. H. Root exhibited several fine specimens of dried grass and flowers, and Mrs. Neil Christensen had some everlasting flowers that were very pretty, and Mrs. H. B. Knapp exhibited some dried grass.

K. M. Hutchinson's display was a large show of itself. It comprised rare minerals, fine geological specimens, bugs, curiosities of every description, and was surrounded by a delighted throng constantly.

J. M. Rollins had a fine display of boots and shoes, and F. W. Decker samples of silverware and crockery.

R. L. Bigger occupied a large space in showing the beauty and richness of his stock, and Clarks & Forbes were not far behind.

In the millinery line Weber took the lead, but Rogers was not far behind.

Mrs. Carrier had ladies underwear, and Mary Clark, Adelia Rogers, Lucy Spore, Mrs. D. Huntley, and Mrs. C. H. Root, woolen socks.

Cotton work was exhibited by Mrs. Henry Pool, E. Keister and Mrs. G. Moulton.

Bead work was exhibited by Carrie Zinn, Kitty Neiss and S. VanDoren.

Selections of coins by C. R. Nevitt, and postage stamps by Willie Nevitt.

Julia Rea had a fine oil painting, and Mrs. H. Weidner of Oshkosh, exhibited a very fine picture in water colors.

W. H. Castner, a specimen of his skill as an architect.

Rag carpets by Mrs. A. M. Quick, of Elo, Mrs. Stevens of Omro, and Mrs. P. Verbeck, of Menasha.

W. W. Daggett, exhibited several fine specimens from his Commercial College.

Cloths and flannels were exhibited by W. N. Coleman of Fond du Lac, the Waukesha mills, and Blake & Co., of Racine.

Bed quilts by Lucy Spore, E. B. Ransom, Mary Laflain, Mary Merry, Mrs. Asa Rogers, Mrs. W. H. H. Wroe of Medina, and Mrs. S. VanDoren.

One quilt containing 11,730 pieces of calico, and thirteen spools of thread attracted much attention.

Mrs. Fanny Brown of Butte des Morts, had one with 7,054 pieces.

One of the most attractive places was occupied by Mrs. A. Brown with various kinds of artistic and fancy work, consisting of shell monuments, shell picture frames, and artificial wreaths.

Mrs. A. L. Brockway had a log cabin quilt, that was a curiosity in its way.

C. N. Foreman crimping and flat irons.

Rev. H. N. Miner case of insects.

W. B. Place a case of gloves.

L. S. Jones had yarn, as did Mrs. Hannah Slack of Berlin.

Rugs by Mrs. Clinch of Elo, and M. H. Cheeney of Oshkosh.

Wax flowers by Mary Clark, Mrs. W. A. Burtis, J. M. Rollins, and Mrs. C. W. Bloss.

E. R. Rawson toilet cover.

Mrs. C. H. Root mat.

J. H. Longstreet, Lizzie Montgomery, Mrs. J. E. Wheeler, and Mrs. Asa Rogers worsted work.

MISCELLANEOUS.

G. F. Stroud exhibited one of Wilson & Evanden's patent oil tanks and pumps. It attracted much attention from the fact that it is so very simple, and at the same time so easily regulated.

K. M. Hutchinson and Hasbrouck & Monroe, exhibited a fine lot of heating and cooking stoves.

Cameron & White exhibited the "Best Washing Machine."

The Wisconsin Cooperage Company of Oshkosh, exhibited two one stave barrels.

Foster & Jones, exhibited blinds, sash, doors and mouldings from their planing mill.

Arnold Bros. a patent beer presser.

Parker & Ball, samples of turning and cutter and buggy boxes in a crude state.

SAW EXHIBITION.

In this hall P. Z. Wilson of this city immortalized himself by a magnificent show of Diston saws, from the largest to the smallest.

The saws were placed on flat surfaces the whole surrounded by a heavy frame, and the visitor's eye caught P. Z's., show, the moment they came into the hall. Some thirty kinds of saws were shown inside of this frame.

GRANGE CELEBRATION.

The grand feature of Wednesday was the grange celebration, and those who witnessed it, and listened to the addresses must have been convinced that the organization was not one to be scoffed at, but is a tower of strength in the land, and worthy of all respect.

In gazing upon that vast assemblage of men and women, the hardy yeomanry of the land, one could not but be struck by the number of intelligent countenances, giving ample proof that, if there is any class of people that are capable of ministering the affairs of State and Nation, that class can be found among the farmers.

The procession entered the ground about 1 o'clock, and passed around the southern and up the west side, giving the crowd an excellent opportunity of witnessing the whole display.

The procession was headed by the Oshkosh American Cornet band.

Next came the President, J. M. Smith; Gov. Wm. R. Taylor, Col. John Cochrane, Master of the State Grange, and Hon. D. W. Dwight, of Dane County, in a carriage.

Following came the officers of the State Grange and Grangers on foot.

Last came Grangers in teams, to the extent of about 200 wagons and carriages, all well filled.

The procession passed around the track to the grand stand, which was devoted exclusively to the grangers, was filled to almost suffocation. The President and speakers occupied a wagon immediately in front of the grand stand. After the multitude had become settled and quiet restored, the President rose, and in a few appropriate words, introduced as the first speaker, Col. John Cochrane, Master of the State Grange.

He had expected Mr. Smith of Illinois, to speak, and therefore was not very well prepared. He proceeded to give an idea of the objects and aims of the Patrons of Husbandry.

Previous to the organization of the Society, the farmers, in most cases, had been somewhat isolated from society and each other; there was no sociability among them. Under the influence of the grange, this state of affairs had been changed. When it was first organized, many said that it would not live, there was nothing to make it live; but it has lived, and increased from a few hundreds, two years ago, to millions. The

organization was also misrepresented in many ways. It seemed to be taken for granted that the grangers must war on everything. This, the speaker said, was a mistake; they made war on nothing; all they wanted was liberty and equal rights. Their sole object was to have the same rights as other men. The organization, had not, as many predicted, came up quick and died away, but was steadily gaining.

One great object, and that of sociability, had been accomplished, and the speaker thought the farmers were now almost too sociable; they spent a little too much time in grange matters. The order has spread all over the United States, and Canada, and is now being introduced into England. Col. Cochrane spoke about half an hour, and his remarks were listened to with much interest, containing as they did, so much valuable information.

The next speaker introduced was Gov. Wm. R. Taylor. The fine, manly appearance of the Governor surprised many, and they were more surprised at the speech he delivered.

He said he came merely to fill a contingency. He sometimes wrote agricultural addresses and read them, and he sometimes wrote newspaper articles and made reports, but never made extemporaneous speeches. He had been requested to speak on the railroad question, because he had been engaged in the railroad business somewhat lately, he supposed. Last winter the Legislature passed a law exercising control over the railroads in this state. The companies flaunted the red flag of defiance in his face, and said he could not enforce it. He had sworn to execute all the laws of the state, and, like a good executive, he was obliged to enforce that law with the rest. The case had gone to the courts, and the result was well known to the people. The railway managers and their organs claimed that they would lose 25 per cent of their gross earnings by operating under the Potter law, and that would be a destruction of their property. On the other hand, the railroad commissioners and other experts, after giving liberal figures, claim that they would lose, after cutting off rebates and discriminations, less than six per cent. The St. Paul

Company made enough last year to pay all operating expenses, taxes, interest on their bonds and repairs, and then had enough left to pay $7\frac{1}{2}$ per cent, dividend on their stock, and that too on an assessed cost of \$37,500 per mile, when in fact the original cost of the roads was but little more than one half that.

The stock of this company is worth fifty cents on the dollar; $7\frac{1}{2}$ per cent. on that would in reality be about fifteen per cent. on a dollar. The *Railroad Gazette* says that for the first seven months of this year, the St. Paul Company earned \$773,000 more than last year, and the Northwestern earned \$528,000 in the same time, more than last year. If these statements be true, the people ought to know it, and be undeceived, so that they can act intelligently upon these important and complex questions.

If these things be true, is it not wrong, and cruel too, for these companies to discharge so many employees, under pretended oppression of the Potter Law? How did they make so much the first seven months of the year? By moving a large share of the immense wheat crops of Iowa and Minnesota. Last year, Iowa had 29,000,000 bushels of surplus wheat. Minnesota had 27,000,000, and Wisconsin had 21,000,000. By cutting off many perquisites to the public, and cutting off rebates and discriminations, were the companies enabled to make these profits.

As the Potter Law does not affect freight passing through the state, the Iowa and Minnesota wheat crops were not affected by it in the least.

If this loss of 25 per cent. that the companies claim, were true, it would not be more than the paralysis of many other industrial interests, for instance, depression of iron interests—lumbering—importations. Importations have fallen off \$100,000,000 from last year. These effects are produced by a forced economy of the people, and a disinclination to buy, or to invest capital. None of these results can be said to come from the Potter law.

There are many things in connection with the railroads

that the Potter Law does not affect. It does not affect merchandise of the state, through travel, telegraphs, newspaper and mail service. Express services or rents of elevators alone for the St. Paul company is \$214,000.

What is the remedy for these things? It is simple enough. We must have a division of labor, diversity of products, and a concentration of the farming interests. Rings and railroad companies must be brought under the restraint of wholesome laws. We must open our water courses, and where broad gauge railroads are not practical, build narrow gauge, which have been found to answer every purpose.

Cheapened transportation and increased facilities add to the value of all our farms and timber lands, to the value of all our products, the growth of our villages and cities. The interests of the people and bond-holders are mutual. Honest capital is timid and sensitive, and so far from being frightened from the State, it will seek investment where law and order prevail. We seek no war with friends, and submit to no wrongs from enemies.

The Governor paid a high compliment to the Northern Fair, to the people that make it, and the country that produces it, and closed by saying that if the people are only loyal to themselves, all will come out right.

The third speaker was Mr. Dwight, of Dane County. The gentleman was business all over. He took off his coat and spoke in his shirt sleeves, and his whole appearance indicated the farmer. He gave the farmers of this section some wholesome truths. He told them they were a pack of fools to send to the legislature such a class of men as they were in the habit of doing, and there was nobody but themselves to blame for the corruption and stealing now going on. They depended too much on each other and not enough on themselves. What they wanted was more self-reliance. He gave much good advice in regard to farming; said he saw evidence of the land running out. More attention should be paid to dairying, and not so much to wheat raising. His speech was eloquent and

to the point. He indulged in no high flown language, but spoke in words that all could understand. He kept the audience in a continual roar of laughter, while at the same time he gave them the plain unvarnished truth. After the speaking, the Grangers repaired to the grove on the west side of the grounds, and enjoyed a splendid dinner. The *Times* reporter was fortunate enough to be taken in charge by the Winneconne Grange, and he has been able to eat nothing since. Such a dinner as that is seldom seen, and when once seen is never forgotten. The demonstration was one of the finest features of the whole fair, and the committee, viz: Milan Ford and Ira Kezertee, are entitled to much credit for the manner in which they carried out the programme. Gov. Taylor and the speakers took dinner with the patrons, and seemed to partake of the many good things set before them with a relish.

THURSDAY'S PROGRAMME.

On Thursday, in addition to the races and other attractions, there were speeches from the Hon. Jas. G. Blaine, Speaker of the House of Representatives, and Ex-Governor Horatio Seymour, of New York. Mr. Blaine's speech was on the municipal debt of the United States, not mainly of what is understood as our National debt, but those forms of State and municipal obligations that involve taxation upon the people. Public debt is the rapid outgrowth of modern civilization. It was not known in its present form among the ancients, although Cicero says the Roman Provinces were accustomed to borrow, and Livy speaks of a loan once contracted by Rome, to meet the expenses of the Punic wars. The speaker gave a vivid account of National debts of the various nations of the old world, down to the present day. The speaker gave a detailed account of our present debt, and the causes that lead to so much taxation at the present time. The speech was an able one, and gave evidence of careful study and research.

GOVERNOR SEYMOUR.

This gentleman followed Speaker Blaine in a short ad-

dress, mainly devoted to matters of interest to the farmers in this vicinity. He was enthusiastically received, and created a good impression.

RACES.

The first race on Wednesday, was for horses that have never beaten three minutes. It was won by "Pet." The second was a running race, half mile and repeat. Won by Williamsport.

On Thursday the first race was for horses that have never beaten 2:50. Won by Dick Turpin. The second was a running race, mile heats. Won by Walter D.

The 2:40 race on Friday, was won by Tommy Dodd, and the sweepstakes by Badger Girl.

GENERALITIES.

The exhibition was characterized by almost an entire absence of rowdyism and drunkenness, owing probably to the excellent police regulations. No gambling devices of any kind were allowed on the ground, an arrangement that met with the highest approval from all. There was the usual number of shows, lung-testers, whip peddlers, patent machine men and bead work women, whirligigs and other things of that nature, but no gambling. Everything was conducted in a quiet and orderly manner; there was a time and place for everything, and both were rigidly adhered to. No intoxicating liquors were allowed on the grounds, unless "granger cider," which a rustic individual was dispensing at four cents a glass, can be called intoxicating. The different dining halls had all they could conveniently attend to, if we may judge from the difficulty we had in getting dinner, and the quality and quantity after we did get it. But everybody was satisfied; it is utterly impossible to calculate with any degree of certainty upon feeding such a crowd, and as we brought up the rear, we got about all that could be expected.

President Smith personally superintended the details, and his watchful eye was everywhere, and on everything. He is the right man in the right place, and the society is fortunate in having such a man for the Chief Executive.

Secretary Torrey has done about four men's work every day for weeks past, and to his untiring energy is due much of the success of the fair.

Treasurer Jones attended to the financial department in a manner that elicited the highest praise. That he has been retained in his present position since the formation of the society, is sufficient evidence that he is a very efficient officer.

A. C. Austin, Chief Marshal, Capt. Wagner and Asa Worden assistants, are deserving of much praise for the admirable manner in which they performed their arduous duties, and the police force, also, should not be forgotten. The Superintendents and Judges all did their duty in a thorough and impartial manner, and to the complete satisfaction of all.

The number of vehicles labeled "to the fair," was simply enormous. There was everything from a thousand dollar hack to a dray, and all reaped an abundant harvest of greenbacks.

The citizens of Oshkosh may well feel proud that this enterprise is located in their city, and that they appreciate it, is seen in the way in which they all lend a helping hand to bring it to a successful consummation. No accident occurred to mar the general enjoyment, and all went home feeling that the Northern Wisconsin Fair of 1874, had been a bright spot in the history of the State.

OPENING ADDRESS BY PRESIDENT SMITH, THURSDAY, SEPTEMBER 29, 1875.

Ladies and Gentlemen:

If we turn to the history of our State, we shall find that twenty-five years ago this portion of it was almost an unbroken wilderness. Oshkosh was hardly a village, Fond du Lac was but little or no better, Appleton, Neenah and Menasha could hardly be said to exist, Green Bay Fort Howard and Depe're were names of places that were said to exist at or near the mouth of the Lower Fox River, but their existence

was more a name than a living reality. The waters of the Lower Fox rolled on almost alone in their grandeur and their beauty. But few people had thought of Northern Wisconsin as a home for enterprising and intelligent farmers, and I imagine that fewer still would have been counted other than false prophets if they had then foretold what has actually transpired within the period named.

This is neither the time nor the place for any detailed statement as to the increase of the wealth and prosperity of this portion of the State. I will only say that during the decade from 1860 to 1870, the county of Brown about trebled in her assessed valuation. Since 1870 she has certainly doubled again. Other counties have probably done equally well. The Lower Fox, with her almost unparalleled water-power is being lined with manufactories of great value.

In the counties adjoining the river are the homes of thousands of prosperous farmers, where, but a few years since, was the home of the wolf, the deer and the bear. In this county and Fond du Lac County are farms and farmers that compare favorably with any in our state, if not with any in the whole Northwest. There are stock-growers with herds of cattle of various breeds within our portion of the State of which we may well be proud. In some of the breeds of horses it may well be doubted whether finer specimens of the breed they represent can be found in the United States than stand within this enclosure to-day. Sheep, from the fine-wooled Merino to the largest of the long-wooled breeds, stand in the pens awaiting your examination. Swine, from the small compact Essex to the large, heavy Chester White, are in the pens. Poultry in breeds almost without number are in their department.

In the farm and garden department are samples of the growth of our soil and climate that ought, by the size and perfection of their growth, to set at rest at once and forever all doubts as to the capacity of Northern Wisconsin to grow grain and vegetables. Years ago it was said and very gener-

ally believed that we could never grow fruit in this portion of the State. As a refutation of any such idea it is only necessary to examine the fruit department upon these grounds. The facts have come to light that not only do many kinds of fruits do well, but the choicest grapes now grown anywhere in our country east of the Rocky Mountains are perfectly at home in the Fox River Valley and its tributaries; and it is doubtful whether finer specimens of them can be found in the Northwest than are on exhibition here to-day.

The show of flowers, though not yet perfect, shows the refined taste and skill of the cultivators. They show that we have homes of beauty, and also indicate that gentle and loving hearts reside within them.

Our machinery department shows that we have mechanics of art and skill to supply us with not only the common machinery of the farm, but with articles of rare skill and beauty; such as reflect great credit upon the maker as well as upon the refined taste of those who purchase them.

The Fine Art Hall, which in an exhibition of this kind must be filled almost entirely by the residents of the city wherein the Fair is held, reflects great credit upon the refined taste and culture of the citizens of this city. But few cities of the age of Oshkosh would acquit themselves better, or even as well.

But I will not go into details or detain you with any extended remarks. The citizens of Northern Wisconsin are industrious, energetic and enterprising. Hence, our Fairs have been successful from the first one, four years since, until the one which we inaugurate to-day, and which bids fair to excel any exhibition ever held in this portion of the State. And may we not consider the growth of these yearly exhibitions a sure indication of the permanent growth of our homes and of the country we represent?

It has been said by many that the past has been a year of hard times; and there is no doubt but that such has been the case in many instances, and perhaps in the case of some of

those who are now listening to me. But, ladies and gentlemen, the indications are all around us that such has not been the case with the vast majority, or even with many of our people. Your own city, but a few months since ravaged by a most desolating fire, the saddest part of which was the death of one of your most respected citizens and one of the officers of this Association, is rising anew from the calamity, and in many cases will be more permanent and beautiful than before. Why shall not, then, these days of our annual exhibition be gala days of joy and happiness?

Let us then, one and all, throw our cares away and come together and make these days ones that we shall remember with unalloyed pleasure and delight. Come with your wives, come with your children, come with your friends, and we trust that you will have no cause to consider the time spent either wasted or misspent. Upon the officers of the Association will devolve the duty of so conducting the exhibition that all will be properly cared for and none neglected. Not only to minister to the wants and the happiness of all, but to do it with a kind and gentlemanly politeness. In this I believe I may pledge the earnest and active efforts of every officer of the Association.

Then, in closing, on behalf of the officers, I declare this exhibition now open to the public, and bid you welcome to these grounds.

THE MUNICIPAL DEBT IN THE UNITED STATES—ADDRESS
BY HON. JAMES G. BLAINE.

Mr President and Gentlemen of the Association:

When I accepted your cordial invitation to be present to-day, it was with the distinct understanding that the formal address of the occasion should be delivered by another, and that anything I might have to say would be secondary and subordinate. This arrangement was changed a short time since without consulting me; and if this large audience shall feel disappointed with the result, as I fear they may, they must

not lay the charge at my door, but hold the Officers of the Association responsible in such exemplary damages, as a good Wisconsin sense of justice may impose.

I believe by modern usage, an address before an agricultural society is expected to leave agriculture severely alone—on the very sound and sensible presumption that the audience has more knowledge on the subject than the speaker is likely to possess. In my own case, certainly, I am ready to admit the force of such presumption—for, although I was born and reared amid an agricultural community in Western Pennsylvania, and have lived all the years of my maturer life in the best agricultural district of Maine, I do not claim such practical knowledge of the great art and science as would enable me to give one word of needed instruction to the assemblage which I have now the honor to address.

I shall, therefore, for the brief period that I may claim your attention, confine myself to a subject of interest to you as American citizens—and indeed, I might add, of especial and significant importance to you as farmers, representing as you do so vast a proportion of the Real Property of the country, and standing as you do in the attitude of responsibility, both present and ultimate, which that relation to the property of the country implies and imposes.

I shall speak to you of our public debt—not mainly of what we understand as our national debt—but of all those forms of State and municipal obligation which involve taxation upon the people.

Public debt is one of the rapid outgrowths of modern civilization. In its present form it certainly was unknown among the ancients, though Cicero says that the Roman Provinces in Asia were accustomed to borrow, and Livy, in a passage somewhat obscure, speaks of a loan once contracted by Rome to meet the expenses of the Punic wars. These exceptional references, however, only prove the rule that the use of credit was not one of the recognized resources of ancient nations. The vast accumulation of treasure made by some powerful monarch of the olden time, is another proof that credit was

not used, and that loss resulting from the idleness of money, was not recognized or appreciated as it is by the keener calculations of modern capitalists. Ptolemy Philadelphus had at one time in his treasury what would be equivalent to four hundred millions of dollars in our coin. The Roman Emperor, Tiberius, left 1,700 million sesterces, (\$110,000,000) to his successor, Caligula, who obligingly spent the whole of it in one single year.

These sums, though they do not seem large in comparison with the great aggregates of modern national debt, yet represent in their purchasing power at the time, a larger accumulation of actual money than the treasury of any nation has contained at one time since the dawn of the Christian era. The first Napoleon, among modern rulers, imitated on a diminished scale this barbaric accumulation of treasure, nominally belonging to the state, but really subject to the individual will and caprice of the sovereign, and generally used for purposes which would not make a creditable appearance in official budgets or regular appropriation bills.

Nearly sixteen hundred years of the Christian era had passed, before nations learned the art of borrowing, as we now understand it. Holland and Spain had perhaps in the sixteenth century, the first regularly organized national debt, though it is claimed that the French *Rentes*, the national security, still so well known and so popular among that people, originated as early as 1375, in the reign of Charles Fifth; I am disposed to think, however, that it was in a very irregular, shadowy and irresponsible shape, running over only from year to year, according to chance, and not existing as a stated loan with regular allowance of interest.

Undoubtedly the debts of Holland and Spain, contracted largely in their wars with each other, the one attempting to inflict and the other successfully resisting, a great tyranny, were the first that became regularly funded, with periodical payment of interest, the resources for which were derived from taxation. So sorely were these taxes felt at Amsterdam, as an accurate historian tells us, that it was a common saying that

whoever bought so much as a fish, paid for it once to the seller and six times to the State. In Spain, at that time, the receipts of the precious metals from her South American colonies were so large, that the debt did not weigh so heavily on the home government as the corresponding obligation in Holland.

Towards the close of the seventeenth century, England emerging from that great contest for constitutional liberty, which forever dethroned the Stuarts, formally entered for the first time the list of National debtors. It was in 1694 that she borrowed the initial pound sterling of that debt, which in one hundred and twenty years, at the close of the terrible struggle with Napoleon, reached the enormous aggregate of nine hundred and two million pounds (£902,000,000), over four thousand five hundred millions of dollars (\$4,500,000,000)—and constituting at that time a burden upon England as great as a debt of twelve thousand millions of dollars (\$12,000,000,000) would constitute to-day. From the date of England's becoming a borrower, debt seemed to be a contagion among the nations—and though less than two centuries have elapsed since England's debt began, there is now scarcely a civilized country on the face of the globe whose people have not mortgaged the future for the benefit of the past and present.

The British dependencies in Asia and Australia, and the "far off Isles of the Sea," are heavily in debt to the bankers of the mother country; the civilized and semi-civilized governments in Africa and the Orient, that skirt the shores of the Mediterranean, are mortgaged to the money-lenders of Europe; the nations of South America without exception, have all trodden the same weary road; while every European power from Russia to Portugal, groans under the weight of its national obligations.

Mr. Dudley Baxter, who is a recognized authority on questions of this character, gives the aggregate population of the borrowing nations of the world at a trifle over six hundred million souls (600,000,000)—and the aggregate of national debts owed by them amounts to twenty thousand millions of dollars (\$20,000,000,000)—with an annual interest charge of

more than eight hundred millions of dollars (\$800,000,000). It is a melancholy thought that this almost incalculable sum of money was borrowed and expended, not to promote the ends of peace, not to develop agriculture or the mechanic arts, not to build great highways for commerce or trade, not to improve harbors and the navigation of rivers, not to found institutions of learning or of charity or of mercy, not to elevate the standard of culture among the masses, not for any or all of these great and laudable objects were these countless millions of treasure expended, but for the waste of cruelty, the untold agonies of war.

And the vast bulk of this prodigious sum total not only went for war, but for wars of ambition and conquest in which the fate of reigning dynasties was the stake, and not the well being of the people or even the aggrandizement of the nation itself in the higher and better sense. In our own country we have had four wars, and with the exception of that with Mexico, they may certainly and fairly be called defensive wars on our part—for they were assuredly wars essential to our national existence*and independence.

But still this fact leaves us no exception to the rest of the world, that war, however unavoidable in our case, was nevertheless the direct cause of our national burden. Our total national indebtedness to-day is twenty-one hundred and forty millions (\$2,140,000,000) and of this vast amount but sixtyfour millions (\$64,000,000) given towards the construction of a Railroad to the Pacific is all that was incurred for any work of peace—the remainder was expended in the long and bloody and desolating struggle in which secession was resisted and destroyed, and in which we won the privilege of continuing to exist as the United States of America.

But in regard to the National debt, whatever vain regrets we may indulge over the loss of so much treasure and the fearful sacrifice of that which is beyond earthly price, we have this to console and comfort—that the war which gave rise to it was unavoidable and inevitable, apparently fated and forecast as a part of the great experience of bitterness and of blood

through which it was our destiny as a nation to pass, and that out of its sorrowful depths we have emerged a regenerated people, doing justice to a race long oppressed, educating ourselves to a higher standard of liberty and of law, and having our feet henceforth shod with the preparation of the Gospel of Peace.

Leaving the consideration of our National debt as an obligation not within our discretion, except as to the best and most honorable means of reducing and discharging it, I invite your attention to those less observed though even more burdensome forms of obligation contracted by States, counties, cities and smaller municipalities, and contracted oftentimes, I may add, with an extravagance and prodigality that seemed to invite calamity. With the keen watchfulness of opposing political organizations in this country, with the sharp criticism by press and people of all that may be done or left undone by Congress, no additional increase of our National debt can be anticipated, except under the exigency of war—and should that come, as in God's good providence I hope it never may, no limit can be assigned to the additional burden that may be placed upon us. But the causes which lead to an increase of State debt, and to such a vast enlargement of municipal obligation, are not so open to public observation, do not elicit the sharp controversy and discussion which always go so far to insure safety in the final result, and the consequence is that many communities, before they stop to fairly consider, find themselves laboring under a burden of debt which, if not absolutely discouraging, is certainly oppressive.

In reflecting on this subject, you will observe at the very outset that our form and framework of Government gave extraordinary opportunities for the use of public credit. We have first the General Government, which borrows on the faith of the Nation; next the State Government, which borrows on the faith of the State; next the County, which borrows on the faith of the County; next the City or Town, which borrows on the faith of municipal credit. Now, when this

whole series of credits, four in number, are used as they so often are, nay, used almost everywhere, the quadruplicate burden falls heavily on the shoulders of the people. The four taxes operate at last on the same man, and each piece of property in some way contributes its share toward satisfying the demand. I do not think there is any other nation in which the power to contract debt has been so extended as with us; in which the same communities may be made to assume public obligation in so many relations—and each one operating for the time in an independent sphere, the tendency of each is to enlarge, regardless of the dimensions and demands of the others. When the City is pledging its credit, it seems to forget that a heavy debt is already upon the country, of which it forms an integral part; the country freely incurs debt without apparently remembering that every estate in it is already incumbered by a direct tax to pay the interest on a debt of the State; and the State too often makes a lavish use of its credit without pausing to reflect that everyone of its citizens is already burdened by the tax which he is paying to liquidate the debt of the nation.

And when in the end Nation, and State, and County and City have each and all imposed their burdens the citizen finds that while the tax is increased fourfold, the property to meet it has not experienced a similar development and growth. Our power in this country to cumulate our burdens may certainly be regarded as peculiar to ourselves.

I am aware that the large cities of Europe have debts of their own; so have the separate cantons of Switzerland; so have the Departments of France for limited and specified purpose; so have the minor German States; but still it is true that our county, city, town and township facility for contracting debts is practically unknown among the nations of Europe.

Our marvelous capacity in this regard is the one achievement of our Republican civilization of which I think we have least occasion to feel proud.

There are in the United States sixteen cities having each

a population exceeding one hundred thousand (100,000), and an aggregate population of four and a half millions (4,500,000). Each is a city with special advantages which cannot be taken from it; each in the language of the day has a large future; each has abundant wealth and still larger prospective resources. They embrace when taken collectively, the trade of Atlantic and Pacific, of Gulf and Lake coasts, beside all the great interior rivers of the Continent and the converging traffic of thousands of miles of railway.

Surely one would think that each might bide its time and patiently await its well assured prosperity without being compelled to borrow largely, in some cases most recklessly, of the future. And yet taking these sixteen cities together we find their municipal debts amount to three hundred and fifty millions of dollars (\$350,000,000) being eighty dollars per capita for their entire population, and presenting in the aggregate an amount which prior to our war experience would have been considered a large burden for the nation.

It would be a gross injustice, however, to leave the inference that the average debt of these cities is over twenty millions of dollars, for indeed a single city, the commercial metropolis of the nation, presents a debt embracing nearly one third of the entire amount, while several of the cities on the list have debts of comparatively insignificant proportions.

The class of cities next in size to those just referred to, those having each a population exceeding fifty thousand (50,000) and less than one hundred thousand (100,000) are twelve in number—having an aggregate population of about seven hundred and fifty thousand (750,000). Their total debt does not exceed thirty millions of dollars, (\$30,000,000) which gives about forty dollars per capita for the whole list.

Taking the next class of cities having each a population exceeding twenty thousand (20,000) and less than fifty thousand (50,000) I find there are in all, some fifty-three (53) in the U. S., with a total population of something over four million and a half. Their total debt cannot be less, I think, than sev-

enty-five millions of dollars, (\$75,000,000) or fifty dollars per capita.

Interested as I have been in making these investigations, I included one more class within the scope of my inquiries and took the cities and towns throughout the United States having populations between ten and twenty thousand each—a list which I found to embrace in all one hundred and five cities and towns whose aggregate population amounts to nearly fourteen hundred thousand (1,400,000) and whose aggregate debt is something over thirty-five millions (35,000,000) or about twenty-two dollars per capita for the whole.

Adding these four classes together it presents a table which embraces the cities and towns of the United States having over ten thousand (10,000) each—of which there are in all one hundred and eighty-six (186)—with an aggregate population exceeding seven million (7,000,000) and a total municipal debt of about four hundred and ninety millions (\$490,000,000).

The towns having less than ten thousand inhabitants each I have not been able to classify with the approximate accuracy of those I have given, but I feel well assured that the aggregate of these debts would reach eighty millions dollars (\$80,000,000)—making a total municipal debt of the country about five hundred and seventy-five millions (\$575,000,000).

Added to these municipal debts proper, we find the county debts of the entire country amounting to about one hundred and eighty millions (\$180,000,000), and the State debts to about three hundred and ninety millions (\$390,000,000)—making a grand aggregate of eleven hundred and forty million (\$1,140,000,000) of Public debt of States, counties, cities and towns.

This sum total is nearly three hundred millions of dollars greater than given in the census of 1870. The addition, however, has not been made within the four succeeding years, but a part is due, I think, to incomplete returns made to the census officials.

I have been at some pains by original investigation and

inquiry to get at the aggregates of State and county, and municipal indebtedness—and while I do not assume to give details or vouch for absolute accuracy, I think the totals I have given may well be taken as approximate reliable statements. The difficulty in attaining perfect exactness of statement results from the imperfect manner in which statistics are gathered in the several states.

I have found, indeed, very few States where the State officers were authorized by law to keep anything of record in regard to debt except the direct obligations of the State. In Massachusetts where great attention is paid to the accuracy of statistics, I have been enabled to get precise information—and the entire footing of that Commonwealth, of State, county and municipal debts, shows a grand total of ninety-seven and a half millions (\$97,500,000)—subject to a sinking fund deduction of eleven millions (11,000,000)—leaving eighty-six and a half millions (86,500,000) as the net debt of that State. A very large burden it would seem—and yet such is the wealth of the State that the entire debt does not constitute more than four per cent. of its valuation—and probably not two and a half per cent. of its actual wealth.

The State debts in many instances, both in the former and the latter times, have been contracted without due caution, and as a natural consequence the money realized from borrowing has been oftentimes expended with an extravagance which would hardly be tolerated in the disbursement of moneys raised by current taxation.

I do not desire to make my remarks so sweeping as to include those States where loans have always been negotiated with care and the receipts expended with economy. But I venture the assertion, based on some scrutiny into the facts, that taking the aggregate of State debts as they stand to-day that there has not been realized on the average fifty cents of palpable, permanent value for each dollar raised and expended. In some cases the improvidence has led to even worse results than this, and I think, taking the country as a whole,

there is no form of public debt in which so much has been given and so little received as in the direct obligations of the States.

I am glad, however, to be able to congratulate the proud and prosperous Commonwealth whose citizens I now address, on the fact that their debt is very small and is rapidly decreasing, and that in consequence thereof you can realize to yourselves, and assure to those who may cast in their lot with you, that an inexpensive government and light taxation are your comforting prospects for the future. And what is true of your State is no less true of your sister States of this great section. Taking the seven great States of the northwest, and with an aggregate population of more than *eleven millions* (11,000,000) and property worth over eight thousand millions of dollars (\$8,000,000,000), their combined State debts are less than twenty-five millions (\$25,000,000). Had these great commonwealths exercised as prudent a care against county and municipal debt they would present to-day the most flattering balance sheet, I venture to say, of any civilized communities on the face of the globe.

In regard to the aggregate municipal debt of the country, it is not of course to be inferred that it could all have been wisely avoided. Credit, prudently used and safely guarded, is one of the great engines of modern civilization and advancement, and with municipal governments its use at times seems imperatively demanded. In many cases the public health has required that debt be contracted for supplies of pure water and for systems of drainage and sewerage, and occasionally for other forms of public improvement essential to the growth of the community. But in the main, I think our cities have been too ready to draw on the future, too ready to pledge the "lives and fortunes" of posterity for the payment of a debt which the generation contracting it is unable to discharge. Expensive municipal buildings, loan of credit to outside enterprises, not needed and often visionary, have led in some large cities to a growth of debt for which there is no

corresponding return of pecuniary profit, and no adequate advantage in any form. These debts have in many cases been contracted carelessly and without due reflection. The old adage that what is "everybody's business is nobody's business" is nowhere more applicable than in the general administration of municipal affairs in our larger cities. It is so easy to obtain Legislative authority to contract debts; it is so easy to sell a good city bond to capitalists, who highly prize such forms of security; it is so easy to roll up a debt to be taken care of by those who come after us instead of levying a severe tax to be paid by ourselves; in short, it is so easy and also so natural to have a smooth, enjoyable time to-day, thinking little of the ills that may overtake us on the morrow. And following this ready, convenient, lazy method of shifting the burdens of to-day, has been the means of precipitating on many of our most favored and promising cities a vast load of taxation which hampers business, oppresses property, prevents accessions of population otherwise naturally tending that way, and ends by retarding the very growth which the debt was contracted to stimulate.

Another evil results from the growth of municipal debt which I think has not been sufficiently observed. It is the facility which such debts give to the capitalist for a ready, safe and profitable investment of his surplus—thus saving him from the trouble and depriving the community of the advantage of his embarking in some active business. Take, for instance, a prominent and wealthy city—and I do not refer to any particular one—and this you will find to be its history and experience at one or more times of its prosperous career. Its banks and other places of deposit are full to overflowing of money owned by its leading capitalists waiting for an opportunity to invest, and carefully examining into different branches of manufacture, into improvement of real estate by fine blocks of stores, into the outlook for a new railroad, into a project for a new line of steam packets—all or any one of which would greatly contribute to the development and growth of the city in question. Just then, however, as these

capitalists are about to invest their money in some one of these channels of gain to themselves and profit to the community, another set of gentlemen having great influence with the municipal powers that be, commit the city to some new scheme of improvement, and from three to five million of first-class seven per cent. bonds are placed on the market, and our capitalists suddenly conclude that nothing presenting so little risk and such a clean margin of profit can be found in manufactures, or blocks of stores, or railway shares, or steam navigation companies, and they accordingly stow away their odd millions in city bonds and devote themselves thenceforth to the ennobling occupation of cutting coupons.

Though the foregoing purports to be a single case it illustrates a great truth, worthy to be borne in mind, that too much of the surplus capital has been invited into bonds of this kind—and is thereby removed from an active participation in the business projects of the country—which are thus thrown too largely into the hands of men who have great enterprise but are hampered for lack of capital, and are constantly encountering the evils of a too widely extended credit.

It may be an extravagant assertion, and yet I had almost said that if the hundreds of millions of capital that have been hidden away in the municipal bonds of the country had been, by the absence of such opportunities for investment, forced into great business enterprises, the country would be so much the richer, that a great number of the objects for which the municipal debts were contracted, could have been accomplished by the mere process of taxation on the vastly superior amount of property that would have been thus created.

It is also a matter of serious consideration whether these large municipal loans have not had a prejudicial effect on the price of money—tending continually to create stringency in the money market, and raise the rate of interest to the borrower and the business man. There is a loud outcry in all quarters against the high rates charged for money, and yet if States and great cities will flood the markets with their obligations

at seven per cent., and oftentimes at a higher rate of interest, how can any borrower on mere individual credit, expect, or hope to negotiate loans at the old-fashioned six per cent. rate, which in so many sections of the country was formerly the rule. It will inevitably happen that the individual citizen will pay from one to four per cent. higher for money than the prosperous city,—and if the city absorbs the great surplus of capital by its tempting rates and perfect security, the individual is necessarily subjected to the squeezing process when he wants money on his own note—and he realizes the unhappy duplicate result of having to pay increased taxes to support the city load—the negotiation of which had already increased his burdens by raising the rate of interest on the money he was compelled to borrow in the prosecution of his private business.

If then we have not exercised sufficient care and circumspection in regard to incurring State, county and municipal debts in the past, what is the remedy? I answer, first and foremost, an awakened, active, well balanced public judgment, which will suggest, demand and enforce a wise caution, and conservative course on this subject. I have no patent remedy to propose, and yet I venture to suggest that the Legislatures of many states have altogether too large a power to create debt without referring the subject to the people for their primary consideration. Perhaps I may entertain a pre-judgment on this particular phase of the question, in favor of the stringent provision in the constitution of my own State, where the Legislature has no power to incur a dollar's debt, except for war purposes, under the pressure of actual danger, and where an amendment to the Constitution proposed by two-thirds of the Legislature, and then submitted to a vote of the people, is the prerequisite for pledging the credit of the State for any other purpose whatever.

It might also be a wise and salutary provision to define in State Constitutions the precise ends for which municipal credit should be used—limiting those uses to proper and restricted objects, and forbidding in any event the creation of a

debt beyond a specified per centage of the official valuation of the city or town; providing at the same time a judicious safeguard against the overlapping of county debts, so that while the town was guarding its credit with care, it should not be involved in the embarrassment caused by an extravagant extension of the credit of the country.

And finally as a governing principle, it would be well to apply to all State, county and municipal debts, the wise precaution contained in that famous and well remembered rule laid down by Mr. Jefferson as the basis of all sound national credit. I quote the words of the great philosophic statesman, as equally applicable to all possible forms of public obligation, and as affording a basis at once secure for the creditor and advantageous for the debtor:

“Never borrow a dollar without laying a tax at the same instant, for paying the interest annually and the principal within a given term; and consider that tax as pledged to the creditors on the public faith. On such a pledge as this, sacredly observed, a government may always command on a reasonable interest, all the lendable money of its citizens; whilst the necessity of an equivalent tax is a salutary warning to them and their constituents against oppression, bankruptcy and its inevitable consequence, revolution.”

But, gentlemen, looking on the serious side of this question with the gravity which is becoming, let us not be led into gloom or despondency, or discouragement of any kind whatever. Though our burden be great we are abundantly able to bear it, and to prosper and grow strong under it. Our progress in population and in wealth is so rapid, that the debt which weighs upon us to-day is as light as a feather to-morrow, and if we can but exercise the ordinary prudence of self-preservation, our future, as a people, will far surpass in power and in riches the most extravagant calculations based on our progress in the past—wonderful as that progress has been.

It is but eighty-five years since our government was organized, with a population of less than four millions, and a

valuation of property for the entire thirteen states not exceeding six hundred millions of dollars (\$600,000,000), scarcely one-half of the actual wealth of your own great state to-day. Facilities for inter-communication were then greatly restricted, manufactures and the arts were in the feeblest infancy; agriculture was rude and not highly remunerative, because its hand-maid, commerce, had not been quickened into life and vigor.

Property at that time was ill-adapted to bear taxation; profits were small, wages were low, and to the political economist, measuring the condition and capacity of the country, it seemed utterly unable to carry a debt of any considerable magnitude. And yet our ancestors did not hesitate to assume the revolutionary debt of ninety millions (\$90,000,000), more than one-seventh of all the property they owned. Mr. Jefferson, the most distrustful of all the leading statesmen of that day, in regard to the ability of the nation to sustain the load, was yet willing to admit that it could be easily borne if the rates of increase in population and wealth then calculated upon should be realized. It may teach us a lesson of trust and hopefulness to remember that the highest estimates of that day would have produced a population of less than seventeen millions (17,000,000) in 1870, and an aggregate wealth at the same period of less than four thousand millions of dollars (\$4,000,000,000). Our population, vastly as it has outrun the prophecies referred to, exhibits a ratio far below the increase of wealth, which in 1870 had reached the enormous aggregate of thirty thousand million (\$30,000,000,000), nearly eight-fold greater than the anticipated increase which Mr. Jefferson regarded as too sanguine. Taking our total national, state, county and municipal debt, and it amounts to something over thirty-two hundred millions, or a little more than one-tenth of the entire property of the country, as estimated in the census of 1870, and probably not over one-fifteenth of the actual wealth of the country to-day. This you will observe, is a far less ratio of debt to property than the government assumed in 1790, while our rate of increase and power of creating wealth

transcend the same capacities of that day in so large a degree, that I do not know of any comparison or unit of measure that could give any adequate conception of its vastness.

It may, however, serve to give us some idea of our enormous productive power to reflect that in point of annual income and earnings we stand to-day at the head of all nations—far exceeding Great Britain, Russia, France, or the German Empire. Next to us indeed comes Great Britain, but all the earnings and income of that kingdom will not exceed five thousand millions of dollars (\$5,000,000,000), whereas we are in excess of six thousand millions (\$6,000,000,000), both reckoned on a gold basis and both tables of statistics quoted from a British authority. Moreover, our present annual rate of increase in income, resulting from increase of population and of laborers, and from improvements in machinery, is about one hundred and twenty millions of dollars (\$120,000,000)—and this, regardless of occasional reverses and financial panics, is absolutely progressing in a sort of geometric ratio. Many who now hear me will live to see the population of this country reach one hundred millions (100,000,000), and by calculations which will err in being too small if they err at all, our annual income will then exceed fifteen thousand millions (\$15,000,000,000)—or five times as much earned and realized every year as our entire public debt of all forms is to-day.

The inquiry is pressed home to us, why, in view of our enormous income and earnings are we such a borrowing nation? If we earn and receive more each year than Great Britain or France, or the German Empire, why are we borrowers from them? Why do they and not we hold the bulk of our national securities, besides so vast a proportion of State Loans and railway indebtedness? The question is a serious one but the answer is easy. It is simply because we spend more lavishly than any other nation in the world. Our people live better and live faster, have more abundant food and better clothing, more expensive houses and furniture and outfit and equipage than those of any other nation in the world. So that

with all our enormous income, we save far less than some European nations whose gross annual receipts are far below ours. But if for a single decade, we should by any concert of action live on as economical a scale in this country, as they do in the most favored European kingdoms, or as we did ourselves only twenty-five years ago, we should save enough to recall every American Stock and Bond from the coffers of foreign bankers, and should pay off with ease our national debt, or at least have it held among our own people, which in itself would constitute no small decrease of its burden. If such a return to our old habits of economy were practicable and practiced, and the drain of gold coin to Europe, to pay interest on our bonded indebtedness were thereby stopped, I venture to affirm that many problems of finance, now disturbing the people and perplexing the Legislator, would find an easy solution—nay, would not even remain to be solved at all.

There is one feature in our progress to which I have already made incidental reference which despite all drawbacks of personal extravagance or national crisis, gives us a solid assurance for the future. It is, that rapid as may be our increase in population, our increase in property is in a vastly greater ratio.

From 1790 to 1870, our population increased about one thousand per cent.—but our property increased about five thousand per cent. In other words our population in 1870 was ten times as large as in 1790, while our property in 1870 was ten times as large as in 1790, while our property in 1870 was fifty times as great as it was in 1790. We can hardly assume for the future that our wealth will grow five times as rapidly as our population, but I think with all the labor saving appliances that modern invention is producing, and with the high vantage ground we already possess in that regard, we may safely count on such a rapid increase of material wealth as will in a very brief period render our indebtedness—if it be not unwisely increased—an inconsiderable burden.

By the census of 1790 it was apparent that the aggregate

property of the nation only allowed one hundred and fifty dollars to each individual. By the census of 1870 this had increased to eight hundred dollars per head. And now it may be confidently asserted that before we have seventy-five millions of people we shall have one hundred thousand millions of property.

But I do not dare to trust myself in that inviting field of speculation as to what we shall be in the future. Neither should I venture to detain you with any lengthy review of our marvelous progress in the past. Our story indeed is so wonderful that he who attempts the most sober narrative seems as one given to idle boasting.

In that brilliant third chapter of Macauly's History, he gives gorgeous and glowing pictures of the rise and progress of certain manufacturing and commercial cities of England. The growth and greatness of Manchester, and Leeds, and Sheffield, and Birmingham, and Liverpool, are depicted in the matchless colors of the first essayist of his generation. But remember that he was telling what these cities had become in the blessed reign of Queen Victoria and how great their progress had been since the days of the Stuarts and Oliver Cromwell—compassing indeed a growth of two full centuries. Why the facts presented by Lord Macauly no more rival those by which we are surrounded than the plodding experience of a common life resembles the marvels of Aladdin's Lamp. Contrast the cities named by Macauly in their two hundred years of growth with Chicago, and St. Louis, and Cincinnati, and Pittsburg, and San Francisco, and Louisville, and Cleveland, and Milwaukee, and Detroit—and I might indefinitely prolong this list of western wonders.

Remember that at the beginning of the present century scarce one of these great emporiums was even named—while one of them, the great commercial mart of the Pacific, had no organized existence when in 1847 Lord Macauly was writing the remarkable chapter from which I have quoted.

The growth of these great cities is but the index to the growth of the entire country. With a territory nearly as

large as the whole of Europe we have succeeded in bringing its extremes together in the easy interchange of trade and friendship; we have built and are operating seventy-five thousand miles of railway, more than they have in Europe and all the rest the world beside; we have increased our agricultural products until the crops of a single year are worth more than three thousand millions of dollars in gold coin; we have multiplied the number of our handicrafts and our power of machinery until we are one of the foremost manufacturing nations of the world; we have pushed population away beyond what but yesterday seemed the most distant frontier, or indeed until there is no frontier left save that which is washed by the waves of either great ocean.

With a population so widely extended, with local interests so greatly diversified and often in seeming conflict, it is not to be expected that so great a government as ours can at all times be administered with perfect satisfaction to every section and every citizen.

But we daily grow to know more of each other, and I am sure it will be found of the east and of the west, of the north and of the south, that the more intimately they become acquainted and related, the better they will like each other and the less will appear the differences that sometimes divide them.

Tariff and Currency, Internal Improvement and Cheap Transportation, are all susceptible of fair settlement after full discussion; and in the final arbitrament of a wise statesmanship it will be found in regard to these questions and all others of like magnitude that the interest of one section is the interest of all, and that the "more perfect Union" which our fathers sought to establish will be fully and finally realized when each section is unwilling to enjoy an undue advantage over any other, and when all sections are alike ready to be governed in what they ask and what they give, in what they demand and in what they concede, by that spirit of patriotism which always obeys the "authority of principle" and always yields to the "Despotism of Duty."

LIST OF PREMIUMS AWARDED AT THE FIFTH ANNUAL FAIR, 1874.

Thoroughbred Horses.

Judges—E. D. Norton, D. P. Imson, George Cameron.

Henry Curran, best stallion, 3 years and over.....\$12.00

Horses for All Work.

Judges—H. D. Phelps, J. Ashby and I. W. Mears.

Cameron & Worden, best stallion 4 years and over..... 12.00
 J. A. McNeal, second best..... 6.00
 C. W. Green, stallions 3 years and over..... 12.00
 John Berger, second best..... 6.00
 M. Cleaveland, stallion 2 years old and over 10.00
 J. W. Cross, second best 5.00
 J. W. Dake, stallion 1 year old and over 8.00
 " second best..... 4.00
 Fred Suydam, best stallion foal..... 6.00
 P. McLeod, second best..... 5.00
 J. Maxwell, best brood mares with this year's colts by their side..... 12.00
 Alonzo Buntin, second best..... 6.00
 George M. Beardmore, best mare or gelding 4 years old and over..... 12.00
 J. D. Vandoren, " " 3 " " 8.00
 Wm. Worden, " " 2 " " 6.00
 " " second best..... 3.00
 D. P. Imson, best pair of matched horses, mares or geldings, 4 years old or over..... 12.00
 John Beardmore, second best..... 6.00

Roadsters and Carriage Horses.

Judges—D. P. Imson, E. D. Norton and John Finch.

Fred Phelps & Co., best stallion 4 years old and over..... 12.00
 I. B. Hayes, second best..... 6.00
 H. White, stallion 3 years old and over..... 12.00
 G. W. F. Thompson, second best..... 6.00
 J. W. Turner, best stallion 2 years old and over..... 10.00
 C. Remington, second best..... 5.00
 Sam Beckwith, best mare or gelding 4 years old and over..... 10.00
 T. E. Crane, second best..... 5.00
 J. V. Jones, best mare or gelding 3 years old and over..... 8.00
 M. Snell, second best..... 4.00
 H. White, best mare or gelding, 2 years old and over..... 6.00
 " second best..... 3.00
 M. Snell, best mare or gelding 1 year old and over..... 4.00
 James McCune, second best..... 2.00
 C. E. Lewis, best pair of matched horses 5 years and over..... 12.00
 Sam Beckwith, second best..... 6.00
 I. W. Mears, best pair of matched horses under 5 years 12.00

Draught Horses.*Judges*—Henry Curran, F. B. Ellsworth, J. M. Bray.

Wm. Storey, best draught stallion over 4 years.....	12.00
Wm. Worden, second best.....	6.00
Marshall Harris, best pair of matched horses, 4 years.....	12.00
Wm. Worden, best stallion, 3 years.....	12.00
J. D. Vandoren, second best.....	6.00
Wm. Storey, best stallion, 2 years.....	10.00
Wm. Abrams, second best.....	5.00
Wm. Storey, best stallion, 1 year.....	8.00

Jacks and Mules.*Judges*—Henry Curran, F. B. Ellsworth and J. M. Bray.

Jewell, Lawrence & Co., best pair of mules.....	10.00
Daniel Roberts, second best.....	5.00

Speed of Horses.*Judges*—E. P. Finch, Ed. Farnsworth and John Finch.**THREE-MINUTE RACE—PURSE \$75.**

First horse—"Pet", entered by O. P. White.....	40.00
Second horse—"Dan," entered by D. B. Pierce.....	20.00
Third horse—"Henry C.," entered by S. A. Bowe.....	15.00

RUNNING RACE, ONE-HALF MILE AND REPEAT—PURSE \$75.

First horse—"Williamsport," entered by F. L. King.....	50.00
Second horse—"Walter D.," entered by Willie Kendall.....	25.00

TWO-FIFTY RACE—PURSE \$100.

First horse—"Dick Turpin," entered by J. Lutsey.....	60.00
Second horse—"Waupun Belle," entered by S. A. Bowe.....	45.00
Third horse—"Lee, the Granger," entered by C. Westbrook.....	15.00

RUNNING RACE, MILE HEATS—PURSE \$150.

First horse—"Walter D.," entered by F. L. King.....	90.00
Second horse—"Williamsport," entered by Willie Kendall.....	45.00
Third horse—"Nail Rod," entered by Champ Brasted.....	15.00

TWO-FORTY RACE—PURSE \$160.

First horse—"Tommy Dodd," entered by C. Westbrook.....	75.00
Second horse—"Countess," entered by P. C. Hoyt.....	50.00
Third horse—"Kitty Lewis," entered by R. O. Carnathan.....	35.00

FREE FOR ALL—PURSE \$260.

First horse—"Badger Girl," entered by G. S. Rowell.....	150.00
Second horse—"Countess," entered by C. Westbrook.....	75.00
Third horse—"Tommy Dodd," entered by C. Tousey.....	35.00

Cattle.—Short-Horn Thoroughbreds.*Judges*—W. H. Taylor, A. C. Whiting and Z. W. Rhodes.

John Cross, best bull 4 years old and over.....	15.00
Eli Stilson, " 3 " ".....	15.00
" " 2 " ".....	15.00
Seth J. Perry, second best.....	8.00
Eli Stilson, best bull 1 year old and over.....	15.00
M. Towers, second best.....	8.00
Eli Stilson, best bull calf 6 months old.....	10.00
" second best.....	5.00
" best bull calf under 6 months old.....	10.00
" second best.....	5.00

Eli Stilson, best cow 4 years and over.....	15.00
“ second best.....	8.00
“ best cow 3 years and over.....	15.00
“ second best.....	8.00
“ best heifer 2 years and over.....	15.00
“ second best.....	8.00
“ best heifer 1 year and over.....	15.00
“ second best.....	8.00
“ best heifer calf over 6 months.....	10.00
“ second best.....	5.00
Charles Williams, best heifer calf under 6 months.....	10.00
Eli Stilson, best bull of any age.....	Diploma
“ best cow of any age.....	“

Ayreshire Thoroughbreds.

Judges—M. C. Bushnell, A. M. Hale and N. C. Farnsworth.

Grand Chute Club, best bull 4 years old and over.....	15.00
G. W. Minckler, second best.....	8.00
Chester Hazen, best bull 2 years and over.....	15.00
D. Huntley, second best.....	8.00
J. Stoddard, best bull 1 year and over.....	15.00
“ best bull calf.....	10.00
“ second best.....	5.00
Chester Hazen, best cow 4 years and over.....	15.00
J. Stoddard, second best.....	8.00
“ best cow 3 years and over.....	15.00
Chester Hazen, second best.....	8.00
J. Stoddard, best heifer 2 years old and over.....	15.00
Chester Hazen, second best.....	8.00
J. Stoddard, best heifer 1 year and over.....	15.00
“ second best.....	8.00
“ best calf.....	10.00
“ second best.....	5.00
D. Huntley, best bull of any age.....	Diploma
“ best cow of any age.....	“

A herd of calves, one bull, eight heifers, exhibited by J. Stoddard we consider them worthy of high commendation and show good judgment of breeding.

Devon Thoroughbreds.

Judges—M. C. Bushnell, A. M. Hate and N. C. Farnsworth.

Luther Rawson, best bull 3 years and over.....	8.00
A. Homiston, second best.....	3.00
Luther Rawson, best bull 1 year and over.....	6.00
“ second best.....	3.00
“ best bull calf.....	4.00
A. Homiston, best cow or heifer 3 years.....	8.00
“ second best.....	4.00
Luther Rawson, best heifer 2 years.....	8.00
“ second best.....	4.00
“ best heifer 1 year old.....	6.00
“ second best.....	3.00
“ best heifer calf.....	4.00
“ second best.....	2.00

Jerseys or Alderneys.

Judges—M. C. Bushnell, C. E. Lewis and M. Towers.

Chester Hazen, best bull 2 years and over.....	8.00
F. W. Rhodes, second best.....	4.00
N. Fletcher, best cow or heifer 3 years and over.....	8.00
H. B. Jackson, best heifer 2 years and over.....	8.00
A. C. Austin, best heifer 1 year and over.....	6.00
E. P. Sawyer, second best.....	3.00
James Brown, best bull of any age.....	Diploma

Galloway Cattle.

Judges—J. Cross, A. M. Hale and M. C. Bushnell.

Peter Davy, best bull 4 years and over.....	8.00
“ best cow 4 years and over.....	8.00
“ second best.....	4.00
“ best heifer 2 years and over.....	8.00
“ second best.....	4.00
“ best heifer calf.....	4.00
“ second best.....	2.00
“ third best.....	1.00

Grade and Native Cattle.

N. G. Sturtevant, best cow 4 years and over.....	8.00
Eli Stilson, second best.....	4.00
“ best cow or heifer 3 years and over.....	8.00
“ second best.....	4.00
“ best heifer 2 years and over.....	8.00
L. S. Jones, second best.....	4.00
M. Snell, best heifer 1 year and over.....	6.00
Eli Stilson, second best.....	3.00
N. G. Sturtevant, best heifer calf.....	4.00
L. S. Jones, second best.....	2.00
L. Rawson, best pair of working oxen 4 years and over.....	8.00
N. G. Sturtevant, second best.....	4.00
Luther Rawson, best pair of steers 3 years.....	6.00
“ second best.....	3.00
“ best pair of steers 2 years.....	6.00
N. M. Reynolds, second best.....	3.00
M. Snell, best cow or heifer of any age.....	Diploma
Seth J. Perry, bull calf; we recommend same premium as for heifer—first premium, \$4; second, \$2.	

Sweepstake Herd Premiums.

Judges—M. C. Bushnell, A. M. Hale and J. Cross.

Eli Stilson, best bull over 1 year.....	20.00
“ best cow or heifer over 1 year.....	20.00
“ best bull calf.....	12.00
“ best heifer calf.....	12.00
“ best bull, four cows or heifers over 1 year, of any breed.....	50.00
Luther Rawson, second best.....	35.00
Chester Hazen, third best.....	20.00

Spanish Merino Sheep.

Judges—John C. Bishop, O. A. Hale and A. Osborn.

Eli Stilson, best buck 2 years and over.....	6.00
“ second best.....	4.00
“ best buck 1 year old and over.....	6.00
“ second best.....	4.00
“ best pen of three buck lambs.....	6.00
“ “ “ ewes, 2 years.....	6.00
J. D. Vandoren, second best.....	4.00
Eli Stilson, best pen of three ewes, 1 year.....	6.00
J. D. Vandoren, second best.....	3.00
Eli Stilson, best pen three ewe lambs.....	6.00
“ best buck of any age.....	Diploma
“ best ewe of any age.....	“

Cotswold Sheep.

Judges—O. A. Hale, Edwin Nye and F. P. Walf.

George Keyes, best buck 2 years and over.....	6.00
Wm. Tipler, second best.....	4.00
W. S. Catlin, best buck 1 year and over.....	6.00
“ second best.....	4.00
George Keys, best pen of three ewes, 2 years or over.....	6.00
“ second best.....	4.00
“ best pen of three ewes, 1 year or over.....	6.00
“ second best.....	3.00
“ best ten combing wool.....	12.00

Leicester and Other Long Wools.

Judges—O. A. Hale, Edwin Nye and F. P. Walf.

J. O'Brien, best buck 2 years and over.....	6.00
B. H. Lee, second best.....	4.00
Howard & Towers, best buck 1 year and over.....	6.00
J. O'Brien, second best.....	4.00
“ best pen of three ewes, 2 years.....	6.00
“ second best.....	4.00
Howard & Towers, best pen of three ewes, 1 year.....	6.00
J. O'Brien, second best.....	3.00
“ best pen of three ewe lambs.....	5.00
“ second best.....	3.00

Southdown and Other Middle Wools.

Judges—F. H. Wheeler, Rufus Robie and J. Cross.

Howard & Towers, best buck 2 years and over.....	5.00
“ “ “ “ 1 year “.....	5.00
Thos. Davis, second best.....	4.0
Howard & Towers, best pen of three buck lambs.....	4.00
“ “ “ “ ewes, 2 years old.....	5.00
Thomas Davis, second best.....	3.00
Howard & Towers, best pen of three ewes, 1 year.....	5.00
Thomas Davis, second best.....	3.00
“ best pen of three ewe lambs.....	4.00
“ second best.....	2.00
Howard & Towers, best buck of any age.....	Diploma
“ “ “ ewe “ “.....	“

Grades from Fine Wool Bucks.

Judges—F. A. Wheeler, M. Towers and Rufus Robie.

E. R. Martin, best ram 2 years and over.....	3.00
J. D. Vandoren, second best.....	2.00
E. R. Martin, best ram 1 year and over.....	3.00
J. D. Vandoren, second best.....	2.00
“ best pen of three ewes 2 years old.....	3.00
E. R. Martin, second best.....	2.00
M. B. Green, best pen of three ewes 1 year.....	3.00
A. B. Wade, second best.....	2.00

Grades from Long Wool Bucks.

Wm. Tipler, best pen of three ram lambs.....	3.00
M. B. Green, second best.....	2.00
George Keys, best pen of three ewes 2 years old.....	3.00
Wm. Tipler, second best.....	2.00
M. B. Green, best pen of three ewes 1 year old.....	3.00
Wm. Tipler, best pen of three ewe lambs.....	3.00
M. B. Green, second best.....	2.00

Sweepstake Premium on sheep.

Judges—John C. Bishop, E. M. Randall and A. Osborn.

Eli Stilson, best ten ewes and one buck, full blood clothing.....	12.00
George Keys, best ten ewes and one buck, full combing.....	12.00

Swine.—Berkshire.

Judges—George Keys, E. P. Fisk and Wm. J. Jennings.

Howard & Towers, best boar 2 years and over.....	7.00
Eli Stilson, best boar 1 year and over.....	5.00
“ second best.....	3.00
C. H. Wilcox, best boar pig over 6 months.....	4.00
Howard & Towers, second best.....	2.00
Eli Stilson, best boar pig under 6 months.....	4.00
“ second best.....	2.00
“ best breeding sow 2 years.....	7.00
Howard & Towers, second best.....	4.00
Eli Stilson, best breeding sow 1 year old.....	5.00
“ second best.....	3.00
Howard & Towers, best sow pig, over 6 months old.....	4.00
Elihu Hall, best sow pig under 6 months.....	4.00
Howard & Towers, second best.....	2.00
E. Humphrey, best breeding sow with litter of four pigs.....	8.00
Eli Stilson, second best.....	4.00

Poland China.

C. H. Wilcox, best breeding sow with litter of six pigs.....	8.00
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Chester White, Cheshire, Etc.

Judges—E. B. Fisk, W. J. Jennings and George Keys.

E. R. Martin, best boar 2 years and over.....	7.00
N. G. Sturtevant, best boar pig under 6 months.....	4.00
“ best breeding sow over 1 year.....	5.00
E. R. Martin, best sow pig under 6 months.....	4.00
N. G. Sturtevant, second best.....	2.00

Swine.—Essex, Suffolk, etc.

Judges—Francis Gillingham, Rufus Robie, Wm. Gere.

J. D. Vandoren, best boar 2 years and over.....	7.00
J. D. VanDoren, second best	3.00
J. D. VanDoren, best boar 1 year old and over.....	5.00
Thos. Davis, second best.....	3.00
J. D. VanDoren, best boar pig over 6 months old.	4.00
J. D. VanDoren, second best.....	2.00
J. D. VanDoren, best boar pig under 6 months old.....	4.00
J. D. VanDoren, second best.....	2.00
Thos. Davis, best breeding sow over 2 years old.....	7.00
T. D. VanDoren, second best.....	4.00
J. D. VanDoren, best breeding sow over 1 year old.....	5.00
J. E. VanDoren, second best.....	3.00
J. D. VanDoren, best sow over 6 months old.....	4.00
J. D. VanDoren, second best	2.00
J. D. VanDoren, best sow under 6 months old.....	4.00
J. D. VanDoren, second best	2.00
J. D. VanDoren, best breeding sow with litter of four	8.00
Thos. Davis, second best.....	4.00
L. S. Jones, cross blood, worthy of premium.....	4.00
L. S. Jones, second best.....	3.00

Poultry.

ASIATIC CLASS.

Judges—D. W. Fernandez, D. Huntley, Worthy H. Patton.

C. B. W. Ryckman, best trio black Javas.....	2.50
A. Richardson, second best.....	1.50
Smith & Goe, best trio light brahmas	2.50
G. A. Cunningham, second best.	1.50
G. A. Cunningham, best trio dark brahmas	2.50
J. McKeen, second best.....	1.50
J. McKeen, best trio buff cochins.....	2.50
A. Richardson, second best.....	1.50
C. A. Cunningham, best trio partridge cochins.....	2.50
A. Richardson, second best	1.50
G. A. Cunningham, best trio white cochins.....	2.50
Smith & Goe, second best.....	1.50

GAME CLASS.

Wm. Bradley, best trio Irish blue.....	2.50
Wm. Bradley, best trio brown red	2.50
C. J. Coon, second best.....	1.50
John Blake, best trio B. B. red game.....	2.50
J. O'Brien, second best.....	1.50
J. O'Brien, best game cock, any variety.....	2.50
J. McCam, second best.....	1.50
Thos. Davis, best trio game any other variety.....	2.50
Wm. Bradley, second best.....	1.50
John O'Brien, best trio black tartars.....	2.50

DORKING CLASS.

E. W. Sanderi, best trio white Dorking	2.50
E. W. Sanders, second best.....	1.50

E. W. Sanders, best trio silver gray.....	2.50
Smith & Goe, best trio Plymouth Rocks.....	2.50
E. W. Sanders, second best.....	1.50
E. W. Sanders, best trio dominiques.....	2.50
J. McKeen, second best.....	1.50

SPANISH CLASS.

J. McKeen, best trio black Spanish, white face.....	2.50
C. Stevenson, second best.....	1.50
C. Stevenson, best trio white leghorns.....	2.50
E. W. Sanders, second best.....	1.50
G. A. Cunningham, best trio brown leghorns.....	2.50
G. A. Cunningham, second best.....	1.50

HAMBURG CLASS.

E. W. Sanders, best trio black.....	2.50
C. B. W. Ryckman, second best.....	1.50
E. W. Sanders, best trio silver spangled.....	2.50
J. E. Austin, second best.....	1.50
J. O'Brien, best golden spangled.....	2.50
E. W. Sanders, second best.....	1.50
E. W. Sanders, best silver pencilled.....	2.50

FRENCH CLASS.

G. A. Cunningham, best trio houdans.....	2.50
Willie Nevitt, second best.....	1.50

POLISH CLASS.

Smith & Goe, best trio black white crests.....	2.50
E. W. Sanders, second best.....	1.50
G. A. Cunningham, best trio silver.....	2.50
G. A. Cunningham, second best.....	1.50
E. W. Sanders, best trio golden.....	2.50
E. W. Sanders, second best.....	1.50
J. McKeen, best trio white.....	2.50
J. McKeen, second best.....	1.50

BANTAM CLASS.

G. A. Cunningham, best trio golden seabrights.....	2.50
J. McKeen, second best.....	1.50
G. A. Cunningham, best B. B. red game.....	2.50
E. W. Sanders, second best.....	1.50
G. A. Cunningham, best silver duckwing .. m.....	2.50

TURKEYS.

Cameron & Worden, best pair bronze.....	2.50
J. O'Brien, second best.....	1.50
J. McKeen, best pair white Holland.....	2.50
J. McKeen, second best.....	1.50

WATER FOWLS.

J. O'Brien, best pair bremen geese.....	2.50
" second best.....	1.50
" best pair African geese.....	2.50
" second best.....	1.50
E. W. Sanders, best pair Aylesbury ducks.....	2.50

J. O'Brien, second best	1.50
E. W. Sanders, best pair black Cayuga ducks	2.50
J. O'Brien, second best.....	1.50
E. W. Sanders, best pair muscovy ducks	2.50
J. O'Brien, best pair white crested ducks.....	2.50
J. McKeen, second best.....	1.50

ORNAMENTAL CLASS.

J. McKeen, best pair colored guinea fowls.....	2.50
James Webb, second best	1.50

The Committee respectfully recommend that a diploma be awarded to the owners and exhibitors of the rabbits.

- J. McKeen, English rabbits.
- J. McKeen, English rabbits.
- Albert Hooper, Spanish rabbits.
- Albert Hooper, black buck rabbits.
- C. Stevenson, English rabbits.
- J. Watkins, pen of rabbits.

Grain.

Judges.—George Keys, L. Proctor, R. T. Graves.

H. A. Gallup, best bushel of barley.....	3.00
C. F. Rogers, second best	1.50
C. H. Fisher, best bushel of navy beans.....	3.00
Thos. Davis, second best.....	1.50
C. F. Rogers, second best bushel of any variety.....	1.50
Thos. Davis, best bushel of buckwheat.....	3.00
H. Jones, second best.....	1.50
Eli Stilson, best bushel white dent corn	3.00
Elihu Hall, second best.....	1.50
A. W. Huntley, best bushel of yellow dent corn	3.00
W. C. Hubbard, second best.....	1.50
Thos. Davis, best bushel white dutton corn, fine sample but not enough	3.00
E. W. Sanders, best bushel any variety flint corn.....	3.00
Thos. Davis, second best.....	1.50
B. B. Old's, best bushel white oats.....	3.00
L. S. Jones, second best.....	1.50
L. S. Jones, best bushel field peas.....	3.00
Thos. Davis, second best.....	1.50
H. Jones, best bushel clover seed	3.00
C. F. Rogers, second best	1.50
C. F. Rogers, best bushel timothy seed.....	3.00
John Myers, second best.....	1.50
D. Hutchinson, best bushel club wheat.....	3.00
W. W. Wright, second best.....	1.50
D. Hutchinson, best bushel fife wheat	3.00
C. F. Rogers, second best	1.50
Thos. Davis, best bushel Rio Grande wheat	3.00
L. S. Jones, second best.....	1.50
Jos. Strophe, best bushel any variety spring wheat.....	3.00
H. A. Gallup, second best.....	1.50
H. White, best bushel white winter wheat.....	3.00
Jos. Strophe, second best.....	1.50

Thos Davis, best collection by one exhibitor.....	8.00
L. S. Jones, second best.....	4.00
J. W. Cross, best yellow dutton corn.....	3.00
Thos. Davis, best flax seed.....	3.00
Thos. Davis best Hungarian seed.....	3.00

Dairy and Household Products.

Judges—Hiram Smith, J. W. Rhodes, C. Smith, A. Houghton.

A. W. Hawley, best jar butter made in September.....	5.00
Mrs. Edwin Nye, second best.....	3.00
Mrs. E. T. Jones, best jar butter made in June.....	5.00
C. F. Rogers, second best.....	3.00
C. L. Rich, best five dairy cheese.....	5.00
George Rogers, second best.....	3.00
Bristol & Orvis, best five factory cheese.....	5.00
J. G. Pickett, second best.....	3.00
Mrs. L. Hall, best milk yeast bread.....	2.00
Mrs. Edna Hubbard, second best.....	1.00
Anna Breezy, best hop yeast bread.....	2.00
Mrs. F. Thrall, second best.....	1.00
L. S. Jones, best brown bread.....	2.00
Mrs. F. Foster, second best.....	1.00
L. S. Jones, best graham bread.....	2.00
Mrs. L. Hall, second best.....	1.00
E. W. Sanders, best show of cake.....	2.00
L. S. Jones, second best.....	1.00
H. White, best spring wheat flour.....	2.00
L. S. Jones, second best.....	1.00
Miss Emily Smith, best sample box honey.....	2.00
G. S. Church, second best.....	1.00
G. S. Church, best box extracted honey.....	2.00
D. Huntley, second best.....	1.00
G. S. Church, best bee and honey extract.....	6.00
A. H. Hart, second best.....	3.00
G. S. Church, best honey extractor.....	2.00

Vegetables.

Judges—H. Floyd and James Orvis.

C. F. Rogers, best lima beans.....	2.00
J. D. Vandoren, second best.....	1.00
L. S. Jones, best blood turnip beets.....	2.00
E. W. Sanders, second best.....	1.00
John Nelson, best long blood beets.....	2.00
P. S. Bennett, second best.....	1.00
Edmund Chase, best Egyptian beets.....	2.00
J. M. Smith, second best.....	1.00
E. Chase, best orange globe.....	2.00
E. W. Saunders, second best.....	1.00
D. Huntley, best mangel hurtzel.....	2.00
John Myers, second best.....	1.00
“ best drumhead cabbage.....	2.00
J. M. Smith, second best.....	1.00
E. Chase, best Winningstadt.....	2.00

Jerome Huntley, second best	1.00
J. M. Smith, best early horn carrots.....	2.00
John Nelson, second best.....	1.00
Brainerd Brothers, best short carrots.....	2.00
E. W. Sanders, second best.....	1.00
John Nelson, best orange carrots.....	2.00
E. W. Sanders, second best	1.00
E. Chase, best cauliflower	2.00
R. H. Randall, second best.....	1.00
John Nelson, best dwarf celery	2.00
J. M. Smith, second best.....	1.00
D. Huntley, best early sweet corn.....	2.00
J. D. VanDoren, second best.....	1.00
J. D. VanDoren, best evergreen sweet corn.....	2.00
G. S. Church, second best.....	1.00
John Nelson, best egg plant.....	2.00
J. M. Smith, second best.....	1.00
S. G. Derby, best citron melon.....	2.00
E. W. Sanders, second best.....	1.00
E. W. Sanders, best muskmelon any variety.....	2.00
J. D. VanDoren, second best	1.00
Earl Nettleton, best watermelon	2.00
Thos. Davis, second best.....	1.00
J. M. Smith, best red onions.....	2.00
W. Mott, second best.....	1.00
J. M. Smith, best white onions.....	2.00
E. W. Sanders, second best.....	1.00
J. M. Smith, best yellow Danvers onions	2.00
E. W. Sanders, second best.....	1.00
J. M. Smith, best yellow Strasburg	2.00
Ed. Chase, second best.....	1.00
Brainerd Brothers, best parsnips	2.00
J. M. Smith, second best.....	1.00
J. M. Smith, best show red pepper.....	2.00
E. W. Sanders, second best.....	1.00
E. W. Sanders, best show seedling potatoes	2.00
Jerome Huntley, best early rose potatoes.....	2.00
J. M. Smith, second best.....	1.00
W. A. Boyd, best fluke potatoes.....	2.00
L. S. Jones, second best	1.00
W. A. Boyd, best peach blow potatoes.....	2.00
Elihu Hall, second best.....	1.00
A. P. Sanders, best peerless potatoes	2.00
D. Atherton, second best.....	1.00
Jerome Huntley, best Brownell's beauty.....	2.00
J. D. VanDoren, second best.....	1.00
Jerome Huntley, best Compton surprise.....	2.00
J. D. VanDoren, second best.....	1.00
Jerome Huntley, best early Vermont.....	2.00
J. M. Smith second best.....	1.00
E. W. Sanders, best new variety.....	2.00
J. D. Van Doren, second best	1.00

J. M. Smith, best early red nansemond	2.00
J. M. Smith, second best	1.00
J. McGillen, best early yellow nansemond	2.00
J. McGillen, second best	1.00
John Nelson, best salsify	2.00
J. M. Smith, second best	1.00
H. White, best Hubbard squash	2.00
Elihu Hall, second best	1.00
H. Jones, best fall squash	2.00
Thos. Davis, second best	1.00
Brockway, best largest squash	2.00
Brainerd Brothers, second best	1.00
D. Huntley, best tomatoes	2.00
James Brainerd, second best	1.00
J. M. Smith, best flat turnips	2.00
Brainerd Brothers, second best	1.00
E. Humphrey, best rutabagas	2.00
S. G. Derby, second best	1.00
J. M. Smith, best show by exhibitor not less than twenty	8.00
E. W. Sanders, second best	4.00
J. D. VanDoren, best white peach blow	2.00
E. Humphreys, best largest pumpkin	2.00

Apples, Pears, Plums, etc.

Judges—Geo. P. Peffer, J. L. Fisk, Saterlee Clark.

NURSERY TREES.

Gould's Nursery, best collection of deciduous nursery	Diploma
“ best collection hardy flowering shrubs	“

APPLES.

Ed Chase, best and greatest variety not less than three	8.00
H. Floyd, second best	6.00
D. Huntley, best ten varieties adapted to the northwest	6.00
Gould's nursery, second best	4.00
N. M. Reynold's best five varieties adapted to the northwest	5.00
Gould's nursery, second best	3.00
H. Floyd, best show of autumn apples	4.00
Gould's nursery, second best	2.00
H. Floyd, best show of winter apples	6.00
Gould's nursery, second best	4.00
George Johnson, best seeding specimen	4.00
H. Floyd, best fifteen varieties	6.00
Gould's nursery, second best	4.00

PEARS.

Gould's nursery, best and greatest variety	5.00
H. Floyd, second best	3.00
H. Floyd, best three varieties adapted to the northwest	4.00
Gould's nursery, second best	2.00
H. Floyd, best single variety	2.00
Gould's nursery, second best	1.00

PLUMS.

Isaac Miles, best exhibition	4.00
R. J. Harney, second best	3.00

GRAPES.

D. W. Vincent, best show of grapes.....	5.00
James Brainerd, second best.....	3.00
D. W. Vincent, best ten varieties.....	4.00
D. W. Vincent, best five varieties adapted to the northwest.....	3.00
J. W. Arndt, second best.....	1.00
D. W. Vincent, best three clusters Concord.....	2.00
“ “ “ Delawares.....	2.00
“ “ “ Crevelling.....	2.00
“ “ “ Water.....	2.00
“ “ “ Lindley.....	2.00
“ “ “ Agawam.....	2.00
“ “ “ Merrimac.....	2.00
“ “ “ Salem.....	2.00
E. Chase, best seedling.....	2.00

E. Chase first A. seedling from the Clinton, is promissory. Seedling peaches from Claus Olson, New Holstein, Calumet Co., Wis. They were not entered. Favorable mention.

GRAPE WINE.

Mrs. C. C. Bennett, best unfermented wine.....	5.00
Mrs. E. E. Briggs, second best.....	3.00
James Brainerd, third best.....	2.00

Delicacies, Preserves &c.

Mrs. C. H. Root, best collection preserved fruits.....	3.00
“ best collection preserved pears.....	1.00
“ “ “ peaches.....	1.00
“ “ “ plums.....	1.00
E. W. Sanders, “ “ cherries.....	1.00
Mrs. C. H. Root, “ “ strawberries.....	1.00
Mrs. D. Huntley, “ “ raspberries.....	1.00
“ “ “ blackberries.....	1.00
Mrs. C. H. Root, “ “ currants.....	1.00
Mrs. D. Huntley “ “ crabapples.....	1.00
Mrs. H. M. Jones, “ “ tomatoes.....	1.00
Mrs. C. H. Root, “ “ jellies.....	1.00
“ best specimen currant jelly.....	1.00
“ “ apple “.....	1.00
“ “ crab apple “.....	1.00
“ “ grape “.....	1.00
“ “ raspberry “.....	1.00
“ “ blackberry “.....	1.00
Mrs. Jas. Brainerd, best collection canned fruits.....	1.00
Mrs. H. M. Jones, best sample canned apples.....	1.00
Mrs. Jas. Brainerd, “ “ “ pears.....	1.00
“ “ “ pared peaches.....	1.00
Mrs. C. H. Root, “ “ “ whole peaches.....	1.00
Mrs. Jas. Brainerd, “ “ “ plums.....	1.00
E. W. Sanders, “ “ “ cherries.....	1.00
Mrs. Jas. Brainerd, “ “ “ crab apples.....	1.00
“ “ “ strawberries.....	1.00
Mrs. C. H. Root, “ “ “ raspberries.....	1.00

Mrs. C. D. Brockway, best sample canned blackberries	1.00
Mrs. Jas. Brainerd, " " " gooseberries	1.00
Mrs. E. E. Briggs, " " " currants.....	1.00
Mrs. C. H. Root, " " " grapes.....	1.00
Mrs. Jas. Brainerd, " " " tomatoes.....	1.00
Charles R. Nevitt, " " " corn.....	1.00
Mrs. H. M. Jones, " " " peas.....	1.00

Pickles.

Judges.—Mrs. D. R. Curran, A. C. Robinson, A. E. Bates.

Ripon packing company, best greatest variety not less than 6.....	3.00
Mrs. D. Huntley, second best " " "	2.00

Plants and Flowers.

<i>Judges.</i> —Mrs. Walter Kempster, Mrs. K. M. Hutchinson, Mrs. D. R. Curran.	
Isaac Miles, best display of green house plants	5.00
Mrs. Moulton, best display house plants by amateur.....	3.00
Mrs. Bliss, best show of oleander in bloom.....	1.50
Mrs. Sarah Vincent, second best show of oleander in bloom.....	1.00
Isaac Miles best display of pelargoniums.....	1.50
Mrs. G. Moulton, best display of geraniums.....	2.00
Mrs. Sarah Vincent, second best display of geraniums.....	1.00
Isaac Miles, best largest variety fuschias in bloom.....	1.00
" " " display of roses.....	1.50
" " " six named varieties of roses in bloom.....	1.00
" " " carnation " "	1.00
" " " display of hanging baskets.....	1.50
Mrs. G. Moulton, second best display hanging baskets.....	.50
Isaac Miles, best display cactus in varieties.....	1.00
" " " single "	1.00
A. H. Forman, best general assortment ornamental foliage plants.....	1.00
Isaac Miles, second best " " " " "50
" " " best display begonias.....	1.00
Mrs. Anna Brown, best single specimen begonias by amateur.....	1.00
Mrs. G. Moulton, " " " house plant "	1.00
Jennie Moulton, best three house plants lady under 16.....	1.00
Rrs. E. Van Doren, best specimen english ivy by amateur.....	1.00
Mrs. Bliss, second " " " " "50
Mrs. Sarah Vincent, best coxcomb by amateur.....	1.00

Cut Flowers.

Mrs. D. Huntley, best collection cut flowers by expert.....	2.00
Isaac Miles, best artistically arranged floral design.....	2.00
" " " best pair round bouquets.....	1.00
" " " flat "	1.00
" " " pyramid "	1.00
Emily T. Smith, best display flox drummondii.....	1.00
Mrs. D. Huntley, best asters in quality and variety.....	1.00
Kate Pepper, best show of dahlias.....	1.00
" " " pansies.....	1.00
" " " gladiolas.....	1.00
Isaac Miles, " " " verbenas.....	1.00

Best show, competition confined to amateurs.

Emily Smith, best collection cut flowers by expert.....	2.00
Mrs. D. Huntley, best show of pansies.....	1.00
Kate Pepper, " " verbenas.....	1.00

Vick's Special Premiums.

Miss Emily Smith, best collection cut flowers.....	20.00
Kate Pepper, second " " " ".....	15.00
Mrs. D. Huntley, third " " " ".....	10.00
Mrs. H. B. Knapp, 4th " " " ".....	5.00

Domestic Manufacture and Fancy Work.

Judges.—A. E. Bates, Mrs. A. E. Bates, Mrs. E. Farnsworth.

W. H. Coleman, best flannel.....	2.00
" second best flannel.....	1.00
C. W. Beals, best rag carpet.....	2.00
A. H. Hart, second best rag carpet.....	1.00
Mrs. Henry Stearns, best woolen blanket.....	2.00
Hannah Slack, second " " ".....	1.00
Mrs. C. H. Root, best white quilt.....	2.00
W. H. H. Wroe, second best white quilt.....	1.00
" best cotton patchwork quilt.....	2.00
E. B. Ransom, second best " " ".....	1.00
Mrs. J. Streever, best worsted " " ".....	2.00
" " " " ".....	1.00
Mrs. A. L. Brockway, best quilt of any material.....	2.00
Mrs. Fanny Brown, second best quilt of any material.....	1.00
Mrs. Hannah Slack, best woolen yarn.....	1.00
Mrs. C. F. Rogers, second best woolen yarn.....	.50
Mrs. Lucy Spore, best men's socks.....	1.00
Mrs. A. Rogers, second best men's socks.....	.50
C. F. Rogers, best ladies stockings.....	1.00
H. Jones, second " " ".....	.50
Mrs. Lucy Spore, best woolen mittens.....	1.00
Sarah Fisher, second best woolen mittens.....	.50
Mrs. D. R. Curran, best worsted crochet tidy.....	1.00
Hannah Slack, second best worsted crochet tidy.....	.50
Mrs. C. H. Root, best crochet work.....	1.00
N. E. Coffin, best rug.....	1.00
H. W. Quick, second best rug.....	.50
Clorina Ernst, best affghan blanket.....	1.00
H. Jones, best wool scarf.....	1.00
Mrs. D. Huntley, second best wool scarf.....	.50
Mrs. O. P. White, best ottoman cover.....	1.00
A. M. Weber, second " " ".....	.50
Mrs. Mary Torrey, best knit bed spread.....	1.00
Miss E. VanDoren, second best knit bed spread.....	.50
Sarah Fisher, best tatted tidy.....	1.00
C. H. Root, second best tatted tidy.....	.50
Miss M. Curran, best tatted collar.....	1.00
Mrs. C. H. Root, best crochet cotton tidy.....	1.00
Emma Jones, second " " ".....	.50
J. E. Austin, best knit breakfast shawl.....	1.00

Mattie H. Goe, best worsted embroidery.....	1.00
Mrs. H. White second best worsted embroidery.....	.50
Mrs. G. Moulton, best silk embroidery.....	1.00
Mary Clark, best floss embroidery.....	1.00
A. M. Weber, second best.....	.50
Jessie Cowles, best worsted canvas work.....	1.00
Mrs. F. A. Jones second best.....	.50
A. M. Weber, second best netted worsted canvas work..... diploma	.50
Mrs. H. D. Knapp, best skeleton work.....	1.00
Lizzie Montgomery, best worsted fruit.....	1.00
Mrs. G. Moulton, best worsted flowers.....	1.00
Sarah Fisher, second best.....	.50
Mrs. D. Huntley, best handwork knitting.....	1.00
A. M. Weber, best machine fancy knitting.....	1.00
" second best.....	.50
" best machine knitting.....	1.00
" second best.....	.50
M. Rollins & Co., best wax fruit.....	1.00
" second best.....	.50
Mrs. C. H. Root, best wax flowers.....	1.00
Mary Clark, second best.....	.50
Mrs. Wm. H. Burtis, best work in wax not mentioned.....	1.00
Mary Clark, second best.....	.50
Mrs. Asa Rogers, best work in hair.....	1.00
" best mosswork.....	1.00
Mrs. Amor Brown, best work in shells.....	1.00
Mrs. Asa Rogers, second best.....	.50
Mrs. D. R. Curran, best work in beads.....	1.00
Mrs. F. A. Jones, second best.....	.50
Mrs. Amor Brown, best agricultural wreath.....	1.00
H. M. Quick, second best.....	.50
Mrs. H. B. Knapp, best dried grass and flowers.....	1.00
Mrs. C. H. Root, second best.....	.50
A. M. Weber, best display of millinery.....	2.00
Mrs. G. Moulton, best fancy basket.....	1.00
Mrs. C. H. Root, second best.....	.50
Mrs. T. S. McFarland, best worked lamp mat.....	1.00
Mrs. M. Curran, best wrought set under garments.....	1.00
Mrs. M. H. Cheny, second best.....	.50
Mary B. McKoy, best specimen plain sewing by girl under 15.....	1.00
Carrie Beardmore, second best.....	.50
Mrs. Sturtevant, best neatest darned stocking.....	1.00
Mrs. D. R. Curran, best collection ornamental work.....	2.00
Mrs. Snell, best pin cushion.....	2.00
Mrs. D. R. Curran, best dried wreath.....	1.00
Amor Brown, best feather work.....	1.00
Mrs. Asa Rogers, best worsted work.....	1.00
Mrs. J. E. Wheeler, second best.....	.50
Mrs. F. A. Jones, best toilet set.....	2.00
Geo. H. Treat largest collection machine made work.....	2.00
Laurella Wilmarth, bed spread.....	1.00
J. H. Longstreet worsted work.....	1.00

Mrs. C. H. Root, cone work.....	1.00
" Silk patchwork.....	2.00
Sarah Fisher, gents' slippers.....	1.00
Mrs. Amor Brown, feather wreath.....	1.00

Natural History.

Judges.—H. A. Hobart, Mrs. H. A. Hobart, Mrs. G. H. Read, G. S. Albee.

K. M. Hutchinson, best collection mineralogy.....	4.00
D. W. Vincent, second best.....	3.00
K. M. Hutchinson, best collection of insects of Wisconsin	3.00

Works of Art.

Judges.—H. A. Hobart, Mrs. G. H. Read, Mrs. H. A. Hobart.

Miss. S. M. Bliss, best oil painting any landscape.....	diploma and 3.00
Mrs. H. Weidner, best painting in water color.....	2.00
J. Burnham, second best.....	1.00
C. B. Manville, best portraits in oil.....	diploma and 3.00
M. S. Holly, best india ink portraits.....	diploma and 2.00
" best portrait in water color.....	" "
" best solar photograph.....	" "
" best exhibition sun pictures.....	" and 3.00
Charles R. Nevitt, best collection coins or medals.....	2.00
Willie Nevitt, second best.....	1.00
" best collection postage stamps.....	1.00
W. W. Daggett, best pen and ink drawing.....	2.00
" second best.....	1.00
" best specimen penmanship.....	diploma and 2.00
Ada E. Chapple, best map drawing boy or girl under 15.....	" "
Lillie Kimball, second best.....	1.00
Andrew Raine, best pencil drawing fair grounds.....	diploma 2.00
J. H. Johnson, best stencil cutting.....	diploma and 2.00
" best sculpture.....	" "
T. S. McFarland, best carving in wood.....	" "
M. Reichert, best lettering on glass in gold.....	" and 6.00
Reid & Miller best exhibition printing in variety.....	" and 2.00
Allen & Hicks, second best.....	1.00
" best exhibition book-binding.....	diploma and 2.00
Oshkosh Stencil Works, best rubber stamps.....	diploma
" " " best steel stamps.....	"
" " " best stencil plates.....	"

Manufactured Iron, Stone and Clay.

Judges.—H. E. Zielley, D. Huntley, A. H. Zielley.

Hasbrouck & Monroe, best cook stove with furniture.....	2.00
K. M. Hutchinson, best parlor stove (coal).....	2.00
Hasbrouck & Monroe, best office stove.....	2.00

Textile Fabrics &c.

Judges.—S. Bartlett, C. L. Fay, C. M. Hambricht.

W. H. Coleman & Co., best doeskin.....	2.00
Waukesha Manufacturing Company, best cassimeres.....	2.00

Blake & Co., gents blanket shawl.....	2.00
“ best ladies blanket shawl.....	2.00
“ best exhibition ladies woolen shawls.....	5.00
“ best affghan blanket.....	2.00
“ best assortment machinery goods.....	2.00
Waukesha Manufacturing Co., best display woolen goods.....	dip. and 3.00

Leather and Leather Manufacture.

Judges.—E. Follett, E. A. Krub, W. C. E. Thomas.

Smith & Bros., best traveling trunk.....	2.00
“ best carpet bag.....	1.00
“ best ladies satchel.....	1.00
J. M. Rollins, best pair gents' summer boots.....	1.00
“ best pair gents' winter boots.....	1.00
“ best pair cowhide boots.....	1.00
“ best pair ladies summer walking boots.....	1.00
“ best pair ladies winter shoes.....	1.00
Sarah Fisher, best pair gents' slippers.....	1.00
J. M. Rollins, second best.....	1.00
“ best pair ladies slippers.....	1.00
P. L. Smith, best double carriage harness.....	diploma and 3.00
“ best single or buggy harness.....	“ and 2.00
“ best farm wagon double harness.....	2.00
J. M. Rollins, best display boots and shoes.....	diploma
“ best assortment india rubber goods.....	diploma and 2.00

Machinery and Farm Implements.

Judges.—Chester Hazen, A. M. Barnum, H. W. Webster

M. K. Dahl, best plow for turning sod land.....	diploma
Metcalf & Co., best plow for turning under stubble.....	“
M. K. Dahl, best plow for general use.....	“
Conrad Coon, best rotary harrow.....	“
Wm. Sheldon, best two horse cultivator for corn crops.....	“
D. N. Fairmain, best straw and stalk cutter.....	“
VanBrunt & Davis, best seed sower and cultivator combined.....	“
J. N. Linderman, best corn and bean planter.....	“
W. H. Bell, combined mower and reaper with or without attachment.....	“
Worden, Mitchell & Co., best reaper with self rake attachment.....	“
“ “ “ best reaper without “ “ “.....	“
Gibbs & Sterrett, best mo wing machine.....	“
Fuller & Williams, best self binding attachment.....	“
VanBrunt & Davis, best horse pitchfork.....	“
Geo. Wilcox, best threshing machine.....	“
Blake, Beebe & Co., best fanning mill.....	“
Lindsay & Bros., best seed sower and cultivator combined.....	“
Wheeler Seeder Company, best seed sower and cultivator.....	“
Depere Iron works, best one 2 horse lindell power.....	“
“ “ “ best circular saw frame.....	“
E. J. & W. Lindsay, best self rake and mower combined.....	“
E. J. Cable, best Chapmau's r. w. pitching apparatus.....	“
Gibbs & Sterrett, best climax mower.....	“
H. S. Hollenbeck, best Wood eagle mower.....	“

E. J. & W. Lindsay, best mower Cayuga chief.....	“
A. E. Foote, best self acting chemical fire engine.....	silver medal
E. J. & W. Lindsay, best Watertown portable engine.....	diploma
“ “ best feed mill.....	“
G. D. Wyman, best patent swivel plow brace.....	“
F. C. White, best sprinkling attachment for horse power.....	“
VanBrunt & Davis, best two horse broadcast sower.....	“
“ “ best two horse cultivator.....	“
R. Miller, best land roller.....	“
H. S. Hollenbeck, best sweep rake reaper.....	“
C. C. Paige, best water wheel.....	“
Sawyer Manufacturing Co., best Woodbury horse power.....	“

Manufactures of Wood.

Judges.—G. F. Wheeler, J. Fertherby, G. Olds.

P. L. Smith, best display carriages and sleighs.....	diploma and 8.00
John T. Leavens, second best.....	4.00
P. L. Smith, best 3 seat carriage or platform spring.....	5.00
John T. Leavens, second best.....	3.00
P. L. Smith, best top carriage.....	4.00
“ second best.....	2.00
Wm. Servis, best single seat phaeton.....	4.00
P. L. Smith, second best.....	2.00
Wm. Servis, best single open buggy.....	4.00
P. L. Smith, second best.....	2.00
Wm. Servis, best two seat sleigh.....	4.00
P. L. Smith, best single seat sleigh.....	4.00
John T. Leavens, second best.....	2.00
Parker & Ball, best display wagon timber.....	diploma and 3.00
Jones & Foster, best display sash, doors &c.....	“ “
“ “ second best.....	“ “
Wisconsin Cooperage Co., best specimen flour barrel.....	1.00
B. H. Soper, best set chamber furniture.....	diploma and 2.00
“ handsomest bureau.....	“ “
“ best display parlor furniture.....	“ and 3.00
“ best easy chair.....	“ and 1.00

Miscellaneous.

Judges.—C. C. Paige, C. A. Trowbridge, J. D. Davis.

W. E. Lombard, best steam washer.....	diploma
Arnold Bros., best patent beer preserver.....	“
Hough & Pew, mitre box.....	“
Eliza Washburne, basket relics.....	1.00
Hazen Bros. & Judd, windmill.....	diploma
Althouse & Wheeler, “.....	“
“ “ “.....	“
“ “ windmill pump.....	“
M. Reichert, sign carved in wood.....	“
“ “ “ black letters.....	“
“ omnibus scroll.....	“
“ “ “ landscape centre.....	“

Wheeler & Wilson, sewing machine for family use.....	premium and	"
" " " " " manufacturing " " "	"	"
Edwin Nye, maple syrup.....	diploma and	1.00
" " sugar.....	"	"
Cameron & White, washing machine and table combined.....	diploma	
J. McCoon, a what is it.....	1.00	
C. J. Cameron, shirt bosom stretcher &c.....	diploma	
M. M. Safford, pruning shears	"	
J. M. Simpson, novelty sash balance.....	"	
H. S. Janes & Co. sample glazed sash.....	2.00	
Hasbrouck & Monroe, coal stove.....	diploma	
Julia Rea, picture.....	"	
J. Humphrey, magic needle threader sewing machine.....	"	
A. H. Forman, collection ferns and fernery.....	diploma and	2.00
" Wardian case.....	"	1.00
" king's fluting and polishing iron.....	diploma	
" samples	diploma and	1.00
Mrs. R. Styles, California pine comb.....	"	1.00
T. B. Shipman, 2 jars seedling strawberries.....	"	"
Jennie Voorhees, Kohler gents shirt chart.....	diploma and	1.00
C. D. Brockway, maple syrup.....	1.00	
N. W. Oil Co., machine oil and oil cans.....	diploma	
W. J. Worcester, automatic driving gate.....	"	
R. Miller, self acting carriage gate.....	"	
Tilton, Steele & Badger, show of cranberries.....	diploma and	2.00
B. W. Place, case of buckskin mits.....	diploma	
Luce & Culver, Stockwell wooden pumps.....	"	
Clarks & Forbes, case furs.....	"	
G. Olds, omnibus.....	"	
W. E. Wood & Co., victor wringer.....	"	
Mrs. A. M. Tyrrell, Lemon tree.....	"	
B. H. Soper, side board.....	first premium and	3.00
" display furniture.....	diploma	
E. D. Brockway, maple syrup.....	diploma and	1.00
Hugh Stevenson, canal boat.....	"	"
W. H. Castner, architectural design.....	"	
Clara E. Hamer, the old home.....	1.00	
G. R. Lampard, display musical instruments.....	diploma	
B. J. Musser and Co., baking powder and extracts.....	"	
Jennie Voorhees, dress charts.....	"	

ESSAYS AND ADDRESSES.

MISCELLANEOUS.

SHEBOYGAN FALLS, *May, 6, 1875.*

R. D. TORREY:

Dear Sir.—Your request recently received, asking me to write a paper for your forthcoming TRANSACTIONS on the subject of the Dairy, is rather reluctantly attempted. Yet, the impetus given to that enterprise during the past year by a fair yield and increased prices, and a ready sale, have awakened an increased interest in the subject in the Northwest.

While many other products of the farm have been sold for less than the cost of production, butter and cheese have been in active demand at good paying prices, which has given increased confidence to dairymen and awakened inquiry among many not heretofore engaged in that enterprise; and the present prospect is that there will be a large increase in dairy products throughout the Northwest.

The question will undoubtedly arise that, in view of this steady increase, is there not danger of an over-production and a consequent breakdown in price. Those best informed on this subject do not anticipate that such a result will effect the Northwest, for a long time at least. It must be very remote, for the reason that the dairymen of the Eastern States, who now furnish the bulk of such products, have to work under the disadvantage of high-priced land. Cows, worth from sixty to eighty dollars, corn, one dollar, and hay thirty dollars per ton. It may be a pertinent question for Eastern dairymen whether they can long compete with just as intelligent a class of farmers and manufacturers with less than two-thirds

as much capital invested or running expenses incurred, producing an article fully equal in quality to their own, with only the slight difference of freight in their favor.

With the many natural advantages possessed by the best dairy districts of the Northwest, it seems the part of wisdom for those living in such localities to give it consideration. The territory represented by your NORTHERN WISCONSIN AGRICULTURAL AND MECHANICAL ASSOCIATION—say the tier of counties bordering on Lake Michigan as far south as Milwaukee and two or three counties west of there—embrace probably the very best section for dairy purposes in the Northwest. Its cool climate, nutritious grasses, easy access to the grain fields of the West, its superior facilities for transportation, render it well adapted to this enterprise. The character of the inhabitants of this locality, composed mostly of small, industrious farmers, who furnish, in most cases, plenty help for milking without the expense of hiring, and furnishing steady and profitable employment through the year, giving a steady contentment so essential to the success of any enterprise.

A good, practical test to determine which is the best kind of farming, would be for the farmers living on any section of land to get together and figure up their receipts arising from grain raising, sheep husbandry, or stock raising, and then compare with another section of land devoted to the dairy; and the difference will convince any one that Northern Wisconsin, if more devoted to the dairy enterprise, would add largely to her wealth and resources.

The increasing demand for butter and cheese must evidently be supplied from the Northwest, and the people living in the locality above referred to cannot learn any too soon to become skilled in the care and treatment of cows and in the manufacture of butter and cheese.

Yours respectfully,

HIRAM SMITH.

APPLE GROWING IN NORTHERN WISCONSIN.

An Address Delivered before the Brown County Horticultural Society, by Robert Chappell.

The subject for discussion this evening, and upon which it has been made my duty to present some opening remarks, is Apple Growing in Northern Wisconsin. In considering this matter heretofore, it has been our custom to compare the merits of well known eastern varieties, taking it *for granted* that among them, a few at least could be found well fitted for the peculiarities of our soil and climate. Now I wish to present for consideration two questions—Have we not taken too much for granted? and if yes, what are we going to do about it?

To my mind "the logic of events" has already answered the first question. Tens of thousands of the most noted varieties of eastern apples have been planted in Northern Wisconsin during the last twenty years, and where are they now? Complete or partial failure has been the rule, and *apparent* success even, a very rare exception. So general is the admission of this fact, that many have abandoned the idea of any further planting, or are contenting themselves with some varieties of the Siberian crab, which, except for special purposes, are of little value, and in fact, are hardly worthy to be called apples at all.

We have no right to say that these failures are all due to neglect or improper methods. It is true that in many instances the young plantations have not had a fair chance, but in a majority of cases these experiments have been made by people born and reared among the orchards of New England, New York and Ohio, who have given their young trees the same kind of culture, and as good as is customary in those states. And these people have not rested with one trial. When their first trials failed they "possessed their souls" with what patience they could, got other varieties which they hoped

might better answer the purpose, and subjected them to somewhat different treatment, but generally with a similar result. All the known good varieties have in this way been tested again and again. How long is it necessary to persevere in this waste of patience, time and money, before the question may be considered settled? Is not a period of twenty-five years enough?

Some of our horticulturists are encouraging hopeful expectations of new varieties from Russia, it appears to me without sufficient reason. We must remember that the southern portion of Russia, which is the fruitful portion, although a trifle further north than the place where we stand, is not necessarily colder than here or as cold. It is in fact, between the same parallels of latitude as France, Switzerland, Austria and Northern Italy, the home of many varieties of fruit which will not endure our climate at all. The most noted of our Russian apples are Red Astrachan, Duchess of Oldenburgh, Alexander and Tetofsky. The first two have lately lost their distinctive character of "iron clad." They were certainly originated in Southern Russia. The Alexander is a superb fruit in appearance only, its place is the kitchen. Tetofsky is now on trial here, and whether it succeeds or not, is not a first-rate fruit.

The only Canada apple which holds a prominent place among us, is the Fameuse or Snow Apple; and this is the one apple of all the superior varieties that have been tested here in which I have any confidence. But one apple will not answer our purpose even if it could be safely depended on.

Now the apple is pre-eminently the fruit of temperate climates. Maine, New Hampshire, Vermont, Northern and Central New York and Canada, produce in abundance the best apples in the world, all of which places have a climate as rigorous as our own, and the idea that we *cannot* have at some time good orchards, good apples, is incredible.

We have tried a great variety of trees from a great variety of places and nurseries. We have given them every variety

of culture, good, bad and indifferent. We have planted upon clay, upon sand, upon loam, upon gravel, upon the hills, upon the plains and in the valleys. We have planted in the spring and in the fall. We have planted deep and we have planted shallow. We have planted them perpendicular and at an angle leaning to the south. We have cut off the tap roots and we have left them on. We have pruned in spring, in summer and winter. Root pruned, top pruned and left unpruned. We have sworn at different times by low heads and high heads. We have treated them with manure and without it. We have plowed our orchards and left them in grass. We have protected their trunks from the freezing and thawing of early spring, and we have left them to face it out in their own way. We have washed them with soap suds and solutions of sal soda and potash. We have painted them with whitewash and with unsavory compounds that shall be nameless. We have plugged them with sulphur, camphor, calomel and other potent drugs. We have tried top grafting and crown grafting and root grafting. We have tried Standards, Small Dwarfs, Medium Dwarfs and Dwarfs upon their own roots. We have done everything I believe, but one, and the result has been wonderfully uniform, failure, disappointment, disgust.

The only thing that we have *not* tried, in any systematic way, is the productions of *new varieties*, that shall be in one sense *natural* to the Northwest.

It may be stated as a rule, with but few exceptions, that plants and fruits succeed best in the places of their origin. A notable instance of this is found in the *Rhum Palmatum*, or Turkish Rhubarb, which when brought to France and most carefully cultivated, has proved worthless. In applying this rule to the apple, we must not take it in its largest sense, for it is not a *native* fruit, although it reaches here its greatest perfection. What is meant, is that any good variety of apple, will, as a rule, succeed best in the locality where it originates. Thus Swaar, Spitzenburgh and Newtown Pippins, originated in Eastern New York, and the Northern Spy in Western New York.

The Baldwin, Benoni and Roxburg Russet, in Massachusetts; the Belleflower in Pennsylvania, or New Jersey, and Pecks Pleasant and the Seek-no-further in Connecticut. The list might be largely extended, of apples famous in the localities where they originated, and that do not succeed *as well* in any other. All the above named famous apples have been tried in this region and found wanting.

Now, if it is true that we are in the natural climatic range of the apple; that there is no obvious unfitness in our soil; that the good varieties brought from a distance have in most cases failed; and that fruits are best and hardiest in the localities where they originate, can we not see pretty plainly what course we ought to pursue? Is it not plain that the Horticulturists of the Northwest ought to attempt the production of *new varieties*, better fitted for the conditions of the country? Children of the soil, that shall be *at home* in the peculiarities of our climate?

There are two methods of producing new varieties of fruit, though I believe both may be ultimately referred to the same principle. First, by artificial *cross breeding*, and second by *successive reproduction*.

It is about seventy-five years since Thomas Andrew Knight, President of the London Horticultural Society, introduced the practice of cross breeding in fruit, by which means he produced many new and valuable varieties.

Crossbreeding is simply the mixing of two *varieties* of the same *species* of fruit, by means of the blossoms. The blossoms of the apple are of the form sometimes called *perfect*, that is, each individual blossom contains within itself, all the organs necessary to reproduction. So that the blossom of a Spitzenburg in an isolated position, will always produce a Spitzenburg and nothing else; but if by any means it becomes fertilized by pollen from another variety of apple, although the *fruit* will still be a Spitzenburg, its *seeds* when planted, will produce a new fruit, more or less resembling both its parents. And herein is the whole theory of crossbreeding.

I may here say that crossbreeding is practiced only between varieties of the *same species*. The apple and pear, though sometimes so much alike, are of different species. Hence, no one has yet succeeded in crossing them. In rare instances crosses are made between *species nearly allied*, the result is then poperly called a *hybrid or mule*. Hybrids are not *generally* reproductive, the race ending with the first generation.

The process is simple, though it requires delicate handling. The pistil is the central raised portion of the flower, at the base of which is the embryo fruit. The summit of this pistil is called the stigma. The outer circumference of the face of the flower is occupied by the stamens, which terminate in the small capsules or anthers, which contain the fertilizing dust or pollen. The use of the pollen is to fertilize the young fruit as the base of the pistil.

Before the flower has fully matured, these stamens are with a pair of scissors, cut entirely away. Then from a flower on another tree, at a time when the pollen is matured (that is dry and powdery) it is collected by a small fine brush and deposited on the stigma of the flower from which the stamens have been removed—and the work is done. This must be done at the right time—that is when the pollen is dry and fine, and the stigma is moist enough to retain it.

This practice is in great use by florists, for producing new and beautiful flowers.

The method of originating new varieties by *successive reproduction*, if not strictly a natural process, is less artificial than that of crossbreeding. A fruit tree strictly in its natural state, will (as a rule) reproduce itself continually by seed without variation. But when subjected to new conditions, and careful cultivation, its seeds are more likely to produce a fruit varying somewhat from its natural character.

The greatest difficulty is in producing the *first* improved generation. When it has once *moved out* of its natural state, it is then fairly in the way of improvement. Each successive replanting of the seed is likely to produce better and still bet-

ter results, till the fruit has reached the boundary of its capacity for improvement.

Now although it is true that the best apples in the United States have been originated by the replanting of seed, yet for want of the proper application of the true principle, the best results have been *accidental*.

It is a singular declaration to make, and yet I believe it is true, that the more carefully the seeds have been selected, the more unsatisfactory have been the results.

Granting that the capacity for improvement in any given variety of fruit, is limited, and that according to the theory of VanMonz, this limit may be reached in a few generations, we have a very plain reason for this fact. For when a fruit tree has arrived at perfection (there being an inherent tendency to return towards its original state), not one of the varieties produced from its seeds will be better than itself, but probably all will be much worse, now when sowing for fruit it has always been customary to select seed from the best fruit available; in short, from varieties that have already arrived at the end of their march to perfection.

Hence, in latter days, not one seedling apple in a thousand has proved to be really of first rate quality. In strong confirmation of this theory, we may note the declaration of Duhamel, that for fifty years he had been in the habit of planting seeds of the best varieties of table pears in France, without producing a single valuable variety. It may also be remembered the results of first planting of the New England colonists were very unsatisfactory; so much so, that some concluded that the country was not adapted to the production of the best apples; but in fact they had been too careful in the selection of their seed. They had brought to this country seeds of varieties that had reached perfection already.

Now this is no fanciful theory. It has been tested in a most thorough and systematic way. I have already mentioned the name of Van Monz. This gentleman was a resident of Louvain in Belgium. A man of scientific attainments, and an

ardent pomologist. He devoted the greater part of his life to the cultivation and the amelioration of fruits; chiefly upon the plan of successive reproduction from seed. His experiments were conducted on a large scale, were extended through many years, and were in my mind entirely conclusive.

Belgium is said to be the paradise of pears, and to the improvement of this fruit he gave most attention. He experimented largely however with apples and stone fruit.

It is stated by Downing, that in 1823, the nurseries of Dr. VanMonz contained two thousand *seedlings of merit*. One result of his experiments was, to convince him, that seed from an *old* tree was more likely to produce inferior fruit, than seed from a *young* tree of the same variety.

His manner of proceeding was this:

Gathering his seeds from a *young seedling tree*, not a wild one, but one that is already in a state of variation, he plants them in a seed bed. When they have grown to a sufficient size to enable him to form some idea of their character and constitution, he selects the most promising individuals, takes them up and cuts off the tap roots. He then plants them in nursery rows, only a few feet distant from each other. Here he leaves them, with an occasional heading in of the longest branches, till they produce their first fruit. From the most promising specimens of fruit, he takes the seeds and plants again, subjecting the young trees to the same treatment, until fruit is again produced.

The process is again and again repeated, each generation producing better fruit and coming earlier into bearing than its immediate predecessor, till in the fourth or fifth generation the varieties produced are nearly all of fine quality.

It was found by him, that different *species* of fruit required different periods of time to arrive at what he called perfection. He thought that, as a rule, pears would require five successive generations, Apples four, Peaches, Plums and other stone fruit but three.

It should be mentioned that VanMonz thought that the

fruit for this process should be gathered before full maturity, and allowed to rot before removing the seeds; believing that this would have a tendency to subdue somewhat the original coarseness of the tree. He says of himself:

“I have found this art to consist in regenerating in a direct line of descent, and as rapidly as possible an improving variety taking care that there shall be no interval between the generations. To sow, to resow, to sow again, to sow perpetually, in short to do nothing but sow, is the practice to be pursued, and which cannot be departed from; and in short, this is the whole secret of the art I have employed.”

Whatever may be thought of his theory and practice, it is certain that VanMonz originated many varieties of superb fruit. In Downing's list of pears are found over twenty varieties produced by him. Though Mr. Downing evidently favors the system of cross breeding, because it is more scientific and produces its results in shorter time, he uses with regard to it these hopeful and encouraging words:

“An American gardener will easily perceive from what we have stated a great advantage placed in his hands at the present time, for the amelioration of fruits by this system. He will see, that as most of our American varieties of fruit are the result of repeated sowing, more or less constantly repeated, he has before him almost every day, a part of the ameliorating process, in progress, to which Dr. VanMonz beginning *de novo* was obliged to devote his whole life. * * * *

Our own experience leads us to believe, that he will scarcely have to go beyond two generations to obtain fine fruits.”

Now I am thoroughly convinced that the idea of further experiments with the old varieties of apples ought to be abandoned by us. I believe that if we are to have any successful Orchard culture, it must be with new varieties, originated in our own climate; and so believing, it seems to me to be the duty of Horticultural Societies and individuals to set about the production of them at once. I have endeavored to describe with sufficient minuteness the two ways by which it may be

done. First, by cross breeding. Second, by repeated planting.

The first may be too difficult for general use, but any one who knows enough to select and plant seeds, is master of the second process. To those of us who have reached the time of gray heads and gray beards, the idea of waiting so long for the perfection of the fruit of our planting, may seem discouraging. But can we not act sometimes from motives above the level of selfish gratification.

If our forefathers had not planted, where would now be the fruit. We owe it to our children to provide for them at least as good fruits as our fathers provided for us. Let us pay our debts if we do no more. Moreover, every true gardener experiences much more satisfaction in directing and watching the process of producing good fruit, than he does in eating it.

But after all, the process need not be so tedious as it seems. For we have Downing's authority for expecting that fine fruit can, with us, be produced by two plantings. And a fortunate selection of seed may yield superior fruit in the first generation. Besides, there are other methods of hastening the maturity of specimen fruit that we have not now time to discuss. And whoever shall be so lucky as to originate a first rate hardy variety of apple, will not only be a public benefactor, but will put money in his purse, and plenty of it.

For myself, I have finished my experiments with eastern varieties of apples; but to those who wish still further "to see the folly of it," I would say, plant seeds notwithstanding and let the two experiments progress side by side. The one need not hinder the other.

I wish to urge, as briefly as possible one other reason for seed sowing. Time will not allow me to argue the question of the superior vitality of seedlings. I take it for granted that a seedling tree is always, under the same conditions, more hardy than a grafted one.

I also assert that for this region, a hardy stem is the first

requisite for a fruit tree, because most of our apple trees at least, die from diseases of the stem—chiefly, in my opinion, in consequence of *sudden freezing and thawing in early spring*.

Now if these things are so, there is encouragement for those to plant once, who are not willing to make successive plantings. To such a one I would say, select your seeds according to rules already set forth and sow them in a good seed bed. When they have had one years growth take them up carefully and cut off the tap root. Reject all that are not strong and thrifty. Plant in nursery rows and keep as carefully cultivated as if they were cabbages. When large enough to set in the Orchard, reject all but the best. Do not waste ground, labor and time on an unpromising tree. At the first fruiting, if the fruit is not worth cultivating, graft in the top with some hardy variety that suits you better and you have a grafted tree, made strong in its weakest part—the stem.

At the first fruitage of such an Orchard some really good fruit would be shown, and the poorest of it would probably be better than the crabs with which we are now filling the vacant spaces in our dying orchards.

MR. PRESIDENT:—In view of the fact that this paper was intended merely to introduce the subject for discussion, I don't know but I ought to apologize for its length. But "a new departure" seems so necessary for us, and I have said so little of what ought to be said upon the subject, that it appears to me that I have barely introduced the matter after all.

ROBERT CHAPPELL.

STRAWBERRY CULTURE.

Members of the Brown County Horticultural Society:

At the request of some of your numbers, I will give you my views of Strawberry culture, in a more formal manner than I was able to do at the meeting not long since, when we discussed the question as to the best variety and mode of culture. There is probably no other fruit in existence that thrives and flourishes over so large a portion of the earth's surface as the strawberry. It grows and bears its fruit beneath the heat of a tropical sun, and it nestles amid the rocky crags of Lapland, almost, if not quite within the borders of the Arctic circle. Its home, and where it flourishes in its greatest glory in our country, is perhaps north of the forty degrees of latitude. It grows to a greater or less extent upon almost all kinds of soil, except a very dry or a very wet one, though a light loom that is rather damp than dry, is probably the best of all soils for this fruit.

The varieties are very numerous, and it is said that more than four hundred varieties have been under cultivation in this country within the last twenty or twenty-five years. It may, perhaps, be asked if the fruit flourishes over so large a portion of the earth's surface, if the varieties are so numerous, and the fruit is such a universal favorite among all classes, from the king upon his throne to the peasant in his hovel, why is it that comparatively so few of our people succeed in having and keeping up a good bed of strawberries?

This is a fair question, and before proceeding farther, I will give at least a few of the reasons why so many fail in their attempts to cultivate this most beautiful and delicious of all small fruits:

And first, of all the hundreds of varieties that have been, and many of them still are in cultivation, probably not twenty are worth a moment's notice to the ordinary cultivator; and it is doubtful whether five even of this number will ever prove

profitable for general cultivation. A plant may do well and bear nobly in one place and under certain circumstances, and yet prove to be utterly worthless for general cultivation. It may, and sometimes does do well over quite a large area of territory, and yet fail when widely disseminated. There is no doubt but Hovey's Seedling did well for a long time in Massachusetts.

The Early Scarlet did well in New Jersey and in some other portions of the country.

Mr. Knox doubtless raised some splendid crops of the *Jacunda*. Others have raised some fine crops of the *Triomphe de Grand*, and the same may be said of many other varieties, that have been successful under certain circumstances and in certain localities, but have either partially or wholly failed when the attempt is made to bring them into general cultivation. Hence, it is always unsafe, and will generally prove to be a dead loss to take a new variety simply because it is recommended.

If it has done well in some localities, it is far from certain that it will do well in all localities or when brought into general cultivation.

Another reason why many fail in strawberry culture, is the following:

The plants are divided into three general varieties, viz: *Staminates*, *Pistilates* and *Hermaphrodites*, or as they are generally termed, perfect plants. The first named having only the stamens in the flower are male plants, and of course never bear fruit. These may always be known by the flower, and generally by the appearance of the plant. As compared with the bearing plant the leaf stem is longer, the leaf is also longer and narrower, generally of a darker green, and has every appearance of being, as it generally is, a very healthy and vigorous plant. In fact they are the very plants that one not acquainted with them would be almost sure to select, if he was selecting plants for a new bed. One of them in the middle of a bed of one square rod, would nearly ruin it the

first year. They grow and spread with such rapidity that they would very soon destroy all the bearing plants in the bed. I should as soon think of leaving a Canada thistle in one of my beds as one of these plants, and yet I often see beds of pure staminate, not a bearing plant in the bed, and the owners wonder why they have no berries.

The Pistilate is the female or bearing plant, having pistils but no stamens in the flowers. They bear fruit only as they are fertilized by either the Staminate or the perfect flower, as it is usually termed.

The Russell's Prolific is one of this class, and will not bear if it stands entirely alone. I would recommend none of this variety to an amateur. They are more trouble, the crop not as certain, and no better when it is obtained.

The next is in reality a Hermaphrodite flower, which means having both stamens and pistils, and is a perfect flower, not only capable of fertilizing itself, but also of fertilizing pistilates if there are any near it.

The most perfect specimen of this variety is Wilson's Albany Seedling. I have examined many flowers, but have never elsewhere seen so perfect a combination of both stamens and pistils as is seen in this little flower, and I attribute much of its wonderful productiveness to its perfect development in this respect. This plant was first introduced to the public about 1856 or 1857. It has by its own good qualities won its way in the public estimation, until it is safe to say that at least nine-tenths, if not nineteen-twentieths of all the strawberries now raised for market in this country, are of this variety. Here then, is the plant for you to begin with. It thrives and bears well from the Atlantic to the Pacific coast, from the shores of Lake Superior to the Gulf of Mexico.

Now, for the best way to cultivate it. Select a spot of good, rich soil of almost any kind, except very dry or very wet. Manure it heavily with common barn-yard manure, constantly bearing in mind that there is no danger of making it too rich, while if it is left too poor, failure is certain and in-

evitable, for a large crop of berries *will not grow* upon poor land. Plow or dig deep and thoroughly, having the manure well mixed through the soil. In short, put the ground in the very best order possible. We will suppose that this is done about as soon as the land is in first-rate condition to work in the spring. Now about the plants. The best advice that I can give, is to purchase of some one who has them in their purity, and upon whom you can rely. I have seen some wretched failures here for want of plants that were true to name, or if true, were of poor quality. Set out no plants that have borne fruit; none that have formed a trunk at the roots, and none that have any number of black roots. Select plants that have formed from runners the previous season, and no others. Having selected the plants, the ground being in good condition, mark off the bed in rows two feet apart. Set the plants from twelve to fifteen inches apart in the rows. Set them a little deeper than they stood originally, but not deep enough to cover the crown or centre of the plant. Press the earth closely around it and then water it, putting on nearly or quite one pint of water to each plant. Hoe them occasionally, at least as often as any weeds make their appearance, until July, when they will begin to send out runners. You will get a very few berries, about enough to let you know whether your plants are pure or not. Some of your plants have failed to grow, others are not looking well. Take these out and train runners so that they will root, and make new plants where the first ones are missing.

Now, suppose that your rows run north and south and are two feet apart. Let each plant form say six new plants, three upon the east and three upon the west side of it, about six inches from the parent plant, and forming a semi-circle on each side of it. This will leave you an alley one foot in width to walk in. After these plants are formed, cut off all other runners and keep the whole season's growth in these plants. Do not cover them until winter is about to set in, then cover them with straw or cheap hay to the depth of one to one and a half inches. I prefer pine leaves to any other covering that

I have ever tried. It makes a light, close cover, and has no seeds to grow and annoy you the next season. Still, hay or straw will answer the purpose.

Do not be in too much of a hurry to uncover them in the spring. Leave them until the ground is entirely done freezing at nights, and until they are about ready to commence their season's growth. It is very possible that this will make your fruit two or three days later in ripening; but in return for it you will be almost certain to escape all the harm from late spring frosts. Many persons only uncover the plants and leave the covering upon the beds in the rows and between the plants. I prefer to take it entirely off the bed; hoe the ground all over, and be sure that everything in the bed except the plants is killed. Now, put on a good coat of fine manure, or wood ashes if you have them. If the ashes are leached use one bushel to the square rod; if unleached, use half that amount. I have taken it for granted that you have arranged your alleys that no water can stand on or about your bed. If you have not done this you have very likely made a mistake that will prove fatal to a large crop. But now you have arrived at a point where a good supply of water is an absolute necessity, and if it is not supplied from the clouds artificial watering must be resorted to and kept up, or a few days of drouth may ruin what promised to be a very valuable crop. Put on water enough to keep them perfectly thrifty and fresh all the time. Now, if you have carefully followed directions up to this time you ought to have at the least forty quarts of beautiful berries to every square rod of ground.

After the berry season is over do not neglect your bed and let it become overrun with weeds, but clean it out and loosen up the earth carefully, put on some more manure and then let the whole ground fill up with runners. If some of the plants look old and worn out, as they are very likely to do, if you have had a large crop, dig them up and throw them away and let the ground fill up with young plants. Cover again in the fall the same as the first year. The following

spring, when you rake off the covering, some of the more feeble of the plants will probably come off with the covering and also the old leaves of the plants. This will do no harm, as the bed will probably be covered very quickly with plants and there will be plenty left. Clean out all of the grass and weeds and then manure the same as on the previous spring.

This season your berries will not be quite as large as the first year, though your crop will probably be larger. After you have picked your second crop it is better to turn the bed under and raise a crop of cabbage or turnips. The bed is rarely worth keeping more than two years. This will, of course, make it necessary to lay out a bed every second year if you wish to keep up a constant supply of fruit.

The foregoing has, with but little variation, been my mode of culture for many years, and I certainly am not boasting when I say that I have been very successful. I obtained the Wilson in 1860, and since that time have failed but once to have at least a paying crop, and most of the time very profitable ones. It may very properly be asked, "Would you set nothing but Wilsons?" In reply I say, set nothing but Wilsons in your principal bed. Be sure that you have a full supply of those, and then you may experiment upon other varieties as much as you choose; still it is better to touch them lightly, for the probabilities are that you will never get pay for your time and money with any of them. "But," say some, "the Wilson is not a first-class berry; it is very acid and needs a great amount of sugar to make it good." This is true of much of the fruit that is seen in our markets. The berries are picked as soon as they are red and before they are in reality ripe.

During the last fifteen years there have been many friends and visitors at my house during the strawberry season. We have always intended to treat them generously from our crops and have tried to have well-ripened fruit for them. I have no hesitation in saying that two-thirds of the whole number have taken the Wilson for their second dish, even though we had

such noted varieties as the Jucunda and the Triomphe de Grand upon the table.

I have been trying for years to get some good variety that would be a little earlier than the Wilson, and also something a little later, and thus prolong the season, but have not yet succeeded. In time we shall doubtless succeed in doing both and perhaps get something that will supersede the Wilson as a market berry, but I for one do not propose to give that up until I am sure of something better.

I believe that I have traveled over the ground taken in my extemporaneous remarks before the Society. I also believe that any one who carefully follows the advice here given, will almost invariably succeed in raising a crop of this, the best of all of our small fruits, and if this paper shall be the means of encouraging even a few families to raise an abundant supply for themselves or their neighbors, I shall be satisfied with it and its influence.

J. M. SMITH.

FRUIT GROWING IN THE NORTHWEST.

BY GEN. N. F. LUND, OF MADISON, WIS.

It is not my purpose to attempt a detailed review of fruit growing in the northwest, for were I competent to the task, it involves too wide a range for this paper. But it is a matter of the highest importance, to the populations, west and southwest of the great Lakes.

This great interest engrosses the thought and life-work of many able men who make it a profession, and the advice and counsel which they are able to give us from their experience, should be received as invaluable—for this knowledge has been gained under the most adverse circumstances, through observations and experiments, in which failure has often been their only return.

But we who buy and plant should also observe and investigate, the field is large enough for all, and he who shall finally solve the problem of successful fruit growing in the Northwest, be he professional or amateur, will be classed among its greatest benefactors.

Fruit long since ceased to be regarded as a mere luxury for the few and fortunate, and has come to be considered an essential article of healthful food. This being true, it should be in such abundance, that the poorest inhabitant could use it as freely as other staples.

The greatest need is; fruit as an article of food—and I doubt if a greater could be named to-day by the people of the northwest, or one that if at once supplied, would confer more of comfort, health and happiness.

Let us picture as placed before us, the fruit of all kinds, wild and cultivated, that was gathered and used in this state during the past season, and beside it place that brought from other states to supply in part, the deficiency. Over against

these combined,—put into the picture an amount that at prices within the reach of all, would have sufficed for the wants and demands of the entire population, and we should quickly see that for food our supply of fruit from all sources was most limited. And we should further see, that the point at which this great want shall be fully satisfied will not be reached until that supply is produced at home, and cheaply.

The farmers of this state do not buy the staples for food, they produce them. So too, must they produce their supply of their fruit or it will not be used by them as an article of daily food.

The landless laborer, not only in town or city, but in the country as well, must find at hand his supply of fruit at prices which he can afford or he must do without.

Most naturally the question arises here, can this want be supplied at home—can the people raise the fruit required by them for use as food? As naturally we turn back and review our experience to help us in solving the question. And first, we find the early settlers of Wisconsin introducing the favorite fruits of the older states, expecting that here, as there, they would soon gather them in abundance. Their expectations were in some cases partially realized—in others, their failure was told in scattered orchards, isolated trees, and in fields given to other crops where the orchard was once planted. The causes of these failures were at that time concealed in mystery.

Later, intelligent study and observation revealed the fact, that our winters were too cold and our summers too hot and dry, for the old and accepted favorites to be generally successful, and that hardier varieties of trees must be found to endure the climate. The result was our list of so called "Iron Clads." With these came revived hope and an almost certain assurance of success.

But in the winter of 1872-3, the most iron of the "Iron Clads" went down with the rest before the fierce winds and intense cold of the "Polar waves" that swept over us,

Tens of thousands of trees in the nursery and orchard were killed outright, and we found the following spring and summer, that winter did not discriminate in favor of those clad in armor to meet him. Few varieties were found that wholly escaped, our list of hardy fruits was sadly reduced, and progress received another check. But from this check, came renewed energy,—investigations, inquiries and experiments were set on foot by individuals and societies, that have been continued to the present time, and in which the horticultural and agricultural press have borne a foremost part.

The present hopeful sign is, that all these inquiries and investigations seem tending in the right direction, and the conviction has become general that our want of success is mainly attributed to our severe climate—that the intense cold and searching winds of winter so weaken, if they do not at once kill the trees, that they cannot endure the heat and drought of summer; but being thus weakened they fall an early prey to blight and sun-scald, while the borer with a horde of other insects comes in to complete the destruction.

The effects of the winter of 1872-3 were still seen during the past season. What the results of the unheard of cold of the present winter will be, time only can determine. There has been less of fierce winds than in former extreme cold winters, which, with the protection of deep snow may in some degree mitigate its effects. Few varieties of fruit trees however can survive a maximum of thirty degrees below zero, while most varieties succumb before that point is reached. It must therefore be with something of fear that the most sanguine await the result.

If fruit is to be successfully grown from trees in the northwest, it is now plainly evident that they must be of sufficient hardiness to withstand the extremes of our climate; and to this end all present experiments and productions are tending.

I have never doubted that our State and the northwest would ultimately succeed in raising its supply of the leading fruits, and further, I believe that the road to success lies main-

ly in the direction of the propagation of trees from the seed, and that thus the needed varieties, born of our soil and raised in our climate will be found. But when that day is reached, I believe the fruit-bearing tree will be as hardy as the Oak, and as able to withstand the intense cold and fierce winds of winter, and the heat and drought of summer.

While these conditions exist as a rule throughout the northwest, we find favored localities, or occasional orchards where fruit is grown with success; and these instances should encourage us to continue to plant. Yet is it not fair to conclude that our experience thus far, has been but a series of protracted experiments, the success of which lies in the future? That the people of this State have no adequate supply of fruit, is certainly most apparent.

Again, looking back over the experience of the past, can we see any hope for a supply of home grown fruit in the immediate future? To this I unhesitatingly reply, that in the general cultivation of the small fruits, we may largely find this supply. And the reason for success here is readily shown. Fruit trees are constantly exposed through the entire year to all the changes and severities of our ever changing climate—and from this exposure there is no escape, except in the protection given to the roots. The naked tops must bear the winter's wind and cold unprotected, and showing their continuance the evaporation and freezing is so extreme, that the life or vigor of the tree is often sacrificed.

But with the small fruits, this may all be changed. The shrub, the bush and the vine can be safely covered beyond the reach of harm, and if winter deny them the protection of snow, additional covering may be given with little trouble and expense. Then when the growing season returns we find them vigorous and unscathed by the winter, ready to give us their delicious fruit in return for our care.

The universal cultivation of such fruits as all may readily grow—the strawberry, raspberry, currant, gooseberry and grape, would go far towards supplying the present deficiency

in fruit, and annually save to the people, tens of thousands of dollars in our single State,—not alone in the amount now paid for fruit brought from other states, but in an additional variety of better and more healthful food. And right here, in the encouragement of the cultivation of small fruits we may find a great work to be done for the people.

If we could, the coming spring, visit every home in Wisconsin, around how many, think you, should we find the evidence that the family would gather in their season a bountiful supply of the small fruits? Judging from my own observations, such homes would number a small minority. Around the majority, I fear, we should find no evidence that a taste of fruit could be hoped for during the entire year, unless found in field or forest.

We cannot compel the people to cultivate fruit, but we can encourage them to begin its cultivation where they have not, and to improve upon what is already began.

While our list of small fruits, as compared with portions of the country, is limited in species and varieties, with one exception, those we have are sufficient, under proper culture, to give sure and bountiful returns.

In strawberries, the Wilson's Albany so far excels all other tested varieties in giving sure crops that it rightfully stands at the head of the list in all the Northern States, while it has other and many excellencies.

The Arena, a seedling of the Wilson, originating in this State, is thought by some to be superior to its parent, and is earlier. There are others that succeed as well with us as elsewhere, and no one need look for a better strawberry than he will find in Wisconsin.

In raspberries, Davison's Thornless, Doolittle, Miami and Philadelphia give a good variety, but we need not stop with these if more are desired. Even the "perpetual bearing" may be cultivated with success.

In garden culture, I would plant the raspberry along the side of the fence, as this affords partial shade to the plants, the

mulch is better kept in place, and the drifting snow gives more winter protection. When well started but little cultivation with the hoe is required, if they are kept constantly mulched. This causes the roots to grow near the surface, where they find a constant supply of moisture which is retained through the entire season by the mulch. To this we should add from time to time, as it settles from decay. The only winter protection* required for the varieties named, is to add freely to the mulch late in the season. I have found a great advantage in pinching the growing canes while in the herbaceous state, at about two feet from the ground. The canes grow larger and more branching, giving more fruit,—and being lower, afford additional shade for the roots. The old canes, with all superfluous new ones that have not been removed during the growing season, should be annually cut away.

The plan recently suggested of leaving the old canes until late in the season, for the purpose of shade, I tried the past year. As a result the new canes were very much smaller than usual, while most of the old were alive early in October, many still having branches with fresh leaves. This prolonged growth of the old canes, I now think was so much wasted nutrition, that had better have gone to the full development of the new growth. The new is not the better plan, but that of cutting out the old canes as early as practicable after the fruit is gathered, is preferred. Then trust to mulching for shade.

In currants, we have the red and white Dutch, cherry, Black Naples, and if these do not suffice, the white grape with others.

The mode of culture and treatment may be similar to that for the raspberry. The superfluous shoots should be removed during the growing season, allowing only a requisite number to keep up the size and form of the bush, more only weakens the growth of the whole. As the wood becomes old the fruit becomes less, and from this time the oldest should annually be cut out.

When fully and properly ripened, the currant is among the most healthful of fruits; but as usually grown, with the roots bound down by grass or choked with weeds, it is no more to be compared with the fruit ripened under proper culture, than the wild crab to the Red Astrachan apple. I have often seen the white and red Dutch currant preferred to berries placed beside them, where both were equally well ripened.

The Gooseberry should have a place with the other fruits, for it may be successfully grown in some varieties with a little extra care, and it should be classed among the best of small fruits for winter use, when rightly prepared for the table. It has been neglected from its liability to mildew. It should be planted in an open space in the garden where the sun and air can reach it unobstructed, and be kept heavily mulched. I have for years grown the Houghton's seedling in this manner with most satisfactory results. Raspberries, currants and gooseberries should be kept constantly and thoroughly mulched for other reasons. It keeps out weeds and grass, saves the labor of cultivating, and gives more, larger and better fruit.

Material for mulching these plants is always at hand, as we always have something to be thrown away—and here is the place to throw it—broken earthen and hollow ware, old shoes and boots, cornstalks, anything that will retain moisture near the surface, and if unsightly, cover with leaves, small brush, vines, hay or straw. We cannot turn over a stone or brick during the severest drought without finding moisture. This should teach us that they are good material for mulch.

There is a space which should be filled with the blackberry. It is a most delicious and healthful fruit, but thus far it has been a universal failure in the open portions of our state. Must we abandon it wholly without hope of success? In the northern portion of the state it is found wild in great abundance, and although growing in or near the forests, yet still growing in this climate of ours. Is it not possible here to find the point at which we can date success in its culture? Will not

some Lawton yet transplant and give us from the northern woods this fruit we so much need? The experiment would be well worth making, and if necessary, repeating; and we may then find that the money and time expended in attempts to grow the famous berries of the east, were worse than wasted, while at our very door the native was growing wild, only waiting to be civilized in our gardens.

Looking back over the discouragements and failures in our efforts to produce a supply of fruit from trees, and to our limited list of small fruits thus far enumerated, it is a relief to name one that does succeed in the Northwest.

THIS IS THE GRAPE.

Here we have a fruit in great variety, that is easily grown, and all tastes may be satisfied. It is rich in sugar and mucilage, and probably none of our fruits excel it in food qualities.

With the Delaware, Concord, Janesville, Wilder, Agawam, Salem and Lindley, success is assured. To this list other tested varieties may be added by the score, many of the highest value, but cultivated with varying success, and the list is yearly increasing.

As a rule, the grape that will succeed anywhere in our latitude or in the states touching the southern shores of the lakes, will succeed in some portions of this state. But the grape must have winter protection. Vine and bud must be securely covered or our crop of fruit may be lost. Compensation for this extra labor is found however, in our climate during the growing season, in the indemnity it gives from many of the scourges that affect the vine and its fruit, in those sections where winter protection is not required. From mildew, blight and rot, and many insect pests that are a constant discouragement in those sections, we are comparatively free.

We can and do raise grapes that in quantity, size of cluster and berry, perfection in ripening and flavor, will compare favorably if they do not excel those of any section growing the same varieties. And a great point is, we can do this every year. We need no better evidence that we are producing the

best of grapes in this country, than the statement of the fact that tens of thousands of roots of our hybrid varieties, are annually exported to the vine districts of France.

Grapes may be kept until spring with as little care as other fruit, and thus be had in season nearly as long as the apple. Such varieties as the Agawam, Lindley, Salem, Wilder, Diana, Catawba, Isabella and Clinton, keep well when packed in small boxes and kept cool, as all fruit should be. The Agawam makes a fine raisin, and doubtless other varieties might be found that would, on trial. It is superior in some respects to the commercial raisin; when cooked, it is more tender, and gives a higher fruit flavor to food. By choosing varieties adapted to this purpose, and by a proper curing process, I have no doubt but we shall yet produce an excellent raisin for home use.

The interest manifested within the past few years in growing the grape is most encouraging, and shows how earnestly the people desire to raise their own fruit.

In what I have said let me not be misunderstood. By no words of mine would I add to the existing discouragements in growing fruit from trees. All efforts tending to this end should receive every encouragement.

But I plead that the chasm between present want and the distant supply, may be bridged by the cultivation of the small fruits.

If the population of the Northwest ever come to freely use fruit as an article of food, it must be grown around the homes of the people.

IMPORTANT WEATHER RECORD.

Mr. George J. Kellogg, of Janesville, furnishes the following weather record for publication in this volume. He has kept a correct report of the weather for the past twenty years, and makes the following report, which will be found useful. He says:

“The thermometer has hung in the same position for twenty years, is a spirit gauge, self-registering, giving the coldest degree reached during each twenty-four hours, usually the coldest about sunrise. The aggregates given are obtained by adding the coldest temperature each day when the spirit has passed below zero. Example—five days at twenty degrees below would aggregate 100 degees.

1855—January, thaw with rain. February 5-7, good sleighing. March 5, a thaw; a backward spring; wheat sowed April 17-20. May 9-10, ice. June 3, frost. October 5-6, ice. December 24, twenty-eight degrees below zero.

1856—January 9, thirty-two degrees below zero; below zero for thirteen days. February 3, thirty degrees below; below zero twelve days. December 7, nineteen degrees below; below zero for fifteen days. Total number of days below zero, forty; aggregate, 546.

1857—January, one of the coldest ever known, thirty to thirty-two degrees below zero; a mean temperature of one and one-fourth degrees, with four observations daily at eight and ten A. M. and twelve and two P. M. February 5, rain with heavy freshet. March 10, a blow. April 22, sowing wheat. May 12, ice. November 19, snow six inches. December, plowing all the month.

1858—January, the warmest ever known; four observations daily gave a mean temperature of twenty-nine and one-half degrees; extremes, two to fifty-five degrees. February 10, twenty-four degrees below zero; below for ten days,

- March 2, zero. November 19, three degrees below zero for two days. December 9, eighteen degrees below zero; below for three days. Total number of days below, sixteen; aggregate, 144.
- 1859—January 22, sixteen degrees below zero; below for six days. February 10, eight degrees below; below for four days. December 31, twenty degrees below; below for six days. Total number of days below, sixteen; aggregate, 136.
- 1860—January 2, twenty-two degrees below zero; below for six days. February 1, twelve degrees below. December 23, fourteen degrees below zero; below for four days. Total number of days below zero, eleven; aggregate, 108.
- 1861—January 31, twenty-five degrees below zero; below for five days. February 8, eighteen degrees below; below for six days. November 30, fifteen degrees below; below for two days. December 1, fifteen degrees below; below for two days. Total number of days below zero, 15; aggregate, 203.
- 1862—January 12, twenty-eight degrees below; below for eight days. February 2-14, twenty-five degrees below; below for four days. December 6-7, twelve degrees below. Total number of days below zero, 14; aggregate, 258.
- 1863—January 7, four degrees below zero. February 3, sixteen below; below for three days. December 31, twenty-five degrees below; below two days. Total number of days below zero, 6; aggregate, 75.
- 1864—January 1, thirty-five degrees below zero; below for eleven days. February 17, twenty-three degrees below; below for four days. December 8, twenty-five degrees below; below for twelve days. Total number of days below zero, 27; aggregate, 430.
- 1865—January 18, sixteen degrees below zero; below for ten days. December 23, nineteen degrees below; below for

seven days. Total number of days below zero, 17; aggregate, 144.

1866—January 20, fifteen degrees below zero; below for seven days. February 16, twenty-three degrees below; below for eight days. December 30, seven degrees below; below for three days. Total number of days below, 18; aggregate, 173.

1867—January 17, twenty-one degrees below zero; below for seven days. February 9, ten degrees below; below for one day. March 13-14, fifteen below; below for five days. November 30, three degrees below; below for one day. December 23, two degrees below; below for two days. Total number of days below zero, 16; aggregate, 135.

1868—January 13, twelve degrees below; below for thirteen days. February 10, twenty-eight degrees below zero; below for nine days. March 3, sixteen degrees below; below for three days. April 5, five below; below for one day. December 12, twenty-one below; below for eleven days. Total number of days below zero, 37; aggregate, 303.

1869—January 25, five degrees below; below for four days. February 27, four degrees below; below for five days. March 6, eight degrees below zero; below for five days; November 21, five degrees below zero; below for two days. December 20-21, seven degrees below zero; below for two days. Total number of days below zero, 18; aggregate, 67.

1870—January 18, eleven degrees below zero; below for six days. February 20, sixteen degrees below zero; below for three days. March 16, nine degrees below zero; below for two days. December 23, eighteen degrees below zero; below for eleven days. Total number of days below zero, twenty-two; aggregate, 169.

1871—January 18, three degrees below zero; below for two

days. February 10, twelve degrees below zero; below for six days. November 23, five degrees below zero; below for three days. December 5, twenty-one degrees below zero; below for eleven days. Total number of days below zero, twenty-two; aggregate, 166.

1872 — January 29-30, twenty-one degrees below zero; below for eight days. February 1, nineteen degrees below zero; below for ten days. March 12, nine degrees below zero; below for four days. November 27, 28 and 29, nine degrees below zero; below for six days. December 24, thirty-five degrees below zero; below for seventeen days. Total number of days below zero, forty-five; aggregate, 439 degrees.

1873 — January 29, eighteen degrees below zero; below for twelve days. February 23, twenty degrees below zero; below for eight days. March 4, six degrees below zero; below for two days. November 29, three degrees below zero; below for two days. Total number of days below zero, twenty-four; aggregate, 170.

1874 — January 15, fourteen degrees below zero; below for eight days. February 24, five degrees below zero; below for one day. November 30, zero; below for one day. December 29, twelve degrees below zero; below for two days. Total number of days below zero, twelve; aggregate, eighty-five.

1875 — January 9, twenty-eight degrees below zero; below for eighteen days. February 7, thirty-three degrees below zero; below for twenty days. Aggregate, 556.

The foregoing table shows each month and the day of the month when the thermometer marked the coldest at or below zero. My altitude is seventy-five feet above the river, 240 feet above Lake Michigan and 823 feet above the sea.

The following will show the five coldest months:

January, 1864, eleven days below zero, aggregating 223 degrees.

December, 1872, seventeen days below zero, aggregating 221 degrees.

January, 1856, thirteen days below zero, aggregating 219 degrees.

January, 1875, eighteen days below zero, aggregating 212 degrees.

February, 1875, twenty days below zero, aggregating 322 degrees.

The coldest year of the twenty is 1875, aggregating 556 degrees.

The warmest year was 1869; eighteen days below zero aggregating sixty-seven degrees.

The warmest winter month, January, 1858, when the coldest was two degrees above zero.

January, 1875, the greatest number of days in any one month touching zero and below in the twenty years, excepting February, of the same year.

January and February, 1875, were the two coldest consecutive months during the twenty years, thirty-six days aggregating 556 degrees, exceeding the corresponding months of 1856 141 degrees; their record stands 415 degrees for five days.

The warmest year was 1869, aggregating sixty-seven degrees.

The year containing the greatest number of days below zero was 1872, forty-five days.

The year containing the least number of days below zero was 1863, six days.

THE PRESS.

Upon invitation to furnish a paper for the occasion of the annual convention of the Northern Wisconsin Agricultural and Mechanical Association, held at Fond du Lac on Tuesday, Wednesday and Thursday this week, the following essay was prepared by A. J. Reid, of the *Post*:

I have been assigned a lucrative theme to discuss. The press is an institution which constitutes an important element in the system of modern civilization, and no industrial interest can attain to its maximum of success without its co-operation and its encouragement. Hence, the appropriateness of its introduction at this time and on this occasion, will be admitted without dispute. It is inseparably linked with the objects and the aims of this organization. It is the efficient promoter of agricultural science and the mechanic arts. The relation assumed carries with it its own proof. Introduce the farmer or the mechanic of a score of years ago with their successors of to-day, and you have a quartette of strangers who are in sympathy with each other only in the rudest elementary principles. Why this difference? The former employed muscle only, which was useful; the latter employs brains in addition which are vital. They were hewers of wood and drawers of water, but their successors are executing a noble pattern of designs. The intelligent artisan of to-day quaffs long and deep at the streams of literature, peculiar to his industry, by which his productive power is fertilized and increased, while his predecessor went blindly to work with the forces of nature all against him. The efforts of the latter may be likened unto seed cast upon stony ground, which, although it may spring up, withers and dies, because it has no root. But the industry of the former is like seed which falls upon good soil, and which brings forth some thirty, some sixty, and some an hundred fold.

So may we attribute much of the advancement which has

been in agriculture, mechanics and the various other departments of human industry, to the influence and power of the press. Indeed, no improvement is suggested, no new theory developed, no experimental knowledge acquired without its first passing through the alembic of some editorial brain. Few of you who are assembled here to-day will take issue with this proposition. It is creditable to obtain knowledge from any source, and especially from this one. The most eminent and successful editors which this country has ever produced, have come from the farm and the work-shop. They are the fruit of that grand system of industrial development which this society represents. They are the representatives of a hardy stock, on which the responsibility of every advancement rests. They are men of nerve and brains, who give direction to current history, and keep the intellectual machinery of the world in motion. Shall we not say that these men are our teachers? Shall we not also say that these men are the creatures of your industry, who are following the great law of reciprocity by yielding to you a compensation in services for their birthright. The intimacy of these relations stimulates the good results which we see on every hand.

So much by reaching a starting point in the consideration of this subject, for I take it that the scope of this paper admits of a larger basis than that which it has yet occupied.

The origin of newspapers is a problem which has engaged the attention of delvers in literary antiquities, without, however, reaching any definite results. An eminent French historian goes back to the Babylonians to find its first establishment. It is claimed by the literature of that ancient nation, that their government issued a daily official gazette, and some importance is attached to their claim, from the fact that Roman historians have frequently quoted from this journal, which certainly had some of the characteristics of modern newspapers. A similar publication is also known to have existed during the reign of Julius Cæsar. The whole being of the great captain was divided between ambition and glory. Realizing that his

military exploits and conquests would be too ephemeral, so long as his deeds were not recorded, and having a taste for literature he wrote his commentaries. In these, however, the limits of self-praise were too narrow to satisfy the author.

Cæsar, therefore, according to popular belief, first established regular newspapers in the Eternal city, and Seutonius tells us that he decreed that the daily acts of the people as well as of the Senate, should be drawn up and published. Scribes performed the labor which is now done by printers.

Even at that antique period, the idea of disseminating the news through such a channel became a general mania, and historians inform us that many other kindred enterprises sprung into existence, to meet the popular demand, as we see legions of journals in our own time—

“Like bubbles on the sea of matter borne,
They rise—they break—and to that sea return.”

But the newspaper, in its true sense, could not exist prior to the printing press; and even after that wonderful invention, it has taken centuries to mature this institution. Nothing definite seems to be known as to how soon it was applied to the formal publication of news, or in what country the first newspaper appeared. The old German city of Nuremburg, claims this grand distinction. According to one author, a paper called the *Gazette*, was published in that city as early as 1547, or five years after Peter Shœffer cast the first metal types in matrices, which has served as the introduction of an art, which has proved to be the great preserver of the world. A French writer naturally enough claims the honor for his native country, and believes that the *Gazette* of Renaudet, established in 1631, and published uninterruptedly until 1792, was the first news journal in the world.

The following table, compiled from a somewhat ancient but reliable source, shows the earliest newspapers in Europe and the United States:

Gazette de France, France	-	-	-	-	-	1631
Public Intelligencer, England	-	-	-	-	-	1663
London Gazette, England	-	-	-	-	-	1665

Pue's Occurrences, Ireland	- - - -	1700
Boston News Letter, U. S.	- - - -	1717
Faulkner's Journal, Ireland	- - - -	1728
Moniteur, France	- - - -	1784

The development of journalism in the United States, is a division of the subject to which I especially invite your attention. The first attempt in this direction was not made until 1690, When Benjamin Harris, of Boston, a discontented subject, gave vent to his sentiments in a small sheet, a copy of which is preserved in the archives of the English Government.

This, it is believed, is what might be called the first newspaper published in America, though no second number was ever issued, as the Colonial Legislature incensed with its "reflection of a very high nature," declared its publication to be contrary to law; and it seems to have served no other purpose than to immortalize its founder and to multiply the repetition of the doggerel:

"If I was so soon to be done for,
Wonder what I was begun for!"

The first regular newspaper, however, established in the United States was the *Boston News Letter*, as above stated, edited by John Campbell, a Scotchman, and bookseller and postmaster of Boston. The first number was printed on a half-sheet of paper, eight by twelve inches, with two columns on each page, and was issued on Monday, April 24, 1704. This journal was published regularly every week until the commencement of the Revolution, a period of seventy-two years.

The second American newspaper was established shortly after the demise of the first venture, with which Benjamin Franklin was connected after his return from England. The great philosopher's brother was dissuaded by his friends from engaging in a similar enterprise at that time — one newspaper, in their judgment, being enough for America. Unprophetic souls! Never has a thoroughbred Yankee guessed so wide of the mark as at that time.

It was not until the close of the Revolution that a daily

publication was attempted in the United States, and upon Jno. Dunlap settles the distinction, which was undertaken in 1784, or considerably less than a century ago.

The sphere of the American newspaper in its early history was hedged in by the narrowest limits. Its principal aim was to present a collection of foreign news and to give place to tedious essays or communications of the wits and politicians of the times. It rarely ever ventured to treat a public question, and then it was in the interest of some potent leader or powerful party able to protect it against censorship, sedition laws and libel suits. In fact the newspaper of those times possessed scarcely a single characteristic of the journal of to-day, with its crowded columns of intelligence from all quarters of the globe and of untrammelled and independent thought, which exercises such power in moulding the character of generations and giving to the Nation its most distinctive features.

It is not necessary to glean details from the intervening period to illustrate the history of American journalism. Within that time great dailies have emerged from cellars and garrets, and in point of business importance have taken rank with the leading enterprises of the country.

The solitary editor has developed into a great force of his kind until now many scores of persons are engaged in preparing the contents of a single metropolitan journal. The circulation of a few hundreds has increased to hundreds of thousands.

The old hand press has been succeeded by the lightning ten cylinder; the aggregation of news, instead of being conveyed by perishable muscle, at great disadvantages, is now collected from quivering wires, through an immortal agency, at the great centres of publication. In a word, the circulation of a system which found its way, at a feeble rate, through limited channels, has developed into one of great volume and power, and is now forced through throbbing arteries as the essence of modern civilization.

The development of country journals has also been attended with as remarkable strides. In every village and hamlet, all over the country, one or more of these institutions has been established. And while the mission of each is confined to a more modest basis, it performs its part in the problem of material development.

A few statistics which I have compiled will convey a more definite idea of the extent to which modern journalism has reached.

The entire number of publications in the United States is nearly six thousand, which are divided as follows:

Daily	-	-	-	574	Semi-Monthly	-	-	96
Tri-Weekly	-	-	-	107	Monthly	-	-	621
Semi-Weekly	-	-	-	115	Bi-Monthly	-	-	13
Weekly	-	-	-	4,270	Quarterly	-	-	49
								5,845
Total	-	-	-	-	-	-	-	-

By calculation we find from this immense aggregate that this is an average of one newspaper to about 6,500 of the population. The whole number is distributed among the various interests as follows:

Political	-	-	-	-	-	-	-	-	4,328
Agriculture and Horticulture	-	-	-	-	-	-	-	-	93
Benevolent and Secret Societies	-	-	-	-	-	-	-	-	81
Commercial and Financial	-	-	-	-	-	-	-	-	122
Illustrated, Literary and Miscellaneous	-	-	-	-	-	-	-	-	502
Specially devoted to Nationality	-	-	-	-	-	-	-	-	20
Technical and Professional	-	-	-	-	-	-	-	-	207
Religious	-	-	-	-	-	-	-	-	407
Sporting	-	-	-	-	-	-	-	-	6

Then turning to the vital question of circulation, we find the facts of special interest. They can best be exhibited by the following table in which is given the number of each class with the aggregate and average circulation:

	No.	Circulation.	Average.
Political.....	4,328	8,778,320	2,028
Agriculture.....	93	770,752	8,072
Societies.....	81	257,080	3,173
Financial	122	690,250	6,557
Literary.....	502	4,421,935	8,808
National	20	45,150	2,257
Scientific or Professional.....	207	744,530	3,596
Religious.....	407	4,764,358	11,706
Sporting.....	6	73,500	12,250

Upon this basis, it has been calculated that the aggregate circulation of the newspapers and periodicals of the United States exceeds fifteen hundred millions of copies annually—a monument of paper—I will not say a Tower of Bable—beside which the Pyramids of Egypt would sink into insignificance.

I have thus attempted to show the status to which the development of journalism has reached in the United States. The relation that Wisconsin holds to this institution is a matter upon which every citizen of the state may reflect with pride.

Wisconsin has a population of 1,054,670. Its taxable property represents a value of \$333,447,568. Upon this basis there are maintained 182 newspapers, of which number 86 are Republican, 39 Democrat and 57 Independent.

The population of New York is 4,382,759. The valuation of her taxable property is \$1,949,770,379. We thus see that her population more than quadruples that of Wisconsin and the value of her property six times greater. Yet, the newspapers published in New York is scarcely four times the number of which Wisconsin may boast.

New York is one of the oldest states in the Union and is surpassed by none in wealth and intelligence. Wisconsin is one of the youngest states, yet she vies with the former in journalistic enterprise. Moreover, the same favorable results will appear in all other comparisons that may be instituted. If any deduction is made from this statement of facts, it is that the people of Wisconsin in point of intelligence, culture and

mental growth, maintain a position that will secure to them credit and respect, wherever the subject is discussed, either at home or in foreign lands.

Having thus briefly glanced at the historical part of my subject, I come to consider, more fully, the press as an institution of the country. No power is equal to it. Everywhere throughout the land from the centres of civilization to the remote and sparse settlements in the far off territories, the newspaper will be found omnipotent and omnipresent. Society, in its incipient struggles, in its advancing stages, and up to its most complete perfection acknowledge the press as indispensable, an absolute necessity, as it sends forth its unflinching streams of intelligence to its million of readers. Through its medium, art, science, politics and religion find access to the busy millions of our wide spread country.

Human thought, in all its diversity of opinions, here finds a ready outlet to reach the busy multitude. The history of a village, town, city and nation is daily being recorded with the minutia of detail that is incident to an aggressive civilization. No power was ever so ceaseless in its efforts, so all-pervading in its influence, so untrammelled in its direction, and so mighty in its results, as the newspaper press of this country to-day. From the day-laborer to the merchant, from the smallest politician to the sage legislator, from the lowest the highest, and from the poorest to the millionaire,—all acknowledge and do homage to the constant presence and increasing power of the almost magic creations of printed sheets, as they daily and weekly supply mental food and recreation to their millions of readers. And yet the mighty agency of John Faust is just beginning to be felt in all its power; its unprecedented force has loosened the tongue of the world, drawn forth the electricity of thought, turned the pen into a sceptre and the hereditary diamond into a toy. In all these things is seen the natural and inevitable birth of freedom and knowledge.

The severest struggles through which this institution has passed to reach its present position has not been the ignorance

which it has dispelled. It has been the censorship and proscription which have been dealt out against it by royalty and a long catalogue of its legitimate creations.

These opposing forces were marshaled against its progress as soon as its power was foreshadowed. In the days of the infamous Star Chamber, the most cruel punishments, the most barbarous mutilations, imprisonment, exile and confiscation, were inflicted upon the pioneers of this institution. The memorable trials of Smithfield, of Prynne, of Warton, of Lillburne and the consequent punishments serve as a thrilling chapter of the early history of the institution of which I speak to-day, for no other offense than that they refused to bow down to the golden image which royalty had set up. But "in the blood of its martyrs has been its best seed." And every wrong prescribed and every outrage perpetrated has given birth to a new life and awakened new determinations which have enlarged the usefulness and power of the institution. From its earliest history, and in all countries similar obstructions have been offered to retard its growth and restrict its development.

But it has struggled through and away from all of these difficulties until now the principle, dreamed of by Helvetius, is firmly established that he who prevents the liberty of the press opposes all improvements in morality and politics; he sins against his country; he chokes the very seeds of those happy ideas which the liberty of the press above would produce. And who can estimate that loss? Wherever this liberty is withheld, ignorance, like a profound darkness, spreads over the minds of men.

It is then that the lovers of truth, at the same time that they seek it, fear to find it; they are sensible that they must conceal it, barely disguise it, or expose themselves to persecution which every man dreads. It is the liberty of the press by which a channel is afforded through which the injured may challenge his oppressor at the hands of the nation; and it is the means by which public men, in case of misconduct, may

be arraigned before their own and succeeding ages; it is the only mode by which bold and undisguised truth can press its way into the cabinets of monarchs and startle kings on their crumbling thrones.

In the further discussion of this subject, I am led to consider the relation which individual agencies hold to this institution, and of the character which it receives from these sources. Conspicuous examples are not wanting with which to illustrate.

Cotemporaneous with the French revolution, of 1792, there came creeping stealthily from the cellars of Paris a sheet as filthy and hideous as the place from which it issued, and the multitude, criminal from ignorance and crazed by oppression, accepted it as an oracle and answered by the atrocities which followed.

At an hour when all things became possible, the power torn from the sceptre of the king, and refused to the baton of the general, was vested in the pen of an editor; and all the horrors and incongruities of the time found a curiously complete representative of Marat—a scholar delighting in the vile slang of the streets—a philosopher reveling in butchery. He had held such relations to royalty as to become acquainted with its folly and its corruption, and had learned these lessons that prepared him to describe the lives of the nobles to the rabble of the street, and to point out, with unerring finger, the choicest victims of the guillotine. With all this scholarship and experience, the incendiary clubs found in him their earliest exponent. Under these circumstances Marat commenced the publication of his journal under the head of the *Friend of the People*, and with this cunning catch-word, led the infuriated masses captive.

Never in the history of the press has the editorial pen been wielded with such instantaneous result, and never has an obedient multitude so promptly responded to a single man's behest, as did the Parisian mob move at the command of its idolized oracle.

Inconceivably horrible is the picture of that little sheet, stealing out into the streets, to silently carry the mandate of the unseen demagogue, to point out the way to new atrocities and to show a blood-thirsty mob the way to misdeeds which should satisfy its blind brutality. No agency could be half so powerful as this in stimulating the French revolution and the terrible events which attended it.

Again and again was the author of this incendiary publication arraigned for trial, but such a firm hold had he secured upon the rabble, that his complete vindication followed each effort. Emboldened by such success, Marat continued to incite the mobs to new deeds of violence and persecution by his journal. And the culmination of his bloody work was only prevented by one fatal blow from the keen knife of Charlotte Corday. But he died as a victim and not as a criminal. His followers were true to his teachings, and they accomplished what he had left undone.

Turning from this horrible picture which the historian has painted, we find its converse in this country. Although not so conspicuous, it will serve my purpose as well. In the early days of San Francisco, the excitement attending mineral discoveries had called there a population which represented every species of corruption which exists in American society. These elements predominated. Robbery, rapine and murder, formed the catalogue of each day's occurrence. Law was powerless to bring criminals to justice, and society was helpless to institute reforms.

Judges were corrupt from choice, and the clergy was speechless from fear. Absolute anarchy ruled the city and the riotous rabble had full sway. At this time a modest but courageous man appeared upon the scene and participated in the affairs of that period. He was a journalist who took a bold stand against corruption of every form. When crime was committed he exposed the perpetrators and demanded their punishment. When judges were subsidized to render false decisions he treated them with righteous severity. He

inspired the orderly elements to unite against the outlaws, and put an end to their career of crime.

He was a power for good and a resistance to evil which could not be overcome. But he was conspired against by the enemies of the doctrines which he preached, and the bullet of the assassin ended the life work of James King of William. But he had advocated and established a principle which could not die.

Twenty thousand men swore allegiance to it and a new chapter of events was introduced which had been foreign to the history of the golden state. This revolution, inspired by James King, of William, was no less glorious, than that instigated by Marat, was infamous.

In the life and death of these two journalists we have exemplified the extremes of human ambition. The one sought to level humanity upwards; the other applied the agency of his profession to forcing it downwards. Both lost their lives in behalf of the issues which they advocated. One was a martyr to the enlargement of the dominion of righteousness; the other was a victim whose career gave new vantage ground to the legions of evil.

There is a great variety of characters which forms a graduated scale between these two extremes, performing a conspicuous part in the history of every people and imparting to the institution of journalism its most distinctive features.

At a time when wit and virtue had been long divided, wit having been seduced by profligacy and virtue by fanaticism; at a time when elegance was but another name for immorality, and a powerful and intolerant aristocracy was the fountain source of vice — when fashion was dissipation and dissipation was fashion — when to be dissolute was thought to be noble, and when license and corruption were lightly dealt with by both church and state; at a time when to breast the waves of tradition and opinion was almost to perish in the floods — out of the abyss into which morality was sunk stepped two men of varied talents and opposite character, who had the courage to urge and the power to develop a

reform, than which none more permanent and thorough has the historian recorded. These men were Addison and Swift, leaders in letters and in politics — each a mouth-piece for his party and both accomplished writers; one a master of persuasion, the other a master of conviction; one a gentleman in his satire, the other brutal in his pleasantries; workers to the same end through widely different means; one teaching morality by precept, the other by aggravation and gibe and insult. Addison was gentle in his adjectives, Swift malicious. Addison accomplished a reformation which endures to-day, without the utterance of a bitter thought and without one personal lampoon. Swift was harsh in his coolness, and had no consideration for place or person. His shafts were hurled against church and state — against genius, or greatness, or virtue. Did he notice a taint in either of sham or affectation or vanity — crushing his enemies with his scorn, his truth, and his pitilessly calm invective and irony. Addison appealed in pleasant reproof to every heart in Her Majesty's domain, and re-established all society by mild, pure but powerful measures on correct foundations. Swift, in his *Examiner*, transformed and modified the prospects and opinions of three powerful kingdoms. In his *Drapier's Letters* he roused Ireland against the Government, and then hurled defiance in its teeth; he satirized the affections of powerful ecclesiastical and political societies, and buried in the general ruin friends and foes. In the *Tatler* and *Spectator*, in the essays of Swift, and in the *Examiner*, we hold to-day faithful pictures of English society and hints of the morals and manners following, though not immediately, the Restoration. We cannot wonder at the power they wielded. Polished and graceful, pure and perfect and elegant, as a writer, Addison has never been equaled, as a teacher he could scarcely be surpassed. With no motive but his purity, and no persuader but his pen, he was for England a liberal educator and a nobler hope. As a leveler of pride and power, as a master of the bitterest satire and most scathing criticism, Swift stands alone without equal and scarcely without approach.

In this country the development of journalism has produced two conspicuous types which may be said to absorb all others. As a fit leader of one class I can do no better than point to the late lamented Horace Greeley. As a representative of the other feature of the institution, I may introduce the senior James Gordon Bennett. In selecting these men as examples to illustrate this part of my subject, I make no reference whatever to the political teachings of either. I am pleased to consider them abstractly, on the basis of the motives by which they were actuated and the objects which they sought to attain.

Horace Greeley was the foremost teacher of a school of journalism, which has few attractions for those who seek money or fame or political reward. If it brought all three to him, it was not because he strove for them, but because fortune sometimes favors those who never courts her smiles. He was a journalist, because he had something to say which he believed men would be better for knowing; not because he wanted something which his profession might secure for him. The call which brought him into the profession "issued from a world to be enlightened and blessed, not from a void stomach clamoring to be merely gratified and filled." To publish a newspaper merely for making money, would have seemed to him the degradation of a noble career. The guiding principle of his life was a lofty purpose, involving the amelioration of his kind. He was a philosopher in its truest sense, and labored long and earnestly to establish Republican institutions upon a permanent basis, and to purify the politics in which he was a conspicuous actor.

Probably no other man of his age, certainly no other of his profession, did more to mould the character of the people, or advance the true principles of Republican government than he.

We find an exact converse of his life in that of his greatest rival and contemporary, James Gordon Bennett. He was a disciple of that school of journalism, which had for its motive

power and its objective goal—the almighty dollar, and that sordid success which is its principal courtiers. Endowed by nature with a vigorous intellect, keenness of perception, great industry and a sort of ruffianly courage, he commenced his professional career. It is true that his creations were attended, to some extent, with blessings to the age in which he lived, but they were only the seasoning elements in the most selfish propensities. Nothing which stood between him and success was too sacred to be exempt from his attacks. Private character, public reputation and the most cherished institutions of government and society, were subjected to the most violent assaults from his journal, to appease his love of gain and satisfy his thirsting ambition for notoriety.

He catered to the baser elements of society, and his allegiance to any cause was determined by the compensation which attended it. He sometimes drifted along by the popular gale, and frequently made headway against it. Like a ship at sea, it was that agent from which his propelling power was always derived. And no man understood better than he how to manipulate it with cunning skill. According to the standard of the world his life was a success, but it consisted in imparting to American journalism some of its ugliest features.

I have thus made reference to some of the principal individuals to whom the institution of the press is indebted for the character which it sustains to-day. Each one of them has his living disciples, who are loyal to the principles enunciated by the great teachers who have preceded them. These can be divided into two great classes. When under control of one, we have seen that the Press is a potent instrument for the promulgation of giant evils. It is made the agent of individual promotion at the expense of the public good. It corrupts the masses and gives to politics a dangerous tendency. It conspires against human rights, galvanizes crime, and sows the seed of sedition and revolution.

In the hands of the other class, it is a powerful engine which keeps the machinery of civilization in motion. It stim-

ulates individual and national industry. It disseminates wholesome opinions which make men better and nobler. It preserves the purity of homes and protects the interests of the people. It makes war upon the hoary wrongs of the ages, and is a relentless opponent of despotism and oppression. It inspires righteous reforms, and leads humanity to a higher plane of existence.

What then, are the demands upon this institution? Manifestly that it be supplied with men of the Horace Greeley and the James King type—men with activity of brain, purity of conscience and the courage of a hero; men free from all taint, and above all suspicion; men who see from afar, like one on the mountain top the dawn of a better day, when the patriot will supersede the politician, when the statesman shall supplant the demagogue.

THE RELATION OF THE FOX AND WISCONSIN
RIVER IMPROVEMENT TO THE INTER-
ESTS OF THE NORTHWEST.

BY D. M. HYDE, OF APPLETON.

*Mr. President, Gentlemen of the Association, and Ladies
and Gentlemen:*

As Agriculture is the base upon which the future prosperity of the country rests, it is clear that those men engaged in such pursuits, above all men, should have the crystalized thought of men of large experience. In view of this, I reluctantly consented to read a short essay before an agricultural society. But having decided, I trust you will not consider my appearance before you a trespass on your time, and, furthermore, accept what I have to offer with a good grace.

The rapid growth of the Northwest has increased rather than diminished the perplexing question of cheap transportation to the sea-board. Various plans have been devised and measures resorted to in the hope of remedying the abuses and evils arising from it, and not without some beneficial results, even if not in all respects strictly just. All along the ages, men have necessarily been obliged to locate near some navigable body of water, and it has not been till days of steam that nature's disadvantages have been successfully and generally overcome, making it practicable as well as profitable to inhabit lands remote from navigation, notwithstanding the serious difficulties attendant in the increased cost of transportation.

In settling this Western country, the same course was pursued, and for a period of about 200 years the Fox and Wisconsin Rivers constituted the great highway to the large territory lying west of us. Of late years, however, it has fallen into disuse, not because the demand has ceased, nor because freights can be shipped with less cost otherwise, but

due, principally, to a failure on the part of the Improvement Company to keep it in repair. The enterprise fell into the hands of men who had no interest in making it a success. Their chief object seemed to be to keep the work in a shape that would enable them to hold their land-grant and discourage the people from using the route, until such a time would come that they could dispose of the land and certain water privileges and then abandon it, returning no just compensation to the people for what they had received. This project, for it is evident such was the design, was partially frustrated by an act of Congress, approved July 7, 1870, authorizing the Secretary of War to appoint a Board of Arbitrators to ascertain how much ought to be paid the Improvement Company for its improvements and claims, and to deduct from this amount the money realized on the sale of the lands granted to it. The work, in this manner, became public property again, and is now under control of the General Government.

But the question of putting the work into a proper shape for navigation is still before the public. It is true some money has been expended, and some very fair work has been done, but has the outlay been liberal and has it been expended in a manner to insure a completion of the work within a reasonable length of time? Others may advocate a snail's pace if they choose, but a work that is of such vital importance to the whole Northwest, seems to me to demand a completion at the very earliest.

That the work will not be in a navigable condition for several years, if the present course is pursued, is without question. The report of Capt. G. J. Lydecker, made at Appleton, August 12, 1874, contains the following: "Working under these small sums requires more or less suspension of navigation every year, which, under the present course, will be continued for several years to come, creating thereby much dissatisfaction along the route. Besides, much of the money in small sums is necessarily fritted away in temporary repairs which, with large appropriations, could be increased and applied to permanent work." It is a trite saying that "the

United States never goes by halves," but the course pursued on this work is a most palpable exception. We have here the evidence of one of the engineers employed on the work that navigation is more or less suspended, which means substantially as has been the case during the last two years, a complete cessation of navigation "for several years to come."

Capt. Edwards, in his report of 1873, says: "It is to be hoped that within that time" (ten or twelve years) "the progress of the improvement and the importance of the traffic of the route will justify a call upon the Government for funds to replace with cut-stone locks."

His recommendations were to repair the old dams and locks to ascertain the amount of freights that would pass over the route, and if they were of asufficient magnitude, then call upon the Government for aid to replace the old works with new ones. However plausible such a course may seem at first, it is evident upon further consideration that the work would be, if this plan was adopted, materially injured, and possibly defeat the design of the entire project. Such a plan of operation would necessarily prolong the work a number of years beyond the time stated above, and every move in this direction cannot do otherwise than bring the enterprise into disrepute, not only along the line but especially at a distance.

But there is a more serious objection than the above. To determine what "the importance of the traffic of the route will justify," sufficient inducements must be held out to boatmen to make it an object to construct boats and establish regular lines. It is folly to suppose that men will invest in an undertaking when the probabilities are that they will be obliged to tie up their boats half of the season, waiting for some old lock or dam to be repaired, or be compelled to suspend operations two or three years while cut-stone locks and dams are being built.

Before any definite results can be determined, the work must be put in a shape to guarantee to capitalists an unobstructed and permanent navigation the entire season. Any-

thing short of this will detract from the beneficial results of the route in a corresponding ratio.

Having referred to the reports of the engineers to show you that the work will not be of any great practical use for several years, it is no more than justice to allude to other sources for the same purpose.

The following is from the report of Major General G. K. Warren, which was made in October, 1868:

“To secure *five feet navigation* at low water, all to be canal, 118 miles. Canal seventy feet at bottom, eighty feet at top. Locks 160X35. Total lock lift 175 feet. Sides of canals in cuts paved to allow the use of steamboats—\$4,164,270. In order to finish in third year, will require \$2,082,130 the first year, the remainder the second year, and \$60,000 annually thereafter.”

Five years have already passed away and nothing comparatively has been done on the work towards putting it in a navigable shape. It is now estimated that it will cost not less than \$3,000,000. The present Congress has made an appropriation of \$500,000 to be expended on the improvement the following year.

Suppose the same amount to be appropriated each year until the work is finished, and it will take six years from next fall to complete it. In making this estimate, an assumption has been made not warranted by past experience. Then, too, an allowance must be made for useless expenditures, such as repairing old locks and dams. Placing this amount at 16 $\frac{2}{3}$ per cent., which is a reasonable one, and the work will unavoidably be prolonged another year, making at least seven years from next fall.

It is an unmistakable fact, that, under these small appropriations and the plan pursued, the work will drag its slow pace along at least eight years, and during that time be of no practical use to the public.

To say the least, this encouraging to those, which includes the millions of the northwest, who are directly interested in

having the route put in a navigable shape at the present time. In comparing this work with others, it will be found that in permanency and the time of construction, it is not in keeping with them, although in capacity it compares favorably.

There is in process of construction in an adjoining state a work similar to our own, not near as feasible as regards cost and natural advantages. I allude to the Illinois and Michigan canal, on the Illinois river. The route is 220 miles in length, and is being enlarged to a width of 160 feet, and a depth of 7 feet. One lock on this work at Henry, which is a fair sample of what is being done, was completed in the spring of 1872, and is 350 feet in length, 75 feet in width, and will admit the passage of twelve canal boats at one time. The walls are built of magnesian limestone laid in hydraulic cement, and the remaining parts of the lock are built in a corresponding permanent manner. To give you a better idea of what the lock is, I will include the gates which are 43 feet wide and 24 feet high, containing over 20,000 feet of White Oak timber and 27,000 pounds of wrought and cast iron.

The locks on the Fox and Wisconsin Improvement are 160 feet in length, 36 feet wide and a depth of 5 feet.

The work as proposed on the latter, we must acknowledge is not on as comprehensive a scale as the former, though there is every demand for it.

The Erie canal was commenced in 1817 and completed for navigation in 1825, being constructed in eight years at a cost of \$7,602,000 or nearly \$21,000 per mile. The route of the canal was a difficult one for such an undertaking, the canal being carried over several large streams by stone aqueducts and at one place, over a ridge of slate rock to the height of 188½ feet.

On our own work, a natural channel extends nearly the whole distance, and at an average cost per mile of a little less than \$15,000 the proposed improvement can be made, yet the time of construction will be equal to, if not greater than that of the former.

At the time the Erie canal was built, it was the greatest undertaking in the United States, and the demand for it hardly justified the outlay, passing as it did through a large uninhabited territory. But it proved to be a very important institution in developing the resources, and increasing the revenues of the State which it is in.

On the contrary, the Fox and Wisconsin route lies in a thickly settled farming district, and the demand for it is far more urgent than for the former when first built, yet the prospects now before us are such as to justify the belief that it will not be in a navigable condition for several years to come.

The demands are urgent that a more decided action should be taken on this question. The present plan of construction, when compared with the works alluded to above, and as suggested by the engineers, is not in keeping with the amount of traffic to be done. Money is being wasted in making temporary repairs, which can be of no practical benefit and only delay the work. This work ought not to be an ephemeral one, but permanent and durable, and anything short of this ought not to be tolerated by those who pay for it, and who are the ones to be directly benefitted.

Of all taxes, that of transportation is the most oppressive, and the advancement of agriculture increases in ratio corresponding with the amount to be paid; hence the economy of having the producer and consumer near at hand.

With the Northwest, the question of lessening the distance between them, depends wholly, at present, on cheapening transportation. It was for this purpose that the railroads were compelled by law to lessen their rates.

The railroad problem, however, is a difficult one to solve. It is evident that they must be placed under certain restrictions, but to what extent is not so clear.

The law of this state fixes the maximum rates, although civil liberty teaches that it is oppressive and unjust. All laws having a tendency to regulate prices, must work a great in-

justice to the business so regulated, and in the end defeat the purpose for which they were made.

If the State would guarantee a certain rate per cent. of earnings on the capital invested to the railroad companies, there would be justice in such a law. But the state will enter into no such agreement, neither ought it to do so, for of the two, the latter would work the greatest injustice. It should, however, provide means for a healthy competition, not for the purpose of waging war on monopolies, but as a matter of economy. With the great natural thoroughfare passing through it, such a plan is not only feasible, but of practicable utility as a common sense business undertaking, and as a direct means in developing its natural resources.

It is estimated that not less than 50,000,000 bushels of wheat are shipped yearly from points west of Lake Michigan eastward. The average distance by rail from the Mississippi river to lake Michigan, is not less than one hundred and seventy miles, and by the Wisconsin and Fox rivers, two hundred and seventy-one miles. The cost of transporting a ton the whole distance by rail, at thirty mills per ton per mile, is five dollars and ten cents, and with the cost of transshipment at the Mississippi, sixty-six cents. And the average distance of one hundred and fifty miles of lake at three mills per ton per mile added, amounts to six dollars and twenty-one cents per ton; while the charges over two hundred and seventy-one miles by the improvement, at seven mills per ton per mile, are one dollar and ninety cents per ton. The saving on a ton would be four dollars and thirty-one cents, and upon the whole quantity for shipment, \$6,465,000, a sum which would pay the cost of the proposed improvement and leave a surplus of \$3,465,000, to be distributed between the producer and consumer annually. This you will please bear in mind is the estimate on wheat alone. The estimated quantity of other cereals, including wheat, amounts to 2,500,000 tons, making a saving of \$10,775,000, by the water route over that by rail.

But let us suppose that it would not cost over twenty mills

per ton per mile, and we have over one hundred and seventy miles of railroad, sixty-six cents per ton for transshipment at the Mississippi, and three mills per ton per mile over one hundred and fifty miles of lake, three dollars and nineteen cents per ton, amounting to \$7,975,000, on 2,500,000 tons.

Even if this estimate is too large, which is by no means probable, the country would be the richer by \$4,975,000, over and above the cost of the improvement in one year.

When it is remembered that the Erie Canal has saved the public \$17,850,000 annually, some idea may be formed of the results to be derived from this work.

As a competitive route, it would regulate the rates on railroads, reducing them sufficiently to compare favorably with those by water.

The objection that is frequently raised, that all the grain would not be shipped over the water route is of little consequence; for it is not the design nor is it desirable that it should go by one; but it must be admitted that shippers would in ordinary cases, avail themselves of the advantages of the cheapest route, and that the tendency would be to reduce rates by rail to the same as those by water, thereby securing the desired end.

This is not only true of grain but of all other freights, whether imported or exported.

Competition is the only natural solution of this question. If a free and perfect competition is afforded, the monopoly of transportation will soon cease to exist. When the conditions are once favorable, the present state of affairs will soon change for the better.

This work, then, is not one of time and convenience, but one of dollars and cents, and at any cost its early accomplishment is dictated by true economy.

No question in the West equals it in importance. It lies at the bottom of cheap transportation, and is the only plan now practicable, to solve this perplexing question. The increasing growth of business in the large territory west of the great

lakes, depends upon a favorable solution of this problem for its prosperity in the future, and so long as this cloud hangs over the Northwest, it cannot rise to a position its mineral wealth, productiveness of soil and position geographically entitles it to.

The delay in the completion of this work is a direct hindrance to our manufacturing interests. It is an acknowledged fact that the Fox river affords the finest water powers in the country, and to the uninitiated, it is surprising that they are not utilized to a larger extent. That this river is destined to be lined with manufacturing establishments is evident. Nature has done her part in furnishing an inexhaustible supply of raw material, and the means of converting it into a proper condition for man's use; but man has failed to provide for himself cheap transportation, and until he does this, every attempt made in extensive manufacturing will be attended with only partial results. The manufacturer is now obliged to rely upon railroads.

There is no other alternative, and so long as this state of affairs exists, he cannot compete successfully with others located at a less distance from the market. The cost of manufacturing at points near a market may be considerably greater than on the Fox, but the cost of transportation being so much greater, the saving of the former over that of the latter would be a sufficient inducement for capitalists to locate at those places.

In this manner capital is prevented from being invested along the river.

Capitalists hearing of the great advantages come here, but when they find the water route of no practical benefit for shipping, and that it is not likely to be under eight or ten years, will not invest, but seek more inviting fields where the prospects are more favorable.

There is no satisfactory reason but this one, for our manufacturing interests being in a primitive state compared with the development of agriculture. The two ought to go hand in hand. The consumer and producer are in this manner brought

near each other, enabling each to derive the greatest benefit from his labor.

With this work in a navigable condition, every inducement would be at once offered to capitalists, who are seeking opportunities for productive investment to locate on this route. The cotton producing region of the South would be brought into closer proximity to us, and with a market at home, Wisconsin's advantages over Eastern States would be so eminent that beneficial results must of necessity immediately follow.

The following gives approximately the saving on the transportation of a ton of cotton, and one of the advantages to be derived in manufacturing the same in the Fox River Valley, over that manufactured at Lowell, Massachusetts. Taking New Orleans as a point so obtain cotton, and Appleton, which is about the center of the manufacturing facilities of the Fox, as a manufacturing center with Chicago as distributing point, we have the following results:

From New Orleans to Boston 2000 miles, Ocean, at \$.0025 per ton per mile.....	\$5.00
Boston to Lowell 26 miles, rail, at \$.030 per ton per mile.....	\$0.78
Lowell to Boston " " " " " "	\$0.78
Boston to New York 390 miles, Ocean, at \$.0025 per ton per mile. . . .	\$0.975
New York to Buffalo 350 miles, canal, at \$.006 per ton per mile.....	\$2.100
Buffalo to Chicago, 1,070 miles, lake, at \$.004 per ton per mile.....	\$4.280
Total to Chicago.	\$13.915
From New Orleans to Prairie du Chien by Mississippi River, 1,786 miles, at \$.0029 per ton per mile.....	\$5.1794
Prairie du Chien to Milton Junction 130 miles rail at \$.025 per ton per mile.....	\$3.2500
Milton Junction to Appleton 115 miles, rail, at \$.025 per ton per mile	\$2.8750
Appleton to Chicago 214 miles, rail, at \$.025 per ton per mile... ..	\$5.3500
Total to Chicago.....	\$16,6544
Amount per ton in favor of Lowell.....	\$2.6394

With the improvement in a navigable condition the cost of transportation from New Orleans to Chicago will be substantially as follows:

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, Improvement, at \$.007 per ton per mile.....	\$1.6800
Appleton to Green Bay 35 miles, Improvement, at \$.007 per ton per mile.....	\$0.2450
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

This saving would in itself be a sufficient inducement to secure the erection of Cotton Factories along the line of the Improvement. But when the home market is taken into consideration, we find that the saving per ton will be much larger than the above. Again the number of transfers by the way of Lowell are three more than those by this route, increasing still more the advantages of the Improvement as a manufacturing locality of this article over eastern towns. And then, too, other manufacturing interests would receive an impetus that would in a few years place this State among the foremost, in every respect, of the Nation.

But manufacturing would not alone be benefited on this line. Such interests throughout the northwest would be advanced. Minnesota and Iowa could not fail to receive marked improvements in this direction.

This one work alone, if properly constructed, would be a more powerful incentive in inducing farmers to improve their farms, in influencing capitalists to utilize the vast manufacturing facilities, and in settling the large tracts of land now unoccupied, than all other interests in the northwest combined. Such rewards are in store for the future, but every day's delay lengthens the time when they are to be realities.

There is no doubt but what the press has been unwittingly instrumental in retarding this work, by constantly alluding to it in praiseworthy terms, conveying the general impression that it was progressing as rapidly as the demand would justify. The following is taken from a recent issue of the Milwaukee *Commercial Times*, which in speaking of the advantages of the State, said:

“With a navigable water course running through the State and closely wedding the towns to the cotton producing regions of the south, Wisconsin’s advantages over eastern States are so apparent that they should attract the immediate attention of capitalists who are seeking opportunities for productive investment.”

I think that you cannot but agree with me that transporting cotton by the way of the Fox and Wisconsin rivers is a slight stretch of the imagination beyond the capacity of ordinary men, and, furthermore, that such a sentiment cannot be productive of good results. The above is quoted for the purpose of giving you an idea of the general impression prevailing throughout the states, which would be directly benefited, in regard to the work. If the press had kindly criticised and taken a little pains to show up the work in its true light there is not a shadow of doubt but what it would be from one to two years in advance of what it is.

True the work is advancing, but is it of a character and rapidity to meet the present demands? No, it is not. The State ought to have the advantages of it now, and not be compelled to wait six, eight or ten years for it.

The farmers of the northwest will need it next fall to transport the crops of another season to the seaboard, where they find their greatest market, they need it at present to avoid paying the enormous rates monopolies impose upon them. They need it to secure the largest returns from the products of their farms. Farmers, look at the subject from any stand point you may choose and you will be forced to the inevitable conclusion that you cannot afford to be without it, nor wait for it much longer.

If Gen. Warren’s plan had been adopted, the work would have been completed two years ago, but as it is it will take at least three and possibly ten years more. The former should be, without fail, the limit, and such action taken immediately as will insure a permanent navigation at the expiration of that time.

Since 1854 the Government has expended \$40,000,000 for the improvement of the rivers and harbors, but three-fourths of this amount has been expended east of the Alleghany Mountains. Since the adoption of the Constitution the public buildings have cost \$62,000,000, while on 20,000 miles of the rivers of the West only the small sum of \$11,438,300 has been expended.

No one will question the propriety of erecting public buildings "upon a scale of liberality and style to correspond with the present and future wants of the country," for which purpose these expenditures have been made.

The amount estimated for the Improvement is a large sum to be expended on one work, but "England invested \$40,000,000 to develop the culture of cotton in India, and little Holland pays annually \$4,000,000 to keep her 12,000 wind-mills revolving," and has expended the enormous sum of \$2,000,000,000 in the construction of dykes to keep out the great sea waves. Our own Government, though liberal in many things, has been parsimonious in appropriations to improve her internal natural channels of commerce. She appropriates "nearly \$300,000,000 annually for various governmental purposes, and yet doubts and hesitates "about completing improvements which will return a tenfold profit upon the investment and stimulate industrial interests and enterprises all over the country."

The improvement under consideration is one of the few of a national importance which demands large appropriations at present and immediate action on the part of the Government.

This is a national work and belongs to the entire Government. It is not, however, within the province of Wisconsin to undertake it, neither of Minnesota or Iowa. It does not belong to two or three States combined, though, for the present, three or four States would be principally benefitted; but the large territory west of these States will, in a few years, have as much interest and as much at stake in it as the State

through which it passes has at present. But it does lie within the province of this State and the whole Northwest to use such means as will put an end to this unwise delay.

To complete the work at the very earliest, we must have more of a concentrated action on the part of the people who will be directly benefitted. It is eminently a work of the present, and we, citizens of the Northwest, should enter into it with a oneness of purpose and a determination to bring it to a speedy completion, condemning any policy having a tendency to prolong its construction.

D. M. HYDE,

Of the Appleton *Times*.

ANNUAL CONVENTION.

PROCEEDINGS

Of the Second Agricultural Convention of the Northern Wisconsin Agricultural and Mechanical Association held in the City of Fond du Lac, on February 23d, 24th and 25th, 1875.

NEOCOSMIAN HALL,
February 23d.

Convention called to order by President J. M. Smith, of Green Bay, who made the opening address as follows:

Gentlemen of the Convention:—I do not propose to occupy your time at present, except to make a very few remarks. There is one simple idea I wish to touch upon; in attending Agricultural Conventions and Agricultural Societies and meeting Agricultural men, cultivators of the soil, I have noticed very often what seemed to me to be too much complaining, as if our farmers were disposed to look too much on the dark side.

I have during the past winter, had occasion to look over the history of Agriculture, as far back as I could get any history of it, and to do so more carefully than I ever did before; and in so doing I have been impressed all the time, everywhere, of the terrible misery of the agricultural classes; the laboring classes of agriculture all through the history of the world from the earliest ages down. The agricultural laborers have been oppressed and have been of a very low order. When you look at them and see how much better off we are to-day, it seems to me that if we take a right view of it, it would be anything but a gloomy one, anything but a sad one. And we need not go back very far.

There are many of us here who remember the hill-sides of New England and the Eastern States as they were when

we were young. I am not a very old man, yet I can look back to the days when my grand parents and my father, although they were called very comfortable farmers, were very far from being as well off as the majority of farmers are to day.

I can remember when I was a little boy; I was the oldest grandchild and spent much of my time at my grandfathers on the old homestead, as it was called. Well I remember how hard work it was for them to get along, how economically they lived, how careful they had to be of money, how much calculation it took to get a dress and to get clothing of all kinds, and to get food. The farmer did not raise grain enough to supply the family. Fruit was the principal thing. Apples were the main crop. They carried the apples to the cider mill and there exchanged them for six and one quarter cents a bushel, or for a quart of whiskey. Generally they would take the quart of whiskey and that would be traded off to the merchants for something else that they needed, but generally the proceeds of the farm brought very little.

As near as I can remember there was a mortgage on my father's farm of \$2,000, drawing six per cent interest. It was a burden. It seemed a load they could not carry. Sometimes my father would pay a little of the principal. He would manage to get the interest paid. Some years he would pay fifty dollars, some years he would pay one hundred dollars, and some none at all. He worked twenty-five years to get that mortgage of \$2000 paid.

It is true that during that time he had improved his farm very much, and I can look back now and see that that improvement was what saved him. If he had not done that he would never have paid that mortgage, never in the world. He would raise a little flax, he would work it up in the winter breaking it by hand. Mother would spin it and weave it by hand and make us some clothes for the summer. She would spin wool by hand and weave it and make that up into clothing. It was hard work.

I was back there last summer, on a visit, and my brothers were complaining that it was hard times yet, their expenses were so heavy, they didn't know how they would get along. My sisters wanted new clothes and it cost so much. My sisters had been getting new dresses. They said: "Why brother those silk dresses only cost \$50 a piece."

I thought back to the days when they were young, and how my mother dressed. My father might just as well have tried to cover my mother with diamonds as to cover her with silk dresses at \$50 a piece; yet she was as worthy of silk dresses as the mother of any man.

It seems to me that things are so much better. It seems to me that we should not look on the dark side.

Take the northwestern states. There is not another spot on the earth of equal territory that is capable of doing so much and supporting so large a population in comfort, as the northwest.

Take our government with all its faults, and all the faults of our public men and all that is wrong, and we have still the best government on the face of the earth. There is no doubt of it, and I say let us take the bright side; let us look forward with hope and courage.

We talk sometimes about hard times. "Times are hard;" we have lost this year some that that man owes, some that another man owes. Next year we will go in for larger crops. That is the only way out of hard times.

It seems to me our farmers can all do that, with this magnificent and beautiful country around us. By the way, let me relate a little anecdote about the country we are now living in. I was talking with an old English traveler, who traveled through this section a great many years ago. He came to Fond du Lac when there were only a few little cabins here. He had come through from Sheboygan. It was a June morning and he came out on the road where he could look over to the Lake, but said he, "when I stopped and looked over

on that country through there I verily thought I had come to the Garden of Eden." And that too was from a gentleman who had traveled extensively, and was well and thoroughly educated.

My friends we have a beautiful and glorious country. Let us take the bright side. It is said by some writers that there is a silver lining to every dark cloud, no matter how dark it is, and we can find it if we only look long enough and close enough.

Gentlemen let us look for the silver lining of the dark cloud and take the bright and cheerful side every time.

President Smith stated that he had a dispatch from J. E. Thomas stating that the death of a friend would prevent his attending the Convention.

DISCUSSIONS ON THE BEST GRASSES FOR PASTURE DURING
DRY SEASONS.

Mr. E. H. Benton, of Leroy, Dodge County, spoke as follows:

Gentlemen: I would like to hear the subject discussed of the best grasses for pasture in the Northwest. I would also like to know whether any person present has any experience with orchard grass, the proper quantity to the acre and the best time to sow it. A large number of persons here look upon our dairy interest, the grazing interest, as one of almost paramount importance. We find that as far as relates to wheat culture that we have overdone it. The production is largely increased over that of population. As regards the butter and cheese market, that seems to be the other way. The population has increased rather more rapidly than has production, especially of a good article. As I understand it, the article depends much upon what it is made of. If we have good pasture, good grasses, we have a good article of butter and cheese.

If there is time for that matter I would like to hear from those who have had experience. I am here as a learner. I have not had much experience in that particular. I have had

experience only with clover and timothy. I understand that some others have had experience with grasses that give a continuous pasture during the summer through dry seasons. That is what we want: a grass with roots deep enough and hardy enough to give us continuous pasture during the summer.

Chester Hazen, of Ladoga:

Mr. President, my experience in grasses that are best adapted to our country here is perhaps no more extensive than that of many other persons. I don't know that I can advance any new idea on that subject. I have been interested in the dairy business for years and I can state that I consider the best grasses for our soil and climate with what experience I have had.

There are various opinions in the Eastern States about grasses: those that will come forward early, and in the middle of the season, and late. The Hon. Horace Lewis, of Herkimer County, a man quite well known in dairy circles, recommends a combination of the different grasses that he would consider natural grasses, naturally adapted to their soil, which includes about all the grasses that I have ever heard mentioned, even to "quack grass." We can grow quack grass to pretty good advantage here sometimes, but I never tried it for pasture. My experience has been in favor of a mixture of timothy and red clover. My pasture generally comes in with white clover after pasturing two or three years, which I consider a very good grass for pasture. The June grass is a very good grass for the early part of the season. You get earlier feed from the June grass than you do from the timothy and red clover in our climate and soil. It comes forward in very good season and continues growing down through the whole season. I think, better than any one single variety of grass we have for pasture for dairy purposes, although it is considered not to be of the best quality of pasture for dairy cows by some who have investigated the subject. The fact of our climate and the dry seasons we are often troubled with,

makes it very difficult for us to stock down pastures to any grass that will yield a good supply of pasture through the whole season. We have to substitute somewhere a fall crop during the latter part of the season. It would be quite difficult to succeed in dairying in this country without some preparation by sowing some kind of a soiling crop for cows during the dry season. I substitute corn as a general thing, cut green, when the pastures get dry and the dry season commences and the grasses will not grow to any extent. I feed my cows a fodder of corn every day. When I use that I cut it twenty-four or forty-eight hours previous to feeding, letting it lay on the ground to wilt.

Mr. Benton, of Leroy:

For what reason?

Mr. Hazen, of Ladoga:

For the reason that the corn crop, when it is growing, contains considerable of juicy matter and the stalk is hard and it affects the cow's mouth and teeth. The juice of the corn-stalk, when it is cut down green, has not nutriment enough to furnish the cows sufficient nourishment to give a good flow of milk. There is too much water in it. A change of the juice in the stalk is in favor of letting it lie until part of the juice has evaporated. It changes the nature of the juice in the stalk by letting it lie twenty-four or forty-eight hours to a great extent.

I have found the corn crop, in my experience, the best crop for soiling, and taking the place of pastures in dry seasons for dairy purposes.

As far as orchard grass is concerned I have not yet experimented with it at all.

I would state that I graze a mixture of red clover and timothy and some June grass, and red top, if I can get it. White clover generally comes in naturally itself. I have never failed to have a pasture that I had pastured over two years that was not generally sprinkled over with white clover.

Rev. G. S. Bennett, of Appleton:

Did you ever experiment in different kinds of corn, sweet or common corn for feed.

Chester Hazen:

I never planted but very little sweet corn for the purposes of feeding stock. I have planted the common flint corn and dent corn. I have planted what is called the Sanford corn, a sort of evergreen. It grows a very large stalk, suckers out considerable and the juice is very sweet in it. It will remain green until the frost kills it. I consider that very much the best corn I have ever tried for soiling purposes. You can get a heavier growth, a better quality, and it will remain green longer than any other crop we have. While other corn is ripe and the stalk dried down and you may consider it useless for feed, the Sanford corn is yet good.

Mr. E. H. Benton:

How do you use your corn? Do you use it brought to the cows? What method do you follow in getting it to your cattle?

Mr. Chester Hazen:

I usually drill in my corn with a hand drill, in rows two to three feet apart north and south. Planted in this way, we can harrow it over with a light harrow, which checks the small weeds. Usually it needs no more cultivation. If the soil it is planted on is rather foul, you can pass through it with a cultivator or shovel plow; by that time it will get up and cover the ground so no weeds will disturb it after that.

I usually commence cutting up my corn after it gets up and is tasseled out. When the corn gets ripe, I cut it all up; draw it to my cows and scatter it around the pasture every day. As I stated before, when it is green I cut it up the day before and feed it in the pasture. My cows almost always will eat the stalks all up clean during the summer time.

Mr. E. H. Benton,

About how much seed does it take to the acre.

Mr. Chester Hazen:

Of the Sanford corn, half a bushel will plant thick enough to give a first rate crop. Common Flint corn it takes about

a bushel. I plant it thick enough to get but few ears and yet have plenty of stalks. If you plant it too thick it will be a stunted yellow growth and your stalks will be yellow.

Mr. E. H. Benton,

That is the point I was after. I have heard of two bushels to the acre.

Mr. Hazen:

You want to get a good growth of stalk, large stalk.— There is more nutriment in it than where there are too many small stalks, sown too thick. That is a serious objection.

Mr. E. H. Benton:

The greatest point with this corn fodder, is sowing thin enough to have a well developed plant. I think there are as many mistakes made in this direction as in any other. By crowding the plants, they do not get sufficient air and moisture and food, and they are poor in quality.

Mr. J. M. Smith, of Green Bay:

I would say in regard to this matter, that I have raised a little corn for fodder, not to any large extent, but my experience has been, I am inclined to think, that a sweet corn is preferable to that of any other variety for fodder. I have tried a little of both kinds, and am strongly of the opinion that it is well to try sweet corn. Take something like "Crosby's Early" or "Moore's Concord." I would not take Evergreen. That grows a large, stiff stalk with fewer leaves. Crosby's or Moore's or Buck's early. Something that grows early and has a good many leaves, and I think you will like it.

In regard to orchard grass, I will say that my father has cultivated it, and used to sow a considerable of it, and after some years he pretty much gave it up. Before I left home he had about given up sowing it. It did not form a good sod. It is a grass that grows very quickly and makes apparently a good crop on the ground, and yet when you come to mow it there is comparatively but little of it. I never saw a heavy crop of hay of orchard grass in my native neighborhood. I do not know but it may do better in other places, but in my

native neighborhood, where it was cultivated to some extent, it was not considered a favorite grass either for hay or pasture, and that was in favored Orange County, or one of the northern counties of New Jersey, bordering on Orange County, the great dairy regions of the country at that time. It was not considered as valuable as some other grasses. It grew better in the orchard. My father used to sow it sometimes in the orchard, when he was cultivating it and wanted to seed it down for a year or two, when the only object was to benefit the orchard and not a good crop. It would grow and keep the weeds down, but the value of it as a grass we estimated but lightly.

Mr. J. P. Roe, of Oshkosh:

I want to inquire whether there are any dairymen present who have depended mainly upon soiling? There are sections of our country where the land is valuable, where farms are limited, where comparatively larger dairies are carried, and almost wholly on the soiling principle; that is through the season when they would soil cattle.

I have had some experience in that line myself, and I should like to hear what others may have had, and compare notes.

I am one of that class of men who have to make a little land go as far as possible.

Mr. Chester Hazen:

I think Mr. Roe is the man to give his views on that subject. He said he had had some experience.

Mr. J. P. Roe:

I am not so certain as to the amount of experience. I would like to compare notes on the question.

My own farm contains about sixty-five acres, about ten acres of that is a swamp not valuable for pasturage, leaving me comparatively but a small piece for a dairy of from twenty to twenty-four head. And depending the early part of the season, thus far, upon nothing but clover, followed by oats sown for soiling, then by a succession of crops of corn, drilling it in as mentioned.

Instead of using a seeder of any kind I have just sown it by hand. By familiarity with it and practice, I have been enabled to sow it as readily as I could walk; my man marking out a furrow with a plow, and turning it back on it and returning like an endless chain, so that you can sow a large belt of ground in comparatively a short time.

From three acres in clover, I carried four horses and twenty-four head of cattle for about three weeks on that three acres, cutting every day and feeding twice a day. Then I followed by oats. Owing to the drought this year, it made a material difference in the amount of land we had to go over. I cut about seven acres this season of oats, for soiling; having my oats carry me until to my corn, which was sown quite late, indeed, so late that many promised a total failure, but by sowing while there was comparatively a little moisture in the bottom of the furrow, and then rolling it down promptly, priming it as gardeners would say, it seemed as though it sprung up immediately out of the ground.

For corn for soiling purposes, my preference would be for Stoll's Evergreen. I may be prejudiced in that. From an acre and three-quarters, I carried my dairy for twenty-two days, averaging half a ton cut per day. That was averaging satisfactorily, considering the season. I stable uniformly and feed in the stall, during the entire summer season.

Mr. J. M. Smith:

Why do you prefer Stoll's Evergreen to Crosby's?

Mr. J. P. Roe:

I think we get in all, a larger bulk, and by that suggestion of Mr. Hazen's, which I like exceedingly, laying the corn for a short time to wilt, say twenty-four hours, the saccharine element in the stalk is in a measure condensed, the juice and the stalk is essentially sweet. The cattle like it. With me, I have no trouble in their eating it up clean. That is the main thing.

Mr. J. M. Smith:

Do you consider that Stoll's Evergreen or sweet corn superior to dent?

Mr. J. P. Roe:

I would consider it superior to dent. I have been very unfortunate in my Sanford corn in seed. I have not been able to procure seed that was sufficiently matured for germination. It seemed to fail almost uniformly.

Mr. J. M. Smith:

Have you ever tried Crosby's for feed?

Mr. J. P. Roe:

I have not tried Crosby's. I have used, somewhat incidentally, Early Minnesota, which you know is very small. I have used mainly Stoll's evergreen.

Mr. J. M. Smith:

I have no doubt but that you get more weight of food from Stoll's Evergreen, but my idea would be that it would be more valuable feed from the other. The greater weight you get of Stoll's Evergreen, would not be as valuable as the lesser weight you would get of Crosby's or Moore's Early. The Minnesota would be too small.

Mr. J. P. Roe:

The Minnesota is wholly out of the question. I don't know but that those varieties that are mentioned, Moore's Early and the Concord Sweet would give as good or better satisfaction than Stoll's Evergreen.

In soiling we have one advantage in keeping up the flow, as any one who attends in the city knows. The soiling system admits of it, as we cannot depend upon our pastures.

Mr. H. W. Morris, of Byron, Fond du Lac County:

I would inquire if any gentleman present has ever had any experience with Alsike clover? It is a variety between the white clover and a small variety of the red clover. I have seen it growing in small patches, but never have seen it used extensively.

I have seen it recommended as being a more hardy variety than the red clover to stand the winter, more like our white clover. It branches out in small branches from the root, more than the white clover, and I would like to know if any gen-

tleman present has ever had any experience with it, enough to know whether it could be recommended as one of the grasses for the farmer to adopt.

Mr. J. M. Smith:

Will some gentleman give us the information asked for?

Mr. Hazen:

I have had very little experience with the Alsike clover seed. I bought some once and sowed an acre of it. I was careful to get my ground in good condition, and thought I would experiment on the clover a little. It was a pretty dry season. In the fall I did not see but little clover after I cut the grain. I think I sowed it with barley. In the spring I did not see anything of it. That is my experience with Alsike clover. [Laughter.]

Mr. E. H. Benton:

Alsike clover has been generally recommended as profitable to be sown for bee pasture. That has been the principal object of its introduction. I have seen it in growth and I have some in two places on my farm. It is certainly hardier than the red clover. It is seemingly a little larger than white clover. It belongs to the class of the white clover in its habits; it grows something like it, blossoms something like it, and as a matter of pasturage I think it is an advantage to sow it. For getting hay, for a hay crop I do not think it is advisable to sow it. It is rather short. For that purpose it is no more desirable than white clover. It is certainly advantageous for bees. You can get the seed cheaper than white clover, and if the white clover don't come in naturally, it is an advantage to sow Alsike clover. It does not winter kill so badly, and stands the dry weather better too. If a man knows what white clover is, he knows pretty nearly what Alsike clover is.

Mr. J. P. Roe:

I would like to ask if any gentleman present has grown Millet for soiling?

Mr. Herman Jones, of Appleton:

When I first came into this northern country, there was

no feed except very poor wild grass, in the vicinity of Appleton. I sent off and got some millett seed, and cleared off a new piece of ground, and sowed two acres the fourth day of July. On the eighteenth of July I sowed two acres more, and I had that fall as nice a crop of fodder as I ever saw grow. My father was here from Ohio visiting, and he said I had an enormous crop, and after I had it well cured he weighed it, and it overwent five tons to the acre. We counted the stooks and weighed the bundles in a stood. It grew higher than I could reach. That was as nice fodder as I ever raised, but it will impoverish land just about as fast as anything I have tried. That is my experience.

Mr. E. H. Benton:

Did you notice the effect of it on the cattle?

Mr. Herman Jones:

I fed it to cattle with good results. I threshed a portion of it and saved a large quantity of splendid seed, and fed my hogs that fall and winter on it, and I never saw hogs thrive as they did. It was soft pork.

Mr. J. P. Roe:

If you had fed it with corn it would have made a very good article of pork. The same as using acorns with corn.

Mr. J. M. Smith:

I would like to inquire if any gentlemen present have ever tried roots, mangel' worzel and rutabagas to any extent for feed, and if so with what results?

Mr. J. P. Roe:

I would simply say that I have used what is known as the half long carrot. It gave with me, excellent satisfaction. I have already prepared an acre and a half for this coming season, and hope to raise about two thousand bushels of roots of all kinds. I tried the yellow —, the name escapes me, it was from the Patent Office at Washington.

Mr. J. M. Smith:

The Globe-Ovoid?

Mr. J. P. Roe:

That is it. It was very gratifying. I found my carrots gave me on my farm, forty cents a bushel. This was the half long carrot. It is longer than the French horn and shorter than the long orange. They made a very good growth, growing about six inches in length, then tapered off very blunt at the lower end; exceedingly easy to get out; you could use the digging fork and throw them out with perfect ease, whereas with the long orange, I had to use my team, and plow close to them, and then the question was whether the carrots would not be broken. But this half long pulled up easily. By sowing them comparatively thick, they would spread out. My men would dig more than three times the area of carrots of this variety, than they would when they came to the beds of the long horn. Then we were brought up standing.

Mr. J. M. Smith:

I would state that the carrot to which Mr. Roe refers is called the Short Horn.

It is a very productive variety. The best variety for the table with one exception and about as good as that. I have raised it somewhat extensively. I fed them to my horses three years ago. I had a very large crop of them. I tried feeding my horses with them while we were doing our fall marketing. I gave them just about as many carrots as they would eat. I think about three pecks per day each. They had no other feed to amount to anything. It is possible they might have had a quart or two of oats and a very little hay. It is safe to say that seven-eighths of all their feed for two months was simply those carrots and I think I never saw horses in better condition in my life. Their hair was almost like mole's fur, it was so smooth and fine and soft, and they were really in as good a condition as horses could be.

It is true their work was not very hard. It was marketing my vegetables. They were constantly going, but not heavy work, not as heavy as heavy teaming or plowing, but they were constantly working. Going all day from one place to another.

Mr. E. H. Benton.

What about the White Belgium?

Mr. J. M. Smith:

The White Belgium is a larger variety but not considered so good for feed. It is probable that you would get more of White Belgium than you would get of this variety. This variety is very prolific. As Mr. Roe says, the gathering is almost nothing. They seem to be loose in the ground. You can snap the tops off very readily. They have a very small top. They are the easiest harvested of any carrot I know of or of any root crop. They are easily taken care of after harvesting. I would like to see our farmers use them, for I am satisfied from the experience I have had in using them that they are a very cheap crop for food, and a very valuable crop for both horses and cattle.

Mr. E. H. Benton:

Take the cost of planting, the extra work, and the increased rapid exhaustion of the soil by such a crop; taking everything into consideration, the labor of harvesting and the expense of feeding, do you think there would be a gain over a crop of corn for general soiling purposes?

Mr. J. M. Smith:

Not for summer food. I speak of fall and winter food.

Mr. E. H. Benton:

This sowed corn is cured and gotten up for winter food. Which would give the greatest returns for the least outlay. Gentlemen sometimes get big crops. They do not tell us what the crops cost. I am not going to get rich if I have a big crop if it costs me all I get for it, even if it is a large sum.

Mr. J. P. Roe:

I would say briefly that from less than half an acre I stored in good order a trifle over three hundred bushels of these carrots and they were grown, a large portion of them, in my vineyard, right in between my rows of grapes, not interfering with my vineyard culture.

I can in a very short time give the figures, but the cost of growing them was comparatively trifling. These were weed-

ed but twice if I recollect right and by running a cultivator, which I most cordially recommend to the *brethren* (laughter) present, the hand barrel cultivator and keeping it going. I kept it clean between the rows. In that way you will find that the comparative cost and labor is lessened materially.

The value of the carrot, of course, is for winter feed. In one of Flint's works, which is regarded as the standard, he cites instances of it, as sustaining the flowing of milk, valuable for its color and richness; more especially for butter making, and he bases the carrot, the Yellow Belgium, Long Orange and this variety as equal to anything that is grown, unless it be the parsnip, and he holds the success of the famous breed of Jerseys from the use, the long, constant, continuous use through a long series of years of the parsnip root in the Island of Jersey, feeding them to this stock; placing parsnip at the head of feed for cattle and the next in order the carrot.

Mr. E. H. Benton:

I would say in regard to the yield of the carrot that I sowed once a strip of the Large White French Field Carrot. It is a pretty long name and a pretty long carrot. I sowed in my garden a strip ten rods long and one rod wide. I harvested sixty bushels from it, that would be nine hundred and sixty bushels to the acre.

The Large White French Field Carrot I consider very valuable for stock and so far as the yield is concerned it would equal the Giant Mangel Wurtzel, and that has the valuable quality of being easily harvested. Large as they were I could pull them up by hand. They grow tapering and have no branch roots to hold them in like the parsnip and some of the other carrots. They have just one root, tapering down.—When you start them they are loose. For three or four years I failed to raise seed. I like that carrot, but this Short Horn carrot would take its place on account of the easiness of harvesting.

After I harvested these carrots a basket was superfluous in carrying them. You could gather them up in your arms

like cord wood. I had some of them you had to break in two to get in a bushel and a half basket. They didn't cost me, I do not think, more than ten cents a bushel at the outside to raise.

Mr. J. F. Steele:

I would like to inquire whether a good crop of carrots can be grown on ground in an ordinary state of tilling, unless it is unusually rich.

Mr. J. M. Smith:

I will state, for the information of the gentleman present, that my impression is that on poor land, or even on good land poorly cultivated, you get, as a general thing, but a very poor crop of carrots. When sown on good land and with good cultivation they are a pretty certain crop and hardly ever fail. And in this connection I might state that the largest crop of carrots that I have ever raised cost me almost nothing. I had some two acres of them and they were sown in between my onions, between the rows, commencing along in June after the onions had nicely started. The tops of the onions shaded them somewhat, until the former were ripe and we took them out of the way. Then we went through the carrots with a hand cultivator once, and I think in some places thinned them out a little. That is about all we done to them. I recollect well one of my sons saying that "that crop of carrots has cost twenty-four dollars and some cents thus far." We were going to pull them. The crop was something between 600 and 700 bushels; but, of course, in doing this we had gone to the expense of putting the ground in first-rate condition for the crop of onions and had raised the latter. The carrots were simply sown between the rows of onions. Perhaps it might be said that a part of the cultivation given to the onions should have been given to the carrots, but the cultivation that the carrots received, as carrots, cost me less than five cents a bushel previous to harvesting the crop. They can be raised very cheaply on good ground with good cultivation and are very valuable for feed.

Mr. E. H. Benton:

You can put all the knowledge, in regard to agriculture and the experience of it, in one sentence: Good crops can be raised on good land and with good cultivation.

Mr. J. P. Roe:

I would propose a subject for discussion: "The most successful and economical method of carrying our cattle through our Northern winters."

We have been going through a stern and in some respects a bitter experience during this present winter, and for two or three seasons in the past. Our winters have been very confining to our stock. Anything that will throw light upon such a method — of carrying stock through our winters in good order, cheaply and safely — I should like to hear it.

Mr. E. H. Benton:

The word "cheaply" came into the gentleman's question and I would like the discussion on that word "cheaply;" what it means in agriculture and in keeping cattle. I find that most cheap articles are the dearest when you get done with them. My opinion is that that is just where the trouble is in our poor crops and our poor stock — cheaply — consequently it is the dearest in the end.

On general principles there is no more self-evident fact in keeping stock than that one thing of importance is in providing a good warm building, either of stone or wood; a good substantial building, where the temperature will be somewhere near summer heat.

I have seen almost any quantity of stock in this country kept dearly because it was kept without shelter, and it took almost three-fourths of their food to keep them warm; whereas part of the money put into a good building, where the animals can be kept warm during the rigorous winters of our climate, and allowed to drink water that would not set them all of a shiver before they could back into the stable, they could, I have no doubt, be kept on half the quantity of food, and come out better in the spring, by being kept warm and comfortable.

I have seen stock kept in good condition during the winter without much shelter, but they had grain fed to them *ad libitem*. But we come to the time we live in. Corn costs a good deal, almost as much as to raise it; so do other crops. From the shortness of the season we must turn our attention to furnishing a summer temperature for our cattle. I am certain of this, that if every hoof, feather and claw on a man's farm had as good a shelter as he has himself, the cheaper he can keep them in good order. There is no question about it in the world, that this is the prime necessity in our climate.

Mr. P. S. Bennett:

I would like to ask Mr. Benton, before saying anything further, about horses; for I know more about horses than I do of cattle. How will our horses stand the cold when we are obliged to take them out from their summer resort, or hot barn of almost summer heat of which he speaks, and use them in our cold mornings, when the thermometer is down to thirty-five below zero. How will they stand the cold as compared with horses that are kept in ordinary barns?

Mr. E. H. Benton:

This question cannot be weighed by pounds and ounces, or determined exactly like a proposition in mathematics, but it can be arrived at with a little common sense.

In the first place, the endurance of the animal depends upon the condition of the system. It is not so much the place he is kept in as the condition the system is in; the vitality in the horse. It depends on the treatment. If a man is going to take a horse out and drive him, and stand him somewhere on a northeast corner and hitch him to a post, it wouldn't make any difference whether he stood in a barn or not. Such a man is not fit to have a horse, and would kill a horse, no matter where he was kept.

It depends on the treatment. When a horse is driven and stopped, he should be blanketed and taken care of. The gentleman won't drive a great ways with the thermometer at thirty-five degrees below. I would run the risk with him, and a great many others, in taking care of their horses.

Mr. Bennett:

I consider Mr. Roe's question to embrace the keeping of our animals through the winter in the most economical way; not the cheapest, so far as dollars and cents are concerned, with the bare idea of getting them through; but which is the best way. What is the best and cheapest method on the whole?

Mr. Roe:

That is the idea. *Economical* is the word.

Mr. Bennett:

That is the word. And have them come out in the spring ready to do labor, as well as to perform labor during the winter itself. Now, I have not had experience in cattle growing nor in horse raising, and perhaps I ought not attempt to say anything on this subject. I have kept a horse nearly all the time, generally only one, for the last thirty-five or thirty-eight years, and of course my horse has been very much of a pet with me. I have kept one cow most of that time, and I aim to have a good cow, and she has been something of a pet also. I suppose what is true on a small scale is somewhat true on a larger scale. I have tried different methods of feeding my horse and cow and with different results.

I remember a good many years ago my attention was called to the subject of feeding my horse straw; nothing but straw with ground feed. It did not look to me as very promising, and they talked up the subject. It was about the time these straw-cutters were coming into use in the State of New York, where I was. They recommended the use of a straw-cutter very freely; you would save so much feed by it, and that, I thought, was probably true, provided the amount of the feed was increased. I will say that in the former part of the winter I had some of the best clover hay, cut when it was small and well cured, with a mixture of some other grasses perhaps, that I ever fed before or since. That run out about midwinter, and I commenced to feed my horse on straw and mill-feed, a light mill-feed at that time — shorts. I did not

increase the amount of grain in substance at all, as near as I can judge, and my horse had nothing but straw during the rest of the winter and the following summer until hay came again; and I never had a horse before or since that came through the winter feeling better, looking better, able to perform my work any better, and I never wintered a horse so cheaply.

Mr. Benton:

Do you know how much mill-feed, by measure or weight, you fed a day?

Mr. P. S. Bennett:

I do not know that I can tell positively, but my impression is now four quarts to a feed, and I want to say I just fed my horse three times a day, no more, no less, and he was always ready for work. The shorts were better than you get now-a-days. They weighed about twenty-five pounds to the bushel.

I want to say one thing further here that my experience in feeding has gradually been this, that horses are injured oftentimes by feeding them too much hay, and I remember hearing somebody make the remark when I was a boy, that I thought nothing of particularly then, only it was strange, and that was, "that a horse tied to a hay mow would starve to death," and there is much of truth in it.

I think that keeping a horse feeding on hay from morning till night and from night to morning is one of the worst things you can do. I do not think a horse or a cow ought to eat any oftener than a man, or ought to eat, as a rule, promiscuously. If we were to eat all the time we couldn't perform our labor as well, and we would eat a great deal more.

I believe horses ought to be trained in the same way, ought to have their regular periods of eating, their regular rations as near as may be, and I think it would be a matter of economy to do so, and my opinion is further, that by using straw cutters and hay cutters and cut our hay and straw as the case may be, without increasing the quantity of grain, in either case we would save at least one-half of the hay we used to feed, and our horses would I think do better.

Mr. H. W. Morris of Byron:

I would like to ask the speaker how he prepares his feed, whether he feeds the meal separate and dry, or whether he wets the straw and mixes the meal with it and feeds grain.

Mr. P. S. Bennett:

When I cut straw or hay I put the meal or corn feed on it, of course wet, and mix it up well. In very cold weather I sometimes use hot water, then mixing the feed together.

When I practice that generally in a few days I return to the old practice. It should be mixed of course and then wet and shaken up and mixed up together thoroughly and you will very soon find out just about how much your horse will eat. He will eat just about so much and he won't eat any more nor want any more, and you will find him always ready and he will come out in the spring as neat as a roe.

Mr. J. P. Roe:

In speaking of economy I think as far as I have gone I find the chaff, as it is called, the best. I use a power cutter. No. 3 I think. The saving on straw will amount to about three-fourths, on hay one-third, on corn stalks fully one-half, according to our estimate. I cut everything and use steaming. We were using scalding water. We have large boilers to hold about $3\frac{1}{2}$ or 4 pails full of water so a good stout man, bracing himself can carry these two boilers full; the water at a scalding temperature, and this chaff is thoroughly saturated with this water, the meal we use being mixed through it and the cover being shut down tightly and the whole allowed to steam. We find the use of the water preferable to steam, you get more in it.

In steaming, in cooking it, I think your cattle will increase more rapidly in flesh. If your object is for fattening purposes I judge that the steaming process is better, but for milk purposes the scalding water is probably better.

You have more moisture. You have more that induces a flow of milk. In speaking of food in winter, it seems that the great question is variety.

There are some gentlemen, perhaps, who have seen it on our army raids when we got to baled hay.

I have seen a hundred horses or more, hundreds of them, where the oats were thrown down and hay is fortunately obtained, and not an oat is touched, but the horses ravenously went for that hay instead. Nature taught them what they needed. It seems the one great question is variety. There is no doubt but that the dish we put on our tables, no matter how elaborately gotten up, no matter how rich the viands, if we are limited to that dish we will sicken of it. I think the stomach of the horse and cow is very much like our own in that respect. I take my cattle from one class of hay and put them on another; one class of feed and put them on another, and although that may be an inferior article, I see a gain in a short time.

Mr. E. H. Benton:

The gentleman has a very good principle at this time, but perhaps it traverses what he said before about the corn fodder. He dried the corn fodder to get rid of the water, and he wets his straw and other fodder to get water, and I want to see how the two things agree.

I have always heard that dairymen wanted to get all the water they could into the milk, and I was astonished at their trying to get rid of the water by wilting the corn. It does not make any difference whether they get the water into the milk before they get it out of the stock or afterwards, but nature says the more water you can get to animals in their food, the better will be their yield, so she feeds them on green food altogether.

As to change of food, there is quite a show of reason in that if you want to get an extra development at the sacrifice of the constitution.

Now, the gentleman at my left, Mr. Bennett, has rather hit on the right principle of feeding economically. If you feed more than the digestive organs can properly assimilate, you have loaded the animal with something extraneous to the

life forces. It has to get rid of it, and get it out of the system. A variety of food for the purpose of increasing the appetite produces gluttony, which is injurious, consequently gluttony is a diseased state of the system. Stock should be fed nutritious food without reference to variety.

It is a grand idea to feed animals a little less than what they will eat; then they have always a good appetite. Appetite is a grand thing in regard to keeping them healthy. If you want to make a hog of an animal to put on a great amount of fatty flesh, feed them all they can eat; it will produce it. If you want an animal to work you want to feed them less than their appetite calls for, and let that food be in a wholesome, healthy condition, and give them a good, stated supply, at stated times of the day, and they will perform all that nature is capable of performing under that condition.

The idea is to get an equilibrium, to get the right rates.

About what I have said relative to variety I merely make this explanation, that with us it is essential to keep up a certain amount from a given number of cattle, and to do that we have, as you might say, to pamper to their appetites. We wish cattle with good digestive ability and large milk powers combined, to keep up the largest returns, and to do that we have to have variety. They will tire and fall off on the best of feed unless there is that variety.

Mr. Chester Hazen:

The subject of wintering stock the most economical way admits of a wide range I think. There are various opinions about it and experiments showing that there is a wide range of difference in the ways of wintering stock the most economically.

Some of our dairymen in New York State have experimented in wintering dairy cows on corn meal alone.

One gentleman in York State has a large dairy which he says he has kept on corn meal alone, they keeping good heart and keeping up a good flow, on three quarts of corn meal a day, three times a day; dry corn meal fed dry, without any water with it.

Mr. E. A. Benton:

But he says gives them what water they want.

Mr. Chester Hazen:

I think he gave them what water they wanted to drink, but fed them nothing but meal and a pretty small allowance I think for a dairy cow. That is a new idea to me and that is the reason I mentioned it.

Mr. E. H. Benton:

That case has a good sense of show in it. The cattle almost digest that meal before they swallow it. They keep it in their mouth so long, that by mixing it around in their mouth with the saliva it would pass into the third stomach in which it could be maintained. I understood Professor Faville at Madison, to say the water was limited to one or two pails a day. The question was how much the animal system could endure under a strain. I do not think there is any suggestion of value, as far as practical observations are concerned in that experiment. It only shows what nature is able to do when you abuse it.

Mr. J. P. Roe:

Corn meal is costly. It would seem that we are obliged to fall back on something else. Now in our neighborhood bran is sold at \$22 per ton, and corn meal is sold as high as \$40 per ton. \$38 to \$40 per ton.

I find middlings or shorts at \$26 per ton to be the cheapest of the three. This whole matter of feed depends upon the ruling price we are compelled to give. One article we desire may be beyond our reach. If the returns are not satisfactory we will have to throw our dairy to the winds. It all depends upon the returns, upon the simple question, "does it pay?"

I agree most heartily with Mr. Hazen that the most profitable food in the way of hay is the mixture of clover and timothy. I would say three parts of clover to one of timothy cut early and well cured. I find that gives me the most satisfactory results of any one thing I can use.

Mr. Dana C. Lamb, of Fond du Lac:

Moved that the subject for discussion for to-morrow evening, be as follows:

“Are trials of speed, commonly denominate ‘horse races,’ necessary to the success of our Agricultural Fairs.”

Carried.

Secretary R. D. Torrey:

Moved that a committee of three, with Mr. Hazen as Chairman, be appointed to select a subject for discussion this evening.

Carried.

Mr. E. H. Benton, of Leroy and Mr. H. W. Morris, of Byron, were appointed as the other two members of the committee.

A paper was then read by Rev. P. S. Bennett, of Appleton, on the subject of “Ornamental tree planting.”

ORNAMENTAL TREE PLANTING.

Read by P. S. Bennett before the Convention of the Northern Wisconsin Agricultural and Mechanical Association, held at Fond du Lac, February 25th, 1875.

Much has been said and written in regard to Fruit Tree Planting. Its profits have been exhibited, varieties discussed and recommended, directions given as to culture, pruning, and in short everything deemed necessary to success.

This is all very well. Indeed, in the early periods of a country, necessity naturally prompts to this. Nor will it ever cease to be important. But as the real necessities of a people are met, they naturally turn their attention to something in the line of luxury and ornament. This disposition, if kept within the empire of a discriminating judgment, is highly commendable.

Especially is it proper to render our homes pleasant and attractive by nature's own gifts.

A portion of the value of fruit trees even, lies in the beauty and fragrance of their bloom—*their vernal crop*. And if in addition to this they are symmetrical in form, we feel somehow remunerated for our care of them, even though the autumnal crop fails us.

But these do not meet all the demands of the case.

Variety adds much to the beauty of a landscape, natural or artificial. A vast unbroken plain or a million choice flowers of the same kind, cannot delight us as long or as intensely as a proper variety, even on a greatly diminished scale. Among our fruit trees along our walks and way-sides, tastefully arranged ornamentals are requisite to give the best effect. If they are not equally attractive to all they are not repulsive to any, and probably add value in the estimation of every one.

Nor are they exclusively ornamental—though in this light alone their liberal planting may be defended.

They are useful as wind breaks, and may be for timber when our native forests shall have disappeared.

The question is now pertinent, what kinds shall we plant?

It is difficult to answer in a word. So many circumstances are to be taken into the account, that no rule of universal application can be given. But beyond all question, variety should be an important object.

When grounds are small this variety may be very limited; but when ample, it should be greatly increased.

I would advise, that in the selection of ornamental trees, a large draft be made from the Evergreen family. "But we cannot make them live, we have tried it over and over." But you *can make them live*; I have tried it "over and over." Indeed I have tried both ways, and think I understand why so many evergreens die. A few simple directions, carefully followed, will lead to success; disregarded, failure will be the inevitable result.

First of all I would say, never buy an evergreen just from the forest, except for a Christmas tree.

Many have done this because they were cheap, the seller and purchaser both thinking they were worth the small price paid for them. But everybody should know that an evergreen of desirable size just from the forest, is utterly worthless to plant. The strong probabilities—almost certainly—is that it will die in six weeks. But if it survives, it will seldom make a tree of moderate beauty. It started wrong, and is harder to reclaim than a spoiled child.

This is especially true of the Swamp or Black Spruce. It is often attractive in its native morass, but removed thence, the lower limbs soon die, and it becomes an eye-sore rather than a thing of beauty.

The Balsam will do a little better if it bears the shock of transplanting. But it rarely meets expectations when thus treated. The bare statement of these facts, without the reasons for them, must suffice at present. Another thing equally important, is to handle even nursery grown evergreens prop-

erly. This is indispensable. Carelessness here is absolutely fatal. An exposure of the roots of an evergreen to the sun or to a drying wind for a few minutes, will hermetically seal the pores, and thus render them impervious to moisture. This insures their death. They should therefore, be purchased only of those who are supposed to know how to handle them, and to have honesty enough to properly care for them.

In planting them, no green manure should be used as mulching—saw-dust or straw will be found preferable. And as there is an immense surface from which moisture is constantly thrown off, water may be applied to the mulching somewhat freely, especially if the soil is dry. Of course it is understood that in planting evergreens, all the care is needed as to adjusting and covering the roots with well pulverized earth, that any tree requires. Thus treated, they can be transplanted with success.

At this point comes the question very naturally, "What kinds of evergreen shall we plant?"

It is very proper here to specify a few varieties, and by exhibiting their characteristics, learn what we may as to their relative value.

At the very head of the list I place the Norway Spruce.

This for majestic beauty, is the king of the forest. Nor is it surpassed by any in symmetry of form. Properly started in the Nursery, it makes a perfect cone. No evergreen, except the *Arbor Vitæ*, will bear transplanting as well, while its foliage never becomes dingy like the latter. It makes good hedges and wind-breaks, but will spread itself with more lordly pride when isolated. Here it shows to the best advantage, towering to an enormous height, and challenging universal admiration.

Next in value and scarcely second in beauty, is the Austrian Pine. This is a fine compact tree, and like the Norway Spruce, of perennial dark green foliage.

It is also coniform, but does not attain as great a height as the latter, nor does it bear transplanting quite as well. It

ought to be more extensively planted in our yards and lawns.

Several competitors contend sharply for the third place in the list.

Weeping Spruce, properly trained, would perhaps win if the case were submitted to an unprejudiced umpire.

But it is difficult for those who were reared among hemlock trees — for these are the Weeping Spruce of our tree catalogues — to see how they can be made things of beauty. Yet they can, and when complete success in training is secured, few are more graceful and attractive.

But, as they do not bear transplanting very well, they will never become extensively popular.

The Balsom Fir, when grown from seed or brought from the forest very small and grown in the nursery, with several transplantings, becomes a beautiful cone-shaped tree and perhaps ranks next to the Austrian Pine. It has, however, given some evidence within a few years that it is rather short-lived when subjected to cultivation. Should this prove to be a settled fact, it must take a lower rank than it has formerly held.

On the whole, however, and for all purposes, the Scotch Pine presents strong claims for the third rank among evergreens.

It is of rapid growth, bears transplanting well, will live to a great age, while its heavy and emphatically evergreen foliage render it an object of attraction.

This, together with the Norway Spruce and Austrian Pine, must be grown from seed. None of them, so far as is known, has ever been found native on this Continent.

We have, it is true, two species of spruce indigenous to America — the black, which, as I have said, is worthless; and the white, which makes rather a pretty tree, is difficult to obtain and every way inferior to the Norway.

Next to those recommended, the Red Cedar, the Arbor Vitæ and the White Pine naturally come in. The first two will bear the shears well, and can be pruned into any desirable shape and kept within almost any limit. This renders them very valuable.

The Arbor Vitæ will do well either isolated or in a hedge. But the Red Cedar must stand alone. In a hedge the limbs die and destroy its beauty.

The Irish Juniper is a compact, upright, prim grower and would be very desirable if it could withstand our rigorous winters. But, with a sigh, we must give it up, as we do the Rhododendron and some other tender shrubs.

There are several varieties of the Arbor Vitæ, such as the Siberian and Tom Thumb, of which I cannot now speak particularly.

But those mentioned above as hardy and reliable are quite sufficient in this line.

Of deciduous ornamental trees, there is a considerable variety, the most important of which may be named in this paper with very little as to their merits.

The Lombardy Poplar has long been a favorite. Its rapid growth and symmetrical form have been its chief recommendations. It will still be planted, but, in the opinion of the writer, had better be for the most part confined to the way-side.

Soft Maple is nearly as good a grower, and in every other respects a more desirable tree. It should be assigned, as a rule, to about the same place—the wayside. Neither is suitable for a wind-break unless planted in a grove.

The American Chestnut will probably do well in light soil, while the grand old White Elm will thrive anywhere, and always reward for the labor and care bestowed upon it. Its stately form and gracefully-drooping branches will always make it a favorite.

For private yards and lawns the Horse Chestnut, the Ash-leaved Maple, the Wisconsin Weeping Willow and the Mountain Ash should be freely interspersed among the ever-greens before mentioned.

I mention the Mountain Ash last, not because it is least in importance, but rather because it is a fitting climax to them all. Of these there are several varieties, the American, the

European, the Oak-leaved and the Weeping — all hardy and beautiful.

The birds that gather their crimson product in autumn and winter, well nigh repay by their cheerful songs their cost and care; thus leaving their value in all other respects as net gain.

After the reading of Mr. Bennett's paper, the following discussion ensued:

Mr. J. M. Smith:

You spoke of the White Elm. Do you mean the Rock elm? The Rock Elm is not a pretty shade tree, although it is the whitest in the bark and wood.

Mr. Bennett:

The White Elm is probably the same as our Water Elm that grows in the forests quite generally. It is raised now largely by nurserymen, and when young the branches stand quite erect, but when older and larger the limbs droop. There are several kinds of elm. The Rock Elm is a white elm, as the President has suggested, but I think it is distinct from what is called the White Elm. In fact, so far as I know, the Rock Elm is different in the appearance of the bark; different in the wood itself; not so different in the color of the wood, as I understand it — though I am not so well acquainted with the Rock Elm — but different in the grain. The White Elm as a timber, I suppose, is not very valuable.

Then there is the Slippery Elm, or Red Elm, another variety. Still, the White Elm of our nurseries that I mention is the same as the common elm. The variety that is common in our forests in this country.

Mr. Herman Jones:

I think you are mistaken. I have been in the habit of working this Rock Elm. It is almost invariably red, and the sap white, much of it not half an inch thick and the balance red.

This elm you are speaking of is an elm that we, in Connecticut, near New Haven, called the Water Elm, and it be-

comes a very beautiful weeping elm; and the Red Elm you speak of is another elm entirely.

The Rock Elm and the Red Elm are good for nothing for shade. That we know very well. The Red Elm or Slippery Elm is one thing, and the Rock Elm is almost invariably red, from the sap; that makes a good, tough timber.

Mr. Smith:

I had occasion to examine this matter some few years since and we have in our forests four distinct varieties of elm.

Red Elm is a light-colored wood, light-colored bark, straight grain, and valuable for timber. At the top the branches are short, angular, hmbly-looking, and usually a very poor top. It makes a very poor shade tree indeed.

The kind our friend Bennett alludes to, which is put out for shade trees—either one of the other three is utterly worthless for a shade tree—is denominated sometimes the Weeping Elm. It has been called the American Spreading Elm. The wood is a light red, and it can be readily distinguished by anyone after a little trouble. It makes our most beautiful shade tree and perhaps, all things considered, the best shade tree in the world.

We have another elm called the Brook Elm, which is entirely distinct from this spreading elm. That grows on low, wet ground, and is utterly worthless, even for firewood—holds water equal to a sponge. It is a short-lived tree; never grows large, and usually begins to rot at the top and becomes an ugly-looking tree even in its native forests.

Then you have the Red Elm, or Slippery Elm. That has the darkest-colored wood, perhaps a little darker than the Brook Elm. That is a moderate-sized tree; forms a good-shaped top, but the top is too thin; never makes a spreading top; not a bad shape, but never a large tree, and never makes a thick, shady top.

I speak of it because a great many have made mistakes. We have at Green Bay a good many persons who, in putting out trees, have some of these worthless elms in their number.

Some of them are dying already, and the sooner they become dead the better for the city and all interested.

It is a matter of importance that persons should not make mistakes in the elms for shade purposes. There is one elm and that is the only one that is valuable, and that is the most valuable of American trees.

Mr. J. P. Roe:

I will inquire whether Mr. Bennett has noticed a failure or falling off in the vitality of the Mountain Ash. As far as my observations have gone, they seem to be going off. Some of them that I set out, very choice trees, with a great deal of care. I found they were perishing. On close examination what appeared to me to be the apple tree borer. I extracted the borer in one instance and the tree has lived through and is apparently thriving.

Mr. P. S. Bennett:

I would say in reply that Mr. Roe's latter remarks relieved me somewhat. I was fearful that the question implied that the tree itself was failing. There are enemies to almost every good thing. I do not know that we can guard against the borer effectually if we try.

I have been fighting them for a long time. They assail various kinds of trees and all we can do is to keep up the fight. "Eternal vigilance is the price of liberty."

The Mountain Ash is one of my favorite trees and I should be sorry to have a very destructive enemy come up that we could not successively meet. There are several varieties of Mountain Ash, and in some respects the different varieties have their peculiar claims.

There is the American Mountain Ash, which is a slower growth than the European, but makes a pretty tree, the top is almost uniformly a different shape. They are quite easily distinguishable on that account from the other, from the difference in the color of the bark and a little difference in the form and appearance of the leaf, but not very much. And then the Oak Leaf Mountain Ash is the most beautiful of any variety

that I know of except the Weeping Mountain Ash. I am speaking now of the upright varietie.

The Oak Leaf Mountain Ash is more rare and of a higher price and a little more difficult to propogate, but so far as I know it is quite as harly in every respect, as the American or European. I do not know of anything wrong with the vitality of the tree.

Mr. J. M. Smith:

I would like to ask Mr. Bennett if the Chestnut has been tried in this State to any extent, and if so does it succeed.

Mr. P. S. Bennett:

I am glad to have you ask that question, not because I can answer it, but because I would like to have something drawn out.

Some years ago or about the time we went into the horticultural and nursery business we started in pretty largely with the American Chestnut, thinking that we would make a pretty good thing out of it. The first attempt was an utter failure.

I want to say this, from what I can learn I think this will be found to be true, that in soil where there is much lime the chestnut tree will not do well. I think on light soil, ^{the} sandy soil, even in our rigorous climate that they will succeed. That is my opinion, and if they will succeed it seems to me they are well worthy of planting.

If on light soils, sandy light soils where there is very little or no lime, they will succeed; they will be a valuable tree for propogation on various grounds.

In the first place, they are a very rapid grower.

In the second place, the timber has considerable value; then they can be cut down and a second crop come up, and can be raised over and over and over, for, I don't know how many thousand years.

My father never tried it, as the boy said, but unquestionably they will reproduce themselves in that way almost eternally. Then there is still another source of value, and that is in their

fruit. Chestnuts bear a high price, and I have no doubt, but even in this country, if they can be made to grow, a pretty good thing can be made in that way out of chestnut trees.

Mr. Johnathan Stoddard:

About six miles south of Green Bush, ten years ago, I let a neighbor have some chestnuts and he planted them. One of them grew perhaps ten feet high. It stood on heavy clay soil, growing, and as healthy as any tree in the forest.

Mr. J. M. Smith:

Does it stand in the forest?

Mr. J. Stoddard:

No sir. It is on the prairie. It is exposed, unless he has planted, within late years a few apple trees around it. It stands like anything else on the prairie, in a very bleak place.

Mr. P. S. Bennett:

How much lime is there in the soil?

Mr. J. Stoddard:

A great deal. It is based on a lime foundation. As soon as you get down a few feet from the surface of the land.

Mr. A. F. Glaze:

I was raised in a country where the chestnut tree was a native, and I know some that have been attempted to be raised in this country in the immediate vicinity of Ripon. Some of them in this county and some in Green Lake county, that I am familiar with. I do not think it can be done; that is to raise them to any size. Mr. Miller, who is perhaps known to most of the inhabitants in the county, has, I guess, five or six trees. He brought to my office once, some chestnuts from them. I have not seen the trees for about three years, but at that time they were probably about the size of a man's leg. I do not think they will ever get any larger. Those in Green Lake county maintained a sort of existence for four or five years, and finally died.

Those were on light soil, similar to the soil they grow on in Ohio, but I am certain that the chestnut tree cannot be made a success either as timber, or shade, or fruit in this country. I

have nothing to say as to the reason, for I was not in that business, but Mr. Miller took a great deal of pains in raising those trees. I know he resorted to a great deal of expense in order to preserve them; bestowed a great deal of care upon them, and did succeed in raising them sufficiently large to get chestnuts from them, but I do not think they have grown any in height in six or eight years.

Mr. J. P. Roe:

On motion Convention adjourned to 7 p. m.

FOND DU LAC, WIS.,

February 23rd, 7 p. m., 1875.

Convention called to order by President Smith.

Mayor H. H. Dodd, of Fond du Lac, was introduced by the President, and gave the following address of welcome, which was responded to by J. M. Smith, President.

MAYOR DODD'S ADDRESS.

Mr. President, Ladies and Gentlemen:

The duty of extending to you a formal welcome on the part of our citizens is a very agreeable one to me, and I am exceedingly happy in having the honor of offering it to you on this occasion.

Representing, as you do, an organization having for its objects the advancement of the agricultural and mechanical interests of half of the great state of Wisconsin, we are certainly proud of the distinction of having the second convention of your association conferred upon the city of Fond du Lac.

Thus while we greet you cordially and welcome you heartily, we desire to record our thanks for the compliment paid to our people and to our city.

The gravity of this occasion would warrant a more fitting reception than can be expressed in a mere form of words. But it is not permitted to me to offer you any more substantial proofs of our good will, and it is to be regretted that this duty had not fallen upon one who could better entertain you in the way of a literary treat.

The benefits of these and kindred associations to those who interest themselves in them, are now well understood, both as to their practical results, and in their varied social relations; and the problem is now how to make these benefits more wide spread, how to make them reach all classes, how to make them permeate the whole mass.

It is the universal admission of all who have contributed to the literature of this association, that the thing needful, the thing most desirable is knowledge. The cry is *light! light!* and the power and opportunity to make it shine in dark places, to diffuse it through the classes sought to be united by this organization. Everywhere it is seen that ignorance is the great obstacle to progress in general.

How to remove it, how to elevate the standard of intelligence is one of the questions for this association to discuss, one of the problems for it to solve.

Those who stand aloof and trust to the associated efforts of others, in any direction, without themselves participating in those efforts, must fail to be much benefited by them.

Farmers, mechanics and manufacturers who are satisfied with the plane upon which their ancestors left them, will in turn fasten their own posterity in the same rut, from which nothing but individual effort can extricate them, and place them upon the great highway of progressive intelligence.

It is a hopeful sign; it argues well that the yeomanry of this country express this longing, this yearning after knowledge, this desire for a better intelligence, and that, together with the mechanics — forming when combined the bone and sinew of the land — they not only desire progress for themselves, but are patriotic enough to desire its diffusion beneath, above and around them, even to make its benefits and blessings national.

These middle classes, if you will allow me to call them such, when acting intelligently, can accomplish great results. Upon them depends the permanency and character of our institutions; upon them depends liberty itself, which makes free thought possible. Ignorance, combined with wealth, leads to power, tyranny and despotism. Ignorance, combined with labor, leads to superstition, prejudice, selfishness and the commune.

Intelligent capital tends to extending commerce, promoting the arts and sciences, fostering industries, and developing resources. Intelligent labor is the substructure upon which free institutions and great intellectual development can securely rest. The higher the mental standard of labor, the higher the civilization; resulting in good government, better literature and purer morals.

It has always seemed to me that this ulterior object of these organizations was not sufficiently prominent, otherwise the

membership would be largely increased. In my judgment this organization or association, is a move in the right direction, being a simple and liberal plan to benefit certain classes, by uniting them and bringing them in harmony with other associations of a similar character, to make the benefits as wide-spread and far-reaching as possible.

The adoption of the inductive mode of reasoning, by beginning at the bottom and working up, is another good move. Actual observation and actual experiment with different soils, irons, woods, oils, mechanical powers and the product of domestic animals, under all varied circumstances, will, if you but extend the field of inquiry sufficiently wide, give you the unerring law and point out the safe rule for the economic treatment of each and all.

The discovery of such laws and such rules is knowledge, and the kind of knowledge that we are in pursuit of.

If this mode of inquiry shall be persisted in, I predict for your association happy results.

You should not be discouraged because the acquisition of practical knowledge is slow; or because the diffusion of that knowledge is still slower. What must be of the most immediate concern is, that the progress you do make is in the right direction. That the formulas and the generalization laid down are the very best that can be arrived at, from the experiments and observations that come within your control, that your work is clean, and so far as it goes, fundamental; not only the best by comparison, but the best, as tested so far as may be practicable, by the standard of exact science.

Thus you will have not only the approval of your own reason, but that of the most advanced thinkers of this enlightened age. Thus, while you draw from these profound sources of knowledge, you can give back your observations to aid them in continuing their inquiries and extending their generalizations.

And here I will conclude my address of welcome, trusting that your sojourn in the city will be pleasant and agreeable,

and that your deliberations will be harmonious and eminently beneficial.

As a man, as a citizen, I desire to be permitted to make one or two suggestions for your future consideration. My only excuse is the deep interest I feel in the working classes, and the desire to co-operate with them in freeing their minds, exercising their reason, extending their knowledge and dignifying their labor.

1. To form the ground work of such an intellectual advancement, there must be some definite plan. That you have.

2. There must be entire harmony and unity of action upon that plan. That will come.

3. There must be a studied disregard of error and of tradition. This will be more difficult. The first step towards positive knowledge is doubt and unbelief. Those who have faith in, and still cling believingly to old systems, must remain stationary amid the greatest progress; while doubt leads to inquiry, inquiry to knowledge, and knowledge to advancement. And when on the road to advancement, the gradations of ascent are easy and possible to all.

This principle holds good in every department of science and art, in every avocation or pursuit.

The student who grows in knowledge never believes, never trusts. His is a life of continual inquiry, constant observation and unwearying experiment.

If he looks behind him for fifty years, while he would honor the men who stood foremost in the advancing schools of that day, he would be amazed at the credulity of the masses, whom he would see still hugging old, worn-out and worthless systems to their bosoms, and from which they obstinately refused to be cut loose.

4. There should be brought into these associations the largest number of the classes named that is possible. To do this, prejudice must be allayed, fears dissipated, and all the interest centered in the desire for progress.

5. This will enable each county to have a well-appointed, well selected library, books of authority upon the various branches of study connected with these pursuits, and such other standard books of eminent writers and thinkers as can be afforded, increased from time to time as the financial condition will warrant.

This system, upon the increase of wealth and population, may be extended to townships, and, in connection with the public schools, have, in addition to the library, the telescope, the microscope, and a chemical laboratory.

To go a little more into detail, I mean books of the highest order that are practically applicable to agricultural and mechanical pursuits.

Take the science of political economy, beginning with the works of Adam Smith, down through Mill, Bastiat and later writers in Europe and America. Take chemistry, for, since the days of Sir Humphrey Davy, this science has reached a practical application to farmers and mechanics. Take comparative anatomy, from the great discoveries of Cuvier and Bichat, down through Owen, Darwin, Spencer and Agassiz, by whom the study of anatomy of plants and animals is possible to the moderate reader.

There are other important and useful sciences, such as botany, geology, mineralogy and metallurgy.

This is also true of the arts and professions, to which should be added the philosophy of history, which is the true history of civilization, showing the power of the intellect of man and his onward march, and which will lead the farmers and mechanics to better understand the duties and responsibilities that rest upon them.

Access to such libraries, and the study of such works, would soon elevate the standard and show the same improvement in other branches that you now show in the culture of the grape, the manufacture of cheese, the raising of cereals, the growing of wool and the breeding of stock. The benefits would be great in the immediate relief from the vexatious

and annoying schemes of the visionary, the impracticable and the fanciful, from the errors of false teachers, the poison of the pedagogue, the demoralization of the people, and from the absolute danger of the universal and infernal quack.

But I am detaining you too long. We live in the most enlightened, the most progressive, the most brilliant age of the world, when the brain of man is the most active, his intellect the most clear, his reason the most powerful, and his person the most free. He who wills may sit at the fountain of the greatest knowledge and the most profound wisdom.

The progress of the last hundred years cannot be over-estimated in its benefits to the human race.

If the farmers and mechanics of Northern Wisconsin have not received their due proportion of the benefits of this immense intellectual development, it will be one of the most gratifying and noble duties of this association to assist in supplying the deficiency, and your reward will also be great and enduring. For there is no compensation so full, so complete and so satisfactory as the consciousness of having stimulated intellectual advancement; especially amongst a class so important to the stability of government, so essential to the equilibrium of society, and the onward march of civilization.

RESPONSE OF J. M. SMITH,
PRESIDENT OF THE ASSOCIATION.

Mr. Mayor:

A little more than one year ago our association was invited to hold a convention in Appleton. They accepted the invitation, and held their first convention at that place.

The members of it who came from a distance were splendidly cared for by the citizens of Appleton, free of cost. As far as I have ever heard it spoken of, it was considered a splendid success.

At the last annual meeting of this Association the President of the Fond du Lac County Agricultural Society gave us an invitation to hold a convention in your city. This was also accepted, and we are here in accordance with that invitation.

We have just listened to your cordial and pleasant words of welcome, and we thank you for them. They assure us that you and your fellow citizens propose to do your part towards making our meetings a complete success.

It may perhaps be asked, what is this Society, that is thus invited from one place to another, and entertained in this liberal manner? What is its history? What are its aims, and what its object?

Let me answer these questions in as brief a manner as possible. This Society was organized in March 1870. A number of Counties sent delegates to the City of Oshkosh, where a Constitution was agreed upon, and the first officers were elected. The first fair was held in the fall of 1870, and was considered a complete success, even by its most doubtful friends. The receipts were \$4,559.38.

During the winter of 1871 the Association was incorporated by the Legislature under its present name. From that time to the present, it has continued to be successful, each fair

being larger and more successful than any of its predecessors, until last fall our receipts reached near \$8,000.

It is evident that it has filled a much needed want in this portion of the State. It was organized none too soon.

There had long existed throughout every portion of our State, and in fact throughout the northwest generally, a feeling that this portion of the State produced splendid pine lumber, that upon the lower Fox river was a water power of almost unmeasured and exhaustless strength; that during our long and severe winters, ice of unparalleled beauty and thickness formed upon all our lakes and rivers, and if it dissolved its crystal beauty into water during our short summers, it was only to be reformed into more solid and beautiful masses than ever, during the succeeding winter.

As to our agricultural capacity it was thought,—well the less said the better,—and this feeling strange as it may seem, was shared to some extent even by our own old settlers.

How is it to-day? If any person who has attended one of our Northern Fairs should still harbor such an idea, I should consider his case a hopeless one, and say of him as was said of one in olden times, "Let him alone, he is joined to his idols." As to our capacity for grain growing and dairying, I need only refer to the many magnificent and successful farms in your own and the neighboring counties.

The statistics of your own as well as Sheboygan County tell their own stories about dairying. The yield during the past very dry season being about——pounds.

How about fruit growing? A few years since I think the feeling was very general, that however successful we might eventually become in grain growing and dairying, we could never raise fruit to any extent.

What is the feeling to-day? Let me relate two or three instances as examples of what it is outside of our own district. During our fair of 1870 a gentleman from a distance spoke of our fruit exhibition as follows:

"I commenced attending fairs down in Southern Indiana

and Illinois. I have been attending them all the way north until I arrived here. Your exhibition of fruit is not only the best that I have seen, but it is the best I ever saw in my life."

In the fall of 1873 a gentleman from the southern portion of the State and the one who took the first premium upon grapes at the State Fair, brought the same grapes to Oshkosh the week following to exhibit at our fair. He was beaten out of sight. Unexpected as such a result may have been, and doubtless was to him, he was too much of a gentleman to be annoyed at it, but upon the other hand seemed to be, as I have no doubt he was, very much pleased at our splendid success.

Afterward in a public address in Madison, he spoke of us as follows:

"Their show of grapes was not only better than that at the State Fair, but it was the best exhibition of grapes that I ever saw."

He repeated the statement not long since at the same place, and he had scarcely taken his seat, when one of the largest, as well as one of the oldest grape growers in this State rose and said:

"I wish to endorse every word that my friend says about that exhibition, I was there and saw it, and have no hesitation in saying that it was the finest show of grapes that I ever saw."

An old Uncle of mine from Connecticut was making me a visit and attended the fair. He looked at the show of grapes in utter astonishment. At the close of the fair I procured some of them and took them home for him to test. He declared their flavor to even excel their beauty, and that he had thought it impossible when viewing them as they were upon exhibition.

These are a few of the many encomiums that have been lavished upon us by those who have attended our fairs, not only from different parts of our own State, but by those who lived in far distant ones. And there is a very general feeling

among fruit growers from every direction who have visited us that we have a very favorable locality for fruit growing, and particularly so for grapes, and I have no doubt but that the day is fast approaching, when we shall be one of the finest grape producing regions in the whole Northwest.

This change in our favor, is one of the results produced by our association. I do not wish to boast and am not doing so, when I say that our annual fairs have done more during the last five years to turn the attention of the outside world to our actual agricultural resources and capabilities, than any other one thing that has existed in our midst during the above named period. And more than this; it has awakened hundreds of our own residents to a knowledge of our power, of which they knew but comparatively little before. Again, it has been the means of making us more social, we are better acquainted with each other than before, and I hope and trust that we like each other better than we did while we were so near entire strangers. We of Brown county, at least, have shown our confidence in our fellow citizens both here and at Oshkosh, by sending some of our people here for trial, who have been and are still accused of trifling irregularities in money and other matters, fearing that our own prejudiced judgments and lightened pockets might lead us to do them injustice.

That man must indeed be a poor scholar, who has attended our exhibitions year after year, and yet has picked up no new ideas, has made no progress in the right way. The farmer who has attended them year after year, and is not upon the whole a better farmer to-day than he was five years since, must indeed be a Bourbon of the most perfect type.

In short, we claim that the agricultural capacity of our portion of the state, is much better known and appreciated, both at home and abroad, than it would or could have been had our association never existed.

We claim that our people as a body, are better farmers, better citizens, better neighbors, and upon the whole, better men than they would have been had this society never existed.

So much for the past. A very few words as to the future and I am done.

We are working to-day as we have been in the past, honestly, earnestly and harmoniously, for what we think will be for the best interests of those who placed us where we are.

We do not say that we have made no mistakes in the past, we do not claim to be sufficiently wise to avoid making any in the future; but we do claim that we are doing our best, and we expect to continue to do so while we remain as managers of this association. We do not expect or intend that this convention shall be less interesting or useful than the Appleton convention was last year.

We do not intend to have the fair of next fall less successful than the one of last fall, but on the contrary, more successful than any of its predecessors have been. And I think I am making no vain boast, when I say that if we succeed in carrying out the plans we now have in view, and which we think we can carry out successfully, we believe that we shall be able to treat our fellow citizens, not only to a better exhibition than at any previous fair, but also to a fine intellectual entertainment. It is true that we cannot control the winds or the weather, and they may baffle and defeat our best concocted plans. It is also true that the managers alone cannot make a fair; still we remember how well the people have done their part heretofore, and we propose to confidently rely upon their support hereafter. We believe in progress, and we propose to take no step backward, (unless to rectify an error) but our motto is onward, still onward, firmly believing that we shall be fully sustained in this course, and as fully condemned if we should adopt any other one.

Then, Mr. Mayor and fellow citizens, while again thanking you for your pleasant words and your cordial welcome to-night, let me ask you one and all to give us your cheerful and hearty co-operation in this work, let us work together, let us work industriously, honestly, intelligently, until it can be truly said of our agricultural capacity, that it is at least equal to that of any portion of the Northwest, and of our people, that in all

that pertains to intelligent agricultural industry, and honest perseverance in improving their farms and their homes, they are the peers of those of any portion of our continent.

THE DISCUSSION.

The Committee to whom it was referred to select a subject for discussion, reported that they had decided upon the following:

Resolved, That the co-operation of all the industries of both city and country is necessary to the success of our agricultural fairs."

Mr. Chester Hazen then spoke as follows:

My experience with agricultural societies for a few years past proves to my satisfaction that a co-operation of this kind is absolutely necessary to make our fairs a success, as they should be. We will take for instance our own town and the surrounding country — our Fond du Lac Fair. Perhaps we are no exception to the general rule in all fairs. They have been run by a few interests; it is not a general interest that is taken in the fairs, not as general as it should be by any means. The idea I wish to convey in that topic is that all of the interests should be represented; and as nearly equally so as could be, that is in relation to the amount of capital invested and the labor and experience in them; that is, to make this subject a special discussion that will aid our Executive Board in preparing premium lists to do justice to all of the different interests that may be represented, and also to call out the different views and have them expressed here.

The magnitude of those interests that I represent, the dairy interest and the breeding of stock, supercedes, I might say, any other interest in the State or in the Country. Some other gentleman, perhaps, would oppose me on that and say that some other interest was ahead of it — for instance, the breeding of short-horn cattle, or raising wool, or some mechanical interest. All ought to be represented in fairs, and each one should have its proportion of the premium list set off in a proper manner.

We have found a difficulty heretofore in our fairs in having the people in town and in the country come forward and take an interest, which is necessary in order to succeed. There appears to be a lack on the part of many of them to come up to the work and do their duty, their part in this matter, as appears in our Convention here. They will call on some one to get up and make a speech, although he cannot, and those that are the most able stand back and do nothing. I would like to institute some plan or means by which we can get some work out of those who are able to do it, and by which we can induce particular ones in our town to come forward and make a good fair, and when fair time comes, go up and help to fill up our halls and make a show.

When people come into town and inquire about the Fair, and go into a business place and ask what are they going to do about the Fair, they are told, "I don't know; I have no time to go up; perhaps I shall before they get through."

The fact is, if the people don't come in from the country, enough to fill up the stores and give them business all the time, then they go up to the Fair. That is about all the interest they take in a fair, when they should take hold and help run these institutions.

Mr. W. W. Field:

Mr. President:—I didn't expect to discuss any matter that might arise in the Convention, but I will say a word.

The resolution certainly meets my hearty concurrence, as I think it should that of every industrial worker whether in one society or another. I think, certainly to make our fairs a success, either state, district, county or others which may be held, there must be a co-operation, a unity of action among all of those who feel interested in those subjects.

Even our Clubs, and Granges, and Institutions, Industrial Organizations or Societies of any kind, can not flourish, can not be successful unless each and every individual who belongs to them, takes an active, earnest, deep interest in them. I have often been asked in years gone by, since my connection

with the State Agricultural Society; "Well what kind of a fair are you going to have this year?"

Well I invariably smile and say to those gentlemen, "it depends just exactly on what you do."

Now the officers of the State Agricultural Society or County Society cannot make a fair. It is impossible. They must have the active, earnest co-operation of every individual who feels an interest in the work; and to that end I trust that all farmers—and I may be pardoned perhaps for saying a word in that respect to all those present—I expect always to see men earnestly interested in their Club work or Grange work, or in any work which pertains to any particular branch of industry, and then if a fair is held they will use their utmost endeavors to bring out something which shall add to its usefulness and to its success, and in that way we make these fairs interesting and profitable to all concerned.

Mr. J. M. Smith:

In closing the subject I will say a word in regard to a few difficulties I have had in my experience in trying to help get up fairs. I have often had occasion to say that one man could never make a fair; that two men could never make one, nor ten men couldn't make one. Two men may do the managing part and conduct it, but it takes a good many men to make a success of a fair, and they must work, and work in hearty co-operation together. There is one point upon which I have been very often much troubled and so have others.

Men who are appointed to serve on committees, when it is a thankless task, after working and doing their duty are blamed. Then the officers are blamed. Some one has not got a premium when he thinks he ought to have got it, some man has got it whom he thinks ought not to have had it. I know one thing that has given me and my associates trouble after working long and hard, and that is trying to get committees to do their duty, and I would impress upon those who hear me, if they are asked to serve on committees for fairs, not to refuse if they can possibly make such an arrangement as to serve.

Mr. Chester Hazen:

It seems as though the subject had not yet been very well ventilated. I made some remarks rather arbitrary in their nature, for the purpose of provoking some little discussion on this subject. I would like to hear from some others here present. I would like to hear from some of the citizens of Fond du Lac here. There are some present who are much more capable of talking on this question than are the farmers about the country.

Mr. J. P. Roe:

I hardly know on which side of this question I stand. I was thinking somewhat of the bearings of the question upon the horticultural interests, in connection with our display last fall. The fruit display while as good, yet it was by no means as full as it ought to have been. It did not compare with that of the fine art and mechanical department.

The citizens of Oshkosh came nobly to the rescue in our fair. The exhibition of manufactured articles, of works of art, of various articles of merchandise from the different establishments of our city was very pleasing, and very creditable to the enterprise, the energy, the kindly feeling and the public spirit of our citizens, and as I gazed upon the two, comparing one with the other, though comparisons may be somewhat odious, yet there seemed to be a cause that arose in my mind why there should be this discrepancy or disparity, and I think horticulturalists present will agree with me in the reasons that I urged.

There are intrinsic difficulties connected with the exhibition in the horticultural line, that do not appertain to any other department. The difficulty in preserving choice specimens or specimens, up to a certain time. I feel that most keenly in the matter of choice fruit, unless you do as some particular English amateurs do, enclose it in a little sack. You look with dismay on your grapes, your choicest specimens, which you have watched in their development through the entire season's growth, and then this little bird, which resembles very closely the female canary, has made little visits.

With a puncture as quick as the sewing machine needle they do their work, and that choice specimen which you prepared with the express view of the exhibition is a wreck.

That is my experience and that of many others, and the same with many of our fruits. We have a great deal to contend with that other exhibitors have not.

The stock grower has literally his beef upon the hoof. It walks to the fair ground.

I recollect on one occasion I brought out and kept in active exertion for over a week, I think it was ten days or a fortnight, my entire available force to prepare for the exhibition, and when I sat down at the close, although the results were in many respects gratifying, the question seemed to arise, after all, did it pay?

The labor, the anxiety, the constant watchfulness, the call for personal attention; your undivided attention that must be given to your articles on exhibition; the exactions made upon the exhibitor in the horticultural department, I claim to be much greater than in any other department.

With the difficulties in the way of the fruit grower, the difficulties to be surmounted, the long campaign of the season, the bug that preys upon, the worm that cuts from beneath, the aphid that sucks, the bee that stings and the bird that punctures, there seems to be no limit to the enemies we have to contend with, to say nothing of the late cutting off with the frost, the serious drought.

All these things and more, too numerous to mention, are in the path of the fruit grower, and what you bring, after running the gauntlet of the season, is sometimes but a forlorn hope.

Such has been my experience, and I think it is echoed by many of the fruit growers of the country. What is done and what we have been able to do, has been in spite of fate and of adverse circumstances, but it is true we have reason to be proud, and to hope and to take courage for a grand and promising future.

We can profit by a comparison of a few years in the past.

the collision of ideas, and the stimulating influence of an exhibition of the various products of the soil. More especially the fruit farmer and market gardener, coming from widely removed sections of our northwest, from points which we deemed impracticable, bringing their trophies and spreading them to the gaze of thousands, with a just and honorable pride. And we can point with that natural pride to what has been certainly a remarkable success.

Mr. E. H. Benton:

I have been pleased with the allusions that have been made to this matter, both in the opening of the address by the Mayor and also in the response by the President. They have been adapted to the resolution. They have both pointed out the need of the co-operation of all the industries. They are common interests. The interest of one of them is the interest of all. They deem it necessary that all the interests of both the city and country should be represented in our fairs, to make them a success. Being purely agricultural in my surroundings and occupation, perhaps I will give you a few suggestions and how I look at this matter.

Now it has been hinted that the officers, the managers of our fairs, would like to know how to make their fairs the greatest success.

My friend on the right here, Mr. J. P. Roe, has alluded to some of the difficulties which the fruit grower or horticulturalist has to contend with in making a good exhibition at the fair. But here is this idea, a man coming from the country to the fair, is familiar with the fruits and grain and cattle. As variety is the spice of life, he comes to the fair and takes a great deal more interest with his children, in the exhibition of articles of mechanical skill of the citizens of the cities, the artisans, the artists. You see a country boy come in, and he will not have as much pleasure around the hogs and sheep as around the toys and manufactured articles of the city.

You see here one of the points in combining the results of the different trades. I recollect attending your fair at Osh-

kosh three years ago. I was greatly interested in the exhibition showing all the native woods of Wisconsin, showing the grain, the bark &c. That was of great interest to me. There was another man had on exhibition all the coins he could collect from all over the world. That was very interesting to me.

In another place some lady had collected together quite a large collection of insects of one class. The same as the curculio belongs to, the coleopterae. Another had gotten up a collection of butterflies, and house flies. They were all of interest to me. I stayed a good deal longer around those than I did around the big squashes and pumpkins. They were monstrosities. They did not tell how much it cost to raise them. I am thinking a good deal of that. I think of that before I fling my hat up.

Here is a point I give as a suggestion — and after all it is the turning point about our fairs: Look at the premiums for trotting horses and you will find it amounts to hundreds of dollars. I see the premiums for a good animal, a buck or a hog, and it amounts to only ten dollars. I look at the premiums for a nice carriage, and they go up into tens of dollars, and perhaps the best of potatoes is down to fifty cents. Whether that has any bearing on the case or not, I will leave the gentleman to figure out in his mind. The question is, does the premium list educate the people as to the real animus of the Fair?

If the people find the large premiums are for fast horses, and the premiums for the animal products and vegetables of the farm in the minimum, they go there to see what the big premiums are; that is the natural result. What a man pays a big price for he values highest.

I don't know whether or not the success of the Fair is governed by that matter: I leave it to you to draw your own inference, but as a looker-on and participator in the Fair last fall, I am inclined to favor this general proposition as embraced in the resolution. I am in favor of an exhibition of all

the products of human skill, drawing upon the general interests of all classes for aid. I most sincerely believe that the interest of one class is the interest of all, and I wish to have executive committees of our fairs place the real estimate on articles that are to be exhibited according to their value to society on general principles, and let the money that is paid be a true value, the representative value.

Now, for my use, a horse that can walk four miles an hour is worth a great deal more than one that can run forty miles.

I simply give you the idea of the farmer. If I can hitch a span of horses to two tons and come to Fond du Lac, or hitch them to a big plow and do my work, they are worth a great deal more to me. And it is so with the whole schedule of articles on the farm and in society. A lumber wagon that is capable of holding up the largest load, and yet of the least weight and presenting the least resistance to draft, is worth more than the highest-polished carriage. Yet the premium as offered by our fairs bear no relation to the absolute profit to anybody.

I may go on in that way throughout the whole list. It seems to me our executive committees need educating, and I am in hopes our farmers will go in and give them a few turns on that wheel.

P. S. Bennett:

I don't know that I shall make half as good a speech as Brother Roe. He didn't know which side he was on, but I rather think the most of us apprehended, before he got through, which side he was on. He was on my side anyway. I simply want to say, in reference to his remarks, that all he said in regard to the difficulties of horticulture are unquestionably true, and the same is true to some extent, of course, of other interests; and all those things must accordingly be borne as well as they can be.

Now I most hearrily endorse the sentiment of the resolution. I don't so fully endorse the sentiments of the last speak-

er, although he means it right and he generally hits it right, but I think some of his allusions will bear a little consideration a little investigation.

Now while it is true that all of the interests of the country industrial interests and fine art works, and everything should be considered, and there should be a proper estimate made of their value to the community in the awarding or in the offering of premiums, it is not quite so easy to determine just what the relative premiums should be. Now he may have been on an executive board of some fair where he has looked this right in the face, and if he has, instead of looking at it just from his standpoint, as a farmer, he has seen more than once, that right there comes the tug of war.

Right there we are all agreed, there is no difficulty about that, there is no argument about that. We are agreed that there should be equality, just the proper award given to the different branches of industry, but just what should be given to this, and just what should be given to that, and the other, is the question that is not easy to solve.

The Fruit Growers come up and they want the premium so and so; the Cattle men come up and they want particular premiums arranged for their department so and so. The Horse-men come up and they want the horse interest considered and that is above any other interest. Oh, how it towers above every other interest here; and the Chicken men come up and they make as much noise as all the Shanghais in the country, because their interest is not properly considered.

All these different interests are represented in these particulars, that is they come in either directly or indirectly in some way and they all feel — and they are perfectly honest about it, because they look at it from their stand point — here is a little world, and it is a pretty big world too, and they think that their particular interest is not properly considered. That another interest over yonder, that is comparatively of small account, has hundreds of dollars poured into that while the cents are poured into ours.

Perhaps there is no more difference made in the premiums than there ought to be, and perhaps there is. It is utterly impossible for any board to be infallible, as you know, in the arrangement of these things, but I want to say further that some of these very things in which the last speaker on the floor was interested and for which he would be willing there should be a fine premium offered, perhaps would not have a particle of interest for a large class of persons. They would go right along past them. "Pooh! nothing only pieces of wood. What are they brought here for?" "Nothing only some old dead bugs, I can see them every day." "Nothing only house flies. I have seen mosquitoes enough, and bed bugs, and I didn't come here to see these articles." But he is interested in these things and gazes upon them. The conclusion is it is well to have these things at the fair. Somebody is interested. The committee has made a good stroke. So on about everything.

I want to reply to another point. Now I understand the speaker to rather intimate—it was a pretty strong intimation—that there was a disparity between the cattle and the horse interest and some other interest. Fast horses were up so high, and this, that, and the other, so low. I am not a fast horse man, as those know who have been associated with me, although if I have a horse, I want a horse, I want a good horse, one that can go when I want to go; but I believe it will be found true in this affair,—this is a practical thing—our premiums for the last fair for horses were not nearly as much as our premiums for cattle. Mr. Secretary will you tell me the difference?

Secretary R. D. Torrey:

Nominally, we offered a premium of \$800 for speed, really we paid \$130 after deducting the drawbacks. We actually paid for the cattle department \$820 last year.

Mr. P. S. Bennett:

So there were less than \$200 paid for horses and over \$800 paid for cattle.

Mr. J. M. Smith:

The whole amount paid for horses for speed and horses for all other purposes was a little over \$600.

Secretary R. D. Torrey:

The question of speed was the one I answered. The entire amount for stock horses and speed horses was between \$600 and \$700.

Mr. P. S. Bennett:

I was surprised at Mr. Torrey's answer. I knew there was a difference, but I did not remember just how much.

You know we are farmers it is true. You know the boy said the difference between Agriculture and Horticulture, was this, that Agriculture was farming carried on with oxen, and Horticulture was farming carried on with horses. That being the case, you see that the branch of farming carried on by oxen received a great deal more consideration than the branch of farming carried on by the horses.

For all the horse interest there was paid about \$600, for all the cattle interest there was paid over \$800. Now it seems to me that there is a disparity in favor of cattle. Though I am not a fast horse man and would not be in favor of having large premiums offered for speed, yet I believe we ought to give a larger amount of premiums for horses and less premium for cattle. That is my view. I may be wrong, but we interchange our views, one puts a check on another's view and we balance up each other, and the result is about as satisfactory, and as nearly correct as we can expect well any such thing can be. I make these remarks because I know, having been associated with executive boards some little time, and an effort is made to adjust all those matters in the very best, and judicious manner possible.

It was not my pleasure to meet with the board this year. I was necessarily away by previous arrangements in another place, but I understood that they consulted this year two days and a half, and they worked hard no doubt, and what the result of their labor and deliberations was we shall see in due

time. Whether they have corrected the errors of the past as largely as they ought to have done of course I cannot tell, but they have done, doubtless, as well as any other six men among us could have done. But they will see mistakes another year when they come together, or they and others with them, and they will look over these things, they will take lessons and suggestions from the criticisms that have been made, and they will make all the improvements that they can for the year following. That is the way we have to in this matter.

I have been so rambling in these remarks that I have not said one or two things I desired to say. I think I will not venture further than to say this. I stand in regard to these fairs just on this ground. We should aim at the general good with as little regard to ourselves as we well can have in such a work.

Mr. Johnathan Stoddard:

I find in the remarks several things that seem to me very erroneous. If I understand the question correctly, it sets forth the fact that there should be a combined interest taken in all these varied branches, in order to make the fair a success. Am I correct? The question then arises, a success where? Shall it be in dollars and cents, so that we shall have money to pay the premiums? or simply to draw out a large supply of articles for exhibition? Now my idea is that the word success in that point, is that we shall draw sufficient money to pay the premiums, get money, have money to make the society a success so far as money goes. Now then, I am not a fast horse man, yet there is nothing that I ever saw go that satisfied me better than to see a horse go pretty sharp. It was bred in me. I do not know why it is. I became associated with an executive board, and I was prejudiced against giving these large premiums to fast horses. When I came to look the matter up, the facts showed that the premiums we offered for speed drew in more money than we paid for it. The books show it; the seats we sell. All those things show that we make more money out of it than the rent or anything else. Then again,

it is necessary to offer premiums sufficient to get the article there, regardless sometimes of its intrinsic value to the public. We must have them there in order to fill up the variety, and you cannot get a man that has got a horse, that is worth his thousand or tens of thousands, to come there if you offer him ten dollars. And again, when they talk about the difference in their intrinsic value, there is a great deal of difference in the expense of transportation. I have felt perhaps that there is no article taken there to the exhibition that received so small a compensation as the horse. He is the meanest thing to transport. He is a hog all the while, and if you get him reasonably fat in hot weather, it will kill him perhaps. They are a hog from the time you start until you get back home. Somethings you can put in a box. If you have got a bull, you have got to have six men to get him there.

I find trouble all the way through.

When I have been on an executive board, we cannot look at the thing that is of the most benefit to the public. We have got to have the articles there that will fetch us money, and we have got to have things to get money to pay the premiums. We have got to have for those guinea hens, worth perhaps two shillings, a premium of two dollars. Perhaps for an article that costs a hundred dollars or two, we cannot offer any premium. That is the way the thing runs. I do not know but Mr. Benton has had this same trouble to contend with. If he has, I do not think he would lay down the lines and want us content with it.

Adjournment to Wednesday, 10 a. m.

Wednesday Morning, February 24th, 1875.

The Convention was called to order at 10 o'clock a. m., by the President.

An essay was then read by J. M. Smith, on the subject of "Agriculture, past, present and future."

AGRICULTURE.

A GLIMPSE AT ITS PAST, PRESENT AND FUTURE.

BY PRESIDENT J. M. SMITH.

Mr. President, Ladies and Gentlemen:

When Adam and Eve were driven forth from the Garden of Eden, they were followed with denunciations, among which were these words: "Cursed is the ground for thy sake; in sorrow shall thou eat of it all the days of thy life; thorns also and thistles shall it bring forth to thee; and thou shalt eat the herb of the field. In the sweat of thy brow shalt thou eat bread, till thou return unto the ground; for out of it thou was taken; dust thou art and unto dust thou shalt return."

Whatever opinions we may entertain as to the conditions of the earth previous to the utterance of these words, there seems to be no doubt of the fact that since that time the earth has steadily refused to support any large number of her population with any degree of comfort, except by cultivating the soil.

Another fact may here be stated, viz.: That the history of the world shows that nations have become civilized, prosperous and wealthy just as the agricultural conditions of these nations have been prosperous or depressed.

It follows almost as a matter of course that such must have been the case in the past, and such must still continue to be the case in the future; from the fact that the first great imperative wants of any people are plenty of food and clothing. It is useless to look for or expect any permanent advances in the fine arts until these two great wants are supplied; and the supply promises to be both plenty and permanent. The facts are that the people have neither the time nor the disposition to devote themselves to other things until such is the case.

In the preceding remarks I refer, of course, to civilized nations, and not to the savage tribes of the world, who live from day to day without thought or care for the morrow, nor to those semi-barbarous and nomadic nations, like the Huns, Goths and Vandals, whose civilization has only and ever been obtained at the expense and destruction of those more civilized and enlightened than themselves.

Now, while bearing these facts in mind, let us look back at the past, and, if possible, take a brief glance at the agriculture of the more favored of the ancient nations.

Before proceeding, let me say further that in nearly all of ancient nations, the manual labor was principally performed by slaves, and that, too, with but very few or none of our modern improvements. Hence, whenever the lords of the soil became embarrassed during their almost continuous wars, the agriculture of the country was almost the first interest to suffer, or would perhaps be entirely destroyed for the time being. Hence the origin of the saying: "War, pestilence and famine." And the famines of those days were sometimes things tearful even to contemplate.

Amid the earliest records of profane history, Egypt bursts upon our astonished gaze in all the glory of a high civilization. Some of her monuments, as well as some of her temples were even then crumbling with age; but there they stood, and there they stand to-day, silently pointing back to the glory of their ancient days. And what is still more remarkable, all around them, and in fact all of the then known world was enveloped in darkness and barbarism. The restless sons of Ishmael wandered then, as now, from place to place without a settled home or habitation. What, then, was the secret of this high state of civilization? It was merely this: Ancient Egypt was simply the valley of the Nile, one of the most fertile spots upon the surface of the earth; and in addition to that the regular annual overflow of the river enriched the soil to such an extent that artificial fertilizing seemed entirely unnecessary. The agriculture of Egypt was mainly under the direction of the Government. In fact, there are

some reasons for believing that, during at least a large portion of her history, the whole title to the land was centered in the reigning monarch. But, be this as it may, the Government spent almost incredible sums of money in digging canals and making artificial reservoirs for the purpose of irrigation. Indeed, so extensive were their works for this purpose that Herodotus, the ancient historian, considers one of them, Lake Mœris, the noblest and most wonderful of all the works, even in that land of wonders.

Let us bear in mind that rain was almost unknown in Egypt; hence the absolute necessity of irrigation. The land usually produced one good annual crop, merely from the annual overflow; but where artificial watering was introduced and followed up, three annual crops were the product of that wondrous land. We have no reason to believe that their cultivation of the soil was superior to that in practice in civilized nations to-day; but, learning the necessity of irrigation at a very early day, they followed it up and brought it to a degree of perfection that has never been equaled in the history of our race. And what was the result? Egypt was a long, narrow strip of territory, variously estimated to contain from 12,000 to 18,000 square miles, or perhaps one-fourth as much territory as is contained in the State of Wisconsin. What the population really was is not definitely known. Yet it is certain that it ran into tens of millions. It was the boast of Thebes that although she contained one hundred gates, she could send out 10,000 fighting men from each gate. Nor was this all. After feeding the millions of her own land, Egypt was still the granary of the then known world. The agricultural resources seem to have been watched with zealous interest for many hundred years after her people had ceased to build either pyramids or temples, or even to repair those that were falling into decay. For more than 2,000 years was this interest protected and encouraged; and so perfect and permanent had the improvements been made that for generations after the death of Cleopatra, who was the last of the native rulers and at whose death Egypt became a Roman province,

they still boasted that even their captors were obliged to come to them for bread. We have no means of knowing how extensive the crops actually were, or their yield per acre; but the fact that the other nations, and almost all of the large cities of the known world, turned with eager gaze to this garden spot of the earth for a large share of their bread, proves conclusively that Egyptian agriculture was early brought to and for a long time maintained in a very high and prosperous condition.

If we turn from Egypt to other ancient nations, we find nothing at all comparable to her in agricultural prosperity. There is but little doubt that the plains of the Euphrates around Babylon were once in a high state of cultivation, and that it was done by means of irrigation, although we have but little information with regard to it. In short, after leaving Egypt, there is very little in ancient agriculture to attract our attention until we reach Roman history.

The ancient Greeks excelled in the cultivation of the grape and some other fruits, but they never were famous for the production of grain; and, being much devoted to commerce, they exchanged other articles for grain at a cheaper rate than they could produce it from their naturally thin soil and hilly country.

The land of Palestine once supported an immense population, although their agricultural implements, as well as their mode of cultivation, were of an exceedingly primitive and simple character. The first account that I have found of any regular, systematic mode of cultivation as we now understand it, is given by Cato, who died 150 years before Christ.

At that time a large farming system was fully established in Italy. A rotation of crops was fairly understood, also plowing under green crops for manure as well as summer fallowing. For a long time agriculture was the favorite pursuit of the wealthy and aristocratic class of Romans. The labor was entirely performed by slaves. Slavery existed in its most terrible form. It included not only all the evils of modern

slavery, but in addition, the life of the slave was simply at the mercy of the master, without any reservation whatever; and then slaves were so cheap that the loss of one or of a dozen was no object, the price of a slave in the market often being but little more than the price of a sheep or a goat.

Thus we see that although the system of Roman agriculture seemed to combine much of what is now deemed good practical cultivation, still it contained a system of slavery so horrible, that we shudder as we contemplate its results. The larger portion of the country was originally cut up into small farms, and cultivated principally by the owners of the land; but after the introduction of slavery and slave labor upon farms, the more wealthy owners gradually absorbed the smaller farms, and the landed estates finally fell into the hands of comparatively a few of the more wealthy of the Roman citizens. For a long time land was plenty and cheap throughout Italy; but the system by which it was produced, assisted very much in bringing on the final overthrow and destruction of that immense empire. The Emperor Claudius, during his reign, mitigated somewhat the horrors of slavery. This was well for the slaves, though it was too late to save the masters, who had previous to this time become so enervated by idleness and luxury, and debauched by crimes and immoralities, that the empire became an easy prey to the savage hordes of Huns and Goths and Vandals, as well as other barbarous tribes from the north of Europe, who swept down over Italy like avenging demons, and hurled the science of Roman agriculture, as well as the other arts and sciences of the empire, into one common ruin.

In this overwhelming destruction, slavery in the form it had long existed was destroyed.

In its place a system of feudalism grew up, and speedily spread itself over the entire continent of Europe. This was in fact a modified form of slavery, the feudal lords being the proprietors of the soil, and their serfs or subjects being the laborers by whom the soil was cultivated, the pay in almost

every case being simply a meager supply of the plainest of food and clothing, merely sufficient to sustain them in working condition, and a cheap hut or hovel to protect them from the cold and storms.

In addition to their labors, the serfs were obliged to perform military duty whenever their haughty lords commanded. The agricultural condition of Europe was in a most wretched condition. Such was the situation at the beginning of the eighth century; and from that time down to the middle of the fourteenth century, the history of Europe is one of ignorance, bigotry, superstition and barbarous inhumanity.

It is needless to follow the science of agriculture through those dark ages. As a science, it ceased to exist. A meagre subsistence was all that was expected, or obtained, by the cultivators of the soil; and the comforts and luxuries of life, as we understand them to-day, were utterly unknown to them.

During the last half of the fourteenth century, there seemed to be a little improvement, at least in some places.

Strange as it may seem, the fact is, that we know but little of the agricultural condition of modern Europe until within the last one hundred and fifty years; and that little is not at all calculated to make us proud of our ancestors.

We have a description of the British Islands as they were about the commencement of the seventeenth century by Macauley. It is the fullest and most perfect that I have been able to find. He, in his *History of England*, says:

“According to a computation made in 1696 the whole quantity of wheat, rye, oats, barley and beans then annually grown in the kingdom, was less than ten millions of quarters, or eighty millions of bushels. The wheat crop was estimated at less than two millions of quarters.

This estimate will make the grain crop of the United Kingdom but a trifle more than the grain crop of Wisconsin for 1872, the wheat crop being not any more than the same crop in Wisconsin for the year 1870. The population at this time is believed to have been not less than 12,000,000.

Wheat was only grown upon the strongest clay and was consumed by those in easy circumstance."

The rotation of crops was very imperfectly understood.

But very few kinds of vegetables were then grown. Turnips, at present one of the most valuable of their crops, were just being introduced. The potato, as an article of food for the masses, was unknown.

Wages were generally fixed by law, and ranged from four to six shillings per week,—the laborer to furnish his own board.

In 1661, the justices of Chelmsford fixed the wages at six shillings per week in winter, and seven in summer. This is said to have been the highest remuneration paid in the Kingdom for agricultural labor between the time of the Restoration and the Revolution.

At this time the price of wheat is given at seventy shillings per quarter, or \$2.12 per bushel. Meat was cheaper, comparatively, but it was estimated that only one-half of the laborers could taste of meat oftener than twice a week, and the balance, at most, not oftener than once a week, if at all.

Gregory King who is considered good authority, estimated that more than one-fifth of the entire population were more or less dependent upon public charity for help.

At the present, in ordinary times it is estimated that one in thirty receive more or less aid in this manner.

The great majority of the nation lived almost entirely upon rye, oats and barley. Clothing of nearly or quite all kinds was higher then than now. Such articles as tea, coffee, sugar, &c., were of course entirely beyond their reach.

It is estimated that the annual yield per acre of the different crops was less than one-half of what it is at present.

Such was the condition of the most free, independent and enlightened nation of Europe, less than two hundred years ago. Now, let us come down to the time when agriculture began to take its place among the sciences, and efforts began to be made to place it in a condition of prosperity. The first

Agricultural Society of which I find a notice was organized in Scotland, in 1723. It had only a short existence, as did some others that were started soon after. The first permanent one was the Highland Society of Scotland.

Its first annual meeting was held in 1784, and was incorporated by Royal Charter in 1787. It is still not only living, but is with one exception probably the most useful association of its kind upon the British Islands.

The Royal Agricultural Society, of England, was established in May, 1838, and then consisted of four hundred and sixty-six members. In twenty years, its membership had increased to more than ten thousand. It is still in successful operation, and bids fair to be still more useful in the future than it has been in the past.

The first Agricultural Society in this country was the Philadelphia Society for promoting Agriculture, established in 1785. A few others followed previous to 1800. There was one in my native country, I think as early as 1810, at which premiums were awarded for the best workmanship at different kinds of farm labor. My now aged father took the first premium, (a silver cup) for doing the best plowing,—it was sometime between 1810, and 1820.

Agricultural Societies are now permanently established, and generally well supported throughout the civilized portion of the agricultural world.

They have been, and still are, the means of great good in bringing farmers and communities together, in encouraging the backward to some improvement, and stimulating those more advanced to still farther progress in exchanging ideas, and in many other ways that I cannot now stop to mention. The first school, or college that I find devoted to agriculture was started at Hofeyl in Switzerland, in 1806, by Fellenburg. This seems to have had a success from the start. In thirty years, no less than three thousand pupils had been trained in agricultural knowledge, and made, as is believed, more useful to themselves and the world than they otherwise could have

become. Since that time, mang other schools have sprung up in different parts of Europe.

In France, Prussia, and Russia, they are supported by the general governments.

In other portions of Europe they exist, supported by various methods. I need not stop to more than mention the Agricultural Colleges in onr own country; one of them in each State, where it is to be hoped that they will prove to be permanent blessings to the whole country.

Agricultural papers seem to be a peculiarly American institution. I believe they are not numerous outside of our own country.

The first successful agricultural paper of which I have any knowledge, was started in Albany, New York, about 1830, by Judge Buel. There had been two or three started previous to this, though I believe none of them were successful.

Judge Buel's paper was called the *Cultivator*, was issued monthly, and was not more than one-quarter as large as the Chicago *Evening Journal*. The price was fifty cents per year. Such was the birth of American agricultural journalism. To-day, it is undoubtedly the best means of educating the masses of farmers that exist in the world. Some of our papers are edited with great skill and ability, and are as firmly established as any of the great papers of our country.

Thus have I glanced in the briefest manner possible at the past. But who would exchange it for the present, or for the bright prospects of the future? Remember, too, that in the views given, I have selected only the most favored nations of the past. If we compare the most favored days of the past with the present, what do we see? The great masses of the cultivators of the soil, ever and always bowed down beneath a load of ignorance, bigotry, superstition and crime. For them there was no bright to-morrow ever to dawn. No change of administration ever ameliorated their condition. The fall of one dynasty and the rise of another found them still toiling and suffering. From the hovel to the field, from the field to

the hovel; with no education, no hope for the future, no Sabbath, no rest until they sunk down by the way with their eyes closed in death, and were buried from sight and forgotten. Thus the uncounted and countless millions of the tillers of the soil, in the ages and centuries of the past, have lived and died; with none to hear or heed their sad and bitter cries, except Him who hears the ravens cry, and notes the sparrow's fall.

How is it with us to-day? Suppose that we take a section of our country, commencing at the mouth of the Ohio river, and take a district of territory on each side of the Mississippi, two hundred miles in width, and extend it six hundred miles north. This would give us a territory of two hundred and forty thousand square miles.

A territory somewhat larger than France, Belgium and Holland, combined.

As to fertility of soil and capabilities of raising bread and meat for the support of mankind, its healthful climate, and in short, its combined advantages, we may safely say that there is not another spot of its size upon the face of the earth that equals it. The men who labor and cultivate this soil are, in almost every instance, the owners of the soil which they cultivate. But whether a man owns the land or not, he is equally as free as the owner.

He calls no man master. He bows in reverence to none except his God.

We claim to be citizens of the most free and independent nation upon the earth.

If the members of our legislature displease us, we leave them at home and send others in their places; if a Governor does not satisfy the majority of the people of any state, he is quietly left at his home and another man elevated to his place; if a member of either house of Congress votes, or otherwise conducts himself in any manner unsatisfactory to his constituents, they have no hesitation about restoring him to private life, and sending another whom they suppose will be more obedient to their will. All this is done quietly, and without

disorder or disturbance of any kind. The people are literally their own masters, and the law makers are their servants.

Again. In all that goes to make up the ordinary comforts of everyday life, we are the most wealthy people upon the earth. This may seem a strange statement to some present, and I do not mean to say that we have more gold and silver than any other people; but, gentlemen, did it ever occur to you that the West and Northwest is the only territory of any size in the world, where the masses of the people can afford to have wheat bread and butter and meat, as the main article of their daily food? And yet, such is the fact; that no nation, either ancient or modern has ever before been able to provide the above named articles in sufficient quantity, and at prices to place them within the reach of the laboring classes, as articles of daily food. Our stock, of all kinds, is almost incomparably in advance of that of any age previous to this century.

In short, the last quarter of a century has almost completely revolutionized the science of agriculture. It is doubtless evident to all that the next twenty-five years are to be marked with still greater changes, and that they are to be in favor of the cultivator of the soil, provided he is wide-awake and takes his place in the steady march of improvements as they come along. The dull, ignorant plodder who refuses to do otherwise than as his fathers did and believes that they knew it all, will be utterly forsaken and forgotten. No, perhaps not quite forgotten: he will serve for us to look back to and see the advances that we have made. I run no risk of hurting the feelings of any of this class, as they never attend conventions; neither do they ever take papers and read the account of conventions, or of any other agricultural proceedings.

Great as have been the improvements made in stock within the last twenty-five years, the next twenty-five will doubtless see an advance of which we but little dream to-day. We have to-day some specimens of different kinds of stock in the Northwest that can scarcely be excelled upon this Continent,

or upon the globe. This improved stock of the different kinds is doubtless to become generally distributed throughout the Northwest. In our own State we have noble men leading the way. Such men as Murray, Williams, Ludington, Stilson, Stoddard, Hazen, Sherman, Bryant, and many others who might be named, deserve the thanks of all the friends of improvement in our State, as well as their hearty co-operation.

In improving the fertility of the soil, our people are not as far advanced as is desirable; but they are very fast being awakened to the fact that the soil must be improved; and when they once come to this conclusion, they will not be long in finding a way to make the improvements.

In this connection let me mention the result of one of the experiments of Mr. J. B. Lawes, of Rothamsted, England. It is well known that he has been carrying on a series of experiments for many years, and it seems to me that the results which he gives of his experiments upon his wheat fields alone ought to be worth millions of dollars, not only to his own people, but to the farmers of this state as well. The following is the result of the last ten years' experiments upon his wheat fields:

One field being sown continuously with wheat, with no manure whatever, has averaged twelve and one-half bushels per acre for the ten years. This, it will be noticed, varies but little from the average of our own State. Another field, upon which barn-yard manure was used during the same length of time, averaged thirty-five and one-fourth bushels per acre. Three other fields, upon which artificial fertilizers of different kinds were used, averaged, respectively, thirty-two and one-eighth, thirty-seven and five-eighths, and forty bushels per acre.

Now, gentlemen, here are practical results, and if Mr. J. B. Lawes, of Rothamsted, can obtain them, I believe that Eli Stilson, of Wisconsin, can. And, if Stilson can do it, there are many other men in the State who can do it; for, as able a farmer as I think Mr. Stilson to be, I by no means believe that he monopolizes the farming abilities of our State.

These results show that the largest average was made by artificial manures entirely; thus showing that you are by no means dependent upon the barn-yard for fertilizers for the farm.

We have just entered upon the last quarter of the nineteenth century; and, if I retain my life and health until its close, I shall expect to see vast improvements made, not only in the cultivation of wheat but in the fertility of the soil, and in the quantity and quality of nearly or quite all of our crops. I shall see the noble specimens of different breeds of stock, now held by comparatively few, scattered far and wide throughout all of our State. I shall see the great mass of our farmers much better educated than most of us are to-day. I shall still see some who, like balky mules, refuse to take one step in advance; until they are compelled to do so by a force that it is impossible to resist. But these will be the small minority, and they will grow less and less as the years advance. I shall see homes made more comfortable and pleasant than they are to-day. Farmer's sons will not be so anxious to forsake the farm for a clerkship or a law-office as heretofore. The books, the papers, the music and the comforts of a farmer's home will be much more pleasant to them than the home of strangers. Fewer of them, after having borne their parents to their silent homes, will return to the old homestead and sadly say: "This old place is all run down and run out, and will not support us in comfort, and we must leave it for other business or other homes." But they will rather say: "Father has made this a pleasant home; he has kept the farm improving for years and has so taught us that we can go on with improvements and make it still more pleasant as well as more profitable than he was able to do; and so we shall stay and make the old homestead our abiding place and our home." There will be fewer pale-faced, care-worn wives and mothers seen upon the farms, toiling from early morn till late bed-time, until the daughter, warned by the mother's ceaseless toil and labors, declares that she will never marry a farmer. I shall see the profession of the farmer

elevated far above what it has been in the past or is now, and not only financially but socially, morally and intellectually. The aged man, as he retires from the battle of life, may look back upon the years not with sadness or regret, but thinking that he has done something for the elevation and comfort of his race. The young man may look forward to the profession full well assured that he is in possession of a business that, if intelligently and industriously pursued, will lead him not only to a competence in his old age, but to the front rank of usefulness, as well as of distinction among his fellow-men.

Then ensued the following

DISCUSSION.

Mr. J. P. Roe:

A paper so interesting furnishes us a very profitable theme. If I understood rightly and from my own reading, if my memory be correct, the agricultural wealth and prosperity of the inhabitants of that region termed in scripture Mesopotamia, lying between the Tigris and the Euphrates, lying in the valley of the Nile, arises mainly from irrigation. Also that of the Ganges from irrigation. That of the great population in Mexico, previous to the conquest, from irrigation, and it seems of more and more moment that the great problem of the northwest that we have to solve is irrigation.

I should like to hear something advanced on this floor. I think our President has experience and views of his own, that might be of great interest, bearing upon this subject.

Mr. J. M. Smith:

I will state one fact. A meadow in my native neighborhood is irrigated by a spring brook. There are about five acres in the small meadow, irrigated by a spring brook that rises within a quarter of a mile of it on the higher ground and enters it on the highest point of the meadow in a way so that it can be spread over the entire surface of the meadow. It is a spring that flows perhaps at the rate of eight or ten barrels a minute. Ever since I can recollect that meadow has been irrigated in that way, but I do not think I ever knew it to yield less than two tons to the acre, and it seems extravagant, but I

think it has nearer averaged three tons to the acre than two tons. Last summer I spent a few days in my native place. I asked my father if he knew how long that meadow had been irrigated in that way. He owned it when I was born. He said no, he did not. He is now eighty-five years old. He said it had been irrigated in that way and mowed in that way ever since he could remember. How much longer he couldn't tell. It is certain that piece of ground has yielded for not less than seventy-five years. It has never been plowed. It has been mowed and then pastured closely every fall. I think the only manure, the only fertilizer that has ever been applied to it is supplied from that spring run. Pure spring water. It is the most remarkable example of irrigation that I have ever seen. It has never failed a crop. My father said he had no recollection of it ever failing to yield a large crop of hay.

Mr. E. H. Benton:

There is one fact that I understand of the laws governing this growth of grass upon that meadow in connection with the fertility of that water. That is, that the water is not absolutely free from fertilizing material, when you come to find out the truth it is charged with a good deal. Water is the principal vehicle — the only vehicle by which any nutriment is conveyed to vegetable life as the gentlemen all understand. Now you have the secret of that meadow. Water is charged with fertilizing matter whenever air comes in contact with it. You can get pure water only by distillation.

When water comes in contact with the atmosphere, rain water or spring water, it is more or less charged with fertilizing material and you will be astonished to know how rapidly it accumulates. You set a glass of water in the sick room of a person sick with the typhoid fever, and you would be astonished to see it. You can see it with the naked eye. It is charged with fertilizing material, the effluvia escaping from the body of the sick person in the room, thus showing the necessity of complete ventilation for healthy persons, a constant change of air. The air is constantly being charged with fer-

tilizing material in the shape of gases and water is greedy for it — constantly takes it up. That is your whole scheme of irrigation. That was not pure water. It was pure in one sense. It looked pure. That is all.

Mr. P. S. Bennett:

All that is doubtless true but there are several points about this that seems to have a good deal of interest. I am very glad it is before us. Here is one question that I would like to have a little light upon. Now it seems that this water was fresh from a spring, of course it was cold, it had no fertilizing matter in it except what it brought from the earth, what it contained in itself, and what little it had absorbed in its journey, from the atmosphere.

That is all clear enough, but now, is it probable that that water was as beneficial to that meadow as if it had been from a more continuous stream, and if so, is it probable that cold water fresh from the earth is as beneficial to other vegetation as it would be to grass. For instance, suppose on the garden of our President, or of any one here that is in that kind of business, cold water could be applied by artificial processes instead of water of a warmer temperature and longer in contact with the atmosphere, would it be as beneficial to the plants of that garden?

Mr. J. M. Smith:

In reply to that I would say that it would depend somewhat on the plants we use it on. Grass does not require as much heat to bring it to perfection as some of our other crops. Cold water will answer and the same grass flourish nicely when the same water put on melon vines or cucumber vines would ruin the crop entirely. I knew a friend, a man who was gardening some years ago. During the drought he watered his cucumbers with water almost as cold as cold well water. He ruined his crop entirely by putting on such cold water. The water chilled them, while the same water put on some other crop would help it. It would have been per-

fectly healthy for grass, whereas it chilled the more tender plants, or the plants more inclined to be tropics.

We may take it as a general rule that with plants whose native place is in a warmer climate than where we cultivate them, coming from a tropical climate, it is scarcely ever safe to use water that is very cold.

On the other hand a plant that is a northern plant will bear colder. That is a general rule in watering plants of all kinds.

Mr. E. H. Benton:

That is a valuable suggestion in regard to the temperature of the water. Nature has adjusted this thing all right, and gives water, my observation shows me, of about the same temperature as the atmosphere. I keep a meteorological record. I catch rain water and test the temperature of the water and I find the temperature of the water, after a shower, higher than that of the air. I have seen it five degrees higher. The atmosphere is suddenly cooled after a discharge of electricity. After a thunder shower the atmosphere is suddenly cooled. In such cases, especially where the rain fall is sudden you will find the rain water of a higher temperature than the atmosphere. You see there the whole point. If a man is going to irrigate, his first consideration should be that the temperature of the water should be adapted to that of the plants which he grows. That is common sense. If nature grows plants in a cold climate, the water is of the temperature of the atmosphere in a warm climate the temperature is similar. That is a general proposition, that everything else being equal, the man that gets the most water filtered through his soil will raise the largest crops, according to the amount of air he can get to them. There must be sunshine and air to bring up plant life.

Mr. J. P. Roe:

I think it will meet the views of the convention and confer a favor upon us, if Mr. Smith would briefly outline for us his plans on his own premises for irrigation. We want to get at

the most cheap, the most economical and best plan of irrigation within our reach. He has a plan, I believe, of his own.

Mr. J. M. Smith:

Gentlemen, I have spent some time and some money in irrigation. A few years since, I bought a force pump. I arranged my grounds, when I first commenced working where I am now, with a view eventually, of irrigating my whole ground, and in all the improvements I have made, I have kept that object in view.

A few years since, I bought a force pump that was capable of throwing about twenty barrels of water an hour. I had some three hundred feet of hose. I used that somewhat extensively last summer; kept it running for three or four weeks—I think nearly four weeks. It cost me about five dollars a day to run it. Well, I found that although it was so expensive, it paid handsomely.

I spent some four thousand dollars in cultivating thirteen acres of ground, and I think no money I spent paid me any better than the money I spent in irrigation, in watering my crops. That was so insufficient as compared with the real need, that I am now arranging a plan by which I think I can permanently irrigate my whole grounds. That is, I have water, and it is very convenient and of abundant supply.

I am building a scaffold, upon which I shall have a tank which will hold from six hundred to eight hundred barrels; the tank will be perhaps twenty to twenty-five feet above the surface of the ground, in other words, high enough to give me all the head I will need. From this tank I propose putting in tubes under ground. They will be made of cedar posts, from seven to eight inches diameter; bore them and put them together. They will be laid in the same way that the gas mains are, and those will be connected with this tank by gas fixtures running down into them and take the water into the tubes, and then I propose every hundred feet, to have a passage and a stopcock to the main tube, to which I can attach my hose, and after they are arranged, one man would be all that was

necessary. I propose to use about an inch and a half hose allowing the pressure we have, it would allow thirty or forty barrels to pass through the hose per hour.

Two men will put on a great deal of water. With this hose, and the stopcocks in the underground tube within reach, you can take the hose off of one and put it on another. I can water, I think, any portion of my ground.

I am not through with it yet. I have men to work at it. It will cost me from six hundred to seven hundred dollars.

Mr. P. S. Bennett:

How are you going to get your water in that tank?

Mr. J. M. Smith:

I propose to get it in by a wind mill and a force pump attached to it. A lifting pump I suppose will do it, but a force pump will cost but a very little more. I think it is perhaps, the safest.

Mr. E. H. Benton:

Your subsoil is so porous you cannot fail to get rid of any of this superfluous water.

Mr. J. M. Smith:

I do not propose to put on enough so as to have to carry any off. My soil is porous, the subsoil is also porous. In fact after you get down two or three feet, it is pure sand.

I am satisfied with irrigation from what I have seen and from what I have read. My reading has been somewhat extensive on that subject, and I am perfectly satisfied that farmers, when they can irrigate without too much expense, will find it not only valuable but exceedingly profitable. If I had a large farm, if I had water, I would irrigate it then I would apply manure too.

The best way of applying manure is in a liquid form. No plant can use food except in a liquid or gaseous form, hence if we can apply the manure in that form the better they can use it, and consequently the better and surer will be the crop. No doubt those who live twenty-five or forty years hence will say we were very imperfect in our system of manuring at this time. I think the best system of manuring, when it can be

obtained, is by water. Irrigation and liquid manure is the best. I have no doubt of that, where water is available and can be procured without too much expense. I propose to experiment the coming season with liquid manure. When I get the tank finished, I propose to operate with phosphates, guano and bonedust.

I can fill the tank with manure and then apply the water, and experiment in that way.

Mr. E. H. Benton:

There are two problems that settle this matter of irrigation and underdraining. These methods of agriculture in common practice, are unobtainable until the population crowds the production. Now in these United States, production crowds population; in other words, production has advanced three-fold while population has made an advance of one-fold. That is, production has increased at a ratio of three times that of population. While that state of things exist, there will be only remotely here and there a man in the vicinity of a city, that will adopt underdraining and irrigation.

Irrigation and all these problems are settled by the laws applicable to political economy. While agriculture has to compete with more than any other occupation in the world, it will not go into these methods which need brain work and capital invested in such a manner, that the results will not be readily and quickly realized.

You will find this eternal law the world over. You find the farmers contiguous to a large population will irrigate. You will find it in the territory of Colorado in one colony, and I think in another. They have practically worked out this problem of irrigation, because it was a necessity.

Of course necessity knows no law, therefore it violates no law of political economy. They cannot raise any crops without irrigation. I understand around the city of Salt Lake, irrigation is a systematic method.

Mr. J. M. Smith:

Do you propose to us to wait until starving before we go into improvement?

Mr. E. H. Benton:

I have told you that people do not do it until they are obliged to do it. There is once in a while a man that is a missionary, away ahead of the work, and I would say God speed to every one of them. I say we ordinary farmers, who occupy land where water is not accessible, must use a little head work to get some other means of helping ourselves to that prosperity that you have obtained. You have water within a few feet of the surface. Where I live we have water only after digging one hundred and thirty feet or more.

I propose in my paper to give some ideas on that subject.

I say I do not want to necessitate you to starve before trying anything. That is a general law that people do not work unless necessity compels them to do so. There are few men that work for the fun of it. Once in a while one.

When the thing is reversed in this country as it is in Europe; when the population crowds production, then you will find all these problems of irrigation and underdraining carried out successfully. It would be perfect folly for me to try it where I am. Any kind of machinery by which I could get water on my farm at present, would be a perfect impossibility, but if I was surrounded by a large city, it would be then another problem altogether.

Mr. J. P. Roe:

We have already spread over our land or farms the wind mill. It has been provided to our hand as the agent in this question. The artesian well, the wind mill, we have on the streams, lakes and on the farms. The facilities for conducting water to central points, the elevated tank and the windmill.

While we are sleeping at night, taking our comfort, enjoying these creature comforts, the wind gives the motive power, which costs nothing and is doing the work for us.

POTATO CULTURE.

Mr. E. W. Saunders, of Oshkosh, then read the following paper on Potato Culture:

Mr. President and Friends of Agriculture:

I have been invited to read a paper on Potato Culture and suppose it was given me because I have raised a great many potatoes, and have raised them when my neighbors could not, and have been styled the Potato King, and all this sort of thing. I have sold farmers potatoes to eat and to plant. But I have had more experience in the cultivation of the potato than in writing essays on the potato.

Yet this subject is an interesting one to me, and I hope that I may make it so to others, and that the time I may occupy will be pleasant and profitable to all.

The cultivation of this vegetable has given me great pleasure and good profits. When but a small boy no farm labor was more pleasant than digging and picking large potatoes. The employment has not lost any of its attraction for me yet.

The potato is one of the great products of our State. It is the king of all our vegetables, and stands in relation to all vegetables the same as wheat does to all cereals in the support of the human race. The potato produces more food per acre than any grain in our country. Long after the point is reached when corn will not flourish the potato holds on and improves in quality. It finds its home in some part of every State in the Union, provided the mountainous land is selected in the South.

I find by the census of 1860, that the amount raised in Wisconsin was nearly 4,000,000 bushels. I think it will be safe to calculate double that amount now, which, at fifty cents per bushel, would amount to \$4,000,000 per annum. If we estimate the yield to be eighty bushels per acre in the ordinary

method of raising, and if by any improved method it can be increased to one hundred bushels per acre, the State may be the gainer of \$1,000,000 per annum. I shall try to tell you how it may be done.

In the fall of 1867 I bought 410 hills of early Goodrich potatoes of a neighbor. He had planted four eyes in the hill, placing them one foot apart in a square; the hills three and one-half feet each way. In digging them I found that three eyes produced more large potatoes than four, and two better than three.

The next spring I thought to try a new plan, and prepared an acre of land in the following manner: The land had been sod and had been in turnips the year previous without any manure. I plowed in the fall and cultivated in the spring; marked three and one-half feet one way with a bight-plow, four inches deep. I cut my seed down to single eyes, dropped fifteen inches apart in the furrow, and covered about three inches with a hoe. I planted three and one-half bushels. While planting, one of my neighbors came along, and shook his head at my method of planting and said he once planted in that very way and got a lot of little potatoes. I then asked him how much seed he planted, and he said, one potato in a place.

My potatoes came up vigorously. I cultivated and hoed them twice. After the middle of June, there was but little rain, consequently the market was not flooded with potatoes. When I commenced to market they were worth \$2.50 per bushel. The last I sold for \$1.25 per bushel. Then I had sold \$225 worth and had \$25 worth left for seed.

The next season I planted in the same way, it being wet and cool that season. The yield was very great.

In the spring of 1869 I paid \$6 for one peck of Early Rose. I cut to single eyes and planted the same as the year previous. The season was so wet that they had but little cultivation. At digging time I dug one-half bushel from five eyes' planting, and from the peck of seeding thirty-four bush-

els of splendid potatoes. Had not a part been injured by the wet they would have undoubtedly yielded fifty bushels.

I sold ten pecks for \$10 and saved the balance for seed the next season.

Had I planted in the old way, I should have wasted \$10 worth of seed. That would have been a damage to my crop.

Perhaps you may think that I am visionary in cutting seed potatoes. I admit it may look so to men that are in the habit of planting a cart-load, as I have heard them say, to the acre.

I know the Peach Blow will not bear cutting like our new seedlings. The cut potatoes sprout and grow sooner than uncut ones. A piece that is cut will throw out roots to feed from the soil sooner than whole potatoes.

A case to illustrate: In the summer of 1870 I dug two acres of Early Rose potatoes, in the month of July, and ploughed the land. Directly after this there were a great many potatoes came up all over this ploughed land, nearly a foot high. I ploughed this land the 1st of October, and I found the whole potatoes sound and unsprouted, and those that had grown were cut or eaten by the worms.

If we will examine our late seedlings when they have sprouted one-eighth of an inch they will have three or four sprouts to the eye. These will make sufficient for one hill and to manure the land with potatoes, when they are worth \$1.00 per bushel, is in my judgment expensive.

Dr. Hexamar, of New York, in a series of experiments attained the following results:

First, of seventy hills planted with potatoes pared so that there were no eyes visible, thirty-five grew. Some produced very large potatoes, and most of the tubers remained hard until the time of digging. Two of eighty hills planted of pieces without eyes, thirteen hills grew, all of which sprouted on the cut surface; none through the skin. Of 100 hills planted with whole potatoes, ninety-eight grew from the small end, one from the side. Of more than one-half planted to whole potatoes, only one eye grew, the rest remained dormant.

I select large sized and most perfect formed potatoes; would not plant more than four bushels per acre if the seed was free. I find that by six years trial that to be a plenty. If more seed is used we are liable to get more small ones and less weight. I find the best results in planting early potatoes early in the spring.

Sod land is preferable to anything else, broken the year previous to planting and well pulverized, work four inches deep, drop single eyes fifteen inches apart in the drill, cover with a hoe; cultivate and hoe enough to keep the land mellow and free of weeds, and hill but slightly. Dig as soon as the vines are dead, store in a cool, dry cellar.

I have stored early Rose in my cellar in July, and come out sound in the spring. We kept them last year until July, and they were better than any peach blow that time a year.

The cheapest that I have sold potatoes for the last eight years, fifty-eight cents, and some part of every crop for one dollar per bushel.

I have tried a good many varieties in the last seven years, and find the early Rose the best early potato, Breese's Peerless best late potato. Have tried the early Vermont, think it the identical early Rose and nothing else.

The biggest humbug—Mr. M. K. Young of Glen Haven, late celebrated late white rose potato. The way I made money out of it was in this way. I sent Mr. Young three dollars and received four pounds of potatoes. Raised six and one-half bushels of potatoes unfit for man to eat. Sold six bushels for fifty cents per bushel, when other potatoes were worth sixty cents; had one-half bushel of little ones left which were all clear gain, as my time and land is not worth anything, and I had the experience which was worth something.

During the reading of the paper Mr. Saunders stated that he meant the whole potatoes that had not been eaten by the worms or cut by digging at all, were sound, and those potatoes that had grown were invariably marred in some shape. They grew after July.

A voice:

Those potatoes were left after digging as I understand.

Mr. E. W. Saunders:

Those were left in the ground. I ploughed the ground twice that summer.

A voice:

The "Late Rose" that is sent out from the east is not the Common Rose. The "Late Rose" is the potatoe that originated in Ohio.

Mr. Saunders:

It is a potatoe that M. K. Young claims to have originated at Glen Falls.

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

Mr. J. Scribner:

I would like to ask Mr. Saunders how many bushels he raised per acre.

Mr. E. W. Saunders:

I think I have raised 200 bushels, and I think some other portions 500 per acre.

Mr. John F. Steele:

In relation to sprouting from cut seed I would like to know whether they would sprout quicker when the cut side is further from the side the skin is on.

Mr. E. W. Saunders:

What do you refer to? If you cut that potatoe it will throw out roots to feed from the soil, quicker than a whole potatoe.

Mr. W. W. Field:

I desire to know how he cuts them. Whether he cuts the potatoe up in half and leaves r piece of potatoe or each eye or whether he cuts out the thin skin.

Mr. E. W. Saunders:

Commence at the seed end and cut out a large piece in proportion to the potatoe, so it will bear proportion to the eye. I use up all the potatoe in cutting.

Mr. W. W. Field:

You plant the seed end down?

Mr. E. W. Saunders:

I use the whole potatoe. I have tried the seed end, also tried the seed, planted them in rows side by side. In digging I couldn't see any difference.

Mr. P. S. Bennett:

Mr. Saunders have you tried planting small potatoes and large potatoes side by side in that way.

Mr. E. W. Saunders:

I have.

Mr. P. S. Bennett:

With what results?

Mr. E. W. Saunders: *

If you have a piece of land just right, mellow and nice, the small potatoe may come up for one year and be nearly as good as large ones. If there comes a heavy rain and packs it down there is not vigor enough in this small potatoe to send the shoot up rapidly through the hard surface, but there is in the large ones and consequently it is not so good.

I never make a practice of planting small potatoes. I pick out the largest, most perfect shaped ones I raise. I would not make it a practice to plant small potatoes.

Mr. P. S. Bennett:

The fact of the small potatoe not having vigor enough to send up the shoot, is that the only thing that appears to produce the difference?

Mr. E. W. Saunders:

Probably not. For my choice I want a large potatoe but perhaps for one year you might not see the detriment, but I think if you followed it up you would soon run out.

Mr. Simmons:

For instance, in cutting a large potatoe and a small one, if you were to cut out a single eye and the parts you cut out being of equal size, then what would be the result.

Mr. E. W. Saunders:

I would take the large potatoe.

Mr. Simmons:

Would the eye of the large potatoe be more vigorous?

Mr. E. W. Saunders:

I think it would.

Mr. Milan Ford:

Is your experience that large potatoes will produce more than small ones.

Mr. E. W. Saunders:

I have told you before that a large potatoe will come up through the ground and be more vigorous, especially if the ground is a little hard, as it is sometimes baked after heavy rains. The small potato does not come up and show the same vigor that a large potato does. That is not a theory with me.

Mr. Milan Ford:

I never planted large potatoes and small potatoes side by side, but I think there would be a difference.

Mr. E. W. Saunders:

I never made a practice of planting small potatoes and selecting small potatoes from small potatoes. I have made it a point to plant the best potatoes I grow.

Mr. Chester Hazen:

We are all interested in raising potatoes—I am at least. For several years I had difficulty in raising enough for my own use. I don't know but that I would be called a slovenly farmer, but the dry weather and our soil has been against us. What kind of soil does Mr. Saunders plant his potatoes on?

Mr. E. W. Saunders:

It is a burr oak opening land, somewhat clayey. I have some that is more sandy, but the clay soil suits me just as well as anything year after year.

Mr. Chester Hazen:

My soil is prairie soil rich land where I plant. I have but little new land. I sometimes break up timothy sod and plant it with potatoes. My experience has been that I had the best results with planting the Early Rose potato in all that I have planted.

Mr. E. W. Saunders:

There is one of my neighbors who, for the last two years, has planted a good many potatoes, from two to four acres, and he believes in liberal seeding and he reaps a liberal harvest of little potatoes. The harvest before this last he told me he had seventy-five bushels of small potatoes.

Mr. Simmons:

Does he cut his seed?

Mr. Saunders:

Yes sir. If you plant the Peach Blow, cut up, especially the fluke; you get about one potato in the hill, not much more than that.

Mr. H. W. Morris, of Byron:

Mr. Saunders tells that he commences at the stem end of the potato, cuts out as much as he can of the potato, continues cutting until he comes to what we call the blow end. That, we all know, is full of eyes and he would cut that end so as not to have more than two eyes upon a piece; consequently the piece must be very small if he does not have more than two eyes on a piece. Then he says he would not plant the small potato because there would not be vitality enough in the potato to insure its growth. Now, it seems to me that here would be a case that would be identical: With the eye end of the large potato cut to two eyes, and the small potato cut to give an eye to each piece. Now, my experience in cutting potatoes has been that if the potato was cut too small and the weather is warm and dry, as we have it sometimes, that that eye is liable to dry up, because there is not potato enough, not moisture enough, to retain its vitality, but it is killed by the dry weather.

Mr. Saunders:

I will answer that question. Suppose that the gentleman takes that potato where he says the eye is so small that it will not amount to anything scarcely, if he plants that potato he will find that those two eyes will be about the only eyes that will sprout, and will be the most vigorous in the potato. As far as drying up is concerned, there are a great many farmers

who, if they furrow the land as I have been speaking of, will have some kind of a horse cultivator that will cover with lumps, and perhaps the small potatoes will be smothered. My choice is to cover with a hoe, and then you can be careful what you put on. Then they will come up; you need not be afraid of weak potatoes in that way, if your soil is good.

Mr. P. S. Bennett:

Suppose you plant three feet apart instead of fifteen inches, would you think one eye would be as well as more?

Mr. Saunders:

I would put in two eyes. If I were going to cultivate both ways, I should plant about three feet and a half one way and three the other, where I could work the cultivator.

Mr. E. H. Benton:

I will give you a little experience that occurs to me. It is a general principle and it is correct everywhere. There are certain principles that science will never allow you to trespass on without punishing you for it. It is this: You cannot get something out of nothing. If you are going to plant small potatoes, you must proportionately enrich your land and put it in a tillable condition. If you take a whole potato, you can plough a furrow and throw it in the ground and throw any kind of dirt over it, and you will get something of a crop.

But there is another fact in the consideration of that matter. This is a general rule, if you are going to plant small seed your land must be put in superior condition, that is, it must be finely pulverized and in a condition of fertility, then this small potato or little piece will have favorable conditions for germinating, no matter whether the weather is wet or dry, and will start vigorously. You must not plant deeply either. I committed a great mistake the first time I planted small pieces of potatoes. I planted in heavy soil. They were too deep. Some of them struggled for existence and did get out through. I do not know as a big potato would have done so. Afterwards I planted small pieces of potato, about the size of a kernel of corn, and covered with fine earth, and they came up finely.

This is a general principle: A small potato in the hill is a deficient product. Now, the rule will hold good, as the gentleman's essay says, you may for one season under favorable conditions get a crop if you plant from the small potato, as large as from the large potato. But in the end it will run out, no matter how favorable the conditions.

If you keep raising small potatoes from small potatoes you will deteriorate. There is no question about that at all. The principle is there. No matter what circumstances you put around it the principle will work itself out. You may mitigate some of the conditions, modify the relations of the natural law, but in the end the law will work itself out.

I cut my potatoes with one eye; plant three bushels to the acre. I raised three hundred bushels to the acre and cleared one hundred and fifty dollars. Planted one acre a day with one hand. I can raise potatoes, no matter how dry it is, if you give me a chance to get the ground fine enough.

If I cannot get my ground fine enough with a cultivator, I will make a fine smearer and get it down fine enough.

This was my field crop. It cost me fifty dollars and I got two hundred dollars, you can figure out the profits. Cultivation is better than manure.

I bought an old run out wheat farm that had been rented twenty years. I raised the biggest crop I ever had in my life.

About seed, this is the general rule. You select the best sized and a good shaped potatoe.

I select the very best potatoe. I have my type of each variety. I have my type for the early Rose, it is about one-third longer than it is through; it is a little flat, and the eyes almost equally distributed all over it. That is the point about the early rose. There is scarcely a seed end to a genuine early rose potatoe. You can cut it up into eyes, and almost every piece will be about the same size. I go through my potatoes and select them; in that way, by planting a very small amount of seed and putting one in a place, I get almost all large potatoes. I like to see large potatoes. I cannot afford manure

to my potatoes. Three bushel of seed to the acre is sufficient. I have a heavy clay soil and loam.

This is a general rule in regard to potatoe culture without any experience whatever. Select the best seed and the best shaped seed. Here is a great point. The potatoe that is grown under healthy conditions, I do not care if it is a small piece, has a great deal better eye than the eye coming from a little potatoe with a great deal more of the flesh of the potatoe around it.

Mr. E. W. Saunders:

I think the gentleman agrees with me on one particular principle. If we are going to keep seed potatoes at a high standard, we have to cultivate so as to raise large potatoes. If we go to seeding heavily, we are going to run our potatoes out, we will do it every time.

All that have raised the early rose know that there are a great many more potatoes from the same amount of eyes planted, than from any of our old varieties.

Mr. H. W. Morris:

I will ask the gentleman if it has been as a rule, the deterioration of potatoes, from cutting small potatoes instead of large ones.

The practice has been in planting small potatoes, they plant more eyes than they would plant of large potatoes, consequently they got too much seed in a place, and the result has been small potatoes.

Mr. E. W. Saunders:

I think it has. I recollect when I was a boy crossing a piece of land where a man was planting, and he was planting from six to eight small potatoes in a hill, and I know that man bought his potatoes to eat that winter.

Mr. E. H. Benton:

I know a good many such.

Mr. P. S. Bennett:

There is another question in connection with this potatoe culture that I want to have discussed. Mr. Saunders has decided, as far as he knows and so far as the results of his exper-

iments go, that the early rose and the early Vermont are identical. It is a matter of interest to us to get all the light we can on that subject, as we know some maintain, and as some particular seedsmen are publishing now the early Vermont, and assert that it is from six to ten days earlier than the early rose.

Mr. E. W. Saunders:

This is my experience with the early Vermont. A year ago last spring I sent to Bliss & Son, and paid them one dollar for a pound of the seed. I planted them side by side with the early rose. They had the same treatment and I could not see any difference in their growing through the season. On digging them I could see no difference in the shape or in the earliness.

I gave them the same treatment this last season, and I cannot see any difference. I think they are both identical.

Mr. J. M. Smith:

Gentlemen:—I sent a year ago last spring to Bliss, for his three varieties, Early Vermont, Brownell's Beauty, and Compton Surprise. I took a pound of each, cut them down to a single eye, and took a pound of Early Rose, and a pound of Peerless, and cut them down to a single eye, and planted them on ground just as well prepared as I knew how to prepare it. I planted them in rows three feet apart, and the eyes about fifteen inches apart in the rows, and cultivated, and cared for them just as well as I could during the summer. I watched them closely, and had friends watch them, and examine them to see if they could see any difference. I noticed during the summer that the tops of the Early Vermont, so called, and the Early Rose were just alike. I could see no difference at all, either in the shape of the leaf, or the size of the tops, or its shape or mode of growing, (the other varieties were all very plainly to be distinguished.) I had no neighbors, no visitors, that could see any difference in them. When they were dug, and previous to their being put away, I had, I presume, twenty different persons there to examine them, and one of the best potato growers we have in the country, and a

man of large experience, and he pronounced them identical—I did not have a single person there, that could see any difference in them—I had no one, who could pick them out after they were put together, who could tell one from the other. They ripened down at the same time, and gave every appearance of being the same.

When I weighed them, the yield of the Early Rose was 178½ pounds, and the yield of the so called Early Vermont was 175½ pounds. There was some two or three pounds difference, that is from one pound of seed.

I had some of them cooked, and tried on the table. The Early Vermont seemed to be a little lighter colored than the other, you could tell no difference in the taste; and I thought it very possible that the Early Vermont, so called, having been grown in another climate, another territory, having been grown in Massachusetts, that it may have been that, that had made a difference in the color. But after giving them a just and fair trial, exactly alike in every way, I was satisfied that the seed that I had, was simply Early Rose, and nothing more, and nothing less. I have been anxious to find out whether I was mistaken.

When I came to dig the Compton Surprise, it reminded me in every respect of a potato my father used to grow as long ago as I can remember. We used to call it, the Jersey Blue Nose. I noticed that the situation of the potatoes in the hill were about the same. The day that we dug them they were lying on the ground, previous to their being picked up, a friend came from Cleveland, visiting me, and came out to see the garden. I said to him “do you know those potatoes?” He said, “yes, of course, they are the old Jersey Blues, I have not seen any of them for twenty-five years.” I said “are you sure they are the Jersey Blues?” He took another look at them and said “yes I am sure of it.” I said “will you swear to it?” He picked one or two and cut them open, and examined them very carefully, “yes,” says he “I will swear to it if you want me to. What is the matter with them, and what are you driving at?” I said, “those are the so called Comp-

ton Surprise." Says he, "they are the old Jersey Blues and nothing more and nothing less." "Well," says I, "that is just what they seem to be?"

The question then came up to my mind, are these three kinds of potatoes some old varieties revived — some of the Early Rose selected a little different from the common variety of the Early Rose, different shape or different form, and sent out in that way a humbug.

Mr. E. H. Benton:

I sent last spring to Bliss for half a bushel of Early Vermont. I prepared a piece of ground, and planted a peck of them, and planted some Early Rose, to test their earliness and productiveness. I cut the peck of Early Vermont, and the Early Rose, to a single eye, and planted them the same day, on the same kind of land, used the same treatment in every way, during all of their growth. On digging them, I could not tell them apart. At the table I cannot tell them apart. One is just as good as the other. I was very confident that I saw a little difference in the tops, whether it was imagination I do not know, I am deficient in that quality. I was anxious to give them a fair test. I knew the common potato bug, knew the difference; for they swarmed on my Early Vermont, and I had to go over them every day or I would lose them. The tops of them appeared to be a little deeper green, somewhat tenderer. That was all the difference I could see. They ripened a little later. They were sufficiently near enough in the habit of growth, the looks of the tops, that practically there is no possible use in a man's thinking there is any difference in them. I got nearly thirty bushels of the Early Vermont, of nice potatoes. In the thirty bushels there was not half a bushel of little potatoes. They were good merchantable potatoes.

Mr. Johnathan Stoddard:

There seems to be one idea, I think the gentlemen do not consider. That idea was that in picking the biggest potatoes that they are the best. Now if he wants a big potatoe he

should go to California. I think the larger potatoes are about medium quality.

Mr. E. H. Benton:

I always take a big potatoe if it is the best shape.

Mr. J. Scribner:

Mr. Bennett has spoken about some difficulty in potatoes coming up. My mode has been to drag the ground with a smoothing harrow three or four days after planting, and continue that until the potatoes come up. I never found any difficulty in doing away with hand cultivation.

Mr. J. P. Roe:

I will inquire how he plants them.

Mr. J. Scribner:

I plant about four inches deep. I take a little pains in planting, so that the drag will not pull up the potatoes.

Mr. J. P. Roe:

The best crop I obtained of potatoes, was of early rose in the season of 1871. It was on black sand, planted in drills, the drills three feet apart, and the potatoes one foot apart in the drills, cut to a single eye. We had five hundred bushels and a little over, assorted and measured up. Mr. Smith took a large part of those potatoes. They were shipped to Green Bay.

Mr. E. H. Benton:

That is my usual practice. I never plant potatoes in a hill. I did it once or twice. I make the furrows three feet and four inches apart, go along with a little plow and open a furrow, and go on and plant the potatoes. I walk right along and drop them fifteen inches apart. I cover with a horse. Within two or three days after there has been a shower, I go along with a hoe and bend them down, as if there had been a July thunder storm over them. The potatoes come up if it is very dry.

Mr. J. Scribner:

Do you have the rows running north and south?

Mr. E. H. Benton:

I never paid any attention to that, though in some way or another, it always came that way except last year. My land lies in that shape.

Mr. E. W. Saunders:

The second crop is almost invariably poorer than the first. The third still poorer, and the fourth almost a total failure in the quality of it. The potatoes become rough and uneven as though worms had eaten into them. The soil is hard, and the quality of the potatoes very poor as compared with the first crop.

Mr. E. H. Benton:

I think that the society should have offered a prize for best essay on the causes of the roughness and poor quality of potatoes. I can say the very best and the largest I raised, were on old land without any manure for two years, and was in a state of almost barrenness, and yet I planted three or four rows alongside of my corn of the common peach blow, and some of the common pink eye, and such a quantity of good, smooth potatoes I never saw in my life. The land was without any manure whatever, without even plaster. It was poor land. I did not expect a crop, because the man that I bought the land of raised wheat and bought hay, and starved his cattle to death and hung their hides on fences in the spring, and had to sell out and go west. I did not hill the potatoes up, I just kept a cultivator through them, and kept the ground just as fine as I could.

Mr. E. W. Saunders:

Do you ever plant more than one year on the same piece of ground?

Mr. E. H. Benton:

I have. I have raised the second and third crop. It is the general rule that they deteriorate unless you keep up the fertility of the soil. Potatoes exhaust the soil a great deal. Plaster will restore it in a great measure. As a general rule, one crop is all a person wants to raise in a place.

Mr. E. W. Saunders:

You cannot keep it up by manuring. You may keep up the growth of the potato, but you cannot keep up the quality.

Mr. J. M. Smith:

There is one thing about manuring potatoes. I have a soil that naturally raises a good quality of potatoes, and it did raise those of a good quality years ago. I have manured lavishly for years in succession. I find I can raise a larger number of bushels on a given piece of land than I ever did before, but the quality is not as good as when raised on poorer soil. They are fair, but not as good as grew on the land a few years ago.

Mr. E. H. Benton:

That is the general rule, and that is a thing we ought to bear in mind. The first year I raised them they were utterly unfit to eat, watery and soggy. It was all in the ground. They planted them too late. You find the best results by planting very early. You spoil an early potatoe by planting late; while the peach blow planted as late as the fifth or tenth of June, will make a good potatoe.

Mr. John F. Steele:

I would like to ask whether other harrows besides the common smoothing harrow, would be equally good in cultivating potatoes?

Mr. E. H. Benton:

That is a question that is decided on general principles. The principle of the common harrow is a sloping tooth. You just go into your potatoe patch and try the effects of a tooth that is straight down and got sharp corners to it, and take a tooth that is sloping and round, and drag them through, and you will see that the sloping tooth is not so liable to cut off the tops. That is the patent on it. The tooth is not slanting exactly back, but slanting back and sideways. It is a remarkable pulverizer and loosener of the soil.

On motion, a resolution in regard to making Agricultural conventions a greater benefit to all classes, by delegates being sent from different clubs, associations, etc., was laid on the table, subject to the call of the convention.

The convention then adjourned until 2 o'clock, p. m.

AFTERNOON SESSION.

Convention was called to order by the President, at 2 o'clock, p. m.

An essay was then read by Mr. E. H. Benton, of Leroy, on "Facts and Fallacies of Farming."

FACTS AND FALLACIES IN AGRICULTURE.

Written for the Second Convention of the Northern Wisconsin Agricultural and Mechanical Association, held in Fond du Lac, February 16th, 17th and 18th, 1875.

BY E. H. BENTON, OF LEROY.

On looking at a certain Periodical the other day I saw this inquiry, "Have we a Social Science?" To-day we ask another question, "Have we an Agricultural Science?" Most certainly we have — perhaps not as exact in all its formulas as the mathematical sciences but yet it has all that definiteness and precision of expression, which gives it an undisputed right to stand among them as the most important field of investigation.

Notwithstanding this advance in agricultural knowledge we are aware that the popular estimation practically ranks it with the superstitions of the old astrologers who divined dismal portents from the signs of the zodiac — fixed times and seasons by the changes of the moon or the bowels of a sheep or the spleen or "melt" of a hog, and hung their hopes of bountiful harvests on the size of the horns of the Queen of night!

Let us enumerate a few of the ideas or notions, or something else we hardly know where to classify them, which obtain more or less credence among the ignorant of the agricultural classes, and those of other occupations too, and then judge whether there be not a demand for such a paper as this, to be read in every town or county in our state, and which calls for improvement in the conduct of our public schools and an addition to our text books.

How nearly universal is the practice of waiting till after clover or other grasses have made quite a growth, and then

choosing a damp, lowery day, to sow plaster, thinking it must come in contact with the leaves and adhere to them, or it will be inoperative, and lost.

Fully as wide spread and common is the practice of setting fence posts with the small ends in the ground thinking they will last longer, this belief being based on the assumption that the sap circulates in only one direction, and by reversing the position the stick grew in, it will prevent the moisture from the ground being drawn up into the post, and we venture to guess that a good many do it for no reason at all; unless it be called a reason to do it because some one else does it.

Then we have those who most persistently assert and maintain the very opposite of Darwin's doctrine of the unvarying improvement going on in nature's workshop, in that they claim to believe and prove that wheat when winter killed turns into chess or cheat, and to cap the climax of absurdity, assert that chess won't grow or propagate its species; and all this in direct conflict with the Creator's edict, "That whatsoever a man soweth *that* shall he also reap."

And there are many who think no almanac is worth the having unless there is a picture of the man with the twelve signs of the zodiac in a circle around him; and predictions of the weather all along down the page, "thunder and lightning may be expected about these days," and rules for determining the storms, winds &c., based on the changes of the moon, and on its running "high or low;" who fix the time to plant their seeds, not by the condition of their soil or the season, but by the size of the moon's face who kill their hogs and wean their calves when the signs are favorable, who never commence a journey or a new piece of work on Friday, and fear ill luck if they see the new moon first over their left shoulder. And on a par with these are many who assert that horse hairs after being in water a while turn into snakes (we would like to know whether this is evolution forwards or backwards); and to-day there are many who smear the bodies of their fruit trees with tar or some other sticky substance, printers ink may be, to prevent the curculio from stinging the fruit, thinking

the "little turk" must crawl up if he gets up at all, when if they would devote a few minutes to watching him (if they know him by his looks) when their plums are about the size of peas, on any still, hot day, about five o'clock p. m., they would see him as light of wing as any bird, and far above all such foolish ideas as crawling up the trunks of the trees, and getting caught in any such dirty scrape, when he can get at them far more easily and safely, by flying.

So quite a number eschew the use of paris green, to kill the Colorado Potato Beetle, for, say they, it will be absorbed into the potato vine and get from thence into the tuber, (we guess these knowing ones wait till late in May to sow their plaster on clover leaves), when a moment's reflection would stamp such an idea as an absurdity; as no plant can absorb anything into its circulation through their leaves more dense than the gases.

Those who read the New York Tribune last summer, were entertained with a discussion carried on in the Agricultural Department, over the proposition that trees grew by an extension of their trunks upward from the collar, when the least smattering of Botany would convince any one that such a thing is absolutely impossible in the very nature of things, and that their growth is by addition at the top.

One more fallacy just now and we pass to something else. We refer to the prevailing practice of putting manure in heaps in the field and keeping it so till the day it is to be plowed under — the reason given for not spreading it right from the vehicle on which it is conveyed to the field is that it will waste by drying and exposure, which is just the reverse of the teachings of science and experiment. Why, just consider one fact: fermentation in the open air without any absorbent over it, is the most effectual way known to liberate nearly all the valuable constituents of stable manure and set free in the form of gas. To be sure, the watery portion will mostly be evaporated if the manure is spread, but water is not manure, and it might be suggested that some articles are dried

on purpose to preserve their valuable qualities. But this paper is not an essay on the application of manures, and if any one wishes to know our opinion on this subject, we refer him to the TRANSACTIONS of this Society for the years 1873-4.

From the prevailing prejudice against "book-farming," as some term the Science of Agriculture, it is to be inferred that but a few as yet regard farming in any other sense than a blind following of tradition and superstition, or a matter of "luck," showing a development of mind not much above that of the beasts they follow.

To be sure, farmers are not the only class that buy dream-books, or go to some Signore or Madam and pay to have their fortune told; or that attend the *seances* of Katie King, or the Spiritual Circles which, with a little change of dialect and costume, might pass for a medicine dance of the Modoc Indians. But there are far too many of them as yet in utter ignorance of any scientific knowledge relating to their occupation, or of the great laws of organic life which surround them and of which they form a part.

We have not thus briefly noticed some of the fallacies which obtain credence among a large part of the farmers of the day as genuine knowledge or facts, for the purpose of exciting ill will or to disparage them among other classes, but rather in hopes of exciting inquiry, and to arouse them to the need of observation and study, and to offer such help as we may be able to give to-day, with none but a kindly, brotherly regard.

We will now endeavor to collect some "facts" from observation and science, wherewith we may construct a sensible and truthful system of things, or in other words, see if there be not truly such a thing as the Science of Agriculture. As far as possible we will avoid purely technical words, and sacrifice verbal accuracy, to bring the matter to the comprehension of the many in the use of every-day language; but we shall be necessitated to use scientific names for the materials which will come under our notice.

We shall limit this paper to the four following inquiries:

1. What agencies or forces are engaged in organizing or building up the vegetable kingdom;
2. What materials are used in their structure;
3. From what sources these materials are derived; and
4. What is the final disposition made of them.

First, our first inquiry then is to ascertain what are the agencies or forces which build up the plants which we see all around us, from which and upon which all animal life is derived or based. Without aiming at scientific accuracy in arrangement, we will arrange them as principal and secondary agencies.

The principal ones are *Heat and Light*; the secondary ones are air and electricity. The first two have their origin in the sun; the second two are seemingly residents of the earth, yet it is more than probable that electricity in its manifestations at least is connected with the sun; so that we may say that of these four workers in the workshop of nature, which evolve the thousand forms of beauty and structure that surround us, two are residents of another world. So that this life which we see, and of which we form a part, is not so much terrestrial as cosmical, not confined to one world, but common to many. With what we know of the constitution of nature, if we could conceive of a world devoid of these agencies it would be as still and dark as the grave.

The inquiry would very properly come in here as to what influence the moon can exert on the life around us when it has neither heat nor light to impart, and no atmosphere in which to engender any force or in which an activity could reside.

Archimedes, the great mathematician, is reported as saying that he could construct a lever with which he could move the earth if he could have a place to rest it; and so it matters not how many beautiful theories are constructed concerning the influence of the moon on the life existing on the earth, as long as there are no facts on which to rest them; they are simply "moonshine and nothing else." "One swallow does not make a summer," and it cannot be said that one event or

fact demonstrates the existence of a law or proves the existence of the relation of cause and effect. Much less can one or many simple coincidences prove such a relation to exist; and because stormy weather once, or oftener, succeeded a change of the moon's phases at or near midnight, prove that the moon caused such changes. The conclusion is about as logical and far-fetched as that of the man who said: "Cain killed Abel, therefore Paul was shipwrecked."

We attempt no proof of our first proposition, for if we exclude any of the agencies we have enumerated, especially the primary ones, heat and light, life is impossible, as we know it; and it is extremely doubtful if even air and electricity were excluded and light and heat were present, that any life, vegetable or animal, could be originated or maintained.

Second, our second inquiry relates to the material entering into plant structure. We find the largest portion of all plants used as food to be water; it is from seventy to ninety-five per cent. of their weight when green or in the growing state; the remaining portion is largely woody fibre. By evaporating the free water from these plants we can burn them, and the largest portion will be driven off in the atmosphere, and the balance will remain in the form of ashes, which may be termed earthy or mineral matter. The part which burns away or takes the form of gas or air, is called organic matter, the ashes inorganic matter. The first division or organic matter, is subdivided into four parts; one solid or carbon, and three gaseous, oxygen, hydrogen and nitrogen. These four kinds or forms of matter, constitute nearly the whole of most plants; the ashes or inorganic matter is often only one part in one hundred of their dry weight. Of these four sub-divided parts, carbon or charcoal is about one-half; the oxygen and hydrogen when united form water, oxygen and nitrogen form nitric acid.

The inorganic matter may first be divided into three classes. Alkalies, acids and neutrals; the alkalies and acids have a tendency to unite when brought together, and thus neutralize each other; this is often done in cooking. The gas carbonic

acid will unite with the alkali lime, and form limestone which is without smell or taste.

The alkalies found in the ashes of plants are four in number, potash, soda, lime and magnesia.

In their agricultural uses there is but little difference in the offices they perform between potash and soda. The principal use of potash is to unite with the neutral silica or sand, and form a compound which water will dissolve, and it can then be taken up by the roots of plants, and carried into the stems or stalks to strengthen and harden them; it is this which gives the coating to grain and corn stalks; it is also a powerful agent in the decomposition of vegetable substances in the soil.

Lime is a constituent of all plants, is an active agent in decomposing vegetable matter, and will neutralize the acidity of sour or peaty soils.

Magnesia is necessary to all plants, but most soils contain it in abundance; too much of it is poisonous to plants, and if it is applied at all, it should be done with care; it is found mostly in limestone, which then gives it the name of magnesian limestone; this kind of limestone is found very good when burned, for mortar; it was once thought to be useless for that purpose. The second class, or acids, are two in number, phosphoric and sulphuric acids. Phosphoric acid is a combination of phosphorus and oxygen, and it will unite with all the alkalies; its most important combination is with lime which forms phosphate of lime, which is about sixty-five per cent. of the dry weight of bones.

Sulphuric acid is a combination of sulphur and oxygen, and is formed by burning sulphur; with lime it forms the sulphate of lime, commonly known as gypsum or plaster. There are four neutrals in the third class: silica, chlorine, oxide of iron and oxide of magnesia.

Silica or sand, is the base of flint, it readily unites with the alkalies, and forms the compounds known as silicate of potash, silicate of soda, etc. These compounds as before stated, are soluble in water, and can then be taken into the circulation of

plants. Window glass is silicate of potash, rendered insoluble by the addition of arsenic and litharge. There is always enough of silica in soils for their fertility, but it is often necessary to add an alkali to render it available. This is why ashes always benefit sandy soils, and on any soil where grain lodges. Chlorine is not found alone in nature, its most important compound is with sodium, forming chloride of sodium or common salt. Chlorine unites with lime and forms chloride of lime, which is mostly used as a disinfectant, as it absorbs noxious gasses. Oxide of iron is common iron rust; it gives the red color to soils and is abundant everywhere, but often much stirring of the soil is necessary to expose it to the air, and render it available to plants. Oxide of magnesia is least in quality and in importance, and is sometimes wanting; as has been remarked before, too much of it is poisonous and renders soils barren.

Other substances are often found in the ash of soils; as the ash of plants is varied in quantity and constituents somewhat by the soil on which they grow. But we have enumerated such as are the most constant and the most necessary.

We have been thus explicit in mentioning the materials of which plants are formed, that we might aid the cultivator of the soil to ascertain any deficiency which may exist in his locality and how to remedy it, especially those which are indispensable to grow large crops.

Third, the third division of our subject relates to the sources from which plants derive the materials with which they are built up; and preliminary to this we will briefly point out how plants feed. In doing this we shall repeat some of the second division, but only such as is rendered necessary by the nature of the case.

Our common plants may be considered as having two distinct parts; the root or descending axis with its branch roots and rootlets, and the top or ascending axis with its branches and leaves; the division between these two parts is called the collar or neck.

The roots perform two offices; to sustain or uphold the top and to draw sustenance from the soil, and for this purpose the rootlets terminate in spongioles or mouths, and the process by which they take up the crude sap is called imbibition. All the water and inorganic materials, and a small part of the organic or gaseous, are taken up by the rootlets and carried to the top and through that to the leaves. The leaves absorb carbonic acid and other gasses from the air through the pores on the under sides of them, by a process similar or analogous to respiration in animals, and digest and assimilate the crude sap taken up by the roots, and send it back through the whole plant wherever needed to add to its growth. In this process most of the water taken up by the roots is evaporated, and some rapid growing plants like the sunflower and cabbage, in a hot, sunny day, will evaporate twice the weight of their leaves.

We have stated that the larger part of all green plants is water in some of them as high as ninety-five per cent., and this must all pass through the roots; while the greater part of dried plants is carbon or charcoal, which is nearly all derived from the atmosphere through the leaves in the form of carbonic acid; a small part is derived through the roots, being contained in the water in solution.

It has also been shown that all the inorganic matter is derived from the soil through the roots, being held in solution in the water. This is often called mineral matter, and is decomposed rock, and is often represented in the ashes after burning the dry plant; this part of the plant is very small, being sometimes only one per cent., and yet it is indispensable.

We will briefly sum up this part of our subject which gives the *modus operandi* of plant circulation. The mineral matter in the soil is rendered soluble by the alkalis, taken up in solution by the water, is absorbed by the rootlets or spongioles, is carried through the pores of the plant to the leaves, where it comes in contact with the light and air, and a large part of the water of the crude sap is evaporated, unites with the gasses absorbed from the atmosphere, is assimilated or digested, and

then carried back to feed all parts of the plant and add to its bulk. The different substances entering into the structure of the plant, are called the ultimate divisions; but the plant does not exist simply for its own end, it is intended for higher uses, namely: to store up food to sustain animal life, both of beasts and of men, and these substances are designated proximate divisions or properties, or vegetable proximates; they may be divided into two classes. The first class are composed of carbon, hydrogen and oxygen. The second class contain these three with the addition of nitrogen.

The first three substances form the wood, gum, starch, sugar and fatty matter, which comprise the greater bulk of all plants and the acids of sour fruits.

These various articles, so different in their character, are entirely composed of the same materials, and they are combined in about the same proportion, and they can be substituted one for the other. These are all formed from carbonic acid and water, which nature so bountifully supplies.

The second class of proximates are only a small part of plants, and yet they are of the greatest value to all, as from them animal muscle is formed.

They consist as stated above, of the three substances composing the first class, with the addition of nitrogen. These four combine very near the same in all plants, forming what is termed protein, or many forms. This portion of wheat is called gluten; of indian corn, zein; of peas and beans, legumen, in others, albumen, casein, etc. If no nitrogen is present in the soil or furnished in manure, no plants will mature in it, it being the law of nature to require all the ingredients we have mentioned, present in the soil before she will build up or organize plants in a healthy or perfect form.

These principles or laws governing plant growth, suggest to us several important practical conclusions, which we will now briefly state.

1. Ashes (unleached) will almost always benefit any soil, on account of the alkalis which they contain, especially the potash, which is a powerful solvent of the mineral substances

in the soil, fitting them to enter into combination with other substances, when they can be readily taken up in solution by water, and enter the circulation of plants. The greatest benefit from their application will be seen on sandy soils. Their effect will not be so immediate as some other fertilizers, but there is no crop which will not be benefited by them, and their beneficial effect will be very lasting, as they improve the texture of both heavy and light soils, besides the plant food they contain.

2. Lime in its various forms is essential to plants, but in its caustic or fresh burned form, it must be cautiously applied, and its beneficial effect may be slow in manifesting itself. In soils containing large quantities of vegetable matter or humus there is great danger of waste, from the rapid decomposition engendered by the lime. Neither ashes or lime should be mixed with barn-yard or other manure containing vegetable or organic matter, unless it be well covered with some absorbent, as they will waste it by setting free the ammonia.

3. Carbon is the material which gives soils their dark color and it is one of the most active absorbents of liquid manures and therefore very useful in sandy or other leachy soils. Powdered charcoal is the best form in which to apply it. It performs another useful office when applied to light colored soils, in increasing their warmth and improving their texture. Another source of carbon and lime is to plow under clover when in blossom, on which plaster has been sown, as it contains those materials in larger quantities than any other plant. This fact suggests the propriety of using clover and plaster on all light colored soils, for the purpose of plowing under, or to be fed to stock on the farm and all the manure returned to the soil. Charcoal, Sulphate of Lime, and Chloride of Lime, are very active absorbents of ammonia and of all fertilizing gases, which are the ingredients of manure the most likely to be lost, and they are therefore very useful to cover all compost heaps of any description, or of manure which is undergoing decomposition, or fermentation.

Caustic Lime and Sulphate of Lime have directly opposite effects mixed with manures, the first will increase the waste of fertilizing gases, the second will absorb and retain them for the use of growing plants.

4. Ammonia, from which nitrogen is derived by decomposition, enters plants only in combination with water through their roots. As plaster benefits clover and other leguminous plants by absorbing the ammonia in the rain and dew, and what is set free in the soil, or from any manure applied to the soil; it is plain that its effects will be the soonest realized by applying it on the surface of the soil, or by mixing it with the soil when the seed is sown. To be sure it will be beneficial some time, however applied; as it is utterly impossible to waste it, or to put it where it will not perform its peculiar function, unless all moisture is excluded. This being the case, it will prove beneficial even if buried some inches in the soil, and if dry weather should succeed the application, that mixed in the soil would begin to be operative from the moisture continually circulating in it, while if it were sown on the leaves it could not possibly be operative until rain sufficient to wash it into the ground, had fallen.

5. In soils containing abundance of lime, or when lime is applied as a fertilizer, chloride of sodium or common salt may be applied beneficially, the chlorine of the salt will unite with the lime and form chloride of lime, which as we have previously stated, is an absorbent of the volatile or gaseous portion of manure, and of those gases combined with the atmosphere, and also of water. The sodium after being freed from the chlorine unites with the oxygen of the air and forms soda, which is a valuable fertilizer, and also a solvent of other mineral matter in the soil.

6. From these facts we derive another very important conclusion, which is this: everything else being equal, the man who causes the most water to filter through his soil will raise the largest crops; hence the importance of liquid manures and of irrigation. But there are other means by which the moisture of soils may be increased, such as sowing salt, sulphate of

lime, mulching and finely pulverizing the soil, and under-draining; all these methods combine other advantages besides indirectly increasing moisture in the soil, and will prove beneficial everywhere.

But it must be borne in mind that there is no worse enemy to plant growth than stagnant water, either on or in the soil, and that the evaporation of much water from the surface, reduces the temperature of the soil very much. A loose, porous condition of the soil allows the air to circulate through it and deposit its moisture, and the fertilizing gases it contains will also be retained.

4. Our fourth inquiry relates to the final disposition to be made of the material accumulated in plant growth. The great purpose of plant growth is to furnish the material for the subsistence of animal life, and therefore it is of the utmost importance that the supply should be continuous and abundant, and also varied in character as to supply all the needs of the animal system, thereby securing its highest development.

The characteristic products of plants (vegetable proximates) vary very essentially; some contain a large per cent. of oil, others of gluten, some of phosphorus, some of lime, and so on through all the varied elements needed to build up the animal system.

These facts clearly indicate the desirability, nay more, the actual necessity of a proper rotation of crops to prevent the exhaustion of the soil, and a variety of plants to get the best results from our labor. Six crops of wheat grown consecutively on the same piece of land, will exhaust it more than six of wheat and six of grass grown alternately, will in twelve years, provided that no fertilizing material is applied.

We know that some soils are so rich in mineral matter that small crops of one variety may be grown forty, or fifty, or more years without cessation, with no decrease of yield, but they are exceptional cases; it being a well established principle, that the quickest way to ruin any soil is to grow the same

crop year after year and make no return of the material which nature requires to grow it. The intent of nature is a constant reproduction of all the forms of life; and to maintain her ability to do this without deterioration in quality or quantity, she is continually drawing on her stored up resources of mineral matter, which she renders available by the action of the self-same force with which she builds up living organisms either vegetable or animal, and by the destruction of these same organisms when they have ceased to live, returning them again to the air and earth in the same form in which they existed at the beginning of plant life.

We have shown that in some cases very near ninety-nine per cent. of plant structure, or the material entering into it, is derived from the atmosphere where it existed in the form of gas, consequently all fertilizing materials must take on this form or become soluble in water before they will be available. Therefore, we must apply our manurial matter before any of these changes commence, or we must apply some absorbent to them while undergoing the process of decay or decomposition. The best absorbents are pulverized carbon or charcoal, or thoroughly-dried peat, finely pulverized, as peats are mostly carbon in some form. Any clayey soils or loam soils, dry and fine, sulphate of lime or plaster and chloride of lime.

Right here is apparent the wasteful method which many or most follow of putting their manure in heaps on their fields, where they will be leached by the rains and gradually burned up by the forces of decomposition which are constantly at work within and upon them.

And the same principles clearly point out the wisdom of applying all manures to grass lands in a green state, or before any loss has taken place of their fertilizing materials.

To accomplish this the manure should be hauled out during the whole season of feeding and spread immediately where wanted; and there is no doubt that it would pay all ways and everywhere to sow plaster with the manure or soon after applying it, simply to absorb the ammonia and to hasten

the preparation of the manure for plant food. Coarse manures thus applied also serve a very useful office as mulching, which is scarcely second to their value as fertilizers.

We have seen that the sap of plants contains more or less of acids or of material which, under favorable influences, will develop them; and that when any plant is cut off from the action of the life forces these acids hasten their decay. Everyone knows how soon the sap wood rots in all non-resinous plants; and therefore to preserve wood any length of time it must be seasoned, and the quicker and more thoroughly the seasoning is accomplished, the longer will the material last. We have also seen that all the sap enters through the roots of the plants, and, therefore, if any plant is cut off from its roots the supply of sap will immediately cease and circulation must also cease.

Now, apply these simple and well-established facts to the matter of setting fence-posts, and we readily see that nothing is gained as to durability by setting the top ends in the ground, but, on the contrary, if the top end be the smaller end there will be an actual loss, provided both ends are equally sound.

Leaving out the question of the time of the year when it is best to cut timber to have it last the longest, it is evident that the post which is the best seasoned and the largest will last the longest, as decay must be confined to the surface or exterior of it and work inward to the center; whereas, if the sap remained in it would decay all through from the chemical action of the acids contained in it, but this action will be intensified near the surface of the earth where light and heat can gain access. The structure of the bark or rind of all plants is such as to prevent the evaporation of sap, consequently it must be removed from all timber as soon as cut, if it is desired to secure strong, lasting material.

We recollect some years since of reading of a man "down East" who sued for failure in a contract he had made to have a certain piece of fence built on a certain day or days, which came at a certain time in the moon, claiming his damages on

the ground that his fence would not last so long if built at any other time.

Absurd as this may appear to us, it is no more so than many other notions extant concerning the moon's influence in determining the yield of crops, the changes of the weather, the quality of pork, or the success or non-success of the commonest occupation in life.

It may be remarked that while science has her varied and numerous recorded statistics of observation and thoroughly-conducted experiments on which to base her conclusions and draw her deductions, we have not a single authentic record of thoroughly-conducted experiments to test the alleged influences of the moon on the plant life of the earth; and, further, there is not the remotest claim to the principles of science existing as a ground on which these opinions rest.

Perhaps the greatest fallacy of Western agriculture is the idea that the prosperity of a community is in proportion to the amount of wheat or other products raised on a certain year; while the true criterion is the production of the necessary supplies at the least cost. If a vast amount of grain was raised last year and sold at a price below that of production, will you please tell me how often the same thing can be done before the country would be bankrupt? It is the cost of production and not the amount produced that determines the success or non-success of the producer; and it is a general rule that up to a certain point not yet reached that the greater the amount of expenditure on a given piece of land in manure and tillage, the less will a bushel or any division of the whole amount raised cost: for the principle in feeding land is very similar to that of feeding an animal—that the profit is derived from that amount of food which it will consume over and above what is consumed in keeping the organism in working order, and consequently the animal that has been developed to consume the least in living will with the same feed give more profit than the coarse, undeveloped one—and so the third cultivation of a piece of corn may be the only labor

performed on it which will return any profit to the cultivator, and if he should cultivate it still the fourth time, there would be more profit in the fourth than in the third, both because it would be easier done and because the direct advantage would be greater from the fact that soils increase in productiveness absolutely as well as relatively by thorough tillage.

It is a fact, as stated by the professor at the State Agricultural Convention this winter, at Madison, that cultivation without manure was better than manure without cultivation.

From these premises the conclusion is evident that the farmer who raises the largest yield from a given surface is the man who is realizing the largest profits: provided, always, that he has worked in harmony with the laws of vegetable growth.

Instead of setting your mark at so many acres of sowing or planting, set it at such an amount per acre as will certainly give you a profit.

After the reading of this paper Mr. Bennett said: There is a point that I think, if we have time, it would be well for us to dwell upon a little. I do not suppose we shall have time to discuss any of the points which may have been suggested by the paper just read, largely, but there are some one, two, or three, that have practical bearings, and I would like to hear something on the subject.

There is one in regard to the use of Paris green, a simply incidental remark to be sure, that I would like to have a little discussion upon, and particularly this question, whether Paris green can enter into any plants or fruits so as to be injurious. I mean to say injurious to the consumer, whether it can by any process, or application, at any time, at any period, so enter into the composition of the plant or fruit as to be dangerous to the consumer.

Mr. E. B. Benton:

That matter has been thoroughly examined by the chemists of our country. There is Prof. Daniels, and there is Prof. Riley and some noted chemists. This merely brings out this simple fact, that nature has two ways of getting rid of this

matter. In the first place she rejects it, and in the second place she neutralizes it. Paris Green will burn the leaf when thrown on in a sufficient quantity to destroy the texture. If the texture is destroyed how will it get into the plant.

Now if put on enough, and destroy the texture, it simply remains there as Paris green. It does not take any form which the plant will accept of. It will not take any such form, consequently it remains there until it is washed off with the rains. It then comes into the soil. Nature goes to work with all its forces, and neutralizes it, and puts it in the form of a neutral. It cannot be soluble in water, and cannot get into plant. So the Paris green is disposed of, without getting into the plant, by any means, or by any law of nature. There have been tests applied.

Mr. P. S. Bennett:

That is very true, but let us see if that will hold true. I am not speaking of the potato. Suppose you put it on a cabbage, can it in any way get into that cabbage to do any harm, will it lodge, will it put itself, by any process, or can it be put in any way, so as to be dangerous? Suppose you put it on fruit, I mean to say on raspberries for instance, or currants to kill the enemies of those, or to kill the worm or anything that infests the bush. Can it if applied at any time, in any stage of the growth of the fruit, so inhere or adhere to the fruit as to be dangerous?

Mr. E. H. Benton:

That is on the same general principle. It cannot enter into the plant structure. You can wash it off the cabbage if you wash it thoroughly enough; so you can off the berries if they will stand the washing and not be broken.

It is not as valuable to use for these purposes as another article we have, and that is white hellebore. That will destroy all the enemies noxious to vegetables. It is far better for the currant worm, and the gooseberry worm, and the rose slug, and these little lice, or flies, on cabbages. Take the white hellebore and dust it on like Paris green, dry.

Mr. J. M. Smith:

As regards the destruction of the worm, there is no doubt but that Mr. Benton is correct as to his theory of getting into the plant. It cannot get into the plant, yet there might be a way very dangerous to use Paris green, like that on cabbages. Last fall I found the celebrated Eastern cabbage worm had entered my garden. I could destroy them very readily with Paris green.

I did not dare to use it from the fact that the cabbage was heading, for fear that poison might be left inside of the leaves, the leaves might close up around it and leave it in the head, and the person eating the cabbages might possibly get it in that way, while I might destroy the worm without any doubt, I might possibly destroy some person. I did not want to destroy, and hence I considered it unsafe and should now consider it unsafe to use it. I am trying my best to find out some practical remedy for that worm, simply because I do not dare to use Paris green after the cabbages have got to that point where they are heading, for the reason the poison might be closed in the head and thus become dangerous.

Mr. E. H. Benton:

There is another thing which is just as good, and that is a strong solution of quassia.

Mr. J. M. Smith:

What would be the effect of that, if it was enclosed in the head of a cabbage.

Mr. E. H. Benton:

That is perfectly innocuous.

Mr. J. M. Smith:

With regard to the currant worm, the City of Green Bay was full of them. They got into my garden, and destroyed my currants. I went to one of my neighbors and bought a hen with a brood of chickens and they stripped the vines of those worms almost immediately, and I have never been troubled with them since. Put the hen in a coop and let the chickens run, feed them as chickens are fed, and they will

not eat the currants. They will not eat the currants unless they are starved to it. But they will eat those worms, and they will destroy them, destroy them utterly and totally. So with regard to these striped bugs on cabbage and cucumber vines, young turkeys will destroy them in immense numbers. I have never been troubled with them.

Two years ago I had been a little careless in going over some of my ground where I had my squashes. The vines had commenced running. I didn't look them over for a long time and when I looked I found the striped bug had got on them in immense numbers. They had come all at once and a few hills had been destroyed.

I had a turkey in her coop. She had a brood of fifteen or twenty young ones, about the size of a quail at that time. I set the coop right in the midst of the patch of squashes. The next day, about twenty-four hours after I had first found the insects there, I went again and hunted the patch all over and found one poor little thing left. I picked that up and carried it as a show to my boys. That was the last one I think in the patch. I never saw one there afterwards. That shows how easy it is to get clear of many of these pests. I raise turkeys in my garden. It seems strange; yet I do it, not as a matter of profit, but as a protection. Over a year ago last summer I had over one hundred young turkeys running all over my garden.

A voice:

How do they affect the tomatoes and cabbages?

Mr. Smith:

After they get to be of large size they will eat the cabbage. I feed them green food. We are selling onions and we cut up the tops finely and mix them with other feed, as the rule is to give them all the vegetable food they will eat, give it to them three times a day. I never saw but one insect in the garden they would not eat, and that is the potato bug, and that they give a wide berth,

Mr. E. H. Benton:

They will eat them. I have often seen old turkeys eat them.

Mr. Smith:

I do not let the old turkeys run. In the fall when they get quite large we take them out of the garden.

THE DAIRY.

BY C. D. HAZEN, OF LADOGA.

Mr. President and Gentlemen of the Convention:

It is with much pleasure that I am able to meet here with my brother agriculturalists, to listen to remarks on the different topics pertaining to the interests of agriculture in Wisconsin, from gentlemen of experience and integrity.

Meetings of this character seem to be very much needed in our new and principally agricultural state, and I think will result in great benefits to those that attend them and make good application of such opportunities.

Agriculture has existed since the world began, long before governments were formed. History shows that the first man Adam was an agriculturalist. But I can easily imagine that Adam's theory and experience as an agriculturalist was quite different from those of the present date.

Theoretical farming is all right in its place. But what seems to me to be the most needed at the present time, is a more experimental and practical knowledge of agriculture. Experiments with all the various crops adapted to this northern climate, and on the different soils, are what the farmers of Wisconsin seem to me are most in need of.

What better way can this knowledge be obtained than through the medium of just such conventions as this? If one farmer was to experiment in the various ways on the different crops and their adaptation to our soil and climate, he would in all probability be quite an old man before he would obtain the necessary knowledge, (confined to his own personal experience) to insure success.

But with the co-operative effort of all the members of this convention, if they will apply themselves with all their former

experience, to practical experiments in agriculture, in such a way that they can come forward in such a convention as this and make reports of their experiments, with what success or failures they have met with; or if all here present will give such information to this convention as they are in possession of, the knowledge that will be obtained at those meetings would be invaluable to the agriculturalists of Wisconsin.

But some might say they have all the knowledge they need in this direction. Admit they have; those, perhaps, are just the persons to diffuse knowledge to the rest of us. Another view of this subject might show that the individuals that knew all that was worth knowing on this subject, might be the very ones that were the most in need of such knowledge, but had not yet discovered one thing, that is, that they did not know it all.

The motto of an agriculturalist should be progression. The world never stands still. Agriculture, supposed to be as old as the oldest history of the world, (which I believe is the Chinese, which claims to date back forty-four thousand years,) is yet in its infancy. Nature's store house is yet unexplored by man. New truths, new discoveries, new laws of nature are continually being developed.

It seems to me that agriculturalists should be the first to seize upon those opportunities and utilize them for their mutual benefit, and make our calling or profession what it should be, the first, if not the only indispensable one known to man.

I have been requested to represent the interests of the Dairymen in this convention. If this audience would accept the will for the deed, I should feel as though I had nearly accomplished the object.

The Dairy interests of Wisconsin, through the co-operation of our dairymen, in organizing the Northwestern Dairymen's Association, which was organized nine years ago this winter, and has been in successful operation since its organization, together with our Wisconsin State Association, which was organized three years ago this present month; in connection

with the different Dairy Boards of Trade which have been in successful operation for sometime, has been as successful as could be expected from so new a dairy district as Wisconsin.

At the commencement of the factory system of manufacturing cheese and butter, in the Northwest, which was about ten years ago, and from that time until our state society and boards of trade were established, there was a strong prejudice in the eastern markets, and large discriminations made against our dairy products.

To overcome those prejudices and discriminations against our goods, was the all important question to be solved by our western dairymen; when our products had increased to that extent that the supply was in excess of the local demand, and the surplus had to seek eastern and foreign markets.

Through our co-operative efforts, this object has been nearly or quite accomplished, to that extent, at least, that we feel confident that we shall be able to establish a reputation for Wisconsin dairy products that will stand second to no state in the Union. If we persevere, we have as many material advantages as any other state.

Four years last October I shipped the first car load of cheese of my own manufacture to New York. Before shipping it, I was requested by Messrs. A. N. & F. W. Leger, parties in New York that I consigned to, to ship the cheese without any marks of where they were manufactured, on either cheese or boxes. This was to prevent discrimination against western cheeses. We are now no longer under the necessity of withholding our brands from the trade, but instead, we often find it to our advantage to brand our goods.

Through our associated efforts, the dairymen of Wisconsin are in possession of many advantages, too numerous to mention here, that we could not have secured through individual efforts, and to-day, I believe the dairymen of Wisconsin are better organized than any other class of agriculturalists in the state.

The present low prices of our lands and their adaptation to the successful growth of the coarse grains, more than offset the difference in freights on our goods to the eastern markets. The comparative expense of producing coarse grains in Wisconsin and New York are about ten to one in our favor. By condensing those grains into dairy products, we do away to a great extent with one serious trouble that our western farmers have had to contend against, high freights. When it will not pay to ship grain to New York it will to ship dairy products.

DAIRY HUSBANDRY.

What does it consist of and what are its objects?

I will first state that the principal and all important object of the husbandman is the same as that of all others who make money by their profession.

The uses of the dairy productions are too numerous to mention. At present suffice it to say that those articles of our daily food, the most common are often the least thought of. Milk is the only article of food that contains all of the ingredients necessary to sustain human life, and keep the physical system in a healthy condition for an indefinite length of time. It enters more extensively into consumption by the human family than any other article of food, and exceeds in value any other agricultural product of the United States of America, and is the only one to be dispensed with.

Milk in its natural state as drawn from the cow, is of a perishable nature, it will retain its nutritious qualities but a short time.

The business of the dairy husbandman and manufacturer is to check its natural tendency to decay, and by the assistance of the arts and sciences of the present day, milk is converted into butter, cheese and condensed milk. In which condition it retains most of its original properties, and can be kept for an indefinite length of time, and enters largely into the commercial products of the world.

The future prospects of the dairy in Wisconsin, seem to me to be favorable. Its product has steadily increased the past

twenty-five years, and no doubt will continue to do so. Not so much because of the profits it pays for the money and labor invested, as the necessity of our grain farmers substituting some kind of stock in place of the wheat crops they have been producing year after year, until their soils are becoming impoverished to that extent, that it will no longer pay to raise wheat.

I believe the dairy business will pay as well in Wisconsin as most any other branch of agriculture, if properly conducted with but a fair degree of intelligence, perseverance and economy, besides requiring a considerable time to prepare a grain farm for the dairy business; and it usually takes several years to collect together a dairy of first-class cows — all of which seem to me to be necessary to insure success.

The newer sections of this State and the more recently settled States and territories that are being settled and improved so rapidly, are going to furnish the wheat, and can do it to better advantage than we can. Dairying, wool-growing and other branches of agriculture will undoubtedly increase and claim the attention of the farmers of our State as the wheat crop decreases.

I stated that the products of the dairy exceeded in value that of any other agricultural product of the United States. Perhaps this may need modifying a little. The corn crop I believe is the only one that has exceeded it for several years. And with the light crop of corn the past season I think we are safe in stating that the dairy is ahead.

According to the last census of the United States and allowing the increase in the number of cows for the last four years to be equal to the ten years preceding, we have at this date over 12,000,000 cows. We will estimate the product of a cow at \$60 per annum in milk, cream, butter and cheese, and the increase in pork made by feeding sour milk and whey which I consider a very low estimate, and we have an aggregate of \$720,000,000.

Let us look a little to the economy of using cheese more as a common food in place of meats. Prof. A. J. Bellows, in

his Philosophy of Eating, says: "Cheese has more than twice the amount of food than any other known substance. It must therefore be used in small quantities and with such articles as fresh or fine flour, which contain no nitrogen." Again he says: "Cheese, which contains the concentrated nutriment of milk, is seldom seen on our tables, while butter, which contains not a particle of food for brain or muscle, is on every table at all times of the day."

An average cow will produce 400 pounds of cheese and a small quantity of butter per annum, and if we estimate one pound of cheese equal in value to two pounds of beef, then it appears that one cow will yield food equal to 800 pounds of beef per annum. The average dress weight of well-fed beeves sent to New York City, is estimated at 750 pounds each.

It thus appears that a cow will produce in human food, annually, more than a grown bullock, yet it takes, on an average, three and one-half to four years to produce the bullock, making 750 pounds dressed beef. The cow, then, produces as much food in one year in milk as can be grown in flesh in three and one-half years, demonstrating the great economy of cheese over beef. The extra labor of producing the cheese for one year just about offsets the labor for caring for the bullock four years, and the expense of keeping the cow one year will not be more than one-third of the expense of keeping the bullock four years.

Mr. L. Fallen, in his able work on American cattle, estimates the whole number of beef cattle consumed in the United States at 5,000,000 head per annum. He also estimates these beef cattle at \$60 per head, making an aggregate of \$300,000,000. We will estimate the cheese product of 5,000,000 cows, 400 pounds to the cow, at fifteen cents per pound, (while the average retail price in New York and other cities is sixteen to twenty-two cents), and we have an amount of \$300,000,000, just equal to all the beef consumed in the United States in value. Leaving 7000,000 cows pro-

ducts in excess of the beef crop. Equal to \$420,000,000 in favor of the dairy products.

To produce this vast amount of dairy products a large portion of our agriculturalists must necessarily be interested in dairy husbandry. Perhaps five times as many of our common farmers are interested in this particular branch of husbandry, as are engaged in any other branch of stock growing.

I believe the principal objects of holding agricultural fairs, is for the defining of a better knowledge of how the best crops, best stock, best manufactured articles are produced, with a full display of all the arts and sciences of the present day; also to create a rivalry in all the different departments to see who will excel.

In revising premium lists I think the executive boards of the Agricultural and Mechanical Society should so arrange their lists that justice will be done to all branches of industry, especially to the dairy husbandry. The capital and labor invested in dairy husbandry, probably exceeds four times the amount in value of any other class of horned cattle in Wisconsin, and ten times as many of our farmers are directly interested in it, and justice demands that our interests should head the cattle list.

I am here to try to represent the dairy interests of the state, and in attempting to do so I have endeavored to present to this convention some of the claims of the Wisconsin dairy-men in our agricultural fairs, viewed from our stand-point.

Then followed a discussion on the paper read by Mr. Hazen.

I can say in regard to the paper just read here, I might have heard him wrongly, or it might have been a *lapsus linguæ*, he may have mis-read the paragraph in question, or I might have misunderstood him, that the Chinese history dates back forty-four thousand years.

Mr. Chester Hazen:

I believe I have as good authority as the Chinese scholars have, that their history dates back forty-four thousand years.

Mr. J. P. Roe:

Here is, as the Irishman says, "where I am bothered." In the opening of his paper, he says that the first man, Adam, was the first agriculturist. If I am rightly informed he quotes from Mosaic history, which so far as we know dates back six thousand years; whereas the Chinese history goes back three thousand years further, Pre-Adamic history, as in their agricultural reports. I wish this question to be solved.

Mr. Chester Hazen:

Adam was the first man to which our history goes back. I was talking about Chinese history.

Mr. E. H. Benton:

There is a harder problem than that involved. Their agriculture had not progressed at all in that four thousand years, and that is what explains the nullity.

Mr. J. P. Roe:

That is, it is on the plan of the neutralization and rejection of plants in the matter of Paris green.

Mr. P. S. Bennett:

If there is to be any considerable discussion on the subject I should think that it would be best to defer it, for we were not through with Mr. Benton's paper. There has been no particular discussion over that. There is just one point I raise, which would not take but a little time to settle, and yet I will defer it, if it is designed to bring it up again at any future time.

Mr. J. M. Smith:

It is a matter for the convention to decide. It is a very important matter and one in which we are all interested.

Mr. P. S. Bennett:

There is one point I would like to have decided, and that is whether there is, or is not, actually any nutritious property in butter. The essay was understood to take the ground that there was not. But I will waive it, if it is likely to come up at any future time.

Mr. J. M. Smith:

I think it preferable to lay the discussion aside and bring it up hereafter.

It was moved and seconded that the discussion be laid aside.

Motion carried.

Mr. W. W. Field, of Madison, then read the following paper:

INTEREST ON MONEY—A HIGH RATE RUINOUS TO PRODUCTIVE INDUSTRY.

BY W. W. FIELD, SECRETARY OF WISCONSIN STATE
AGRICULTURAL SOCIETY.

Money is a convenient medium of exchange of the varied products of a people. It is a friendly and valuable servant when used as was intended by those who instituted it for exchange. It is impracticable if not impossible for each person to grow or manufacture every article he may desire or need, hence the wisdom of governments in making or coining money for the benefit and convenience of all. It may not possess any of the qualities or elements necessary to supply our daily needs, but is simply a representative of each and all. A grows grain, B produces meat and other products of the soil, C mines coal and other minerals, D manufactures cloth, E boots and shoes, F hats and caps, G the useful and beautiful in art, and so on to the end of human wants, each contributing something to the physical, moral or spiritual condition of man hence making life more pleasant and enjoyable.

To barter or sell the products of each to all the others is difficult and expensive, but either may be sold for money, the legal representative of each and all of these commodities, and this money can be exchanged for each or all of the other products, at the leisure of the possessor or to suit his convenience or necessity.

A person may convert his property into this medium of exchange, representing thousands of dollars, place it in his pocket and take it with him to distant parts of the country without inconvenience, and there purchase property again or loan it for interest, while if he should desire to transport property, actual value, the same distance, it would be burdensome,

and for some property quite impossible. These are the beauties and benefits of money.

They show clearly that is an excellent servant, a valuable representative of all desirable things. But how is it when this representative of all other values, this servant created by the people to aid in the necessary distribution of the products of the people, assumes to dictate and control all other values, so that the law of supply and demand is not allowed to obtain legitimately and for the best interests of humanity? Instead of occupying the more humble position of servant, it now becomes, by long sanctioned usage and unwise enactments of law, absolutely master, and dictates with a despotic power the rate of interest or amount of the products of labor it will draw to itself annually.

Money, to be valuable, must be parted with, as it cannot accumulate interest in the hands of the possessor. Not that money has the power to produce money, but to draw to itself the accumulations, labor or products of others. For instance, if A loan to B \$1,000 in the legal currency of the United States at the rate of ten per cent. per annum, he does not expect this money to accumulate its like to the amount of \$100 at the expiration of the year, but that said sum shall be paid to A from the profits of the labor of B or others he may employ.

This accumulation of money is what constitutes its power and determine its value, as much as the value of a common laborer or skilled workman is determined by the amount and kind of labor each can perform, or as the quality and quantity of crops grown upon certain soils determine the value of such land for agricultural purposes. In proportion to the power of money to accumulate by interest is this power and value increased. A workman who can do double the work of his fellow laborer, and do it as well, can command twice the wages, for his labor is doubly as valuable. So money, the higher the rate of interest, the more valuable it becomes to him who parts with it for this increase. If the rate be ten per cent., it is twice as valuable as though it was only five.

One hundred dollars in the one case is equivalent to the other. The same is true of bank and railroad stocks and other forms of investment. They are valuable just in proportion to the dividends they will pay per annum. By a high or low rate of interest, money measures or represents more or less property, labor or products of the country, just in proportion as it varies, while its nominal value remains the same.

Conceding that money loaned should bear a just rate of interest, let us for a moment consider whether the present rate is right and just, and if not, whether we can arrive at an honorable and equitable basis, so as to be just to capital and generous to labor. "Supply and demand," says one writer, should regulate money. Another writer says: "No man of ripe years and sound judgment, acting freely and with his eyes open, ought to be hindered with a view to his advantage from making such bargains in the way of obtaining money as he thinks fit, nor anybody hindered from supplying him upon any terms he thinks proper to accede to."

Is money like wheat, corn, meat or other products produced by the labor of the people? Not at all. It possesses the power to measure or represent the value of each, without possessing in and of itself intrinsic, actual value for the supply of our necessities. It is simply a convenient medium of exchange of all commodities, and should have a fixed value, and such value can only be determined by the rate of interest it draws to itself. We must also bear in mind that whatever the rate of interest is, must be paid by labor, and if that rate is too high, then the whole surplus products of labor must be paid to capital and the laborer receive a bare subsistence.

The Congress of the United States "shall have power to coin money, regulate the value thereof, and fix the standard of weights and measures." So says the Constitution, Article 1, Section 8, subdivision 5. Weights and measures have been fixed by law of Congress and every person understands their respective lengths and size; and I doubt not that our national legislators, in their wisdom, believed they had discharged

their duty honestly and faithfully when they regulated the value of money, by saying that twenty-five and three-tenths grains of gold and four hundred and twelve and five-tenths grains of silver should constitute the dollar and not the rate of interest which it annually will accumulate.

But so far as its practical working is concerned, regulating the value thereof in fact, or the ruinous effects which such regulation has upon the legitimate, productive industry of our people, Congress might as well have said, the yard stick is thirty-six inches or three feet in length, but when yard sticks are scarce they may be contracted to half that length and still measure a yard, or that weights and measures shall only be made by Government, and when they have been gathered into the hands of the few for the purpose of gain, that these weights and measures may be so changed as to suit the selfishness, greed, and cupidity of their possessors. We are never troubled, even in times of the largest products of the soil and manufactories, to procure the requisite number of scales, weights and measures, to weigh the crop, or the number of yard-sticks to measure the cloth. These have been fixed by Congress and are a standard by which we are all governed. This would be equally true of money, if regulated by law according to the value thereof, the interest it shall accumulate and according to the true meaning of the language referred to in the Constitution. The preamble of this same Constitution says that Government was formed "to establish justice, insure domestic tranquility and promote the general welfare."

Let us see whether this tremendous accumulative power of money is justice and for the general welfare, whether such rate of interest is right, and for the general good of the labor and industry of the producing interests. Capital is simply the amount saved from the labor of the past above subsistence. Now what proportion of the profits of the varied industries and legitimate activities of the world shall the labor of the present and the labor of the past have, both working together as they must do to advance these material interests? If interest

is so high that the laborer pays the capitalist all his surplus earnings, except a bare subsistence, food, clothing and shelter, with none of the luxuries of life, with no time or money for recreation, no means of social or mental culture, at the same time the capitalist is enjoying all these and more, and at the same time is adding and increasing his wealth, so that in the future he can take a still greater share from the surplus earnings of labor: Then is this justice and for the general welfare? If so, then the laborer of the present is a slave of the capitalist who simply hold in his possession the labor of the past.

Suppose a far-seeing individual, at the early settlement of the United States, say in 1620, two hundred and fifty-five years ago, realizing the wonderful accumulative power of money by high rates of interest, had conceived the idea of his immediate descendants owning the entire property of the country in 1875. If he had \$10 in British gold to invest at the legal rate of interest in this state — now ten per cent. — and had loaned it at that rate; collected the interest annually, and had loaned that at the same rate, and continued to keep the principal and interest at work, it would have doubled in seven years, three months and ten days. But give it eight years to double, giving thirty-two and one-half days each year to collect and re-loan, and by educating his children and children's children to continue this humane justice and human welfare work until the present, they would have been entitled to the snug little sum of \$43,000,000,000. Here is wealth, accumulated in the possession of a single family, aggregating in two hundred and fifty-five years, three times the assessed valuation of the entire real estate and personal property of the United States, and \$12,000,000,000 more than the true valuation as estimated by the census report of 1870.

Again. We will take the increased gain in wealth in our own state from 1860 to 1870, a state rich in agricultural and mineral resources, and during a period of great prosperity, a state which has increased rapidly in wealth in the last decade, much more so than an average of the states of the Union.

Wisconsin, in 1860, contained property valued at *\$350,000,000 in round numbers, and in 1870, \$456,000,000, an increase of a fraction over \$100,000,000 in the ten years, or a little above three per cent. increase per annum. Had the \$350,000,000, the valuation of the property of this state in 1860, been owned by foreign capitalists and sold to the people of this state at ten per cent. interest, the interest collected and re-loaned annually to them at the same rate, it would have taken the entire surplus earnings of all our people to have paid the aggregated principal and interest at the end of ten years, and have been in debt \$450,000,000 to the parties of whom we purchased. In other words, the entire labor, skilled, educated and all, has been able to accumulate on this entire property, above food, clothing and shelter, with possibly a few of the comforts and luxuries to the most skilled and better class of educated workmen, about \$100,000,000, while the capitalists who sold us the property have accumulated upon the investment of \$350,000,000, so that it amounts to the enormous sum of over \$900,000,000, having absorbed the \$100,000,000 and leaving us in debt \$450,000,000, a handsome mortgage for the labor of future years. We started in 1860, owing \$350,000,000, and in 1870 we owe \$450,000,000. At this rate, how soon shall we become paupers, or at least slaves to the accumulative power of money at high rates of interest?

Again, take the great state of Ohio, one of the best agricultural and manufacturing states in the union. In 1860 her assessed valuation was, in round numbers, \$960,000,000, and in 1870, \$1,168,000,000, a gain of \$208,000,000, or a trifle above two per cent. per annum. Look at this great state, striving with all the productive energies labor can command, to grow and manufacture many of the necessaries and conveniences of life, saving barely two per cent. above the maintenance of her workmen, while capital is making a requisition upon labor, equal to five times that sum, or ten per cent. This

*It is but just to say that this was based upon an increase of ninety per cent. over the valuation of 1860, to correspond with the increased valuation of 1870, as determined by the board of equalization.

interest at ten per cent., is equivalent to saying to labor: You shall double the capital of a state or nation in less than eight years, give it to capital, and at the same time support yourself and families the best you can.

The interest which money bears, determines its value, and also the rent of land and other property. If A. loans B. \$1000 and pays therefore \$100 per annum, it is equivalent to the annual rental of \$100 for a farm worth \$1000. In other words, the man who rents a farm worth \$1000, must pay the owner, above taxes and insurance, one-tenth of another farm equally good and valuable each year, or an entire farm of equal value at the expiration of ten years, or to compound the rental as interest accumulates, he must give the owner another farm in less than eight years, of equal value with the farm rented, and educate his family so that they may take rank among the business men and women of the country. Can he do it? Never. If he gains three per cent. he does well, and above the averages of the legitimate industries of the world. When the partnership of labor and capital cannot increase the wealth of the country above three per cent. per annum, and economy and frugality have to be exercised rigidly to do that, shall capital step in and take ten per cent. upon her share of the capital supplied? If so, labor must practice self denial which borders upon penury, want and starvation, and occupy that position in society which is neither "establishing justice, insuring domestic tranquility, or promoting the general welfare."

Take the population of Wisconsin in 1860, in round numbers 776,000, with an assessed valuation of \$350,000,000, and suppose that nine-tenths were producers and one-tenth capitalists, it would give in round numbers 700,000 laborers, or 140,000 families of five persons, each with an average capital of \$2.500. With this capital they pursue the various trades and avocations which help to make a great and prosperous state. They work on early and late to the end of the year, living economically, having all the necessaries, some of the comforts, but none of what may be termed in these days, lux-

uries; they give a trifle to charitable, benevolent and religious objects; clothe their children comfortably but not expensively; send them to the common school, and occasionally they all go to a lecture or other place for mental or social recreation, not often, for funds will not admit; they practice self-denial in many ways and are temperate in all things. When all this is done, at the end of the year they take an inventory of their effects and find that they have increased their capital from \$2,500 to \$2,575, or three per cent. per annum. If this was their own capital, it is well. They have increased their capital, and with the same economy and good health in the future their gains will be greater. But suppose this \$2,500 capital was not their own, and they have to earn ten per cent. or \$250, to pay to a capitalist for the use of a year, a difference of \$175 between their gain above a living and the sum to be paid to capital. If this family has lived upon \$500 for the year, \$175 must now be taken from it, even though it bring the labor of the family down to cost, a bare subsistence, food, shelter and clothing, or the cost of the labor of the ox and horse. And still the Government says: "This will insure domestic tranquility, and promote the general welfare."

A single individual in Wisconsin is reported to be worth \$15,000,000. This vast sum placed at interest, at the legal rate now in this state, ten per cent., would in about eighty years, or possibly in the lifetime of some of our children now living, aggregate to nearly \$15,000,000,000, or an amount equal to the value of the entire property of the United States to-day.

A hundred men, who loan money at ten per cent. compounded, with good security, will increase their fortunes four fold in fifteen years, while the same number of persons, who borrow at that rate of interest and invest in the legitimate industries—those which add to a nation's prosperity and wealth—will not be able to double theirs in the same time, and if they lived as luxuriously and extravagantly as those of whom they borrowed, they would absolutely gain nothing. Nothing is therefore more clearly established, from examples given

and others which are daily before us, than that the man who conducts his commercial or manufacturing business on borrowed capital at ten per cent., although he may conduct it with skill, prudence and economy, will, in nine cases out of ten, if not ninety-nine in each hundred, come to bankruptcy, and those he employs to manage and conduct his affairs, barely obtain a living. The farmer also, who mortgages his farm for half or more of its value, to secure money at such ruinous and extortionate rates of interest, hoping that his surplus products will cancel this incumbrance, will, in a majority of cases be disappointed and sold out, after struggling for years to stem this mighty current of accumulative power which never slumbers or sleeps, not having respect even for the Lord's day, and growing stronger and stronger by this ceaseless and incessant accretive power. An editorial in the *Herald*, of Aurora, Ill., strikes this evil in its vital parts as follows:

“Ten per cent. will every ten years, produce a crisis in which all the profits of the borrower are gobbled up by the lender. Ten per cent. paid on the investment will stop the wheels of every manufactory in the United States. Ten per cent. paid on the investment in railroads, will stop their running or impoverish the country through which they run. Ten per cent. paid on the value of farming property will eat it up in ten years. Ten per cent. on the value of town property will turn every poor man out of house and home. Ten per cent. paid by the merchant will soon drive him into bankruptcy; and to these high rates of interest may be traced most of the financial evils under which the country is now laboring.”

Is there anything more sacred or divine about the accumulation of the labor of the past, whether the same is in money, lands, stocks or other property, that it should draw to itself the whole of the joint earnings of labor and capital, except a bare subsistence to the former, and that the possessors of the latter should be enabled to “dress in purple and fine linen and fare sumptuously every day,” enjoying the fruits of the labor

of the past and present too? By no manner of means. While it is true that capital — the labor of others — accumulated in the hands of the few, has absorbed an unjust proportion of the profits of the varied industries of a people in all ages and in all countries, it has not been by any natural or divine right, but by unwise, unjust and wicked laws, instituted by governments at the will of capital. The true value of money, which is the annual interest it accumulates, and the relations which it bears to the legitimate industries and work of the world, is not a matter of such profound mystery as many of the writers on political economy would have us believe. These writers are teaching our children in all our higher seminaries of learning, that money is a commodity and subject to change as the products of the farm or factory; that money should be regulated by "supply and demand;" that the party holding money should be allowed to obtain for its use all he can. No greater fallacy could exist. Money, being the measure of value for all products, should have a fixed standard of value, and that can only be determined by the rate of interest, and if that rate is too high, more than the average of the profits of the productive industries of the people, labor suffers, and capital increases its gains unjustly. This is the practical result, whatever may be the theory.

Governor Randall, in his annual message to the legislature of this state, in 1859, truthfully says: "Interest is the rust that is rapidly consuming our people. It not only eats away at our surplus profits, but in a majority of cases is eating deep into our capital. It is unaffected by poor crops and worse markets. It gathers strength, weight and oppressive power continually, whether we sleep or wake, while we rest as well as while we labor. There must come a bitter end to such a policy. There is but one rule at all times safe, which alone can guard against ultimate prostration, and that is to limit the rate of interest at a point below the average, clear profit of productive industry." High rates of interest have been the rule in this state under the pretence that it invited capital hither. Capital came, improvements were made, and now

note the result. The high rate of interest has taken the entire surplus earnings of our people, leaving a bare substance, as witnesses the mortgages, trust-deeds, and other forms of incumbrances on the books of the register of deeds in each county of the state. This outrageous rate of interest is a cancer which is eating at the very vitals of our industries.

This terrible evil and injustice must be met by the people. The problem is perhaps not easy of solution; first, because of the power and influence of capital; and second, because the masses of the people are not yet aware of the terrible financial disease which afflicts them, and hence do not know the proper remedy to apply. When the people understand this question in its true light—and the agencies for their enlightenment are rapidly increasing on every hand—then will they demand of their representatives in Congress that the interest on money shall be regulated by the power that creates it; and that the rate shall be so low that the productive industries of our people shall be stimulated, instead of crippled as under the present laws; so low that the laborer shall receive a larger share of the profits his labor produces, and be enabled to place something to his credit for old age, sickness, or when his labor is not in demand.

While I would have the government fulfill existing contracts to the letter, I would have it raise annually a large tax upon the luxuries of life; pay the debt as rapidly as possible, thus lifting a burden of interest which has to be paid by labor; fund the debt on such time as the maturing bonds could be met by the accruing revenues and at low rates of interest—say not to exceed three per cent.—then supply money to our people upon undoubted and unquestioned security at a similar rate, so that capital could not combine to extort higher rates, allowing them to return such money at their pleasure for bonds bearing a similar rate. When the Government fixes the interest which money shall annually accumulate, and so guard it that capital cannot obtain a higher rate, then “supply and demand” will legitimately obtain, and not till then.

The general Government must step in and protect the industries of the people, or the representatives of these industries must organize co-operative banks, similar to those established in Germany some twenty years ago, and which are said to have proved a great blessing to the producers and laboring masses. The capital of these banks consist of funds known as active and reserve. The first is derived from the monthly or annual contributions of members; the latter is made up of admission fees and from retaining a percentage of the profits in the bank to be distributed in case of dissolution. Deposits and loans are made, and these, with the active fund, constitute the working capital. No interest is paid on contributions, but members receive a dividend from the general profits averaging some fifteen per cent. per annum, and are allowed advances at a low rate of interest, to the amount of their stock, and larger sums by giving security of other members. The aggregate business of these banks in 1867 was \$13,000,000, and the proportion of losses was but one-quarter of one per cent., which was creditable alike to the administrative ability of the officers and the honesty and integrity of its members.

Henry Villard, in the *Journal of Social Science*, volume 1865, 1870, closes an interesting article upon these banks as follows: "They were intended to provide workingmen with the same banking facilities that, previous to their establishment, were the exclusive privilege of the capitalists, and this mission they have certainly fulfilled. They are now universally appreciated as a healthy and powerful factor in the social economy of Germany, and as such have lately obtained recognition and protection by special laws which distrustful governments long hesitated to grant."

What the people want is sufficient money to transact the legitimate business of the country, and at such rates of interest as the profits on such industries will justify. Supply this want, and our people will be employed, speculation upon the necessities of the laborer will be crippled, and the outlook for the future be full of hope to those engaged in the world's indus-

tries. There is certainly something wrong in the distribution of the wealth of our country, when capital is doubling in a fraction over seven years; when a few in nearly all of our principal cities are millionaires, living in silver palaces, furnished in gorgeous style, at the same time that thousands in these same cities, whose labor produced this wealth, are to-day asking for employment and cannot obtain it; hence are objects of charity in this land of plenty. This accumulative power of money is the prime cause, and the result of this ruinous system will be more and more apparent as it increases in strength and power, until we see the property of the country, real estate and all, accumulated in the hands of the few, as in England and all the countries of the old world. Some of our writers upon wealth statistics, inform us that as much property is now held by four persons in each hundred of our population as by the other ninety-six. At the present accumulative power of money, the four will soon draw to themselves the other half, and the ninety-six be serfs and slaves to capital.

Among the many objects of a republican government, none are of more importance than the protection of property and the issuing of money to measure or represent that property. When there is no property there are no people; and when there are no people no money is needed. Why do we need money which we are obliged to redeem in something else? Money is convertible into any property, and that is its true function or office. I have no objection to the redeemable in in gold and silver feature, provided only a dollar in paper is issued by the Government for one of metal in her vaults, giving to the people a strictly mercantile currency, except that there is not half enough for the business of the world — but a gold base for money, as practiced by this and nearly all other countries, is a delusion, a cheat and a lie. Gold, as a basis, says the capitalist and the speculator — gold-bearing bonds and the issuing of paper representatives based thereon. In this gold base and gold bond lies hidden the most dangerous

system of money ever instituted. When business is prosperous and labor all employed, then it matters but little whether the base of money be gold or the faith and credit of the Government; but when stagnation in business ensues, when the storm sets in, gold is hoarded, and the people are bankrupt and ruined.

Witness continental money; witness the panics of 1837 and 1857. The money was then all based on gold. We hear much said about resumption. Who are asking it? Gold gamblers, stock-gamblers, and speculators in the labor and industry of the people. Fix a time to resume, as has been done by Congress, and these sharpers will look forward to the time with delight. They can demand gold, well knowing that it isn't there, and a rich harvest is theirs at the expense of the nation's industries. What the people of this country want is a sound currency, like the Government greenback, so called with a fixed, low rate of interest, based upon the precious metals dollar for dollar—mercantile currency—or upon the faith and credit of the country—paper money, pure and simple—or partly upon each, as the needs of business may require.

Now, if the people of the United States allow this greenback currency to be retired and destroyed, and private parties to give us a currency, such as we formerly used in the states, and which was never reliable, they will demonstrate most clearly, to my mind, their incapacity to protect their true and vital interests, if not their want of capacity for self-government.

When money is made merchandise, it is no longer currency. It cannot be a just and equitable measure of the value of property, unless it has a fixed and unvarying value of itself. To permit money to be bought and sold like commodities, and the rich to gather it into their hands to hold for extortionate rates of interest, the entire currency of the world will not supply the necessary wants of business in the United States. Under just, monetary laws, there is no reason why money

should be scarce, when there is an abundance of property susceptible of representation and capable of amply securing it.

Walker, in his *Science of Wealth*, says: "A great conflict between labor and capital is now imminent throughout the civilized world, but if there shall ever be a good and satisfactory solution of the great question at issue, it will be because the capitalist and laborer have been educated to understand the laws of wealth, and the true relations between the two great competing, but not antagonistic forces of production." There is no antagonism between labor and capital so far as production is concerned, the evil exists in an unjust distribution of profits of partnership of these forces. The capitalist says, practically: I will take all the profits, except what is absolutely required to keep the laborer in health and strength to perform my work, and to rear a family so that capital shall have a full supply of laborers in the future. How to justly distribute the profits of labor, and honestly protect the industries of the people against the selfish greed of capital, is the coming question. It is a question which interests every laborer and industrial worker in the land, for it determines to a great extent "what he shall eat, what he shall drink, and wherewithal shall he be clothed," what shall be the shelter for himself and family, what he shall sell his produce for, and what shall be the price of that which he buys. The fight will come between labor and capital on the question of distribution—between the capitalist who loans and gathers in his ten per cent., and those who labor in the avenues of industry and barely earn three per cent. Money now rules, labor will then.

Capital must be taught that it shall not accumulate in interest, on the average, more, if as much as a like sum invested in productive industry. The rate of interest should be so low that capital will seek the legitimate channels of industry, commerce and trade, and this, in my judgment cannot be done except by the General Government supplying the people with money at low rates of interest and upon such security as they can give. Homesteads, improved real estate, and possibly

other property, should be as good security as United States bonds, upon which money could be issued or loaned. But says one, would you have the Government regulate interest? I would. What are the objects of Government but to protect all the people in their just rights—to give to every man a right at least, to “life, liberty and the pursuit of happiness,” neither of which he has under the present rates of interest, except the former, and that even would be denied him if necessary to increase the percentage of gains to capital.

Various societies for the better protection of the producing classes are being organized throughout the United States, and to some extent this combined effort will better their condition, enabling them to buy and sell to better advantage, increase their products and better their profits, but as well might these combination of laborers expect to change the natural laws governing the growth of crops, or those of health and life, as to expect to materially better their condition with this mill stone of rapidly accumulating interest, weighing and pressing them down. So long as this high rate of interest continues, the only ray of hope for the laborer is, that he may be allowed to live and work at the will of capital, a slave to those who, judged by intelligence and every element of the best manhood, are often his inferiors.

Senator Windham, chairman of the Senate Committee on Transportation, in his report to the Senate says: “That a new department should be organized, styled the Department of Industry. This bureau should exercise appropriate supervision over the agricultural, manufacturing, mining and commercial interests of the country. But the limit assigned to this article will not permit a statement of the reasons which demand the creation of a new department. Let the first step be taken and its advantages will demonstrate the necessity for the more perfect organization of the great industrial interests of the nation. The producers and the workingmen of the country, who constitute its real wealth and power, will then demand and receive a recognition of their rights at the hands of Congress.”

When this bureau is established, as I hope it soon will be, its first work should be to recommend some feasible plan by which the aggregation of capital by interest shall be controlled and the great producing industries, the real wealth and strength of a people, be enabled to obtain money at a rate of interest which will stimulate and encourage these foundation interests, and better the condition of those who earn their bread by the sweat of their brow.

In conclusion. 1. Money being national, its value should be controlled by the General Government, and this can only be effectually done by regulating the interest which it may annually accumulate.

2. Money being instituted to represent property and facilitate the exchange of products, it should be based upon property and the honor, faith and credit of the government.

3. The rate of interest determines the proportion of profits which shall be distributed between the two great forces of production — labor and capital — and a high rate tends to the accumulation in the hands of the few and to deprive those engaged in agriculture and the various industrial avocations of a just share arising from their labor.

4. In proportion as interest is decreased, labor and capital are increased; legitimate industries are stimulated, given new life and vigor; speculation is checked; labor is fully employed, and the country is prosperous.

5. The amount of money should only be limited by the wants of business and the ample security which the property, faith and honor of the Government can give; and the rate of interest should be fixed and stable, and so guarded and controlled by the General Government as to prevent extortion of a higher rate by combined capital, and such rate should be as low as the annual increase of wealth by the channels of productive industry.

The prosperity of a nation, socially, morally, and financially, must depend upon the success of those engaged in productive industries, and their condition can never be hopeful and flattering until there is a more just and equitable distribu-

tion of the wealth which their labor creates. The capabilities of this great country for production can hardly be computed; but, if we ever expect to reach our utmost possibilities in that direction, our statesmen and philanthropists must devise some plan similar to those I have here feebly outlined, so that capital shall be changed from a despotic master to a valuable servant, and the great producing forces of labor and capital work harmoniously together, both in production and distribution, or the source of all wealth—the lands of America—will, in the near future, be in the possession of the few, as in England to-day.

“Who owneth America’s soil?
Is it he who graspeth the hard red gold;
Whose glittering gains are by the millions told;
Who bindeth his slaves to the woof and loom,
And chaineth their souls in a living tomb,—
The tomb of hopeless toil?
Not he, not he—by Heaven!

“Who shieldeth America’s land?
Is it he who counteth his ships by scores;
Who plucketh his gains from a thousand shores;
Who buyeth and selleth, and worketh not,
And holdeth in pride what by fraud he got—
With hard and griping hand?
Not he, not he—by Heaven!

“Who guardeth America’s right?
Is it he who eateth the orphan’s bread,
And crusheth the poor with his grinding tread;
Who flingeth his banknote lies abroad,
And buildeth to worship a golden God,
A shrine to Mammon’s might?
Not he, not he—by Heaven!

“Not these, not these—by Heaven!
But to those who labor for God and man;
Who work their part in the world’s great plan;
Who plant good seed in the desert’s dearth,
Who bring forth treasures from brave old Earth;
To these the soil is given;
To these, to these—by Heaven!

“To these must the soil belong;
To the men of all climes whose souls are true—
Or Pagan, or Christian, or Turk, or Jew;
To the men who will hollow our glorious soil—
The millions who hope and the millions who toil
For the right against the wrong;
To these shall the soil be given—
To these, to these—by Heaven!”

Then followed a discussion upon the essay read by Mr. Field.

Mr. E. H. Benton:

It seems the paper before us omitted one of the chief offices which is claimed by your writers on finance to be the office of money. The writer has said that the office of money is the exchange of values, or the representing of them. That is the beneficent office he claims, while other writers on finance and political economy assign to money this office: the retaining of values. For illustration: a man possessed of a farm, finds himself about to come to the conclusion that he is not able to labor and obtain his living from the farm; he sells it and wants to invest that money and have it as a permanent source of income; he wants to retain the value of that farm during the rest of his life and have it come down to his children unimpaired. He says that is the office of money, consequently it must be a material which in itself has that value in the market of the world, which is gold. By common consent, which has grown up with the growth of the race through all people, so many grains of gold have the value of a dollar among all of them. So they claim there is no other material will answer that purpose. On that account that is the dominant quality of money and should control it. Our writer seems to have ignored that main issue in his whole article. It is certain that he has made out a good case against high rates of interest; but he has taken a very untenable ground in relation to the Government being impowered to fix the value of money, when it does not fix the value of my wheat.

If money is a commodity and a man has to buy and sell it according to the laws of business, he has the right to be unimpeded. The law should virtually not fix any rate of interest at all, but should leave it to be decided between the buyer and the seller of it.

Mr. W. W. Field:

If the gentleman will allow me, I would like to explain

right there. I claimed this, and I think I did hint at it in my paper: Money is not a commodity, is not property in any sense of the word. It is simply agreed by the Governments to be made a convenient medium of exchange. It is not merchandise. I grant that it is so used. It is absolutely the representative of property. Money should be so controlled by the people that it should be the representative of property, and the representative only. I have no objection to using gold; I know it is the acknowledged currency of the world. I have no objection to it all, only this: that there is not half enough of it to do the business of the world, fix the interest as you may. What I object to more, however, is that the rate of interest is not fixed and determined, which I believe is the duty of the Government to see done, as much as to say what shall be the length of a yardstick, or the height or size of a bushel.

If Mr. Benton goes into a store in this town and asks them to sell him a hundred yards of cloth or a hundred bushels of wheat, he will not ask them what kind of a yardstick or what kind of a bushel it will be measured by. It should be as if he went into my friend's bank and asked him if he can loan him any money. If he says he can, the interest should be fixed as low, at least, as the productive interests of the country will warrant.

Well, to-day there is perhaps one hundred and fifty or three hundred thousand people in the United States out of work. They are absolutely deprived of earning that which they might earn, \$30,000,000 of money this winter. They are absolutely using up \$30,000,000 which you and I and other people have earned, because they are living on our charity. Why? Because with money at 10 per cent., people cannot afford to invest in the various avenues of trade, and hence cannot employ them. There is no gentleman here but what, if interest was at 3 per cent., if he could hire money at that rate, he would be hiring it and employing labor on his farm and in all the various avenues of trade, when now he cannot

do it. I know merchants, numbers of them, who say they would be very glad to make certain improvements, to go on and extend their trade in various directions, but with money at 10 per cent. interest they cannot do it. It is impossible.

Another point. The gentleman says that gold is the acknowledged currency of the world. Now I concede that; I concede that gold to a large extent is the acknowledged currency of the world. How has it been used as currency? It has been used in this way: If A has got \$1,000,000 in gold he has been allowed by this Government to go on and issue \$5,000,000 or \$10,000,000 in paper on that \$1,000,000 in gold. That is one thing we complain of. There is no more reason, if I have gold, that I should be allowed to issue paper money thereon and then go before the people of the world and say, here is a good currency based on gold, than if I had \$100,000 in land, good real estate, that I should be allowed to issue \$1,000,000 on that land and then you and I and every agriculturist be allowed to enjoy the benefits of this fictitious issue. I do not care if you use dollar for dollar. You might have iron, silver, copper, lead or gold, or whatever you please, I know gold is the most convenient. It has been adopted by the nations of the earth. The moneyed men are trying to-day to bring down the only good money we have on the face of the earth and establish the State Banks again and allow a man to issue \$5.00, \$10.00 or \$15.00 in paper for \$1.00 of gold. He has the gold in his vault, and allows them to collect ten per cent. on them and say it is a gold basis and it will be redeemed. It will be redeemed if there is no crisis. But if a man called for it when there is no gold then where is your money? It is gone, and the people are ruined.

Mr. C. K. Pier, of Fond du Lac:

My friend, Mr. Field, is quite interested in this subject, and on all the general propositions I agree with him. In two or three particulars, I hardly know whether I do agree with him or not; because I do not know how far he will follow his propositions. I do not know what particular difference it

makes with us whether we say that money is the representative of property or property is the representative of money. What I say I have got to say in a conversational mode. I was not aware until I secured an invitation about an hour ago to come over here, that this matter was coming up, and such suggestions as I drop are such as occur to me. I do not say that they will be so sound or so mature as those of my friend Mr. Field, who has evidently given more attention to the subject.

I was just remarking that I did not see any difference it made to the community whether we said that money, that gold, was a representative of property or property was a representative of gold. There is no use in discussing that question. It does not come into the question of the rate of interest that you may pay or may not pay successfully. I will join with my friend, Mr. Field, in saying right here, and urging upon all persons, not to borrow money and pay interest, and I will urge that for one of the same reasons I warn men not to enter into business, for the strong reason that they may fail, for nine out of ten men do fail.

If we may judge a tree by its fruits, and if we may take the prosperity of the country as a guide, we may say it is the happiness, intelligence and morals of the people, not perhaps the amount of dollars they can lay up; but their happiness, their intelligence and their morality which I think go hand in hand together. Now I believe I can state this as a proposition, which I think will not be disputed, that perhaps no country in the world has paid so high a rate of interest, that the people of no country since its commencement as this same people of the United States of America; and I think I may add one thing further, that I believe there is no nation on the face of the earth that has enjoyed so long a continued season of prosperity in all the departments of life, in all the walks and avenues of a community, as have the people of the United States.

Mr. Field:

Was it in consequence of their paying a high rate of

interest, or was it in spite of it with the vast resources of our country.

Mr. C. K. Pier:

That may be correct. As I say, I am offering these suggestions which come to my mind from time to time.

There is another thing in which I agree with the gentleman entirely and accept it. He did not make that amount quite large enough as to what that \$10.00 would amount to if invested at the time the gentleman spoke of; and yet, as I understand Mr. Field, he would make a law which would prevent that. Now I know of no use of any such law. It is utterly impossible that it can ever happen. We have never seen anything tending that way. It cannot happen. I say there is no necessity of such a law, because I have never heard of, and no one can point to, an instance. It is against all human nature that you should put one dollar to work and keep it there long enough.

You may take another instance. You may put a dollar to work at a less rate of interest — at one per cent., or one-half of one per cent. — and in time it will own the world. You need not make any law that the dollar shall not be set to work. Human nature, all civilization, is against any such thing. It cannot succeed. As I understand Mr. Field, he would make a law which would prevent that dollar being invested at a higher rate than that which he says, at three per cent. He would prevent that man from buying an ear of corn and planting it, and the next year planting its produce, and the next year planting the produce of that; for with that one ear of corn he could own the United States.

Mr. W. W. Field:

It takes labor to raise corn.

Mr. C. K. Pier:

Right here, on the matter of labor, I will speak of another thing. I said, in some respects, I did not understand my friend, Mr. Field, whether he says it is sinful of the man who sits down and lends a dollar, and gets one dollar and ten cents

returned to him at the end of a year, or whether he would include in that manufacturing also.

Mr. W. W. Field:

I would say that I would regulate that which is a representative of all power and that is money only.

Mr. C. K. Pier:

I want to challenge my friend, Mr. Field, or any other friend here, to show me a man in all of his acquaintance that ever got rich loaning money at ten or fifteen, or twenty-five per cent. I never heard of a man; I never saw him who to-day was a wealthy man, that is one that I am acquainted with, because we have to judge of these matters by the little circle that surrounds us. They are not the men that loan their money at the highest rate of interest that the most unscrupulous sharper can be guilty of; but it is the man who has run the saw-mills, that has bought real estate, that has invested in city lots, that has started manufactories and set labor to work. I believe these are in our own and any community the real great wealthy men. It is not because somebody has taken ten or fifteen or twenty per cent. interest that they have got rich. I may say that they never will get wealthy for this reason, and that is just because why I say no law such as my friend speaks of is needed. The old gentleman will accumulate it and it will amount to quite a little pile when he dies, but sons and daughters will scatter it. It may sometimes last through one generation, but not very often, and then it is gone for certainly.

So I say it is not those who make their money by interest, strictly speaking, that live in luxury and roll in wealth, as he terms it. There is no such person; that is this other class, those large corporations, moneyed institutions, as they are termed, who become monopolies, and then take such a slice of your property as they see fit. There I agree with him entirely. They should be restrained. But you cannot fix the rate by which a Chicago road shall carry a car-load of wheat from here to Chicago by saying that the rate of interest shall be three per cent.

A number of things suggested themselves to me when Mr. Field was talking. Now we will speak of the practical results. The very moment you say in Wisconsin that no higher rate of interest than three per cent. can be allowed to be taken, then there will be no money to lend in Wisconsin, for the reason that just across the river in Iowa and Minnesota they can get a higher rate.

Mr. W. W. Field:

I do not think very much of fixing the rate of interest in the States. I would fix it by the National government, the power to correct the rate of interest on money. I would not be afraid of money going over to foreign countries to be loaned.

Mr. C. K. Pier:

We have found this to be a fact in reference to legislation in regard to the different localities of our country, our needs are different, our demands are different.

In the Eastern States, in the State of New York, I understand that money can be hired at about the rate of interest that Mr. Field speaks of. That may have been strictly on call, lent a little higher than that. For the reason, Government bonds are taken up there you can get money there at a little less than one-half of what it would cost you here. There is something in the law of demand and supply.

It occurs to me that a law which would establish the rate of interest at ten per cent. throughout the United States would be very oppressive, very harsh in the Eastern wealthy cities; whereas, go West, go to the territories, go to California, where I understand the legal rate is twelve per cent., it would not be harsh. What will do for one section of the country, we have already found, will not as applied to another section. I do not know; I think it a little doubtful, that a statute law which would be general over the States and Territories could be passed which would be exactly fair to all and would give to each part of the country that amount of capital which it required.

Mr. W. W. Field:

Give your reasons.

Mr. C. K. Pier:

Without giving it a great deal of thought I would say like this: The farmer on one of the large prairies of Iowa, if he has sufficient teams, can put in a large crop of wheat and the railroad which plunges right through his county will take it off. You put him down to one horse, or two horses and a plow; he can put in ten acres of wheat, that is barely enough to keep his family through the winter. Suppose it was so he could borrow enough money so as to hire sufficient teams to put in a hundred acres, and the machinery sufficient to take off his crops and send it out. He could pay it when he got his crop off, and pay for his machinery if he did not get in debt for something else he wanted.

Mr. W. W. Field:

Suppose the grasshoppers ate it all up?

Mr. C. K. Pier:

There might be an earthquake come and swallow the man too. [Laughter.] Suppose if the grasshoppers came, three per cent. would be more than he could pay. So by legislation and by one act, I do not think we can provide against the grasshoppers, and I do not think this per cent. would keep them out. You might say that a man in New York, or a man here, would be willing to invest his money, say \$1000, on a man's homestead, because it is really worth \$3000, or \$4000 or \$5000, but it is a little doubtful whether a farmer who goes to Iowa, and enters eighty or one hundred and sixty acres of land, whether he could get any capitalist to loan him \$1000 on the homestead there, for there are chances that the man may die, or he may move off, and he would have to foreclose. So you see the man in the east would take the money, the \$1000, in spite of the man in Iowa; and he will add not only to the taxable property of the state, but to his own wealth. We know this much, that a man will sometimes lend his money at a higher rate of interest, to a man who does

not give as good security, as a person who is willing to pay a lower rate with better security, and I think the minute you will make interest at three per cent. you take off this eclat, thus I will term it, speculative fever that has done more than anything else to build up this country. Men with a little property, or quite a good deal of property will go west and grow up with the country, and take hold as a new man, and aid, and build up and establish a community there, if you will give them a chance for speculation. The best laid of our plans *aft gang a'glee*, but, nevertheless, you get these men there, and you get their capital there, whether for the purpose of investing at ten, or fifteen or twenty per cent., you get it invested in mortgages, on land which is not as valuable as the amount loaned on it. They are there. They help to build up the country. It is the speculative fever, prompted perhaps by the high rate of interest, which calls the men out of their usual place or avocation, or place of business.

There is another point I want to bring up. I think you might just as well say that I should not invest my money in a ten per cent. mortgage, or you might just as well say that I should not invest it in a hundred acres of land, simply because I believe it will yield me an income greater than ten per cent., as to say that I could not invest my money at interest at more than three per cent.

Mr. W. W. Field:

You confound money and commodity together.

Mr. C. K. Pier:

Yes sir. I say it makes no difference whether property is a representative of money or money a representative of property.

Mr. W. W. Field:

I say it would not make any difference if the government would allow us to make all the money we want to, the same as they allow us to raise all the wheat, or cattle, or hogs we want to.

Mr. C. K. Pier:

I don't think the government says you can raise all the

horses you have a mind to. All it says, you may appropriate all the horses you can, and you may appropriate all the money you have a mind to, and you may own them.

A Voice:

That is it.

Mr. J. P. Roe:

This whole business, so to speak, has been worked out in history. I refer you to what is familiarly known as the *sick man Turkey*. Probably on this planet, there is no finer field for the development of human industry, than what is known as the Delta of the Danube, a magnificent soil and a magnificent climate; everything that nature seemingly could bestow to the hand of man; and look at it; there on the broad plain of a nation this thing has been worked out. We have the instance in Turkey. We have there her loans, not as in France, taken up by the people, as witnessed in the wonderful recuperative energies of France since the Franco-Prussian war, but sent out abroad, but loans taken by London and Prussian bankers, at a high rate of interest. The money to meet this interest is collected wholly, mark you, wholly, by what is termed with us Internal Revenues. By a special arrangement, through the energy, and I might add the duplicity of the English statesmen, I think originated almost immediately after the termination of the Crimean war, the Turkish Cabinet was held to the compact which opened her ports to all the English commodities, English manufactures making free trade absolutely. That was the finishing stroke to the manufacturing interest of Turkey. Manufactories, comparatively speaking, through her Empire are unknown. Now this revenue which must be obtained in Turkey to meet this enormous expenditure, or high interest on the national debt, is collected from her Internal Revenue. This at last, as it always is true, comes from the producer. It comes from the producer of Turkey. Now what are her reports as sent up from a very reliable source? I refer you to the American Missionaries from the various parts of the Turkish Empire. They state that these taxes are so exorbitant as to kill the

industry. What further? That in nearly every town or village of Turkey there is the moneyed man; there is no restriction upon the moneyed man there; and the report comes wherever such is the case in a district, the poor of that part of the Turkish Empire known as Rumania and Bulgaria, in order to obtain the means to pay the taxes for this Internal Revenue, are compelled absolutely to offer for sale all the available means from the soil to borrow the money. He borrows this money from this moneyed man; he borrows it at just such interest as he is compelled to; he must have the money or his property is sold above his head by the government officers. He mortgages his property. This report comes from the missionary, that wherever you see a money-lender, in a few brief years the money lender becomes the owner of the village. In a short time the laborer moves out from the village, and the whole region about becomes a deserted solitude. That has been going on, depleting not only the whole power of the Empire, but absolutely her population. The population has rapidly dwindled, where it seems as if the God of nature gave him everything; and nothing has held back the Russian Government from entering in and taking possession, but simply the jealousy of the other European powers to keep what is known as the balance of power in Europe. There is the *sick man* and what has made him sick.

[Applause.]

Mr. W. W. Field:

I desire to say a word more, if the convention will be willing to listen to me a little longer. Now this I deem to be one of the most important questions that ever did come, or ever will come up before an agricultural, or any other convention. I am well aware that we have been in old channels and have been there so long that we feel as though there was no other channel in which we can travel. We have been bound down by the power, by the unjust, the outrageous, the extortionate power of money, until we feel as those laborers do in England to-day that there is no other way for them to do, and as Charles Bradlaugh said in his lecture on "Land

and Labor," in Chicago a few days ago. He says the extortionate and ruinous rate of interest, sometimes as high as forty per cent., in England has aggregated all that vast wealth in the hands of a few, and now they are loaning from one to the other at almost any price. They do not care much about interest now. They are all wealthy. The Duke of Bedford and other of those Dukes, have got the wealth in their own hands, and the people are bound to labor for it, and they will always labor for it with no prospect of bettering their condition. And he intimated in his speech that they had land, eleven millions of acres uncultivated. They own this land. They have got the peasantry looking after that. They pay them a small sum of money to look after that eleven millions of acres not under cultivation, owned by these men. And those poor people of England, if they could own this land, would get an independent living. They cannot do it now. It is in this country to-day in a condition that the people who have the franchises in their hands, have the power to control this thing just as they will. It is for you, and such as you, to think upon this question, to study this question, and if you believe a wrong has been committed here, as I am sure of it, it is your duty to demand of those men that you place in power that this interest question, this power of money, shall be curtailed and that you shall have your property represented by a fixed and unvarying standard, so that it will be just to capital and generous to labor.

My friend, Colonel Pier has left, but I desire to refer to one thing which the Colonel stated, that he could cite instances where people could afford, or made an intimation of that kind, in new countries to pay large rates of interest. Now undoubtedly that is true. If they can afford it, is that any reason why you should not have the money fixed at a determinate and fixed value, so it shall represent all property equally, the same as the yard-stick measures all cloth just as well, and the grain measure of the bushel just as well. Is it any reason that you should have it so, just because some man can afford it. If I were in the lake this cold day and could not get out I could

afford to pay a man \$1000 to help me out, but it would be extortionate. It is no greater extortion for a man when he owns my farm mortgage for \$10,000 that is worth \$20,000, when he knows I cannot get the money at less than twenty per cent., it is extortionate to ask it. None of the Industries can begin to earn it. What I want to call your attention to most, is this, you may take a whole body of people, like the agriculturalists or the manufacturers, or you may take them and class them all together, all the people of this vast country engaged in the various industries of the country and you may take another class that own, or that have money, and why is it necessary that the ones who are doing the various labor of the world should only earn three per cent., while the man who sits in his office should earn ten? If any man can tell me why money and labor in this country combined cannot earn but three, which statistics prove is the fact, why is it necessary that capital should earn ten, or why is there justice in the laws of our country in allowing it to earn ten? If any man can tell me that, then I should be satisfied. We talk about supply and demand. That is a very nice term to use. If everything is left to run in its natural channel supply and demand would obtain.

If I had the power to hoard up all the wheat in this country and withhold it from the people, so they could not get any bread for three months, and then demand \$5 a bushel for it, what do you suppose would be the result? The result would be people would come and take it from me, and if they did not take my life it would be a wonder. That is the fact. There is no law of supply and demand about it. A few men have got so that they can aggregate all the money of the country into the hands of a few and control even the bread you eat every day. That is true of gold, and it should be regulated. If you once regulate money, the representative which fixes the value upon all other things, then everything else will take care of itself. I am not a bit afraid of their holding all the wheat, or all the corn, or all the pork and beef of the country, or of its getting into one or two of these men's

hands, if you simply fix the measure by which that is valued. There is where the difficulty lies. The capitalist steps in and controls the measure by which all of this property shall be measured. But I have said enough.

Mr. E. H. Benton:

There was a great fallacy in the proposition of my friend Col. Pier in relation to the matter of the prosperous man. He says there are those who are in business and yet we know, and it is a fact, statistical tables show that nine out of ten men in business have failed three times in a life time of thirty or forty years. Nearly all of them die poor. You never knew a money lender in your life to die poor. Here is the great difference. The money lender has nothing to lose. The money lender takes a security for the money which he loans, which is not watched and guarded by him, and it costs him nothing at all. If I borrow \$1000 of any man here he takes such security as he deems will certainly bring him that \$1000 and then he goes away and he has nothing to do. I run all the risk of bringing that money back to him. Now is the man in business to run all the risk? By no means. He runs those risks himself and he generally fails in it. He has no business and there comes a time like this winter, and he has got obligations to pay for these goods, in thirty or sixty days, and he has got to pay the money himself out of the sale of those goods. A, B and C do not come in to buy them. Now what is the result? He fails. He cannot get the money, and he wants to borrow it, and they ask him ten, fifteen or twenty per cent., on a chattel mortgage twenty-five per cent., when the time comes to pay these obligations he is closed up.

The moneyed man is not in any such position this winter, he can only get more interest, and if it is not paid he goes and takes additional security and makes it more sure. Now tell me does that man fail? He cannot fail. It is all fallacy to say that he does not become rich. He must become rich. I know the men that make wealth, and the men that retain wealth are the money lenders. And all the men in business

in this city, and in this county, are liable to fail unless they have got a reserved capital.

In relation to fixing this rate of interest, I believe the proposition is to fix it at 3.65 per cent., so that one dollar will bring a cent a day. The point is this, of getting money so it will not be controlled by the money lenders. As I understand it, the proposition of this gentlemen is that the government will furnish this money on improved real estate security. So it is to get the money in that way, to meet the question of demand and supply for the use of currency in the East and West and everywhere.

As stated by Mr. Pier, money in New York was three per cent., but it is not for you and me, but the middlemen. I suppose some of these banks here in Fond du Lac can get money there at three per cent., and lend it here at ten, or fifteen per cent.

Now according to the proposition, instead of going to these banks and paying them ten, or fifteen per cent., I can give a mortgage on my farm for \$2,000, and go to the Treasury of the United States, or its branches here, and get the money on my farm at 3.65 per cent. Suppose here is another who has got plenty of money. He does not want to invest it in this town. He can go and invest it in government bonds at 3.65 per cent, When the money is wanted I can go and sell the bonds, and if I have not got the bonds, I can get the money on my improved real estate, and get all the money I want.

Mr. J. H. Hauser:

I notice we are prejudiced against this question of taking a large interest. I think it grew out perhaps from a law of Moses. They were not allowed to take usury of the brethren, but they were of strangers. And that law was handed down to us through all these generation.

I think we do not understand what is meant by usury. Usury is a very bad term. But among the Jews any interest was usury. The people of the world never took interest until within the last three or four hundred years. When the

question came up in England there was a great prejudice against taking interest, but they found that they must do it for a man to make himself whole. Now they have come down to the established principle, that a man can take money for the use of money.

I have listened with a great deal of interest to the discussion on both sides to-day. I do not think that we fully comprehend it yet.

Mr. Field puts a proposition which I do not think is exactly true in fact — that on all of the industries we only get three per cent., while on money we get ten per cent. He makes no deduction, and does not allow any margin on the lending of money for any mistakes, mishaps or losses.

There is not an industry in the country, I have no doubt, but what would pay more than ten per cent. if everything was favorable. The farmer, if he puts in a crop of wheat in the spring and gets forty bushels to the acre, and gets a dollar and a half a bushel for it, makes ten per cent. If the crop failed or the grasshoppers destroyed it, or the drouth, he is a loser. How is it in practice? The interest law is at the rate of ten per cent., and allows nothing for failures.

The last speaker spoke about merchants. If a merchant is in business he cannot probably have any real estate on which to borrow as much money as he wants, because all of his money will be in the business in personal property, and that is liable to burn up, and if he borrowed the money he must give security. By a law of the State he could not give security on his goods so as to make it a lien. The man that loans him the money is not in any better shape than the man that sells him the goods.

I wish to say in reference to these banks that you ask Mr. Coleman to-day about the bank, and he will tell you that they are having notes come in every day unpaid, and a good many of them are questionable.

Every man wants to get all he can. If he can make more money by lending it at ten per cent, than by putting it in

manufactures, he will lend it. If lending money at ten per cent is so much more profitable everybody would rush into lending money. Take Mr. Amory, of this county. He could loan every dollar if he sold all of his property to-day and put it out at mortgages. He could find men that would take it. Why does he not do it? Instead of that he invests it in real estate. You can say that Mr. Amory does not want money, or to increase his fortune. But he calmly contemplates that question, and says, "I can make more money by investing it in real estate than by lending it."

The gentleman spoke of a man having a farm in Iowa worth \$20,000, and he says it is robbery if you compel that man to pay twenty per cent., because he gives a mortgage of \$20,000 upon that farm. If he comes to you and says he wants to borrow \$10,000, and you tell him you charge him twenty-five per cent., he is not obliged to take it. He can go somewhere else. If he says he will pay that, why does not the next man sell his property and lend the money at that rate, if money is worth so much more to lend than for any other purpose?

Mr. E. H. Benton:

There would be nobody to borrow.

Mr. J. H. Hauser:

Then they would not pay any interest. I heard one of the bankers to-day say he had not a dollar to let out to-day if a man came in with gilt-edged paper. If the banks were overflowing with money when a person came in they would say, "We will let you have what you want at ten per cent." If he said, "I will not give you that," they would say "Then give us nine." If these banks had \$200,000 or \$300,000 lying still and doing nothing in their vaults, they would lend it at some per cent., even at one-tenth of one per cent.

I understand that the laboring men do not have very much real estate and they do not have much property to give security on, and they must borrow on their honesty, industry and integrity. There comes to me two hundred men, or a

hundred men, that want to borrow \$100 each. I lend them \$100 and charge them three per cent. At the end of the year I get my principal back, and three per cent. interest. Here are one hundred men owning property. They want to borrow \$100 each, and I lend it to them and charge them twenty-five per cent. interest. At the end of the year seventy-five of them pay me back principal and interest, and the others do not pay either. How much have I got? I have got just as much out of these men at three per cent. as out of these other men at twenty-five per cent.

Men will seek out their best interests. All we want in this world is to supply our physical wants.

Talking about money being the basis of commodity, I do not think we understand it all. I have got \$1,000 here. A man has got a house there worth \$1,000. If we use either one they will supply our wants. We want something to supply our wants; keep us above starvation and give us all the luxuries we want. So, to say that money is the representative of property is wrong. One represents the other so much you cannot distinguish them.

The gentleman said that the Government makes money. I don't think that the Government makes money.

Mr. W. W. Field:

Who does make money?

Mr. J. H. Hauser:

It has been found by men of experience that it takes just as long to dig one dollar in gold as it does to raise one bushel of wheat that is worth a dollar.

Mr. W. W. Field:

The Government says gold shall be money.

Mr. J. H. Hauser:

The United States says gold shall be money. We do not have to coin our gold into money. I can go and dig gold dust and say to a man I will give you so much gold dust.

Mr. W. W. Field:

Is the gentleman compelled to take the gold dust?

Mr. J. H. Hauser:

The man is not compelled to sell the gold dust. If he makes a contract with him, he can make a contract to pay him in what he has a mind to. I believe that we should have an established rate of interest.

If you go to a store and buy something and do not pay for it, I believe you ought to pay interest when it runs past due, or on a note when money is borrowed you should pay a certain per cent., but when you say a man must loan his money and take the risk he must take for a certain per cent., it is useless.

And when the gentleman makes the proposition that money brings ten per cent., and the industries only three per cent., he lays out of view all the mishaps, all the mistakes, all the misfortunes in one case and nothing in the other.

Mr. P. S. Bennett:

It strikes me if we adjourn leaving this question unfinished we shall hardly get up the feeling which will be necessary to do the subject ample justice. I do not propose to engage in the discussion, but I am very much interested in hearing others discuss it, and if we have time, it seems to me we had better strike while the iron is hot. If it goes on, I want to ask Mr. Hauser a question or two for him to answer before the discussion closes.

Mr. Chester Hazen:

In regard to this interest bill, I do not know that I can say anything that will be of interest to the meeting here. We might apply the proposition to some practical use. The law governing the rate of interest through the states, has proved a perfect failure so far as we know anything about it. We have an established law here that interest in this state shall not exceed ten per cent., and it has nothing to do with the rate of interest that men get for the money that they have to loan. It is a bid for people to connive in some way to avoid the law. If we are going to have a law, let us have a law we can live up to. I have been living in a country where there were high

rates of interest. For instance I will state that when I first came to this country and pre-empted a quarter-section of land, at the end of the year I had to hire \$100 and pay thirty per cent. on it. I had to furnish gold to enter the land with; I worked a good deal smarter and livelier to earn that money than I would if I could have got it for three per cent. We are a kind of speculative nature; if we are pressed hard, we go to work hard and work it out; if it goes easy, we go and take it easy and let it work along. I paid one man in this town, and gave him (a judgment note) four per cent. a month for interest on money. I contracted a job to be done of building a house and couldn't collect money; I gave a judgment note for four per cent. a month and it taught me a lesson.

Mr. W. W. Field:

What was the lesson?

Mr. Chester Hazen:

The lesson was to put myself in a place where I could get out of debt, and never get into a scrape where I would have to pay such interest. As far as the law of interest is concerned, three per cent. and all this low interest stimulates people to go into business. If they can hire money at this low rate of interest they would get into debt, where if they had to hire money at higher rates, they would not. Is not it a bid for people to do business on the credit system which is the ruin of our country; there is no doubt about that; a credit system is ruinous. The debts have all got to be paid no matter what the interest is. My motto is to keep out of debt. It seems to me that it would be a bid for people to get into debt, and if they neglect to pay their debts, interest would not amount to much; if the interest was high they would keep out of debt.

Mr. P. S. Bennett:

Mr. Hazen is for it, like the other man who said it was against his principle to pay any interest, and against his interest to pay any principal. It was a good idea, and one which I always practiced. But suppose we cannot practice both parts of that; then there is some other inquiry that is to be

submitted—some other course to be pursued. I said I wasn't going to discuss this subject, nor am I largely; I want to say, however, and I was going to ask that question of the gentleman who spoke yonder, (Col. Pier,) I was going to ask him a question or two, but he has gone. I was surprised to hear him say that he had never known a man to become wealthy by loaning money at ten per cent. or any other rate of interest. I was surprised at that. I don't know where the man has lived all of his life time. I have not been in the money circle, I am not a moneyed man; yet I have known a good many just such men as that. Then he said it was the saw mill men that made money; then he went back on his own ground and said the money lenders might keep their money a little while, and it would go in the next generation. That might be all true; so the saw mills would go in the next generation; that does not prove that these men did not accumulate their fortunes by lending money. Now, besides that I would like to know if it is not true, as I think Mr. Benton said that the risks or the losses to which the money lender is subjected, are not small? I would like to know if it is not true that the money lender, if he does business in any way according to law, does not throw guards and protections around himself which render losses almost impossible?

Mr. J. H. Hauser:

No sir.

Mr. P. S. Bennett:

Is not it true that the money lenders always loan their money to men who are known to be good, with a good endorser, or else on real estate security?

Mr. J. H. Hauser:

Now I understand, in this money lending business, where a man is really good, got a prosperous business and plenty of capital, he does not really need the money so much. But you want to get money so that the poor man can go into manufacturing; the honest, industrious man can go into manufacturing, at rates of interest so that he can make some money; and

such a man cannot in the nature of things, give security that is good. If they give it on the stock or house, they are liable to burn; if they give an endorser, there comes a panic, they are liable to fail. It is the experience of the best men of Fond du Lac, that failures are not because the goods are on the shelves, but because they have sold the goods and trusted them out. Just the same as loaning money and taking the notes of men who are poor. And you will notice the history of every man that has failed this winter in Fond du Lac, that they have sold the goods and taken notes, and they cannot get the money and it is the source of their failure. So in the banks, the amount of money loaned is not on security. Take the largest business firm here in the city; how much do they put on real estate? It is trifling; it is mainly discounts at the bank; it is on endorsed paper, and the endorsers fail and it brings on a panic immediately.

Mr. P. S. Bennett:

The money lender does not take any risk; he gets his pay; he gets an endorser.

Mr. J. H. Hauser:

The endorser fails and the man goes to the wall. He has got to sacrifice his goods at panic prices.

Mr. P. S. Bennett:

That may be the case in some instances. The discussion has not gone on so much on behalf of those who are in business.

Mr. J. H. Hauser:

Allow me to explain this that you called out. I think the great blunder, the great trouble is, that men dislike to labor with their hands. If you notice the history of men for the last few years, if they learn a trade they then want to start in business for themselves without any capital; and they must have the stock to carry on the business; and they must have more men; and they start out in business, and extend it and extend it, until they get ten or fifteen men working for them. They have no capital; it is all trust; they think they are doing

a big business, and live high and fail. The fact is, it is the \$10,000 a year men that are the bankrupts. Every legitimate business in the city of Fond du Lac, if it is properly carried on and no mishaps, will pay ten per cent. on the investment.

Mr. W. W. Field:

Why do not these men who start for themselves on borrowed capital make money?

Mr. J. H. Hauser:

Just because in about three years they fail, and they have used up the money they have borrowed and are not able to pay it; they borrow the money and they squander it, and the man that loaned the money loses it. There is no question about it. I think the percentage lost on money lending is not so large as in business. Take all the money that is loaned in the city of Fond du Lac, I doubt if it pays three per cent. The banks perhaps lend money at ten per cent., but the losses of principal and interest are enormous here in this city.

Mr. P. S. Bennett:

I do not know how it is here in Fond du Lac, and I do not know how it is generally, but as far as my observation has gone I do not know of any money lenders. I cannot call to mind any money lenders that have ever had any losses to any considerable extent in the loaning of money. But Mr. Hauser may know more about this than I do. Here is one point, I do not know anything about your banks here. I do not know about the fact to which you just now alluded, the bank that had an application for money and absolutely had no money to spare.

We hear some such talk down our way. But we always find out there, if we find out the facts in the case, that the banker says, "A friend of mine has a little money, I guess I can get it for you. I do not know but you will have to pay a little —— a little, bonus money." And when the bank gets pay enough they will always get you the money.

Mr. A. M. Blair:

I would like to feel at liberty to express my opinion, in as much as my legal friend, brother Hauser has expressed an

opinion, I suppose I can express an opinion, if I do not agree with him.

Now on this subject of interest, as far as I am concerned, I had a long time ago made up my mind, and discussed it upon all proper occasions, and I say to you gentlemen, in my judgment the principle discussed in Mr. Field's paper this afternoon is the true principle. There is not the least doubt about it in the world in my judgment.

The moneyed interests of this country, those who are loaning money for ten per cent., are taking the vitals out of the true interests of the country, notwithstanding what my friend Mr. Hauser has said about it. There has one gentleman said here, and it is true in every instance known to my recollection since I was a boy, or since my attention was called to it, that the money lender always gets rich. I never have known of an instance in my life, from a boy to the present time when a money lender ever failed, simply a money lender, ever failed. He always gets rich in every instance, and I take it there is no exception.

Merchants fail nine out of ten of them. The money lender never fails and never can fail. I know a man who has lent \$30,000 and over, for the last ten years and gets ten per cent., and I do not think he has lost \$5.00.

Mr. J. H. Hauser:

I did not speak of the money lenders, I spoke of money loaning. There is not so much money lost by the money lenders as by those people who loan money and do not make it a business.

Mr. A. M. Blair:

I misunderstood you. I do not see that any law can be made that cannot be violated, I do not care whether the gentleman fixes the rate of interest at ten, fifteen, or twenty, seven, or three per cent. That law will be violated among all classes of men; you cannot fix the law.

Now if my friend Mr. Lamb wants to give me \$50, if I lend him \$500 for a short time, there is no law that says he

shall not. He has the right to do it, if he sees fit. The law says I shall pay it back to him, if he resorts to the law when he appeals to the law. The law did not allow me to take it, I have to pay it back. The law will see to that. The law says if I take his goods on a mortgage to secure me, that I shall not ever sue that note. But if he volunteers and pays me the money, and I put it in my pocket, and he never asks it back again, there is no harm done to the law.

This law we have got fixing the rate of interest at ten per cent., is violated every day in the week in the city of Fond du Lac. I have no doubt but you can go into the banks, or into the offices of the city, and borrow money at ten per cent. unless you are pressed and want it on a particular occasion, or a short time.

If you want to borrow the money, and the man is under no obligation to you, you have got to pay him two per cent., in addition, or three per cent., or five per cent., making fifteen per cent. That is the usual rate in this city. That every business man knows. If you go to a man and say, I want some money, how much do you charge? He will say five per cent., commission. You cannot make a law that cannot be violated.

It has been well said in my judgment, that this interest question is an important question. It is going to be an important question for years to come, and particularly among the great laboring classes in the community. The great national question is the great question of finance. It is going to be the great question until it is settled on some principle. I do not think it is right.

I believe the government is paying too much interest to these banks that are taking their bonds. I believe the government ought not to pay so much. So far as the principle is right, is not Mr. Field's principle right. Ought not I, if I am a farmer and have got invested in my farm \$3000, and I work that farm and get it improved, ought not I to receive from that farm, from the income of it as much as this man

who sits here with \$3000 and loans it out and takes interest on it. Ought he to receive any more from his business than I do? I am farming just as well as I can and make what I can from my farm, ought not I to make just as much as he does? Certainly if you are as industrious, if you are as economical.

Take the farming interests, the manufacturing interests, or any other interest in this community, ought they not to make as much on the money invested as the man that loans the money at ten per cent? If they do not, then we are paying too much. Ought one man to make any more than another? If I am just as industrious, just as economical, why ought not I to make just as much if I am a blacksmith with the same capital as the man who sits in his office and loans money? Why should not a farmer? I do not intend to say there is no exception because there is no rule but there are exceptions to it. We cannot establish a rule by saying this man once borrowed \$1000 and made money by paying fifteen per cent. That is not the rule. It is the great mass of business that establishes the rule. Take the whole country through.

Let me tell you, there is not an individual in this house that can go and buy a farm in this county and borrow the money to pay for this farm, (if he pays \$3000 or \$5000, and agrees to pay ten per cent. interest), he can go on that farm and work it and make as much on his farm as the man who loans him the money? Now he ought to do it. If you have got a farm out here, and I want to buy eighty acres of it and I go to my friend, and I say I want to borrow the money to pay for these eighty acres, \$3000, and he says I can let you have the money at ten per cent. I borrow the money and go to work on that eighty acres. Maybe I live just as economical as the man that loans it to me, and I ought to make just as much and get rich just as fast as the man that loans me the \$3000 and does not do anything.

Now gentlemen, I say it is impossible for the farmer, impossible for the mechanic. I do not say but that some

manufacturer gets rich by attention to business. Some mill man get rich, but another mill man does not. Some of the manufacturers in this city get rich quite as fast as these money lenders, but take them all together do they get rich as fast as the money lenders?

Look around in this city, and wherever you have been, I do not care where it is, notice the man that has simply sat down and lent money and taken the interest. Where I have lived, where they do not have but six per cent. interest allowed by law, I have known men to lend money in small amounts at a time, and continue to do it until they got as high as sixteen per cent.

Take a number of young men, twenty-four years of age, and let them start out in life, each of them with \$2,000. One starts in trade; another goes to manufacturing; another goes to farming; and another goes to investing money. That money will double itself at interest in ever eighty years. When they are thirty-two years of age, and there is no loss in business, the money lender has got \$4,000; when he is forty years of age he has got \$8,000; when he is forty-eight years of age he has got \$16,000; and when he is fifty-six years of age he has got \$32,000. Now how are the others going to do that; they are just as sure to do it if they loan their money. If they starty when the are twenty-four years of age, and have \$2,000 to start with, are worth \$32,000 when they are fifty-six years of age.

Take Fond du Lac, and take all the trades together; how many out of ten that went into business are worth \$32,000? You can say one out of ten. None of them fail, and that is the trouble. Not one out of ten of them that is worth \$32,000. Now, the chances are that these ten men loaning the money and taking the interest right along, when they are fifty-six years of age will be worth that, every one of them. I throw my influence right here with Mr. Field's on the subject. I have no doubt in my mind but that is true, every word of it, so far as to the high rate of interest is concerned, that

this interest is eating up and destroying the prosperity of this country. I am not speaking of whether we can pay more interest than in Massachusetts or New York, but upon the general principle.

When you come here another year you want to think the matter over; canvass it, study it in all its bearings, and say what a man can get for his money. The Government should fix the rate of interest, either the State or National, and it should make a stringent law, making it a penal offense to violate it, so that a man will be deterred from asking a higher rate than the law allows. Make it as stringent as you can.

What would be done if we did away with this ten per cent. and put it at six or seven? They say the capital would leave the State. I say the State would be better off to have the capital leave it than to have it stay here and eat up the whole property. The capital had better go and never come here than to take that interest continually for a series of years to come. Not but that individuals can pay it in certain cases. They have done it, and can do it, and will do it. But the great mass of the people, and really this country, is injured by having the capital coming from New York, as it is day after day, year after year, and from Massachusetts, and invested here at ten per cent. People would do better to get along some other way. It would be better to sell the farms, because sooner or later they have got to do it, because sooner or later the merchants have got to come down. It better be this year than next. There have been more than ten failures right in this city within the last six months, owing simply to paying so much interest. There is one firm in this city that has paid for shav- ing over and above ten per cent. within the last six years, \$100,000, and has failed simply because of paying so much interest.

Mr. J. H. Hauser:

Did not that firm make over \$200,000 more than they had capital?

Mr. A. M. Blair:

They claimed to; they did make money. But are they

any better off for failing now than if they had failed two or three years ago? They made money and paid it right into the hands of the money shavers and money lenders. And there are ten men that have failed within the last six months simply because, in my judgment, they have paid this enormous rate of interest. We who live here know it. We have talked about it in our offices again and again, and from day to day. They have in my office. We say such a man failed simply because he was shaved to death for the use of money.

Judge Taylor was talking to me on this very subject. He says in Sheboygan they do not shave as they do in Fond du Lac; you can get money at better rates. That is speaking against this city. We were talking on this subject and he alluded to that because he was acquainted with the business there better than he was with it here. We both agreed that the reason why there had been so many failures here was that men could not live and pay this enormous rate of interest. And I say to you that I have made up my mind about it and I have talked it upon all occasions when the occasion required. All of these gentlemen have heard me talk just as I am talking now.

Think the matter over. The principle is right as has been discussed by Secretary Field here to-day before this convention — and then come to the right conclusion and do what you can. The moneyed men will have the advantage of you any way; you cannot get ahead of them. They will devise means; but you should work the best you can; and then they will get ahead of you. But the subject is worth consideration. Come down upon the true principle; get upon that understandingly, and then carry it out as fast as you can.

Secretary R. D. Torrey presented the following resolution:

Resolved, That we fully agree with and endorse the principles set forth in the address of Hon. W. W. Field, of Madison, on the subject of Interest.

Mr. J. P. Roe:

I do not think we are prepared for that. I notice bankers

to the right of me; bankers to the left of me. I mean to say the only apparent light that seems to be thrown upon this question is in that one phrase of his, the co-operative banking system, so far successfully introduced in Germany. It is all hubug, a delusion and a snare, to go to the Legislatures and ask them to legislate money into our pockets and relieve us in this matter. It is like the Communist idea prevalent among the ignorant classes in Paris. Legislation cannot do it. We can do it ourselves. We can do what the Germans have done in their poverty. These co-operative banks did not originate among the capitalists of Germany, but among those who needed the advantages; those who had little means and who put them in and used them in this way. If the German operatives in the factories of Germany and on the fields of Germany can inaugurate this system of co-operative banks, why cannot the farmers of Wisconsin, and the operatives in the mills of Wisconsin, in the iron furnaces, and on the railroads, do as well?

I think until we hear more on that point, we had better dismiss the subject. I do not think we are prepared to acquiesce in all his points or to go to our great father at Washington to make matters right. I think it belongs to ourselves to do it.

Mr. H. W. Morris:

I think that this financial nut which we are undertaking to crack received one blow from brother Benton. He proposes to remedy this currency difficulty by the government establishing currency order offices in every county, by which the farmer, the manufacturer and the business man could obtain currency directly from the government, by giving security upon the soil, paying interest at the rate of 3.65 per cent. for all business purposes. How preposterous to have one single product of our soil, gold, as the basis for the foundation of our currency. What greater folly could our government have committed than to accept one single product of the soil, and taking that as the basis of currency of a great nation.

Here we are only following up the superstitions and feudal

systems of past ages, in clinging to this gold basis system. Why not predicate the currency of our country upon the soil itself; that which cannot be concentrated by bankers or money lenders? Now we want something that that the capitalists of the country cannot contract and put into their pockets, and make the currency scarce when the people most need it.

Now then, if this system of post office order deposits was established in every county, the farmer, the business man or the manufacturer, wanting to obtain money for the purpose of business, could obtain it by giving security upon his farm, with a rate of interest that will not eat him up, and as long as he pays the interest he can have the use of the principal. There is no bank note coming due at a certain day which must be met, and if there is a failure to meet it at that day the man is closed out, he goes to the wall. That has been the experience of scores of men in this city, and not only in this city, but in every city and town in the country during the past winter. To whom can we charge this crisis? Is it not to the money lenders, to the bankers, to those who have had the power of contracting our currency and bringing this stringency upon the business of the land? If a southern planter could obtain money at 3.65 per cent. interest to cultivate sugar or cotton, or to establish factories and mills, would not the business of the country revive? Could not laboring men, who are now clamoring for something to do, find employment?

Nature has stored in these almost insurmountable snow banks, immense power, which will in time be flowing down the Fox river, and which power should be used. Every bank of the river should be supplied with factories and mills, to manufacture products here in the West, instead of sending them to the Eastern States and transporting them back and forth, and feeding and carrying an army of middlemen. We want to develop our own country, Wisconsin, and we want the currency predicated on a basis that cannot be contracted.

Mr. James Orvis:

I would like to inquire of my friend what is going to be

the basis of the estimation of the farm to start with? You have to get some basis to start from. Unless you have a basis I do not know what you are going to build on. How are you going to start?

Mr. H. W. Morris:

Men that have money to loan seem to understand that pretty well.

Mr. Jas. Orvis:

They take gold as a basis; You estimate the value of your farm by the amount of gold it is worth.

Mr. H. W. Morris:

In the past, before the war, we had a gold basis and we had a bank currency, and when a merchant of Wisconsin made a payment east, with the money that he had received from the farmers of the west, he had to pay twelve per cent. discount upon it, because it was western money predicated on a gold basis. You see the discrepancy; cheating the west out of twelve cents on every dollar sent to the east to buy goods and groceries.

Another thing under a gold basis; did we have so bad times in the world as we had previous to the war, when we had a gold basis? See the financial crisis that came to the country under a gold basis.

Now then, instead of making gold as a basis; instead of taking one of the products of the soil, let the government issue its own money. Instead of issuing its bonds and allowing the banks to buy the bonds with greenbacks, and deposit them in the Treasury of the United States, receiving back \$900 for every \$1000 deposited, the people being taxed to pay six per cent. interest in gold on these bonds to the banks, and the banks bringing the money out west and loaning it to the farmers, mechanics and business men, at ten per cent. on sixty days time, less the interest, and when the note falls due, the borrower has to go to the wall; let the government issue its currency, greenbacks, the same as we have had, and one dollar in greenbacks will be equal to one dollar in gold. What

is a dollar in gold worth? It is worth just what it costs to dig it from the mountains and the mines. Just as much as a bushel of wheat is worth what it costs to raise it; and a hundred pounds of pork is worth so much in greenbacks.

When have we had a more stable, substantial currency than we have had since the government issue greenbacks to the people? And if it was known, this law that has been passed this winter to bring our currency upon a specie basis, gives the bankers the privilege, the opportunity to concentrate the capital in the shape of gold, in their own hands, and control the amount of currency in circulation to buy the products of the soil. Let the government issue it directly to the people, and if I have a farm worth five thousand dollars, and I want to borrow five hundred dollars to make improvements or buy blooded stock, I can go to the office where greenbacks can be had; give security to the government and pay interest at the rate of 3.65 per cent., and as long as I pay the interest to the government, like an honest man, I can have the use of the money, and I am not compelled to go to the wall and have my farm sold.

This is the idea. We want something that the poor man, that the manufacturer, the farmer, the business man of the country can lay hold of, and that can be disseminated, and can not be concentrated in the hands of the few.

Mr. Orrin Hatch:

The gentleman said the Legislature could not pass a law, controlling the rate of interest, that could not be violated. Let them make it a crime to take more than ten per cent. Let it be a crime for any man to violate the interest law; either the lawyer, the real estate agent, the money lender, or any other man. Fix your rate of interest and make it a crime to violate the law.

All these banking schemes you talk of will turn out wild cat schemes. You cannot run a bank unless you have it based upon gold or silver, or stocks, or paper that you take from other individuals, reliable to pay for it when you want it.

You can make a nickel, and make paper money on a scheme upon land and a pailful of it would not be worth two pennies.

Make it a crime to evade the interest law. When a man steals a shirt from a line when he is naked he is sent to prison but a man can steal four shirts shaving you, and you say, "Well, the Legislature cannot regulate the matter."

Mr. Eli Stilson:

I offer an amendment or substitute. That, in our estimation, the legal rate of interest in this State should be fixed at seven per cent.

I think we, as farmers, can and should agree to that. It matters not whether we borrow a dollar of money or not, we are, all of us, paying this rate of interest. There is not a manufacturer in the world but what is a borrower of capital, and if he pays ten per cent, he charges it to the producer and we have to pay it.

We originally paid seven per cent, and money was as plenty it has been at ten per cent., and when government outbid us, in its exigencies of the war for existence, the capitalist said to us. "Your government pays more than individuals do and therefore it is but just to us that your rate of interest be restored to ten per cent."

The people almost unanimously consented to that change. Now the government has ceased to pay seven per cent. It has been paying six per cent., and even down to five and a half per cent. Does the capitalist ask to have the rate of interest restored to seven per cent? Decidedly not. You raise this question and you raise a storm about your ears where money and capital will run to the rescue.

You know of their bill in the Legislature fixing the rate of interest. How many farmers have been heard upon that bill? We are paying indirectly this interest. The whole country is paying it, the whole state is paying it.

There never was a time when our industries were worse

oaded down, and struggling hard to maintain an existence than they are to-day.

On motion the Convention adjourned until two o'clock.

AFTERNOON SESSION.

The Convention again called to order by President J. M. Smith.

The question of adopting the resolution indorsing Mr. Field's Paper — coming up.

Mr. Dana C. Lamb, offered the following as a substitute:

“*Resolved*, that in the opinion of this Convention, it is inexpedient at this time to make any change in the laws of this State, governing the rate of interest on money.”

Rev. G. W. Wainright, of Dartford, being called upon spoke as follows:

Mr. President and Gentlemen of the Convention:

I have just dropped in for a moment, not knowing any one would see me and ask me for a speech. If I were among men who knew me I should not be called upon, because I am not a speech maker. However this gentleman who called on me to speak showed me this resolution, and I endorsed it, and I am always ready to give a reason for my belief.

We fail very often in our decision of matters from not comprehending the true situation. It is just so with this question of interest on money. What is money worth? What rate of interest ought money to pay? My position on this question is, that no one can settle it. It is a question that cannot be settled any more than you can settle what a bushel of wheat shall be sold for. If a farmer has a bushel of wheat to sell he sells it for all he can get, and all he can get in the market. It has no fixed market. It may be worth fifty cents or a dollar, or two dollars or three dollars. The grain is always the same, no matter what the price of it is. It will go so far and no further, whether it is seventy-five cents a bushel or two dollars a bushel.

I put money on the same basis that I do any other property, cereals or live stock. A yoke of cattle are worth to-day

what they will bring in the market; and they will be worth just as much to-morrow if the demand for them is just the same as it is to-day, and they cannot be bought for any less.

In an early day, when I came into this Western country from the state of New York, it seemed surprising to me that money should be paying so large a rate of interest. It did not seem right. I got my ideas from that general idea of six per cent. or seven per cent. I met two gentlemen who came, I think from the State of Vermont or some New England state, two brothers, bringing with them each \$25,000, which was a very large pile in that day. They were wealthy. One of the men opened a general store of merchandise; the other a loan office. One of the men loaned money; the other sold goods. The man who sold goods never thought of selling any goods for less than fifty per cent. above the cost. It was not exorbitant at that time, and under the circumstances in which he was placed. His brother, loaning money, loaned it for twenty-five per cent. The man who sold the goods could not afford to invest the money and sell the goods, and run the risk he had to run for any less a figure than he did do it. It seemed to be very exorbitant.

I had a long conversation with these men years after they came into this country. The man that loaned money helped a great many men to farms, and a great many of the men he loaned money to had to give up their farms. That was not the fault of the rate of interest. It was the fault of the men. You may loan a man money at two per cent. and he will not be able to pay for his farm. You may deed a farm right straight to him and he cannot keep it. I have talked with a great many men who came into that section of Illinois at that early day and borrowed money of this gentleman to whom I have alluded, at twenty-five per cent., and they all paid for their farms; and they, to-day, have got farms that they never could have got if they had not borrowed money at that time, paying that interest thereon. The money was worth just what they were paying for it, twenty-five per cent. It is

worth twenty-five per cent. to-day in some places and under certain circumstances.

I remember last year when I could have made \$40,000 in one day. I had an opportunity of making \$40,000 in a day; for you well remember there was a time when pork went very suddenly up to a high figure. If I had a large amount of pork at that time I could have made \$40,000. I did not have the pork, therefore I did not make the money. Just so with money. There are times when, by investing an amount in this direction or in that direction, it can be very largely increased. Now a sagacious man sees this point and goes to a neighbor who has money. He says: "Loan me \$20,000, if you please." He brings securities and gets the money and goes away, and doubles the money in a very short space of time. Is it not reasonable that the man who loans the money should make a fair share of the profits of that transaction? Shall he be confined strictly to six or seven per cent. interest while the other man can make all he can out of it? Is there any difference in the money when he gets it into the man's hands who borrows it than there was when it was in the man's hands that loans it?

We want to look at this as at all other classes of property. I take this ground fairly and squarely: there should be no rate of interest fixed. It ought to be left with the lender and the borrower. Any rate of interest a man wants to pay ought to be legal. If a man comes to-day and says "I want to borrow \$10,000, and I want it badly, and I will pay three per cent a month for it," that transaction ought to stand just as square as though he says "I will give you six per cent. a year, or as though six per cent. was the interest to be paid upon it. It ought to stand just as well at three per cent. a month as at six per cent. per annum, the bargain being fairly made. The government of the States, or any other government ought not to touch this question at all.

Mr. Eli Stilson:

It was not my intention in coming here to take any part

in the discussion. Having been laboring for the past three weeks under the most severe cold I have had in thirty years, being threatened all of the time with trouble with my throat and lungs, I have abstained in all cases from conversation; but as a representative man of the farming class I cannot keep still and hear this doctrine promulgated that money, which bears the impress and mark of the General Government to force it into circulation at a fixed value, at a certain sum, cannot be regulated by the Government; and then to say that the Government might just as well fix the value of one bushel of wheat. There is a marked difference. Money is a legal tender for a debt at a certain rate; the wheat or the ox is not. What is the intrinsic value of that nickle which I hold in my hand? Is it worth one cent? Assuredly not. Yet the Government has impressed upon it that it shall be a legal tender for a debt at five cents. Here is a marked difference.

The Government has taken money under its direct control, and if it controls its absolute value it should control its rate of interest.

I have been twenty-eight years, or nearly so, a resident of this State. I have seen the time when money could pay above ten per cent., and yet the borrower could live. How is it to-day? It is entirely changed.

I stand here and tell you to-day that no legitimate business in Wisconsin in the shape of productive industry can pay ten per cent. and live. He says money must have a fair share of the profits. I say so too; and productive industry must have a fair share of the profits. Unless we do this by legitimate legislation we cannot reach that point. We know that capitalists will take in accordance to what money is worth and according to a man's honesty. You must pay it; and the man that pays the usurious rates is the man least able to stand it.

I recollect one of these men came to me three times, with tears streaming down his cheeks; says he "I have got a farm; I am in the hands of this class of men, and I cannot get out of

their hands." I took the abstract of his farm and found mortgage upon mortgage upon it. I said to him, you are indebted for more than your farm is worth. What did you give that mortgage for? "I gave it," says he, "for interest on interest." Says I, what for? You were already paying twelve per cent.; you would have better sold out your farm; now your farm is \$100 worse in debt than the amount it will bring. You see in this case money is not the measure of what it will pay, but it is the measure of a man's honesty. It is the power and the duty of the government, after having stamped this money, and saying that it shall go for a certain value, to say what its rate of interest shall be.

Mr. James Orvis:

I think that in consequence of the law making every debt payable in money, that there should be a difference. Now if I buy a horse of Mr. Wainwright, or if I borrow money of Mr. Wainwright, and buy a horse, and give him my note for so much money at such a per cent., say twenty-five per cent., and from the exorbitant rate of interest, or some misfortune on my part, I am not capable of paying for this horse and the interest, I go into the hands of the law, which says, you must sell three horses. Mr. Wainwright will not take my horse, which is worth just as much money; he will not take two horses; but you must put them into money; and although it takes a half a dozen horses, I have got to pay in currency or coin, to Mr. Wainwright his interest and principal at an exorbitant rate, whatever the amount is. When the government says that all of this shall be paid in money, and the value of the money shall be fixed by the government, it certainly should regulate the interest.

Mr. E. H. Benton:

We are perfectly willing that the gentleman should have free trade in money, if he will let us have free trade in the manufacture of it. That is the complement. If they give us the privilege of making all we want, we will be just as independent as they are, and will stand before the law just as well as they do.

Mr. J. P. Roe:

It would seem that our friend from Milwaukee, Mr. Wainwright, and others who have addressed us on that side of the question, have assumed it for granted what Mr. Field lays down as the reverse. Mr. Field assumes that money is *not* property; when all talking the negative, take it for granted that money is property. They are arguing from altogether different standpoints. Their data in the first place; their very premises are as opposite as the two poles. As Mr. Stilson remarked, if you can take that piece of nickle, which intrinsically is not worth a cent, but the government calls it worth five cents, and if the government can make its value for our interchange and for our convenience, five cents, has not that government the same right to regulate the interest? And with the obligation coming in the form of a positive duty, for the welfare of the entire community, and for the morality and physical well being of the community; is not the government bound to protect the people in this matter? If the government can say that that nickle, which intrinsically is not worth but a cent, is worth five cents, has not the government the right, and is it not its duty to determine what shall be its value as interest? Money commanding but three per cent. is worth less than money commanding twenty-five per cent. At twenty-five per cent. that money is doubled and trebled in value. But here we are met with this difficulty, which I do not see for the life of me, even how the government can regulate it wholly. In New York state, money on call, as we know from the paper of to-day, is worth so much, three per cent. or four per cent. or two per cent. Where the financier or capitalist has money to loan, he is willing to place it where he can put his hand right on it; where he knows all about the security. Generally, when a call is made for this money in the far West, he knows comparatively little of the security; he knows comparatively nothing of the borrower, and there comes to his mind the question of risk. The capitalist is a natural conservative, and as a consequence there is this difficulty in the way, and he feels like charging for the extra risk, and settles

it the same as the insurer wants an extra premium for the damages or extra risk for his money; and I think the large interest we have to pay in the far West, has grown largely out of that fact.

Mr. Dana C. Lamb:

Mr. Field's proposition covers a great deal of ground that this resolution does not cover. He proposes to reduce the rate to seven per cent., but recommends a general endorsement of the three per cent. rate. This is a question of expediency now for the people of this state, not what the Legislature can do.

The resolution is,

"*Resolved*, that in the opinion of this convention, it is inexpedient at this time to make any change in the laws of this state, governing the rates of interest on money."

That takes into consideration the state of the country, the demand for money and everything that we have to do with.

The vote on the amendment to the resolution was lost.

The question of the original resolution endorsing Mr. Field's views, coming up.

Mr. J. P. Roe:

We are not prepared to fully agree with and endorse those views, and I move that we lay the subject on the table.

There are a great many points in that address which are distinct issues in themselves, marked, salient features in themselves, and it seems to me when we say we agree with it as a whole, we commit ourselves.

Mr. J. Nichols:

As has been said, there are a great many points in this that cannot be well voted on, without carrying a wrong idea. It would carry a very wrong impression to the community, who understand that such a subject is up here, to vote on either side of this question. If it was voted down, it would be supposed that the convention voted down the subject of a change of interest. If my judgment would be of any value, it would be that it was best to pass right over it without any vote,

because you cannot get any vote that would express any opinion on this subject, that would be intelligent to the people.

I offer, as a substitute for laying it upon the table, that it be indefinitely postponed, which prevailed.

EVENING SESSION.

Convention commenced at seven o'clock. President Smith in the chair.

Sectary Torrey offered the following resolution, viz:

WHEREAS, we believe that Agricultural Conventions may be made of great benefit to all classes of interest; and

WHEREAS, the meetings are not as well attended as is desirable; therefore

Resolved, That it is the sense of this convention, that as the best way to secure attendances hereafter we recommend that future meetings be jointly mass and delegated meetings, and that all County Agricultural Societies, Horticultural Societies, Stock Growers' Associations Dairy Associations, Farmer's Clubs and Granges, Bee Keeper's Associations and other Industrial Societies be invited to send three delegates, and to secure such attendance we recommend further, that such societies defray the necessary expenses of their several delegations; and that this Society shall furnish to the Associations that are actually represented fifteen copies of the transactions of this Society, to each twenty-five members or fractions over twelve of twenty-five of the Society represented.

Mr. W. W. Field:

Before the adoption of that resolution, I wish to say at the outset, that I heartily concur with the views there expressed, and desire to say a word in favor of the resolution, unless the convention shall choose to pass it without any discussion, and prefer to proceed to other business.

And I will say briefly that this idea has been a prominent idea in my mind for a long time; that these conventions are of great practical interest and benefit to the masses of the people, and particularly to those engaged in the various avenues of

industry, you have held I think under the auspices of these Society Conventions for some two or three years.

There have been conventions held under the auspices of the State Agricultural Society of which I have the honor to be Secretary for some years also, and while I have endeavored, and have I think used all reasonable exertions to get the various Clubs, Granges and County Societies and other Industrial Organizations of the State to attend, it has been with great difficulty that we have been well represented from the different organizations.

Now the idea set forth in this resolution which has been presented by Secretary Torrey strikes me as right; that these different societies sending delegates to this convention should incur the necessary expenses of that delegate or of those delegates attending, so that they may feel that they come to this convention and take an active part in it, and not feel that they are out of pocket. The loss of time does not amount to much. Let them make such a selection, of their best representative men, a man that can come and represent their views on industry and such questions as we discussed this afternoon, which I believe is at the very foundation of our interests, and let their expenses be paid. Let these initiatory steps be taken. I shall certainly urge it upon our Board and upon our Society. I hope the resolution will be adopted. I hope the gentlemen here, representing the different organizations of the State, will go home and take this course.

It is but a few dollars for all to pay, while for one individual expending his time and money it is a matter of considerable importance. Many clubs or smaller organizations would not feel like standing the expense to support three delegates; while they would feel like sending one.

Mr. J. P. Roe:

The practical working of the thing is thus. In one special instance I was sent to this convention as a representative of Forward Grange, of Oshkosh. Two of the officers of the Grange followed me to superintend me.

Mr. P. S. Bennett:

That, in that case was undoubtedly very well, no one will call that in question probably. But there is another side to the question. It is true, as Mr. Field intimates, that there are some feeble organizations that, nevertheless, have an existence and will have a continued existence, a healthy existence, as you might say, but not very large; and it often occurs that these smaller organizations, in small places, for instance, like ours at Appleton, embrace the same persons. A person will be a member of two or three, or four, of these organizations — the Horticultural Society, the Bee-Keepers' Association, the Farmers' Club and the Patrons of Husbandry — none of them, perhaps, very large; really quite a good many of them will be members of two or more of these associations. Now it would take a pretty large number (a larger number perhaps than would be likely to secure benefits), if it was placed at three in these cases; whereas, if it was placed at one or two, the probability is that each organization would be represented. It might be if we placed it at three. That is the only thought that comes up to my mind. That seems to favor Mr. Field's view of the case. I do not know but it has some force.

Mr. R. D. Torrey:

With the consent of the Convention, I will amend by saying one instead of three, and move the adoption of the resolution.

Mr. John F. Steele:

The objection last made; a member of those four organizations might be chosen to act in that capacity for each organization.

Mr. P. S. Bennett:

That would not increase the number, as Mr. Torrey desires.

Mr. J. F. Steele:

That would not increase the number, but it would not make it so burdensome. Now, the object is, as I understand

it, to get out a large representation. We have an organization in our place. There are none but those from that locality, I believe there are none from Rosendale, representing that branch of industry; and when there is a place like Oshkosh or Fond du Lac, where there are these several branches near together and so nearly connected that a member belongs to three or four of them, I cannot see that it would be objectionable as regards the number.

Mr. Chester Hazen:

This resolution appears to provide for delegates from the different organizations from the different parts of the State to attend this meeting, and also provides for paying their expenses, but I suppose that will not prevent a man from paying his own expenses.

The resolution was then adopted as amended.

Hon. D. J. Pulling, of Oshkosh, then made the following remarks on Tobacco Culture:

Your Secretary invited me to prepare a paper upon some subject with which I was familiar for the purpose of being read at your meeting. My time was so much occupied that I was unable to do so. I informed him, however, that if the Convention would accept a statement made orally upon some subject with which I was familiar, I would be very glad to aid the cause you are engaged in to the extent of attending and doing so. I thought of the matter a few moments and informed him that I would make the subject of Tobacco Culture the subject of my remarks this evening.

It is an enterprise that has been almost entirely neglected as a business in this State, and indeed in some of the Western States. It is, however, an article that, disguise it as we may and be ashamed of it as we must, the American people will have it. And if they will have it, and it is profitable to raise, I know of no reason why any farmer, if he is situated so that he can do so, should not engage in it.

Now I propose to read from a little slip that I cut out of a report the other day for the purpose of showing you the extent of this tobacco trade and the tobacco interest in the

United States, before showing you the advantages of raising it, and its profits.

From the advance sheets of the yearly official report of the tobacco trade, the following interesting statistics have been gathered. The report is for the fiscal year ending June 30, 1870, and will be completed about March 1st:

There was exported from the United States, of native leaf tobacco, 318,097,804 pounds, amounting in value to \$30,389,181. During the same time there was imported into the United States, and entered for consumption, 9,213,860 pounds of leaf tobacco for use in the manufacture of cigars and 85,690 pounds of stemmed or prepared tobacco, amounting together in value to \$5,332,558.41. During the same time there was imported into the United States and entered for consumption, 845,774 pounds of cigars; or, at an average of eleven pounds to the thousand, 76,888,000 cigars, amounting in value to \$3,030,628.79. In the same period there were manufactured in the United States, of foreign and domestic tobacco, and tax paid, 1,780,961,000 cigars.

Allowing thirty pounds of tobacco for every one thousand cigars manufactured, there was used 25,728,830 pounds of foreign and domestic leaf tobacco in the manufacture of cigars in the United States. The comparison shows there were twenty-three domestic cigars manufactured in the United States, and the tax thereon paid, for every cigar that was imported and paid duty during the same time.

A close scrutiny reveals the astounding fact that the average number of cigars smoked in the United States during each twenty-four hours is 5,168,000.

The following are the amounts of duty and taxes on tobacco and cigars for the fiscal year ending as above:

Import duty on leaf tobacco for cigars, gold, \$3,524,787.82; import duty on all other kinds of tobacco and snuff, gold, \$53,181.12; import duty on cigars, cigarettes, etc., gold, \$2,872,091.27. Tax on cigars, cherrots, etc., currency, \$9,333,591.24; tax on manufactured tobacco, currency, \$2,900,509.57; tax on snuff, currency, \$2,038,445.92; tax received from all

other sources from tobacco, currency, \$1,970,327.97. Total amount of import duties paid in gold, \$6,150,060.41; total amount of taxes paid in currency, \$33,242,875.62. Grand total, \$39,292,935.03.

This shows a state of things, gentlemen, that there is a great deal of tobacco used, to say the least of it. It is not my purpose to-night to defend its use. My purpose to-night is to show that it is a profitable thing to cultivate for a farm. It has been said that our foreign tobacco makes decidedly the better cigars. I grant it; but you see by the statistics that I have given you that they may sell a cigar and call it foreign tobacco, but the taxes the Government imposes, and their report under the oath of the government officers, show that for one cigar made out of imported tobacco, there are twenty-three made out of native tobacco, and to my certain knowledge, at least two-thirds of the cigars are made of our native tobacco.

Its value does not depend upon so much where it is raised. Connecticut raises a great deal. Tobacco raised in the valley of the Connecticut river, is valued from ten cents up to ninety cents per pound, showing a wide range in the value. The Havanna tobacco, or imported tobacco as it is called, has also a wide range in value; it is worth from thirty cents up to a dollar and a quarter. I am speaking of leaf tobacco, such as we should raise here, if we raised it here. I have pursued the business for three years, raising tobacco in this state. The value of Wisconsin tobacco will range from four cents up to twenty-five cents per pound, which is less than the Connecticut tobacco. Connecticut is less than Havanna. Illinois tobacco does not range quite as good as Wisconsin. Pennsylvania is still worse. New York is not quite so good, but better than Pennsylvania or Iowa. The value of this tobacco depends upon the manner in which it is cured, and that is all.

It can be raised in Wisconsin profitably. In a place where you do not have any frost until about the 20th or 25th of August, or at the very outside until the 1st of September, is a good place enough in this state to raise tobacco. Down by

Waupun, Weiss & Bush have raised a great many years. They have not raised beyond what they have manufactured themselves, but they have demonstrated with the care they have taken of it, that it is a very valuable crop.

Along the lake shore, take any farm which is not of this low, swaley land, where you have frost early in the fall and late in the spring, it will do. Very sandy loam is the best, but it will grow on any soil. It will grow on sand with a little manure. An ordinary crop of tobacco without any great deal of care, will bring you from five to eight hundred pounds, and two thousand pounds to the acre is a small crop. I have seen twenty-nine hundred and odd pounds raised to the acre. In the southern part of this state they raise a good deal of it, down about Janesville. Some is raised in the western part of Dodge County, over in about Columbus. I have seen tobacco sell for ten cents per pound; and I know if it was properly cured and handled, that very tobacco would have brought them from twenty to twenty-five cents per pound. It is, in my judgment, if properly understood and well pursued, the best paying business a farmer can engage in.

I will tell you by and by why this wide range in prices. I shall do it as I go along by telling you how to raise tobacco, how to cure it, and where to market it and in what manner.

In raising tobacco, you want to select you field in some convenient place on the farm, and if you have a field that is not raked by heavy winds, the better. I do not care so much about the exposure, whether it be north and south or east and west; but the high winds injure the crop. They injure it in only one way, however. The tobacco leaf that has not been broken and has no hole in it, is worth three times as much per pound as the one that is broken and has a hole in it; because these leaves that are broken and have holes in them, whether it be by an accident or from other causes, are obliged to be used for *filler*. The cheapest tobacco has to be put inside of the cigar; whereas those leaves that are not broken and have no holes in them, perfect leaves, can be cut into *wrappers* and

are more valuable. Connecticut wrapper is worth ninety cents per pound, while first quality Connecticut filler is not worth to exceed twenty-eight to thirty cents per pound, just because it has a hole in the leaf. Every leaf that you get perfect, without a hole in it, is worth three times as much as one with a hole in it.

Therefore, I say, select an exposure that is not liable to heavy winds. Your heavy winds are from the south or southwest, so that a field protected from the heavy winds in that direction, is the best selection. That field should be cultivated, plowed up in the fall, for the reason that there are a great many worms, insects and bugs, that deposit their eggs in the soil in the fall, or remain in the chrysalis form until the next spring, when they emerge and become an enemy to your plants. It should be turned up late in the fall, so that the frosts may destroy all these embryos. Tobacco seed is very fine, and I am not able to tell you how much tobacco seed you want to raise the plants for an acre. But I am under the impression that a single ounce of seed is enough for four or five acres.

In the spring, just as soon as you can make an early lettuce bed, as soon as the frost is out so that you can prepare the ground, prepare a piece ten feet square for an acre, even before the frost is out at the bottom, dig down to the frost; if you cannot get more than three or four inches, turn that up; dig it over; pile brush upon it and burn the brush. The object of which is to heat this earth on the under side. Another object however, and the principle one in this climate, is that you may burn up the seeds of such weeds as may be sown there, to avoid having to weed your bed after the plants come up. This burning destroys all the seeds of the weeds, and you will not be troubled during the growing of your plants. Take and rake off the brands and most of the ashes, leaving some of the ashes on the bed, which you will rake in as a fertilizer. Having prepared the bed as finely as you can, sow your seed. If your bed is subject to weeds, you had better sow in drills,

where you can weed between the rows; if it is not weedy, you may sow it broadcast; simply rake it in with a rake, pulverizing the land very finely. You may if you choose, raise these plants in a hot bed; but this way I am speaking of is the cheapest and the best way for a farm. Sow your seeds so to have the plants up and out of the ground when they would be likely to be out of the way of the frost. If there was a likelihood of coming a frost, it is very easy to have some stakes and some poles across, and a night that looks like a frosty night, cover it up with boards.

Sow your seeds so as to get your plants up about the size you transplant cabbage plants, about the time you are sure you are going to have no more frost. The tobacco plants will be ready to transplant about the 20th of May. It is just as well a little later; in some localities you may set out a little earlier; the earlier you get them out the better, because your tobacco is ready to cut up earlier in the fall. But I have found if the spring is late, the extreme heat of the summer which follow, is apt to mature the crop about as early. Then you take your plants and prepare the land just as you would for corn, and mark it out into rows four feet apart; some put it three feet apart in the row and four feet between the row.

The tobacco leaf is a large leaf when it is well grown, and it will fill four feet one way and three feet the other. Before you cut it up it will cover the ground, so that the weeds will not trouble you at all. Having marked your land in that manner, you have a boy who digs up the plants out of the side of the bed, and takes them in a basket and carries them out to the field, and drops them three feet apart in the row; going right along and dropping as fast as a boy drops potatoes. A man takes what I call a dibble. I take an old shovel handle that has been broken at the end below the handle, and sharpen it, perhaps an inch and a quarter, or an inch and a half in diameter at the upper end, and sharpen it to a point. The man goes along and jabs the dibble down into the ground, and goes and sets the plant in. He sets the dibble in at an angle,

being sure to get the point lower than the hole, and presses the dirt in up to the plant, and he is done.

One man and two boys can set an acre per day.

Mr. J. M. Smith:

Do you press the dirt around the plants?

Hon. D. J. Pulling:

The dibble does that sufficiently. I require the man to put his foot on the outside of the hole that he made with his dibble, because that would leave a hole to let the air into the roots. He sets his foot on that and that will fill up.

A Voice:

Do you be careful in having the dirt around the roots in transplanting?

Hon. D. J. Pulling:

It is of no consequence.

Mr. P. S. Bennett:

The Judge's plan may be improved on. In regard to the dibble, a little twist presses the dirt sufficiently against the roots and against the side of the hole, to meet all the demands of the case; so that if one pressure is not sufficient, a very little experience by giving it a hoist of this sort will accomplish the end.

Hon. D. J. Pulling:

I presume that would be so. I have no doubt that many of you men would find some better method for doing these things; I am only telling you what I have discovered to be a good way to do it. I should think a twist of the dibble in that way would leave a larger hole. The only object is to get the dirt against the root of the plant. The root that does not touch the earth, will not receive any nourishment.

It is not a very difficult thing for tobacco plants to grow, and it is not very hardy either; it is at least medium. Some think cabbage plants had better be set in a rain. I do not think tobacco plants had better be set in a rain. You do not want a wet time nor a dry time; yet you may set in either and have them succeed. If it is dry, it is better to have a boy

follow and put a little water on each plant. In the course of a little while you will discover that some of your plants have not lived. You will have a few in your seed bed, and when you find any of them have died, you and your boy go through and fill them up. Now you will have nothing to do except simply to keep your weeds down. The first time you go through, you may cultivate with a horse, but after that you must do it entirely with the hoe. The reason of this, is that every leaf you break is injured two-thirds in its value. Therefore it is of great consequence that you do not break these leaves. They are brittle and tender, and a light touch of the hoe will break one, and a man walking along through the field and hitting them with his foot, is very liable to break one. Tobacco is a thrifty grower; it grows very rapidly. The kind which I think is the most profitable to raise here, is the Connecticut Seed Leaf. You can raise your seed, but it keeps deteriorating. You want to get your seed from Connecticut every year, for it produces a better plant. It is even better that you do not cultivate the first time with a horse, because you are somewhat liable then, even though the plants are small, to hit one of the leaves. You hoe it as you hoe corn, drawing the dirt up around the little plants, being careful not to break the leaves, until they are a foot or fourteen or fifteen inches high. You treat it just as you do corn, with the exception of being very careful, until the tobacco gets in blossom. When the tobacco blossoms, before its seeds are set, when you discover it is fully out in blossom, which is somewhere from the 20th to about the last of July, a man must very carefully go through the field and break the blossoms off. It blossoms right on the top of the plant. Take it with a pair of shears, or your knife and your thumb and cut it off. Some break it and let it lop down. I do not know which is the best method; either one is well. The object of that is so that the nourishment that comes from the earth, which would otherwise go into the seed, goes into the leaf. After that they grow stronger and they cover the ground over almost, like Jonah's gourd.

About the 20th of August, the end of the leaves begin to turn a little bit brown. The leaf is pointed just at the end; that end will begin to turn brown. When you find these ends of the leaves begin to turn brown, and the point of the leaf beginning to turn brown, it is ready to cut up. You take a sickle or a crooked knife, or something of that character, and a man goes into the field and takes hold of the outside row at the top of the stalk, being very careful not to break the leaf, and takes his sickle or knife and cuts it off close to the ground, and carefully lays it down on the ground. Take the outside row and lay it down in that way, and step right along to the next row and cut that off and carefully lay it down. You should not commence cutting until the dew is off in the morning; and so you go down through the rows until noon.

The next thing is where to put the tobacco. If you go into raising tobacco, you want to prepare a place; but almost every farmer has a barn that is just as well. It only requires a place where it is not open enough so that the wind will blow through and break the leaves, and it wants to be where it cannot be rained upon. I took my barn and took the battens off; that left the cracks open, which let the air in to circulate through it. I then commenced up in the loft and run heavy poles from the plate; I went above the plate and fastened the end of the poles to the purloin, once in about ten feet; then I took rails to hang my tobacco upon. The tobacco can hang upon these rails as close together as you can pack it upon the rail or pole, but between the rails or poles you must leave space that is large enough for the air to get through so that the tobacco does not touch. On the pole you may shove them together just as closely as you can.

Then by noon, this tobacco that you cut in the morning is wilted, and you can throw it around for it will not break now. You can take the leaf and twist it up; it is tough. Before this time it has been very tender. You take a wagon with a hay-rack, and go out and take it up and stack it on your hay-rack, until you get a load, and then draw it to your barn where you

are going to hang it up. A man goes up to the rails that lay from one stringer to another. He stands there with a ball of woolen twine, and takes a stalk of tobacco and puts it one side of the rail, takes another stalk and puts that on the other side of the rail, leaving the butts above the rail, and winds the string right around it, letting the end hang down. A boy hands you two more stalks, and you place them in the same way and wind the string around it; and so you fill the pole. You wind the string around but do not tie it. The butts of the stalk are above the rail. The tobacco will be some three or four feet long. You do not want to wind the ends together tight enough to press the ends out, just let them hang naturally and just pass a turn of the string around the butts; then take two more and give a couple of turns to the string, and so on until you come to the end of the rail, then fasten the string and cut it off. Then you take the next rail, leaving a space between the rails, but on the rails you can pack it as closely as you can put it; and so you fill the whole of your barn in that way. It wants good strong poles, for it will weigh a good many tons. Two men and a boy will put up and hang in the afternoon all that they can cut in the forenoon. It is important that you get this hung up before the dew falls on it, otherwise you may injure the quality of your tobacco. The next morning you begin in the same way. One year I had five acres, and I think two men and a boy cut it up and hung it in my barn and shed in six days. That is my recollection. When you have done that, you have got no more labor to bestow upon it. This will be done before the first frost; generally the latter part of August or the first days of September. The tobacco will keep wilting until it will turn brown and become dry, so dry that if you allow a large space to be open, and a severe wind is blowing through, it will break the leaves. When it is all brown, about the latter part of November, when the green color of the plant has all left it, (it will not be entirely gone, there will be some green there yet), you select a damp day; you go in there of a damp or rainy day, and you can straighten the leaf out just as if it was a piece of silk.

Take a damp day when you and your man cannot do anything out of doors, go in and take the first tier next to you, the first rail, and commence and unwind the string, and take it down just the opposite from what you put it up. Take hold of the butts of the plants and unwind the string and hand them down; you need not be very careful. Unwind your string until you get it all off of the rail, or as much as you want to work on, and lay the tobacco on the ground in piles, just as you would with corn, as if you was going to husk it. Now is the time when great care wants to be taken in selecting.

You take the leaf and pull it off from the stalk. If it has got a hole in it or has been broken, you put it by itself on the floor. If it is a perfect leaf you take it and lay it down by itself carefully. Every leaf that has got a hole in it you strip from the stalk and hold it in your hand, like that. Keep adding to that in that way until you get your hand full. You have got the butts of the leaves sticking through your hand and the leaves all hanging down. That is called a "hand" of tobacco. You take one of these leaves and wind it around the butts and stick the end in between the butts after winding it once or twice. Then you lay it down on the pile. You keep on in that manner. The best way to do it is for a man to sit right down and lay it across his lap and strip it. Do not take one of these perfect leaves to wind around; pick up a little piece of a refuse tobacco leaf and wind it around. These "hands" of perfect leaves or wrapper, keep separately. Keep on in that way until you strip all your tobacco. If there is a little hole in the outer edge of the leaf, it will not hurt it much.

The value of the tobacco up to this time depends on not breaking it; because I undertake to say that the leaf that is not broken of Wisconsin tobacco, up to this time, cannot be told from the best Havana or the best Connecticut.

After you get this tobacco all into "hands," then comes the tug of war to make good tobacco; and there is where Wisconsin and Illinois farmers all fail; a great many in Con-

necticut fail; Most all of the Kentucky men fail. They fail for the reason that it requires that kind of attention and care and aptitude that wants a good skillful farmer to do and to do it well.

Now comes the reason why some of the tobacco raised in the same manner and cured at the same time, will vary in price from thirty cents to a dollar and a quarter per pound for Havana; from ten cents to ninety cents for Connecticut, and from four cents to twenty cents for Wisconsin. After this is put in "hands," you want boxes made about three feet by two and a half; that we call a case. You want to take the "hands" of tobacco and pack that box so that when you press it down with a power of two tons' weight it will settle evenly. A common pine board box, about three feet two and a half, will do. Lay a "hand" of tobacco in, take another and another and cover the bottom all over. Then pack them evenly everywhere. The butts will be thicker than the small ends. You want to pack in so that when you press that in with a force of two ton's weight that it will settle evenly in the box. After you have done that and filled your box up full, press it gently down as much as you can with your hands; feel it all over so that it feels solid alike, no loose places, but every place of the same consistency. Then you want to have what I call a follower, that is, a plank made just the size of the inside of the box. Then take a long stick of timber and put the end of it under the sill of your barn, and put a block on the top of the follower and put this plank follower on top of the tobacco after you get the box evenly full. Then use this box as a fulcrum and this long stick as the lever and lay it across this block and put weights on it so that it presses the tobacco down. You cannot press it too much. The best raisers in Havana do it with a screw power. You have selected, as I have told you, a rainy day and you are not going to break your leaves by the pressure. Then you take out the follower, and perhaps you have not got more than three or four inches of tobacco in the bottom of your box. You fill it up in the same manner as before and press it

down in the same manner. You repeat the process until you get the box full. You will get nearly four hundred pounds into such a box as that. Nail that box up and put it somewhere in the barn. Go on and fill up the rest of your boxes in the same way.

The pressure is what causes the tobacco to sweat. The sweating removes from the tobacco all the unpleasant taste and smell, and on that sweating depends the quality of the tobacco, aside from whether it is wrapper or filler.

Most of our farmers who raise tobacco in this State sell their tobacco now. It is not ready for market now. You take some of it out and smoke it and it tastes badly. Cigar makers will tell you it will not make a good cigar. It is not worth more than four or five cents per pound. But you keep that tobacco until the next spring, when the tobacco plant grows again, and go and look at your boxes, and all around on your barn floor there is a black-looking liquid running from the boxes. From a box of tobacco of the size I have named, the liquid will almost equal half of the contents of the box. That looks nearly like the black salts that they make in Western New York from ashes. Your tobacco will be as sweet as if it had been in the lake. Let it alone; it is doing well. Raise it up so the bottom will not settle and it will have a place to run away. In a little while it will all dry up in the boxes. Then you can take that tobacco into market, but you shall not tell them it is Wisconsin tobacco, and you can sell it to the best leaf dealer they have in Milwaukee or Chicago, and they cannot tell you where it was raised.

Tobacco is usually taken to market in the fall. The majority when they raise tobacco in this State, when they strip it; tie it up in bundles as big as a man can carry. In Milwaukee, early in the fall, I saw five or six tons of tobacco tied up in this way, that was raised last year. I asked the dealer what he paid and he said six cents. Now, if that man had cased his tobacco and sweat it, and got it ready for the market in this way, his filler would have brought him from

ten cents to a shilling, and his wrapper would have brought him from twenty-five to thirty cents per pound. Now, by this process, in my judgment, it cost me about as much to raise an acre of tobacco of 2,000 pounds, that brought me that year about \$300 an acre, that it would have cost to raise two acres of corn in the old-fashioned way with a hoe.

A voice:

Is there not a great deterioration in the weight by sweating?

Mr. Pulling:

No. The tobacco, in my judgment, in the sweating process, gathers from the atmosphere. It extracts from the tobacco all the weedy taste. If it is not packed well and evenly, and you open your case you will find that it has not sweat well.

I do believe that tobacco can be raised and prepared for market, and if they will do it as well here as they do it at East Hartford, Conn., that they will get just as much and their tobacco will be worth from eighty to ninety cents per pound.

A voice:

Is there any value to the stock after the leaf is stripped off?

Mr. Pulling:

No, sir. The stem of the leaf is only worth a cent a pound after they have stripped it to prepare it for cigars; so the stock is of no value.

Mr. Chester Hazen:

After sorting the tobacco, you pack the poor quality in boxes by itself?

Mr. Pulling:

Yes, sir. The wrapper leaf you put in boxes by itself. I got twenty-five cents per pound in Milwaukee for my wrapper leaf.

Mr. Hazen:

What did you get for the other?

Mr. Pulling: •

I got eleven cents per pound. The last year when I sold my tobacco it was a year that a great many had gone into it. I had been pretty successful for a year down there. Bush & Weiss came down and occupied a portion of my farm and raised tobacco, and made cigars; and the cigars sold pretty well. They got nice tobacco, and a great many of the farmers down there went into it; but they were careless, and they carried their tobacco into Milwaukee in cases without sweating. They packed it in bundles, and one man had his tobacco in the barn in a bundle the next spring and never found a market for it. And he came to my house the next spring and said the tobacco was spoiling; there was a black liquid running from it.

When I went into Milwaukee the next year, I went to Rothe, and several dealers there, and they did not want any Wisconsin tobacco. They could get any quantity of it for four or five cents a pound. I finally succeeded in getting them to come up and look at my cases; and I opened one and had no difficulty in getting eleven cents for my filler and twenty-five cents for my wrapper.

Whether it is profitable you know better than I do. I regard, with my experience, that a ton or a ton and a half to the acre is an average crop.

I asked Rothe what he paid for Wisconsin tobacco this year, and he said he paid ten cents. That was tobacco not prepared, as I have told you; a few "hands" of it might be good, the balance has to go into cheap cigars that sell for seventeen dollars a thousand when stamped.

Mr. W. W. Field:

Can you tell us the weight of the tobacco when you put it in the case and when you take it out?

Mr. Pulling: •

I do not know that I can. I have told you the weight when I brought it into market for sale.

Mr. Milan Ford:

What effect does it have on the land?

Mr. Pulling:

I have been told that it was very exhausting on the land. I cannot tell you without telling you as it happened to me. I had a field where I raised this tobacco. It had wheat on it for three successive years before I put the tobacco on it. I put on some manure, I do not remember how much. It was not very heavily manured, any way. I manured it for three years and raised the tobacco right on the same land, putting on some manure each year. After I had my tobacco on that land for three years, I put some manure on it and I had an excellent field of corn. My impression is that it is no more exhaustive than any other crop, if you keep the land in the same way. If you take any particle of your straw from the ground and carry it away, you are going to exhaust the land very soon with wheat. That is what you do with tobacco; you leave nothing on the ground except the roots, which, when you come to plow, you throw away. In my opinion it is no more exhaustive than any crop when you take everything off.

I regard tobacco as a very easy crop to raise, and one of very ready sale, if it is good. But the value, whether you shall get four cents per pound for some poor article, or whether you shall get twelve or fifteen cents per pound for a better article, depends upon this peculiar process of curing which I have mentioned.

Mr. Chester Hazen:

What proportion of fillers do you get?

Mr. Pulling:

I do not think that I remember now. I do remember that out of my crop the last year I had two cases of wrapper leaves that weighed nearly eight hundred pounds, for which I got twenty-five cents per pound.

Mr. Chester Hazen:

Twenty-five per cent. of the whole amount.

Mr. Pulling:

I got \$1,600 and some cents for my crop that year, and I think I had between two and three hundred dollars worth of wrapper leaves. These details are matters of memoradum, and I cannot be as accurate as I could if I were at home where I could look at my memorandum.

A gentleman, whose residence is in East Hartford, suggests to me that I have left out of question the tobacco worm. It is just a mere bugbear. If you will plow your land in the fall, you turn all of these little fellows up and they freeze out. You may the next summer have a dozen or two of tobacco worms on your plants. If you do, about the middle of June, just go through your fields and look on your leaves, and if there are any tobacco worms I think you will see them; because they are a large worm. A half of a day's work will keep your land clear.

Mr. P. S. Bennett:

There is such a thing as the tobacco worm?

Mr. J. P. Roe:

It is the same as the tomato worm, identical; and I think it is also the same as the grape worm. It is as thick as your thumb, with a peculiar horn on its head, and is an exceedingly disgusting creature and very voracious.

Mr. P. S. Bennett:

The question is whether that tobacco worm is not the only being on the earth, except men and boys, that will eat tobacco.

Mr. Jonathan Stoddard, of Greenbush, moved to take up the question set for the evening.

Carried.

Mr. R. D. Torrey:

The question is, Are exhibitions of speed, commonly called horse racing, necessary to the success of our agricultural fairs?

Hon. D. J. Pulling, of Oshkosh, upon being called out, spoke as follows:

I suppose everybody knows what my views are. They

call me a Judge Horse Jockey, I believe. Everybody understands how I feel about it. I do not think you have got the question right at all. I think there is not any question about your proposition. Trials of speed at our fairs are not only proper but very beneficial. I do not think the trouble is there at all. I think the trouble exists in the way you manage them. You let a lot of horse jockeys, me among the rest, get hold of your track and horses and manipulate them, and go on the track, and jockey, and cheat, and scold, and swear, and corrupt the morals of the young there, and do not say anything against it at all. There is where the trouble is. I do not believe there is any man here but what likes a good horse as well as I do perhaps. I am very fond of them. Every man must have his weakness. With some it will be one thing, with some another; with me it is the horse. I do not know why I should not enjoy it. He was given to us for our use and our pleasure. There is not a man here but when he goes out to ride he may not care to ride at a twenty or a two-thirty gate, but he likes a good horse. He does not want an old spavined, broken-down nag. It is human nature. We cannot help it. It is just and right; there is no doubt about it. But when you gentlemen running the fair, responsible for its proper conduct, responsible for the protection of the morals of the young that go there, permit vagabonds, horse jockeys, thieves and three-card-monte men to take charge of your track and run it, and stand there and swear at the judges and humanity, you are the ones that are to blame.

Mr. P. S. Bennett:

That is so; pitch in.

Mr. Pulling:

Conduct it properly; conduct it with just as much propriety as you conduct any gathering in your private houses. See that if a man conducts himself improperly with his horse on the track, or any man connected with him, that the marshal takes him by the collar and leads him out of the gate;

and when you do that a few times you will have it just as quiet and just as gentlemanly as your gathering here this evening.

Then it will be of some pleasure to take our ladies there and see the horse exert himself in his pride. The ladies like it just as well as we do. If you are going to conduct horse trots as I have seen them conducted, I would vote against it every time. It is in your own hands. Take away your horse trots, and I am persuaded your fairs would be very small. How is it in the east? At Buffalo? The Cleveland races? And Long Branch? Do you suppose you see any such thing there? But in Chicago there is where they killed a man. I do not know as it is any better now. Take your own fair at Oshkosh. Every year that I have been there, you have seen conduct that was a disgrace to anybody. Whose fault was it?

Mr. J. M. Smith:

I would say I have been interested, and I have honestly tried as far as I have done anything, to have the horse trots conducted honestly and fairly and in a gentlemanly way, and I have failed. I would like if the Judge would tell us just how to do it, and have everything right.

Hon. D. J. Pulling:

You should give good, reasonable and generous purses at your fair next fall, and you appoint me your marshal, and I will see it conducted properly.

Mr. E. H. Benton:

I guess the agricultural community would back him up too.

Hon. D. J. Pulling:

It is only on the condition that you give good purses.

Mr. P. S. Bennett:

What are good purses?

Hon. D. J. Pulling:

I am not the judge of it.

Mr. J. M. Smith:

Let the Judge name the amount that is required.

Hon. D. J. Pulling:

When you come to talk that up I will sit down.

Now you have tried to keep order, but you do not try in the same way that I keep order in my court-room. You talk and you do your best, but you just lack that kind of nerve that will step up to a man and take him by the collar and say, Come with me. You have not got the back bone. I do not say this in order to disgrace you, I am only speaking of facts; that is the truth. Perhaps undertaking to do this might interfere with the race; might break up the very first race you had. What is the effect of that? When they find out that they cannot come to the fair ground, unless they act as gentlemen should act, then they will come there and behave themselves. You might have some trouble there at first, but that would be the end of it.

Mr. J. M. Smith:

If there is nothing further on the subject we will dispose of it, and take up something else. I will say that the way trials of speed at Oshkosh are conducted, that they are not very creditable sometimes, but I cannot for the life of me see where the wrong is of trials of speed, if they are rightly conducted. I do not see if it is perfectly right to breed and train horses for draft horses, horses for all purposes, why the breeding and training of horses for speed should be any different from anything else. We all like a fast horse; why should not we trot them, and trot them before the public? I cannot imagine. But I am certainly always sorry to see the way they are conducted. I would be glad to see them conducted on an honest and correct principle, the way some other things have been conducted.

Mr. E. H. Benton:

I have simply a question or two to ask the convention. The remarks of the Judge suggested this subject of reflection to my mind: Does the mere fact of the trial of the speed of the horses, make that class of men we have been talking about? Or is it the other way, that it is this class of men, that more particularly interest themselves in the speed of horses? Either horn of the dilemma makes it look very badly to my mind;

that the whole system is vicious. Either it is vicious in the manner it is conducted, or vicious in the thing itself. If I can understand that matter, I will be better able to judge of something else. It is self-evident, from what was said here, to know that the thing itself is somewhere wrong, for they are a class of men, that every man who associates with them is ashamed of. I have been around and heard opinions privately expressed. On the whole, people do not like to take their families there any more than the Judge does his wife. But they do not know whether the whole thing wants to be wiped out, or the stable to be swept clean. There is a pretty strong suggestion to my mind that the whole thing is vicious. They have either got the wrong kind of men in it, or else it makes the wrong kind of men.

Mr. J. P. Roe:

I think there is a scriptural text that hits this thing squarely. "As using this world and not abusing it." There is not one good thing in nature that God has given us, but what is subject to abuse, and the perversion or misuse inflicts a curse upon it and brings a curse with it. What has become of our national recreation, distinct from cricketing in England? Yet worse, base ball playing? Already we see pools sold on base ball. Already we see betting on a large scale, time and money wasted; and the same class of men gathering around it. All that may be prevented. I recently took a trip eastward, this early part of the winter, and found in Orange County, my own native county, that the love of horseflesh had been so much developed that every respectable farmer, every gentleman took a particular pleasure in a fast horse; that the slow horse seemed to indicate a slow man. I enjoy a good horse; I want a good horse to drive on the road. So far as the exhibition of speed in itself is concerned, I can see no difference intrinsic evil in it, any more than there is intrinsic evil in base ball playing.

Mr. Jas. Orvis:

I think that can be attained by agricultural societies, if they

will give it to be understood by their hand bills, that any improper conduct in horse racing shall be considered, as Judge Pulling does, a contempt of court, and then you will soon get rid of it; treat it in the same way he does any impropriety in his court, and it will be done away with.

Mr. Steele offered the following resolution:

Resolved, that the present method of pampering with, and fattening thoroughbred stock for public exhibition, renders them wholly unfit for breeding purposes; inasmuch as it weakens and impairs the constitution of their progeny, and tends to degeneracy and sterility.

The resolution by Mr. Steele was then taken up. A few remarks were made by Mr. Steele which could not be heard. Among other things he complained of the smallness of the calves raised from Ayrshire stock.

Mr. Johnathan Stoddard:

That fault spoken of by our friend, would not hold good with different breeds of cattle. The Ayrshire cattle are noted for small calves. I do not care how you keep your cattle, the calves are small at their birth; while Durham cattle are not so much so. That has been my experience, and is the experience of almost everybody that I know of.

Mr. John F. Steele:

These were blooded stock.

Mr. Johnathan Stoddard:

From the fact that it was a small calf, you supposed the dam had been pampered. That is not always the case; in other words, that is not good evidence of that fact.

Mr. J. F. Steele:

Is not that the natural result?

Mr. Johnathan Stoddard:

I do not find it so. I have not found it so, because, so far as I know, if cattle are well fed their offspring is of good size. That has not been the evil from excessive feeding; so far as I know about it, they are inclined to barrenness. There is no surety; they lose spirit and vitality; their flesh becomes unnatural; they are not in good state of health. That is the long

and short of it. I do believe that there is a greater evil upon another point where the highest priced cattle are concerned, than that of feeding, and yet they both go together. Alexander, of Kentucky, has been in the habit of breeding in and in so long, that I was informed by one of our best men in this region of the country who bought of him, (I will not call his name, the fact might work injury to him), that a large proportion of the offspring were entirely deficient and unfit for use, and had to be killed immediately, from the fact of breeding in and in so long; but when he succeeded in getting an animal that was perfect, had no deformity, that was not deficient in any point, he always got a big price for it. That kind of breeding entirely disqualifies every animal we buy for the purpose of stock. It is a matter of uncertainty entirely what you get. I have tested breeding in, somewhat. I was so situated in the stock that I bought, that I could not always reach a size that was not in close connection with the dam that I used. I made a certain failure not long since; one of my thoroughbred cows, when the time arrived for her to bring forth her offspring, I found she did not seem to be right, and the result was in an examination, after passing a good many days beyond the time, that the offspring had dropsy on the brain; probably it held two or three or four quarts, perhaps two gallons. I had to open it and take it away. The offspring was dead. I do believe the dam was well cared for, not fed highly, but what we call a good fair care. I cannot see any cause why it should be so, unless it was in the breeding. I bred that way for two or three years, and I believe it was bad on that point. That is my idea exactly. A gentleman has informed me, one of our most prominent breeders, who sells higher than any man in this region of country can sell Ayrshire, that he has been breeding in and in year after year, has hardly departed from that rule for a series of years. It is not exactly from high feeding I think. Cattle should be well fed. I tell you I feel ashamed at the exhibition at the fairs, where I take my cattle to the fairs, and find, perhaps among my competitors, are other breeds that have been fattened, blanketed

and pampered, from the time they were dropped until they were brought on the fair ground. We have to compete with them more or less. Perhaps they are not the same breed as mine, but they will bring me in spite of that into competition with them, and do not let you come into competition with your own breed.

Mr. R. D. Torrey:

I would inquire if in the nature of the case, this fattening and grooming of cattle has a tendency to sterility?

Mr. Johnathan Stoddard:

My opinion is where you have such an increase of fat on them, that your grooming does not do any harm; but when you have fattened them in such a manner, and stimulated their digestive organs and their appetite, and fed them all they could eat, until they have piled on such an amount of fat that it does run to sterility. That has been my experience, and I believe it is correct. Yet good, common, generous feeding, attended with exercise, makes them all right.

Again, I am informed that there was an animal from this town, a few years since, an Ayrshire, that was a good one; kept for that purpose, but he was found to be useless; sterility was the entire cause. He was sold and put to work, and the flesh taken off, and he was all right. I have found that to be the case in another instance.

It is a known fact that the Durham cattle are noted for the laying on of fat outside. Some lay it on in bunches, and some lay it on evenly. The Ayrshire, if made fat, are fat in the leaf. I have taken a good deal of pains to inquire of the butchers in regard to it. They tell me that they have never killed cattle that weighed as much for the size, and the meat as thick through the ribs, rich, juicy, sweet meat; but there is not that fat that you get with the Durham cattle. They are not made so; it is not their constitution.

• Another point. I lay down the principle in breeding cattle, if we wish to establish upon that breed any peculiar quality that shall follow them as characteristics of that breed, the quicker and the longer we establish that property in the breed

the more certain we are of having it executed in the dam or sire. I take the ground the sooner you can put females to breeding and giving milk, and not be all together out of place, the better. Therefore my cattle and other Ayrshire cattle are smaller, while they can be brought to a large size if kept and grown. I had one yearling that weighed 1050 pounds in September, in ordinary flesh. It was good enough and heavy enough, but that is beyond the usual size. I have one heifer at home that is four years old in the spring, in April, that has had her fourth calf. She had her first calf in the cars coming from Montreal. I have one heifer at home three years old, that has been milked every month since last September.

Mr. Chester Hazen:

As this question has come up in regard to over fattening stock for the fairs, I would like to say a few words on that question. We notice in our premium lists, they have given out that particular attention should be paid by the Judges to fat stock, in awarding the premiums. Does any brother know where any objection was made to the awarding of the premium to the short horned animals, because they were over fat or highly fed? Is not that the case that the fat animal usually gets the premium? Over fattening animals used for breeding purposes, unquestionably injures them for that purpose. From over feeding and want of proper exercise, they will lose their vitality, the strength of their muscles; it deteriorates the cattle for breeding purposes. I speak more particularly of breeding stock. This brings us to the subject of stock of different kinds.

I would like to hear a little something in regard to dairy stock. Different breeds of stock, of course have their different types. While the Short Horn is valued exclusively for beef, they are out of the question in York State almost entirely for dairy stock. You can hardly get a dairyman to buy a Durham cow to put in his dairy. That is what they tell me, who have bought cattle here and shipped them there. In fact the Durham stock has been bred exclusively for beef. They are a squarely built animal. The type of them does not indicate milk; while the Ayrshires have been bred for centuries

for the purposes of milk. They possess the most pure type of any stock we have for a dairy cow, and undoubtedly possess the best qualifications. In our fairs in this state, we have to meet this one difficulty; dairymen take stock there that is giving milk. All dairymen know that a cow that has been giving milk will not be very sleek or nice, that is as compared with beef cattle. We cannot show it in the ring with that class of stock. I have got through trying that experiment, it does not work at all. I have got through making that attempt of showing dairy stock with beef cattle, for premiums. An animal, if she was a good dairy cow, when in milk would most invariably be thin in flesh; in fact, a good dairy cow when giving milk, will be rather thin in flesh; that is a sign of a good dairy cow, she will not get very fat. When my cows get a good deal of flesh and give milk at the same time, I do not want to keep them another year for dairy purposes; I have got through with them for that purpose.

In our fairs, particular attention should be given not to give the over fat stock the premiums. They require us to present our dairy stock in with the Short Horn and beef cattle; dry cows not in milk, Durhams or Devons. We bring in prime dairy cows, worth more than any of these to the dairy. The Short Horn man comes in and brings in beef; the dairy farmers are all aware that the beef interests are behind the dairy interests in this country. While we show cows in milk they show cows in beef condition, which gives us no show at all. In the York State fairs they offer first and second premiums for herd milking stock; first and second premiums for Ayrshire stock; first and second premiums for Jersey Stock, and so on. In that dairy country they show more Ayrshire stock than all other horned cattle put together. In this state we have as large a show of Ayrshires as any other one breed of stock.

But what I wish to bring before this convention, was the injustice shown at these fairs, and discrimination shown in favor of beef, when you expect the dairyman to show dairy

blooded stock with fat cattle. I think we have had no show at all in the fairs for the last two or three years. When you present as good a type of a cow as you can find in the country anywhere else for milk, for the sweepstake premium, as I did one time at the Northern Fair, put in as good a cow as I had, as good a dairy cow, perhaps as there was in the state; the Judges came along and gave the first premium to a calf six months old. It was a kind of a curious circumstance, but I presume they did what they considered right in the matter. If we are going to show cows, let us show cows. If we are going to show beef let us show beef.

Mr. P. S. Bennett:

I move that a committee of three be appointed to prepare the business for the morning session to-morrow, and that they report at the opening of the session in the morning.

Motion carried, and a committee was appointed consisting of Mr. J. P. Roe, Mr. Chester Hazen and Mr. A. H. Hart.

On motion the convention then adjourned to 9 a. m. Thursday.

THURSDAY, *February 25, 1875.*

Convention called to order at 9 o'clock A. M.

President Smith in the chair.

The Committee appointed yesterday to bring up a subject for discussion reported the following:

Resolved, That the adulteration now practiced in the article of honey should be brought to the attention of the public through our organization and by every other advisable channel.

Mr. J. P. Roe spoke as follows:

This adulteration is practiced on a large scale. There are two ways to meet it; that is, first, by confining the sale of honey to what is known as comb honey. Then the public will have an opportunity of judging between the two articles and know that all that is pure is sold in the comb, and that the adulterated article is what was formerly spoken of as

strained honey. On the other hand we are met by this consideration, that of strained honey or extracted honey. I should rather say, you can, as I understand it, produce at least double the amount.

Were it not for this competition of the adulterated article, the profit of bee-keeping would be doubled, if we were not compelled to adhere to the production and sale of comb honey. But this adulteration is now, as I understand, being carried on in an enormous scale. There is not a city, town, or scarcely a village where honey is sold throughout the West but where this adulterated article is found, and it is driving the bee interest almost to the wall. I understand that the largest bee-keeper in the West, in California, brought in a large invoice of honey. He had one-half in the comb and one-half of extracted honey. He was told by the wholesale dealers that they would take his comb honey, but that they could make a better article than his extracted honey. We propose this as a subject for discussion this morning.

Mr. E. H. Benton:

I propose we devote fifteen or twenty minutes to this matter of honey before we take up any other business.

Mr. A. H. Hart:

Mr. President and gentlemen, the subject of honey that has been spoken of is a matter that probably appertains to most of us, yet the rule that is taken by a great many is that it can be produced only as a luxury. In order for us to understand what steps are necessary for us to take to guard against invasion in this question, it is necessary to take into consideration something of the value of honey.

Now, perhaps it is not generally understood by these bee men that we are living in about the darkest age in regard to honey and the product of the bees that we know of, especially in America.

But I will go back a little to ancient history and give a few facts in relation to honey, and more especially to the years 1200 to 1600.

I will go back exactly to Adam and begin my story, as some of our friends have done in their essays here. My first reading was in a very old book and it seems from the language used that the very highest estimate was placed upon honey by the Jews. The prophets also tell us something in regard to honey. Isaiah says: "That a child shall be born; his name shall be Immanuel, butter and honey shall he eat that he may know to refuse the evil and choose the good." So we find the Saviour, after his crucifixion, asking the disciples for meat and they gave him honey and fish. We find, also, that John the Baptist's food was honey and locusts. Whatever estimate we may place upon what is said in that book we all have it and can read it and understand it. Take the concordance and look the book through, and you will be surprised to find what an amount of use was made of honey in those days.

We have little history aside from the Bible until we come to about the twelfth century. From the twelfth to the sixteenth century we have the history that more and better honey was raised; bees were better understood. The value of honey for medicine and for food was better understood than it has been since. You find that in some of the old countries at that time that the crowned heads fostered the production of honey. Their forests were termed bee gardens. They allowed the bee-keepers to organize into an association by paying a large amount of tribute. They were allowed to legislate for themselves on that one subject. It became necessary for a man to belong to the association and to pass an examination to see if he was qualified for the management of bees. They were called bee-masters. Unless a man was qualified and belong to the association he was not benefitted by the laws. In disposing of the honey that they had gathered, they divided it into three divisions. Their chemists decided which was valuable for medicine. That was termed No. 1. No. 2 was used extensively as their sweet in those days for food, and No. 3 was used for making wine.

Now, if we were as well informed as I think they were at that time, and understood the medical properties of honey and the value of it for food, we would see the necessity of trying, at least, to have a pure article brought into the market.

The situation it has been in for a few years past in this country has been, to use a common phrase, a good deal mixed. We have had much to contend against. Insect enemies of the bees have appeared in different forms. We have had severe winters and but little encouragement from the sources from which we should have received it.

Very little was known in this country in regard to bee-keeping until the introduction of the Italian bee and the movable frame. Before that, the whole system, I must say, was comprised in the plan of operating by guess.

No man understood it well enough to tell whether his swarm was in a condition in the spring to produce a large amount of workers and a large amount of surplus honey. He could guess that his hive would swarm once, twice or three times, as the case may be, and they might possibly get out ten or fifteen pounds of surplus honey.

Mr. Quimby and Mr. Langstroth are the two standard authorities we have to look to. Mr. Quimby in describing what you might naturally expect from an aviary, says on an average it would be eleven pounds of surplus honey from a swarm.

In process of time we have discovered that we can produce from 100 to 500 pounds, and even as high as 600, pounds of honey from a swarm. We have found that we produce this amount only as we operate on scientific principles. I do not suppose I will have time to give a definite description of the plan of operating, for I have only a short time to speak to you of adulteration.

By making advances and learning what we could in regard to the science, we find we can produce 100, 200 and 300 pounds to a swarm of bees just as easy as we can get eleven pounds before, but we have to do it by extracting the

honey — taking it out as the bees fill it, emptying the comb and giving them the comb again and letting them repeat the operation. We find it takes twenty pounds of honey for the bees, under ordinary circumstances, to secrete one pound of comb, a pound of wax, and put it up and fix it so as to breed in so that they can have more time for gathering and depositing honey. It is very nearly so, although there are certain bees that a part of the season do not make honey at all. Operating in that way, we have been able to produce a large amount. We get a purer article. We are able to divide that honey.

Honey possesses the medicinal property of the tree or herb that it is collected from. If we are judicious we can put it up into two, three or four different varieties. We can put it up according to the medicinal properties it has, so that it can be used as medicine.

We find when we divide this pure article and bring it into market, that there is no sale for it, and there is a cause for that. That is what we complain of. I find in every town an adulterated article. I find honey in your town is forty cents a pound, put up in a little tumbler; that costs the producer six cents besides the tumbler; it goes the rounds and it costs forty cents; the tumbler is worth, perhaps six cents, perhaps ten cents.

At the National Bee Keepers Convention, held in Lexington, Kentucky, a year ago last November, the question of adulteration was discussed. The discussion resulted in the appointment of a committee to investigate, and chemists to analyze and report at the next convention at Pittsburg, Pennsylvania.

The report at the convention showed that there is a very large manufacturing establishment in New York, and another one in Chicago. They ascertained, also, that in France there is an article manufactured largely from refuse grapes and fruit, starch, etc., called glucose. That glucose is shipped here, and can be afforded for about six cents a pound. It was also ascertained that one-eighth of honey and seven-eighths of glucose

gave the taste of honey, and made an article to be sent out. If the people began to understand the matter, they would slice off a little comb and put down in the centre of a jar, and send it out. You can find it in every village and in every grocery in this city. I will not say every village. I went to Waupun and inquired if they had any honey; and one man told me no, but he said he had sent to Chicago and would have some in a day or two.

J. B. Hodgson, who took the first bees that were introduced to California, around the isthmus, has succeeded in raising honey bees to the extent, that last season he had 2000 swarms, and his report also states that he shipped twelve car loads of honey to Chicago and New York, about one-half extracted honey, the other half comb honey. He went to see those dealers and inquired of them. They asked him "What is the price of your comb honey?" He gave them the price. They asked him "What is the price of your extracted honey?" He put it low. All they would offer was from twelve to fourteen cents for the extracted honey. They did not want to buy the extracted honey, but the comb honey they were very pleased to get. They said, "We can manufacture a much better article, and much cheaper than you can sell you pure honey for, brought from California." Yet this honey that is brought in there, they will tell you is California honey. Perhaps it may be. I do not know exactly what disposition Hodgson made of his extracted honey. I know this: many men raising honey and offering it in the form of extracted honey, find this thing in the way. The query comes up, what are we going to do under these circumstances? Those men are taking advantage of our course. We have found we can produce honey now, cheaper than you can buy your syrup or sugar, even in Wisconsin. I could relate a few instances where it has been tested. Already in California, they sell honey cheaper than you can buy syrup.

Our proposition is, with the improvements we have discovered, so that we can raise bees successfully, that we can encourage the produce of honey here in Wisconsin so that you

can buy it cheaper than you can syrup brought here from Louisiana.

A little over a year ago I happened to take up a Louisiana paper, and I saw a notice of a convention that had been held there. The object of the convention was to know and inquire what should be done in their case, for they found that formerly they used to make sugar and make money by it, when their labor did not cost much of anything; now they were at the necessity of hiring, and perhaps of hiring money at a little over three per cent.; they found unless they could get a higher price for sugar, or produce more by some process, they would become bankrupt. If they cannot produce sugar at a less expensive rate, and we can compete with them by bringing honey into the market, and making them think it is as good as syrup brought from there, (and it is better than syrup adulterated in Chicago then we can go before the people

For instance, I will give you an idea of what can be done in Wisconsin. We are just beginning to find out what we can do.

Mr. Crofoot, a year or two ago, on the Sheboygan River, from seventy-four swarms of bees, raised fourteen swarms increase, and 22,000 pounds of surplus honey. That is in Wisconsin.

Adam Grimm, who is a prominent bee man, has in fourteen years, cleared over \$30,000 in Wisconsin by raising bees.

His last report was that he had received in cash at the depot, \$4,700 for honey that he had produced, and had retained five or six hundred pounds of comb for his own use. Last spring he gave his daughter, who got married, one hundred swarms.

Now a little instance that took place in Madison last spring: A neighbor of mine came from the state of Maine, a bee man. He wanted to know where he could buy some bees; he wanted to go into the bee business again. He had been in it before; he had about fifty swarms. I told him that he could buy some there. We met there. introduced him. He bought

fifteen swarms; they were in good condition. He bought one swarm of a neighbor I had. His report was 3400 pounds of surplus honey.

I bought a quantity of comb, and we judged it to be 125 pounds, and I took out 180 pounds of honey from that comb. He got six swarms increase.

We have not had an extra season; no more than an ordinary season. The man that he bought of, had about thirty swarms left, and he worked on the usual plan of operating. He got 800 pounds of honey from his thirty swarms, while the other man by operating scientifically, produced 3500 from a less number.

I operated a few in that way. I had not the advantages that he had, but I operated on the same plan with six swarms; one of them had the misfortune to lose the queen, and worked along for sometime before I found it out, so that I didn't get any benefit from them, but I produced twelve hundred pounds of honey and four swarms increase from the six swarms. In reality I had only five swarms. We have found out definitely that we can work bees to an advantage in this country.

Now we claim just as much fostering as the friends see fit to give us. The State has not done anything for us. The The State Agricultural Society did but a little. Two years ago they offered to give two dollars as a premium to the bee department, for the show of honey. They begin to see what bee men can do, and they are now coming up and offering encouragement for the produce. The Society we have here in meeting to-day, has been offering quite liberally, yet there is some improvement to be made in their encouragement to this department. I know a great many people say that "the bee interest does not amount to a great deal, it is kind of haphazard. I have tried it; I have kept bees a number of years, and have made up my mind it does not amount to anything."

If you expect to make money in any branch, I know you must understand it.

Perhaps I had better state a little further in regard to California. Bees have but just been introduced in California.

From San Diego County they sent 200,000 pounds of honey by Mr. Hodgson. Now that 200,000 pounds of honey might be raised in Fond du Lac County. It will yield a profit at the least calculation, worked scientifically, of from 100 to 250 per cent. So make your figures for the State of Wisconsin, and see what an amount we might produce, that is entirely lost; besides, it would furnish employment for a great many invalids and for your boys. You would have an attraction for them. All these things might be taken into account, and we might have a land flowing with milk and honey. These ideas I have thrown out for you to consider.

I have got honey to sell and I raise it to sell, but I dislike to come in competition with this adulterated article. I hate to come in town and hear them say, "We have got Chicago honey and do not want to buy yours." I expect to be able to sell all the honey that I can raise.

All you that want honey as a luxury, for medicine, for food, would do better to buy a pure article. I went into a drug store yesterday, to see if there was any honey where it should be. The druggist said, "I went all around to get some pure honey; I could not find any, so I have not got any for medicine."

We have gained so much knowledge on the subject, that the dread of the sting does not amount to much, and we can operate them without being stung. We can put our hive in condition in the spring; let them gather surplus honey, then we can divide the swarms and fix them for the winter, and put it in the house and there is no more trouble with it. We are not back fifteen years ago, we have made some advances.

My advice is to any body that feels that he can take care of a swarm of bees, and operate it so as to make a profit from it, do it if you do not have but one swarm. Operate it and get some benefit from it.

I got 305 pounds of honey from one swarm and one swarm increase. I sold that honey for twenty cents a pound, making me sixty dollars. If I sell the swarm, I sell it for fifteen dollars. I think a swarm that will make 300 pounds of honey is

worth fifteen dollars. I make them all work that are capable of working.

Mr. Milan Ford:

You count that the work of two swarms?

Mr. A. H. Hart:

The old method was curtailing the queen; as soon as she found that she was curtailed she quit working.

Mr. Milan Ford:

The old method was to get fifteen pounds from the old swarm and sixty pounds from the new swarm.

Mr. A. H. Hart:

Perhaps. We want to work with certainty. If I produce a swarm, I want to know that the millers are not going to eat it to death and eat up the old swarm.

Mr. Milan Ford:

I understood you to say that the people in the twelfth century understood the working of bees better than we do.

Mr. A. H. Hart:

They understood the working and the medicinal properties of bees better than we do; better than the majority do now. That is what I wanted to be understood.

Mr. Milan Ford:

Barbarous nations made more of a diet of honey than nations of these days do.

Mr. A. H. Hart:

I will venture to say that there is more honey, and it is better understood how to get it, to-day in Poland, than in Wisconsin.

Mr. Milan Ford:

Perhaps they make it more an article of diet, as the Indians did in the early history of this state.

Mr. A. A. Hart:

Doctors will tell you that bees pulverized, and the virus extracted from the poison sack, are good for medicine. And I will relate a little incident in regard to the matter:

An old gentleman had lived to be very old and remarkably smart, and the counsellor of the king thought that he

might learn some lessons in regard to the laws of life that would be of advantage to him, and he thought it would be well to see if he could learn anything from the old man. So the king inquired of him how it was that he had lived so long, with such remarkable health, retaining his energies so well.

"Well," said the old gentleman, "I calculate it is the use of honey internally, and of oil externally."

Men might not have understood the true value of honey at that time, as a medicine. We certainly do not know it until we understand the medicinal properties of bees, and of the virus that is gathered from the poison sack. As I understand it, honey possesses the medicinal properties of the shrubs or trees it is collected from. If it is kept separate, we can keep the different properties entirely free from each other. As it is collected now-a-days, put all in a cask together; what is gathered early, what is gathered late, and what is gathered in the middle of the season; it is a singular compound, because you would have a cathartic, a narcotic, etc.; perhaps all together.

If you ask the doctor and he prescribes an expectorant, and the honey is highly charged with cathartic properties, what will the effect be? You can find hardly a woman in the country, even if she is the best cook, that can cook with honey.

When you put honey in tea, the warmth of the tea drives from it the aroma or volatile oil that makes it honey. These are little items from my experience in regard to it.

Mr. P. S. Bennett:

I want to ask you if any aparians are capable of selecting and determining where the medicinal honey is in the comb.

Mr. A. H. Hart:

No, sir. It is all put in promiscuously. It may be principally one article. I cannot tell what the medicinal property is unless I follow the bees out and see where it is collected. Unless we have the bees in proper shape we cannot get any one article clear.

Hosmer, a Minnesota man, made the statement before the

Convention that he had collected 6,000 pounds of honey that summer and 5,000 pounds of it was pure Linden. Any man who knows anything about it knows that he made an incorrect statement. It did not bear the proper proportion. His bees only gathered 6,000 pounds and 5,000 were Linden, and the Linden was not in blossom to exceed two weeks, probably not more than ten days. His bees were ten days collecting 5,000 pounds and all the rest of the season getting up the other thousand. There are a few other blossoms that the bees can work on.

Last season we had more honey put in in three weeks than during the whole season, on account of the drought. After Linden there was Golden Rod. We can say we get Linden honey, still it is not pure, but the largest amount was Linden honey. If we have the knowledge we should have, we are able to keep these different qualities separate.

If the Golden Rod suits the palate best, let the man have that; if the Buckwheat suits him best, let him have that; if the Basswood suits him best, let him have that. Strange as it may appear, they gave the Buckwheat honey the premium at Oshkosh. In Milwaukee they gave the Golden Rod the first premium.

A voice:

What is the quality of White Clove honey?

Mr. Hart:

It is a second quality of honey.

A voice:

Do you think this medicinal honey is deposited by the bees for their own health.

Mr. Hart:

No, sir.

Mr. P. S. Bennett:

How much nutriment does honey possess?

Mr. Hart:

That is a question I could not answer.

Mr. Bennett:

Does any one know about the amount of nutritious matter?

Mr. Hart:

We have it given to us in the Bee Journal, by chemists, that there is a certain amount of sugar, a certain amount of ammonia, etc., and so much water. The proportion would be just according to the season in which it is collected. Bees will sometimes collect a hive full of honey but they will not cap over any. Instinct teaches them to leave it open for evaporation.

Mr. P. S. Bennett:

Has it any considerable amount of nutriment or has it not? That is the point I want to get at. I do not care about the precise percentage. Has it any considerable amount of nutritious matter?

Mr. Hart:

The saccharine matter is nutritious, and it has a large amount of that.

Mr. Bennett:

It was said here that there was no nutriment in butter, but that there is in honey.

Mr. E. H. Benton:

I would say that the value of honey depends a great deal upon the climate and the season of the year. This honey from San Diego will be good honey. The rain fall only averages seven inches during the year. Go north to Puget's Sound and it averages eighty-two. You will not get good honey there.

The method of extracting honey is the means of knowing just what kind of honey you get, because they fill the comb in about two and a half days. If you know the prevailing blossom during that time of the year you know the quality of the honey.

As the gentleman said, the bees will make honey in a wet season that is not honey at all. Water is about the entire

constituent of it, because the flowers are covered with water and the honey is held in solution by the water. Now it is a great consideration to buy honey that is made in dry weather, and this can be determined by the man who extracts the honey.

I wish to say, on general principles, in extracted honey you have a better article. Wax is injurious to a persons stomach. The reason certain persons cannot eat honey is on account of the wax that is indigestible. Of course that somewhat depends upon the material it is made of, but as a general thing extracted honey is the most useful article.

I wish the gentleman would point out some means by which a person can tell the adulterated from the genuine article by sight. I can tell it just as soon as I see it. I am somewhat familiar with extracted honey and with the manufactured article. I am acquainted with the way they make it and its imposition on the genuine article. I never experimented in making the adulterated article, but I have experimented with the difficulty of trying to sell the pure article when the other is in the market. I have been in Green Bay trying to introduce Crowfoot's honey. They say they cannot afford to buy it; they can buy the manufactured article cheaper and can sell it dearer. It is just so with your vinegar. They will buy beer slop vinegar at six cents a gallon and sell it to you and they can make a large profit. I cannot sell pure cider vinegar in this city. I cannot afford to make it and sell it at the price they will pay me, so you buy a poor article that is almost as bad as rot-gut in your stomachs. So it is with honey.

Mr. A. H. Hart:

It is an easy matter to tell the manufactured article if we understand it. Ignorance is the greatest obstacle to our understanding things in the world. If we understood pure honey, we would be able to distinguish it at once. I can go into any of these establishments, and I can tell it just as quick as I see it; but there is this distinction: a good many think,

but it is not correct, that if they see some granulated honey that it is not honey. The very best, nicest honey that we have, will granulate the quickest.

Mr. E. H. Benton:

What is one of the surest tests of pure honey?

Mr. A. H. Hart:

Glucose will not granulate. They may have a little sugar in it; sugar crystalizes, honey granulates. If you find honey that has crystals in it, it is not honey. If you find an article that has crystalized and not granulated, I do not care where you find it, it is not honey. If you want honey, get honey that has granulated and you get a pure article.

Mr. E. H. Benton:

If you fill a keg full of pure Linden honey, it will be a perfect solid chunk like a good, solid cheese, and you can cut it right off.

Mr. A. H. Hart:

A little oil will rise on it, like the oil on top of a cake of tallow.

One word more in regard to eating wax. Now the most of people need a little educating. I have no objection if a person wants to eat beeswax, to his eating it. The difference between honey you get extracted and honey in the comb, is wax. If it is extracted, you can make a little better choice. I think it is the more fashionable way. If it has beeswax in it, it does not digest in the human stomach; you might as well have so many chips in the stomach, as so much beeswax. My friend stated that was the reason why honey made so many persons sick. When a swarm of bees is disturbed, the sting comes out with a little virus upon it and that is dropped somewhere. I can make a quantity of honey very poisonous, by handling the bees before taking the honey out.

I claim that if an individual eats this honey with the virus on it, it will be quite likely to make the person sick. My idea is that the virus taken into the stomach, is as bad as so much arsenic,

Prejudice has grown up in regard to extracted honey in this way. Men would lose their bees, and perhaps the comb would be saturated with what bee men call fetid matter in dysentery. There would be the larvea, bee bread, and he would put all this matter together and apply heat to it, and get out the honey. It would be strained honey. What kind of honey would you get? You get something sweet, and it answers their purpose, but it is not a nice article and is not fit to be sold. I do not have any such honey; if I did I would feed it to the bees, and let them work it over again.

A FARMER'S ORCHARD.

BY J. C. PLUMB.

Read before the Northern Wisconsin Agricultural Convention at Fond du Lac, March 25, 1875.

PRESENT CONDITION.

An Eastern man traveling in the West remarked two things as especially noteworthy: The broad fields and the meagre orchards, the wide area of land in fine condition for the most improved labor saving machinery, with less waste from hem, hedgerow, rock and hillock or gulch, than he sees in his Eastern range; but the ragged-edged corner, with its vacant, lonesome looking trees, that we call orchards, are in strong contrast with the general thrift and fulness apparent in most other things that go to make the sum of good living in this land of plenty.

Every lover of progress and perfection in the art of horticulture must be pained to witness the evidence of our very imperfect knowledge of the wants of the fruit tree, or of the apathy of the farmers with respect to the condition of their orchards.

Thoughts like these come to me always in my travels around the state, and I confess to a feeling of humiliation that these things are so wilting in the counties where most of the thirty years of my toil and study in the field of horticulture have been spent, and that so little of certainty and permanency has been attained by the fruit-growing interest of this same field.

I am aware that our first notions of fruit culture were largely upon a false basis, and we have had to grow out of them by the slow teaching of some painful and costly experiences. But is it not now time to awake from the

lethargy and discouragements of the past and bring up our fruit-growing interest to the status its importance in domestic economy demands?

CAUSES OF.

The causes which have led to this condition of our orchards are various and not within the province of this paper to enumerate and describe in detail, and I will only refer to some of the more prominent of them.

If I were to ask the farmers present for their reasons for the condition of their orchards, they would answer about in the following order:

1. Some of my trees were dead when received, or their vitality much impaired by long exposure.
2. My trees started well, but succumbed to the midsummer drouth.
3. Were winter killed.
4. Were spring killed.
5. Destroyed by insects or vermin.
6. Injured by farm stock.
7. Over-fed or starved.

If there be any of these causes it may be exhaustion or old age, which I think is about as rare as Methuselahs, now-a-days.

Any one of these subsequents are enough to decimate an orchard, and with all combined and to guard against, no wonder the present condition. But even this array of evils should not discourage us, for, while common to all, they do not, fortunately all appear at the same time, and the means are in our hands of resisting them all successfully.

REVIEW AND REMEDIES.

I will review these briefly in the order named:

Procure your trees as near home as is consistent, and of parties that you can trust in these particulars, viz.: Their honesty, their judgment, and their promptness to execute your order; or in a word, *reliable*.

There is often a culpable want of care in the handling of trees before packing, but not less to blame is the farmer who

will needlessly expose his trees to the sun and wind and frost for hours after receiving them from the nursery or tree-box. Every buyer should be prepared to thoroughly protect his trees, root and branch, from injury after he receives them, and never forget that it was the "last straw that broke the camel's back."

The inevitable exposure of digging, packing and transportation are matters of great solicitude to the nurseryman, and the farmer should do his part well and with as much care.

I speak from a long experience when I say that we exercise more care for the stock we send out than for that we retain for our own planting.

A tree should never be planted out until it is in a growing condition. If not fresh and sappy, they should be restored by burying in fresh soil, root and branch, for a week, or with roots in moist soil and tops heavily shaded and occasionally showered, they will be much more likely to grow when planted out, especially if planted during a moist spell. A heavy mulch immediately after planting will do much to restore trees, and will, if retained through the summer, dispose of the second-named cause — midsummer drouth.

MULCH FOR DROUTH.

If applied early, it will retain abundant moisture for the driest time. Thousands of trees every other way right are allowed to dry out after making a fair start for the want of this early spring mulch. This is now so generally understood and appreciated that no sympathy is felt for the planter who fails to comply with this simple requirement.

WINTER KILLING.

Winter killing is particularly a Western affection, like the "shakes." Technically, it is a rupture of the cellular structure of the plant by the expansion of its fluids from extreme and sudden cold. Practically it results from four causes, namely: Too much and prolonged growth in autumn; soil too rich in plant food; want of constitutional hardiness to

resist the fourth and present cause—undue freezing. The remedy is plain. We must adapt the growth of the tree to its internal and external conditions. We must secure a growth of wood so well matured and of such constitutional make that it will endure the shock of winter changes.

SPRING KILLING.

Spring killing is generally confined to the root. A severe shock of frost after the sap flows in the spring may destroy the young shoots, or even the whole tree, but such cases are very rare, for the tree that can endure the first shock of winter will generally go through its changes of spring safely. The frosts of May and June may nip the young shoots, but there are plenty of dormant buds to reproduce the foliage destroyed; hence such frosts do not cause death, unless from previous injury or loss of roots, this reproducing power is exhausted.

ROOT KILLING.

Root killing in early spring is one of the most common forms of injury to which our trees are subject. It arises from the lack of moisture in the soil during winter or at the time of the spring thaws. Roots in such surroundings will not endure successive freezing and thawing as if they were in a moist soil. Hence it should be a fixed rule that all trees should have an abundance of moisture in their soil at the beginning of winter.

WINTER MULCH.

During the months of October and November the surface should be made loose and open to all the rainfalls. No animals should be allowed to compact the soil by herding or pasturing in the orchard during these months. Here is one of the most common errors of the farmer orchardist. For the few dollars worth of fodder you thus secure, you pay the prices of a weakened root power, or a total loss of some trees which were every other way full of promise for long usefulness.

If, from a rainfall in autumn, the tree soil is not well saturated, then you surely need this natural mulch of vegetation

to insure your trees against this root killing. A heavy winter mulch is the only absolute safety in this matter. This will retain the frost until it is removed by the warm spring showers.

This is especially necessary in Southern Wisconsin, as we are below the uniform snow line and prolonged cold of winter, the frost remaining a solid mass at ten to twenty inches depth, while the surface may be dried out by the warm sun and south winds of March.

This snow line spoken of is the point where the snow falls early and remains through the winter until the spring rains. It varies with the seasons, sometimes extending below the south line of the State and almost uniformly to the latitude of Portage, and the lines of the Wisconsin River below that point.

Hence root killing is the most prevailing effect of winter below that line, while it may be almost unknown above that line; but "top killing" will be the more common, especially on the richer soils which produce a late growth of wood.

INSECTS AND VERMIN.

Here opens a wide and inexhaustible field of observation and research, and one well traversed by but few of the most studious and observing. It is one to which lives of toil have been given, and on which volumes have been written. To any whose taste and time will admit, I commend these records as worthy of careful study, and the field as one rich in good to our race. But its paths are very intricate, often very obscure, and no especial halo of glory lightens the plodding way of the entomologist; but as the name Agassiz inspires enthusiasm in the student of zoology, so may not the memory of a Walsh, or the labors of Fitch, of Riley and Le Baron be better appreciated and encouraged by substantial aid from the State. We need to know more of the habits of the insects that prey upon our fruits and other products of the farm.

Entomology is to-day one of the substantial departments

of natural history, but its study is a labor which requires the time and careful investigations of the best minds, and we trust the time is not far distant when the farmers of the West will see it for their interest to encourage such efforts by rewards in some way commensurate with the value of this labor.

Science applied to agriculture is overcoming the influence of excessive rainfall and drouth. But the products of the farm are to-day, for all that science has done, as bare of remedies and as helpless from insect foes as were the Egyptians under their scourge of lice. We know of the existence of natural foes of our insect depredators, and of the use of poisonous applications for them, and they doubtless knew as much; but, as with the electricity and heat, they must be measured and harnessed before they can be said to be truly our servants.

Thirty years ago, when the announcement was first made in France of the artificial propagation of fish, who would have believed that in this year, 1875, our State would appropriate a sum of money for this new, but no longer doubtful, source of increase of wholesome food.

ENCOURAGE THE ENTOMOLOGIST.

Then why not expect that within a less period we may see liberal appropriations from public and private resources to encourage experiments in this most hopeful field of good to the producers of this country. The importance of this subject will be apparent when we consider that all other influences combined do not work against the success of agriculture so much as the destruction by insect life.

It is now well established that the most hopeful means of combating our insect foes, is through their natural enemies. This is exemplified by the position which the domestic cat holds in our economy of the farm. The same principle of action runs down through all the race of insect life.

The glory of man as a physical being, is to direct the forces of nature for his good.

When we consider what has been accomplished in reducing apiculture to a science, governed by rules founded upon a knowledge of the functions and habits of the honey bee, why may we not expect in due time, to fathom other and more obscure insect life, so as to recognize our friends from our enemies among them, and promote their extension for our good. It is well, at least, for us now to look diligently for the advent of some natural foe of every specie of insect that devour our substance.

A few years since, the oyster shell bark louse was thought the worst foe of the orchard, and the world of specifics was ransacked for a remedy, and just as we felt triumphant in our alkaline wash, a little chalcis fly made its appearance, the larvae of which has taken the work out of our hands, by effectually destroying almost the entire race of bark lice.

This insect has been designated by Dr. Wm. LeBarron, State Entomologist of Illinois, as the "*Chalcideous parasite of the oyster shell bark louse.*"

These parasite insects are most of them very small, many so small as to require the microscope to detect their presence.

The late Dr. Walsh says they form about one-fourth of the species of insect life, but the number of individuals of the species are comparatively few.

I have in a measure digressed from my special topic, to show some it may be the unity of all natural science, and that the wider our range of investigation. the more will we comprehend, and avail ourselves of the abundant helps nature has in reserve for our day of greatest need.

I may also say that the same general principles apply to all the insect foes of our farms and orchards.

NATURE'S HELPS.

The bare mention of these parasitic insects, that are known to be the farmer's friends, would require more volumes than the limits of this paper, but I trust our self interest will induce more study of them. Great, practical good to the agriculturist is to come from a more intimate knowledge of this phase

of entomology. I will only add that insect life is largely dependent upon the weather; thus a summer drouth favors the clinch bug and the aphid, while violent and long rains will almost destroy the year's crop of them.

POISONOUS.

Next to these their natural enemies, we have various kinds of caustic and poisonous washes.

CANKER WORM.

The insidious and slow but sure canker worm, is as easily destroyed by a wash of Paris green, as is the Colorado Beetle or potatoe bug. A strong decoction of tobacco stems, used as a wash during winter, will prevent mice and rabbits from gnawing a tree. These are also easily poisoned by distributing small bits of apple, carrot or turnip for the latter, and drops of tallow for the former, in which small particles of strychnine has been inserted.

CODLING MOTH.

When we have some specific for the codling moth, it will be a happy time for the apple grower, for this little insect, the queen of our fruit destroyer, now almost baffles all our art. It is thought by some, that the "green wash" recommended for the canker worm, will greatly help to dispose of this pest by poisoning the moth. Others recommend the use of various clap traps, in which to catch the larvæ as it issues from the fruit. Careful experiments made by Dr. LeBarron, show that six inch wide strips of old carpet, or other old cloth of considerable thickness and pliability, long enough to go twice around the body of the tree, immediately below the branches and tied or tacked loosely, so that the worm may find a lodging, are very efficient traps for the codling worm. These bands must be applied within a month of the first setting of the young fruit, and examined as often as every two weeks from their application, until the first brood of larvæ have left the fruit, or say about the middle of August. They can then remain on the trees until the fruit is gathered in the fall.

The worm seeks out such a retreat in which to pass through the transformation process.

The second brood of worms do not complete their transformation until spring, and therefore need be destroyed only at the end of the season.

These bands are to be dipped in hot water or run through a wringer, to destroy the worms in their different stages.

These bands may be made of thick, cheap, brown paper, which would go through one season, if carefully handled.

It is found that a second band nearer the ground is a gain, as nearly as many worms pass up from below as come down from above.

It is also found that very few "windfalls" have the worm in them soon after they have fallen, so that the old way of picking and destroying the windfall, is of little avail. These seemingly slow and laborious processes will well repay the orchardist, by the enhanced value of the crop in quantity and quality.

If our state alone could be exempt from the codling moth, for this year, 1875, it would be worth, say one million of dollars to the producer.

Severe and extensive drouths produce famine, but while vegetation waits, the soil rests and recuperates.

But while the moth does some good by thinning out our crops of apples in early summer, the outlay of bloom and the pre-maturity of fruit, are a heavy drain on the vital powers of the tree, with no return to the producer.

INJURY FROM FARM STOCK.

The sixth named cause is one that never should find a place on any fruit-grower's list. - But alas, it is one of the most fruitful sources of the destruction of our orchards.

I will not count the accidental injuries from an occasional breachy animal, but the results of deliberate commonizing of the orchard to the hog and cattle pasture. "It is so handy, can't let so nice a bit of feed go to waste, I guess they will

stand it," etc., etc. Such replies I often get, when remonstrating with a farmer for pasturing his orchard. In October last, I visited an old orchard that has been famous for its fine fruit, and in visiting which I anticipated much pleasure.

Driving into the yard I said, as usual, "Good day sir, how's your orchard?"

My greeting was kindly returned, but the answer to my query, "Our orchard ain't much good any more," was itself a confession of ill treatment.

I found the orchard had been a hog pasture for three years past. It originally contained fifty trees; had been refilled twice, and increased to nearly one hundred. Of the original first planting there remained seven; one St. Lawrence, two Rambo's, two Tallman sweets, one Spitzenburg and one Greening. Only two of the seven will probably survive another summer. Of these, three were girdled and peeled by the swine, enough to kill them last fall; and yet these seven, with several more leafless stubs and trunks, were four years ago worth fifty dollars each, by any fair estimate of values.

When I rebuked the owner for this waste, he did not seem to think himself at fault. I soon convinced him that his hog crop was made at ten-fold market rates.

EFFECT OF PASTURING.

The effect of herding swine in this orchard, and many others I have seen, is more than the peeling and barking of the trees.

I have already pointed to the injury done to orchards by compacting the soil to the exclusion of the rainfall of autumn, and I have come to believe that most of the orchard trees we call winter killed, are so from this cause, primarily, especially now, after the thorough sifting of our lists, and purging out all tender varieties.

When we count the direct injury from gnawing, rubbing, starving and tramping of farm stock, we conclude it will not pay to pasture the orchard.

TOO RICH SOIL.

The time was, when we thought no good soil too rich for an apple tree, and that a little manure did help the wildness of the new land. But we learned by dear experience, that a tree could be over fed, and that the effect was to induce a late autumn growth; would be unripened and unfit for the shock of winter; we are also well satisfied that the much dreaded "fire blight" is the result of an excessive flow of sap, beyond the capacity of elaboration; the tissues are ruptured, stagnation and death ensue.

The farmer should exercise as good judgment in feeding his trees as his horse.

ORCHARD SITE AND CULTURE.

Choose for an orchard site, a soil of medium native richness, or what would be considered rather lean soil; if it be a firm clay or calcareous clay, all the better.

The western soil is all rich in elements of tree growth, except it be the clear sand and gravel drift; the yellow or red clay, or the oak soils are the best suited, and of them the rolling lands are best. These medium soils are generally of natural drainage, with porous subsoil and under good culture, will grow the apple to perfection. If there is no choice but a very rich soil, then set on dry ridges, either natural or artificial drainage, and with clover and timothy sod hold the trees to a moderate growth.

In the brief review, I have only referred to the subject of varieties in their adaptation to the soil and climate. Given our best or only choice of these natural conditions, we must know what varieties are adapted to them. This is learned only by long experience and careful observation.

The planting of varieties not adapted, not hardy, has been one of the most apparent and fruitful sources of loss, to the orchard in the fertile soils of the West. Since the winter of 1855-6, I have carefully examined thousands of orchards with reference to this matter, and have found a remarkable uniformity in the lists of those found successful.

The observations of many of our practical fruit growers confirm this, and result in the list which our State Society recommend. Any planter that ignores this list and their united recommendations, practically starts out twenty years behind the times. Yet they who purchase of irresponsible dealers, especially from Eastern or Southern nurseries, are liable to start right here.

I do not say this to the discredit of the few Eastern nursery men who are growing stock for the Western trade, and who put all energy and skill to meet the peculiar wants of the West into their business, that its importance demands; but alas, for the irresponsible go-betweens, for curses follow their advent in any community.

Any careful estimate will show that four-fifths to nine-tenths of the successful trees of our orchards of Southern Wisconsin, or up to the fifth tier of counties, are of less than twenty varieties, and of these about one-half are not known, or not generally grown in Eastern and Southern nurseries, which must of necessity follow the main demand of Eastern and Southern planters, for their old favorites in their propagation.

Up to the last twenty years, we followed implicitly the Eastern recommendations. Ten years of doubting and further trial followed, and during the last ten years we have settled upon a reliable list of apples, that we can grow up to the latitude of Green Bay, with entire success. This list varies somewhat, of course, in different localities, but the adaptation of varieties to these differences, is so well established that we have every reason to expect an entire change in the aspect of the average orchard of the future planting. In this view of the case, one of the most hopeful indications of future success, is the general demand for the "hardy list" for all present planting.

The agreement of Wisconsin fruit growers in this matter, is so uniform, that every nursery man's catalogue of hardy varieties, begins with Astrachan or Tetopskii; ends with Ben

Davis or Walbridge; with its filling in of seasonable varieties for every taste and season, for home use and market.

The demands for hardy varieties, has induced a careful search among the millions of new seedlings of the West, for additional worthy sorts which have especial merit. The result will be an increase of varieties, having especial adaptation to our needs. But this increase will not be as rapid as some suppose, for our present list is the result of sifting of the choicest gems of the last 300 years of European experiments, and 200 years of American test, resifted in our thirty years trial in Wisconsin. And the sifting goes on still, "but slow and sure" applies here, and many a fond hope must be blasted in the rejection of personal favorites, from want of general adaptation. If any locations are naturally so unfavorable as to render any of these "iron clads" uncertain, then we have the new Siberian hybrids, the "steel clads," which have enough of the crab blood in them to give endurance and vigor, with early growth and maturity to adapt them to the most adverse locations necessary to plant, and yet with fair size and good eating qualities, from brisk tart to the condensed sweet of the Tallman; and from the earliest to the all winter in season. With this presentation and review, I would ask every farmer, why not have a complete orchard?

Why not give the orchard as necessary and seasonable attention as you do your farm stock?

Why not study the nature of the tree and of its enemies, so that you can "know good from evil" in all that appertains to its welfare?

Why not every fruit grower learn the simple art of out door grafting and trimming, so as to transform many a worthless crab or seedling, to choice fruit?

Why not every farm have an abundance of choice fruit and flowers, beautiful shade trees, evergreens and windbreaks around the dwelling and farm buildings, and so help to make the home a paradise to the children, a place of repose and comfort to the domestic animals, and the orchard a source of health and wealth to the family; for all these are certainly

within the reach and the province of every farm homestead in our State.

Mr. J. P. Roe:

There is one allusion in the paper I would call the attention of the Convention to. I do not think it is sufficiently explained in reference to the matter of fire blight. I have the blight of the apple as occasioned by too rapid growth from over-rich soil. What are the first causes?

I saw this winter at home one of the largest fruit growers of the country. I refer to Floyd, at Eureka, near Berlin. He has lost his entire pear orchard with the blight. The same blight pervades his apple orchard. The man was thoroughly discouraged. I find his experience becoming mine and that of others. I find no matter what the soil, no matter what the location, no matter what the treatment, that, even with our most hardy varieties, it makes no difference, with perhaps this distinction, that the hardiest varieties seem to be the most affected. I find the "Iron Clad" list, most especially the Russets, and more especially the Golden Russet and the Siberian Crab, and the Transcendent Crab and the different varieties of crab, is affected.

I find this blight has extended not only to the Transcendent Crab but to the wild crab of the country. You will find it even there.

Mr. Floyd expressed himself as utterly non-plussed and completely confounded on account of the matter of the blight and he is thoroughly discouraged. He has been one of the most extensive fruit growers of the Northwest. He says we have more fear, more dread of the apple tree blight than of any other enemy the fruit-grower has to contend with. It seems a mysterious agency so far. Although many reasons are assigned, we have found, as yet, hardly any remedy, and do not know even the cause. It does not make any difference what is the quality of the soil. I find it in the stiffest sod, right alongside of perfectly clean culture. It does not seem, to my mind, to be a matter of over-feeding or the forcing of the tree.

Mr. R. D. Torrey:

He says, "We are also well satisfied that the much-dreaded fire blight is the result of an excessive flow of sap, beyond the capacity of elaboration. The tissues are ruptured, stagnation and death ensue."

Mr. P. S. Bennett:

There is a good deal of force in the remarks just made by Mr. Roe. No horticulturist, no scientific investigator, as far as I know, has been able to discover the cause of this fire blight, consequently no one has been able to apply a remedy. That is pretty well understood. To be sure there are theories in regard to the cause, and there are theories in regard to its cure, but both theory and practice in the removal of the difficulty have proved ineffectual or erroneous, by actual trial, over and over again.

Now I suppose we all remember that when the cholera was prevailing in our country there were various theories put forth by medical men, as well as others, as to the causes, but none of them met the difficulties of the case. The cholera came, notwithstanding all the precautions that could be used, and seized the healthiest men, and the most abstemious men, but undoubtedly there were exciting causes producing it when there was a prevalence of cholera in the atmosphere or in the country, when it was epidemic. So it is something so in this case. There are dry seasons, then the blight appears; there are wet seasons, the fire blight appears, and in each case you will find men that know all about the cause of it, and they will ascribe it first to the dry season, and then to the wet season. There is fire blight appearing, as Mr. Roe says, on rich, highly cultivated ground, and then that is the cause of it surely; and then the fire blight appears on poorer ground, and the tree is starved, and of course it ought to blight and die, and so it goes. I do not know but we shall find out the cause hereafter. We have not up to this time. I want to say, however, that my first observation of the fire

blight was before I had anything more than a general interest in fruit culture, some ten or fifteen years ago in the vicinity of Mr. Plumb's orchard, down in that region, and that summer it was the worst, everywhere throughout the State, on the Golden Russet than on any other one variety. It does not prevail every year, as we all know. Some years since then, some other varieties have suffered, perhaps, more than the Golden Russet. Of late years the Transcendent Crab, as has been stated, has suffered more than any other variety. It is new to me that the wild crab has ever been affected by it. I have not observed that, nor have I observed it on any variety of the crab family except the Transcendent.

Mr. J. M. Smith:

On the Yellow Siberian.

Mr. Bennett:

That is the greatest drawback to the Transcendent. It is a very hardy tree; a very rapid grower, and the fruit is excellent for its purposes. In many respects a bushel of them is worth more than a bushel of peaches, but the fire blight to which it is subject is certain to render it a less valuable tree for general planting than it used to be considered. The Hyslop Crab I have never known to be affected at all by it. I would like to know if anybody else knows of its being affected.

Mr. E. H. Benton:

I have in my small nursery a row of Transcendent Crab; about eight or ten feet from these I have a row of Hyslop. About every one of the Hyslop was killed back one year's growth two summers ago; killed back to the second year's growth, just as badly as the Transcendents.

Mr. Bennett:

I have some of each, and I have never noticed, in a single instance, that it affected the Hyslop. I hoped that would escape. Perhaps it will not. Persons who plant orchards must understand, of course, that they must do it with their eyes open to the dangers attending it. We are trying to

remedy these difficulties; trying to find out the causes of them, the nature of them, and apply the remedy, but the truth is, either so many of us are quacks, or else the difficulty is entirely beyond the reach of any of the tree doctors that I know anything about, or that have ever made their appearance yet; that we have just got to let the matter run its own course until we can find out more than we know at present.

Mr. Benton:

I have a little to say on this matter from observation. You were speaking of the blight on rich soils and on poor soils. It is very much like what the physicians tell us of the poor man's gout and the rich man's gout. We have diseases in the human system that grow out from exactly opposite reasons. We have the gout that proceeds from over-feeding. We have the gout that proceeds from need of nourishment and proper food.

In the first place, there is undoubtedly something wrong with the constitution of our trees by which they blight, but the primary cause is in the season. That is known from the fact that in some seasons there is no blight. Other seasons there is blight.

Mr. P. S. Bennett:

Will Mr. Benton just stop right there and give us something by which we can get the clue to this thing? Is there in these seasons when fire blight prevails, anything essentially different in the atmosphere or the weather, from what there is in seasons when the blight does not prevail?

Mr. E. H. Benton:

I was going to give that. I want to make one or two other statements. We have been hearing a good deal about the apple tree borer; there is a confusion there. We have got a flat headed grub that works in the butts of our apple trees, where the sun has previously scalded the bark and has soured the sap. A process of decay or fermentation sets in, and there we find a flat headed, short grub that works there. It never works in healthy wood. That is entirely distinct from the

borer; that goes for the heart of the tree near the neck of the tree. A great many see the mark in the bark, and they attribute the trouble to their tree, to the grub. It has nothing to do with it. It came there after the mischief was done, to complete it; that is all. Now this disease, as some call it, is no disease at all. It is the effect of the hot sun. Most all of our trees in this country are leaning to the north east, from the prevalence of the south west winds. The sun has a chance to strike directly upon the body of that tree during some of the hot days of our Wisconsin summers. It scalds and destroys the tissue of the bark, and the sap that comes there, of course has no proper action; it is immediately soured. You get the idea from my article. There is the process of decay just the same as in your post when it gets saturated with water. The tree begins to decay, then your grub will come and live there because the condition is favorable. There is no doubt but that is the effect of the hot sun. You never find it on a tree leaning to the south west. I mean to set my trees so as to prevent the scald of the body of the trees by this hot sun. I find this blight has some connection with this difficulty of the hot sun. That is a mere sort of conclusion I have come to by observation. I find blight does not always strike the ends of the limbs. I find it commences sometimes in the forks of the tree, then working both ways. I had a pair of trees blight, and the blight struck them in the forks of the limbs, then worked both ways. Where the end of the limb was all green, right in the fork was this blight, like the scald on the body of the tree. The year previous there was a rapid growth; the wood was not properly matured for the winter; it had a weak constitution. That effect of the sun was sufficient to destroy the tissue. The sap was immediately poisoned as it came there; as it circulates both ways in the tree, it was killed in both directions. Where that cause is sufficient to produce destruction of the sap, the heat sours the sap, there is a destruction of the tissue immediately. That is on General Principles.

Mr. P. S. Bennett:

I do not think Mr. Benton is any better doctor than the rest of us on that subject. He has got the nature of the disease and he has got a remedy, but the trouble is, the facts do not sustain him. Some facts that he has observed may sustain his theory; some facts that some of the rest of us have observed, come in conflict with that theory, and right there comes the difficulty.

Now as to the pear blight. The tree in my yard that has been affected the worst, is the most shaded of any tree, perhaps, that I have in my yard.

Mr. J. M. Smith:

That is just my situation.

Mr. H. W. Morris:

I can see no difference where the sun can shine on a tree or where it cannot shine on it.

Mr. P. S. Bennett:

We have to suspect the skill of the doctor. The facts are here, the doctor's theory is there. Just so in our apple tree nursery. The nursery trees that are affected the worst with the blight, are no more exposed, perhaps not so much exposed to the sun, as others that will not be affected at all.

It is a wonderful easy thing to get up a theory by noticing a few facts, but when we come to bring in all our experiences and put them together, there is no theory that I have ever yet heard proposed, that has been sustained by the aggregated facts which different experimenters and observers are prepared to present.

Mr. J. M. Smith:

I will state for the information of the Convention, that in attending the annual meeting of the Horticultural Society, in Madison, when this question was discussed, Mr. Plumb brought up his theory there, but it was combatted universally by every member, and the universal opinion was, of the best horticulturists and the best fruit growers of the state, that they knew nothing at all about it. It was simply guess work from beginning to end.

Mr. P. S. Bennett moved that the Convention adjourn to afternoon. Carried.

Convention called to order at 1-30 P. M., by the President, who stated that there was the question brought up of irrigation, and it was laid over. We might take that up and discuss it.

Mr. R. D. Torrey:

There was no question, but there were some inquiries made upon Mr. Benton's paper, on that subject, and it was thought best to defer any discussion on the same to another time. I do not know of any way to provoke this discussion, than for Mr. Benton to give us the portion of it on that subject.

Mr. E. H. Benton:

As I understand the matter, I made a few suggestions as to the ability of the intelligent farmer to almost entirely obviate the extremes of wet and dry, which occur in our climate. That is, that he may obtain what may be called a good crop, without much regard to the amount of rain fall during the growth of the crop. In other words, nature has indicated to us those processes, by which she places in our hands an almost unlimited power over her operations; but to do that we want to ascertain what her method is of the operation, and then to supply that method artificially.

Of course those gentlemen who are prepared to irrigate their grounds by the application of water, are going to supplement nature's operations. They are going to add water where she has failed to do it. They employ water itself by getting it from the earth or some spring, or drawing it from other sources. I draw it from the atmosphere, ascertaining by practical knowledge, as well as scientific knowledge, that the air is more or less saturated with moisture. I know when any cooler surfaces come in contact with the atmosphere, moisture is deposited on that surface. We see that by setting a pitcher of water on the table in warm weather, we see the water collecting on the outside of the pitcher in large drops,

and it soon begins to run down; the condensation of the moisture in the atmosphere, collected by the coldness of the water in the pitcher. It would go on on any cold surface, but the surface might be an absorbent, and you would not see the moisture collected. That is the general feature of stirring the soil. If you pulverize the soil, every one of those particles becomes, in a measure, a surface on which a deposit can be formed. It will not absorb all that is deposited, and you will see the appearance of moisture. Take for instance a well traveled road, the soil composed especially of any kind of loam or clay, where the travel of the horses feet and the wheels have made it very fine, during the driest weather I ever saw in this state, and if you go out in the morning and touch your finger on that fine dust in the road, you will see moisture that has been sufficiently deposited there during the night, both from the atmosphere and that has been pumped up from nature's forces from below, so that it will actually take the appearance of moisture. There is a surplus of moisture that the earth will not absorb, that any plant standing there may take for its growth. In stirring the soil, the deeper the stirring the larger amount of soil in which these deposits may be made from the atmosphere; and there has been no condition of dryness yet in this country, where the atmosphere is not to a very great extent charged with moisture.

You might take the Desert of Africa, and it would entirely desiccate any vegetation. Taking the condition in Wisconsin, where we have lakes, streams and some forests yet left, the atmosphere is charged with a large amount of moisture. This, I say, is extracted by stirring the soil, and the more frequently it is stirred the better. The earth is cooler than the air, and any moisture in the atmosphere will be deposited just the same as on the cold pitcher. If your soil is in a hard, lumpy condition, of course the air is not going to permeate it. It is in such a condition that the lumps themselves will absorb it and there will be no free moisture for the plants to take up and live on, consequently plants there will be exhausted and die.

There is another way we can aid this materially. That is by mulching, spoken of by Mr. Plumb. If a man applies coarse manure on grass land, the office of irrigation that that manure performs on that land is frequently more valuable than its manurial or fertilizing material which it contains. It is worth a great deal more than the fertilizing material in the manure. It prevents the sun from striking the soil and keeps the earth in a cooler condition.

Of course the air is depositing moisture all the time, as well as during the night. I have seen a mulch of five or six inches, and on removing it the ground would be actually wet, just the same as the pitcher. It is all taken from the atmosphere. That which is arising from the earth is also deposited there. That is the method of irrigation I alluded to in my paper.

Mr. E. W. Sanders:

The gentleman talks of keeping the soil loose. That would do very well on sandy soil, but when you come on clay, heavy soils I think the best way would be for us to underdrain and then work the soil deeper, instead of pouring the water on the top. When the soil is deep and kept loose, and the weather becomes dry, the plants' roots will go deep and draw moisture from beneath. In this vicinity I think underdraining will do a great deal more good than irrigation. I find that where I underdrain the soil does not get pinched up very bad with the drouth, and if I irrigate without underdraining I would have plants with the roots growing to the top of the ground and they would soon dry up and the top of the ground become baked, and my plants would die.

Mr. E. H. Benton:

I just want to elaborate a moment or two. There is another fact about pulverizing the soil. He speaks of deep cultivation. I say that the deeper you cultivate the more room you have got for the deposit of moisture; the more room for the roots to traverse and to find sustenance. It is a rule of plant life that it cannot take up any sustenance for

plant life unless it takes it up through water. The underdraining is, in a measure, pulverizing. It would seem paradoxical that by taking water out of the soil you get water into it. It is actually a fact. The point is this, that when there is not too much water — when there is the right amount of water in the soil — nature furnishes means of circulation, but if there is too much water in the soil there is a kind of consolidation of the particles of the soil into a mass that bakes or becomes hard. That is the most hostile condition of the soil for any kind of vegetation. Underdraining provides a rapid means for carrying away that water and preventing it from becoming baked. Take soils in that condition and simple underdraining will restore them somewhat to a porous condition. My soil does not need underdraining, and there is a good deal of soil around there that underdraining would be thrown away on. A man must observe, and if he finds nature has underdrained, what is the use of throwing money away? The difficulty is that by plowing we introduce an artificial condition which favors baking, especially by plowing lands when they are wet. If we did not stir our soil except when it ought to be stirred, it never would become baked. The soil does not bake in the forests. It is simply because nature is left untrammelled. There nature is able to defy the extremes of heat and cold, wet or dry. This office is performed, as I said in my paper, by one of the offices of potash, the application of lime or ashes to sandy soil. It will make the texture of sandy soil more firm, more compact. Take a soil that is more firm and it will render it more porous, by the same law.

Mr. J. P. Roe:

This matter of underdraining is in many instances a great necessity, but the question arises with us, how can we do it? You know, in the hurry of the springtime, getting in our grain and getting the corn planted before it is too late, we have seemingly all that we can do with the available force at command. We find this remedy to work pretty effectually. There are certain crops for which it seems eminently desir-

able that the soil should be loosened to a considerable depth. I tested it in this way: I obtained one of the lifting, sub-soil plows. I took a piece of land that had been plowed for a long number of years, and plowed it to a certain depth. As the team keeps walking in the furrow, that has been made almost like hardpan, like a pavement. I went immediately after the first team and used my digging fork and could not make that, with all my strength, go down more than two inches or an inch and a half from the bottom of the furrow. I used an old sub-soil plow, put on a stiff team, and then following in the same furrow you could run this digging fork down clear to the handle, right in the bottom of the furrow. It seemed literally like an ash heap. There was literally a drain, costing but little extra labor for the man and team. It was an extremely wet season. That land, which was before, when it was wet, impossible to get up, I had no trouble with it whatever. I will say that in using the sub-soil plow you want to consult the lay of the land. You want to follow the natural lay of the land to make successful drainage in using the plow.

In regard to irrigation: years ago the President and myself talked this matter over. We took counsel together and started in at the same time, made about the same progress. I made my water works, so far as completed, taking a point three feet below the lowest lake level known. Run through a cut to the lake shore with a solid plank bulkhead into the lake. Then through this swamp I opened a ditch, protected by cattle guards, then ran it into a sort of a well. As the lake shore abounds in quicksand, whatever material that would not be deposited in the open ditch, would be deposited in this silt well and could be easily removed; then the box is covered with very coarse wire guarding to keep the leaves and such things from getting in the box in the ditch, about ten feet in the ditch to my land, where there is another well constructed.

I propose to put up a tank about ten feet elevation. I have not decided upon the capacity of the tank. I propose to use the twelve foot wind mill, so that when I am sleeping the

water will be pumped up. I think that plan is cheaper than digging a well where you can get within reach of a pond, brook, lake or river.

Another reason. Many of the garden products, like the tomato, are originally of a tropical nature, also the cucumber. Those plants we want to get to a successful growth. They would naturally require water of a warm temperature. Taking it from a lake or river, or even taking it from the well and exposing it to the atmosphere in a tank, you get the water at that natural temperature of a summer shower.

I use three hundred feet of inch and a half hose; two nozzles; an ordinary nozzle and a spray nozzle, so that by holding it at a certain angle, you have it descending in a perfect shower. I use at present, the Hiner force pump. Its capacity I believe, is about a barrel of water per minute.

I will say this of my experience last summer. With other expenses on my hand, I was very loth to enter into the completion of my water works, yet driven by sheer desperation to do it. In sending for the pump, my agent at his own option, made an alteration in the pump. He sent me a pump that was entirely inadequate for use. I had to send it back. There was further delay, consequently when I got my works into operation it was too late. If you are going to irrigate, commence at the right time.

It seemed to me when I went at the job, that you might take a barrel of water and knock out the head, and the barrel of water would not wet a surface any larger than that covered by the head of the barrel, two inches deep. What I mean by this is, taking a piece of land, one-tenth of an acre, putting on four men, relieving one another, working continuously from half past eight o'clock, as long as it was entire safe without scalding the crop, which was the onion crop. I found we had not penetrated over an inch and a half to two inches in depth. Below it seemed like powder. If we had commenced at the right time one-tenth part would have done the business, but then, any amount of water seemed to be insufficient.

Mr. P. S. Bennett:

Your land got so hot it evaporated.

Mr. J. P. Roe:

So it seemed. In stiff clays, I would say pulverize and underdrain. If you have not the time and means for underdrainage, use your subsoil plow, which you can purchase for a few dollars. On some special crop, in view of its necessities, and where you have sandy soil and nature has provided drainage, and the water is in need, and there are ready means of exit for all surplus water, you can pour it on in safety as a rule, late in the afternoon and then late into the night. That means hard work and long days. I propose to adopt the California system, by using common battens three inches or six inches, and making troughs, raising them at a certain elevation and carrying them on a certain crop, for instance, my celery crop; bore holes in the trough and put plugs into them, and you can draw your plug directly in front of this line of celery, and let it run between the rows, trickling down all night. This is in part theoretical, but I have got pretty well on with the plan, and I hope to be able to report progress at some future time.

Mr. J. M. Smith:

One other point in regard to this system of irrigation. I have found in my experience, that if you are going to put on water, you must put on enough to do some good. If you water your ground an inch deep in very dry weather, you will freshen up your crop just for a time of a day, or a day or two, as long as you are putting it on. If you follow that up, if your dry weather continues, you will find in a very short time, perhaps, you have injured your crop. The reason is this. It draws the water to the top of the ground; it brings a new set of roots right to the top of the ground in search of this moisture, instead of going deep. If the soil is well and thoroughly cultivated, during a dry time the roots are working down instead of up, to get the moisture. If you put a little on top,

and keep putting on a little and not wetting it down thoroughly, a new set of roots run out near the top of the ground, and you will injure your crop, provided the dry weather continues. I used to think plants could not be brought forward by artificial watering. That was the reason, I did not put on enough. Last summer I tried puddling the ground on my cabbage bed; enough to wet it right down six inches deep and made that the rule; watering enough to water the ground thoroughly six inches, and then putting on no more until the ground was all dried out. The result was that I had an enormous crop of early cabbage; the best crop we raised right in that drought; no one else had any.

I want to warn the gentlemen, that if they undertake anything of this kind to do it thoroughly. A very little water in a drought, is almost worse than none. I start in just as the crop begins to suffer at all; just as quick as they need it.

Mr. K. M. Hutchinson, of Oshkosh, then read a paper on entomology.

ADDRESS ON ENTOMOLOGY.

BY K. M. HUTCHINSON.

I approach this subject with much diffidence. It cannot be reasonably expected of anyone to compress within the limits of one discourse all that can be profitably said upon Insects, were the writer to confine himself wholly to that class denominated injurious and beneficial to vegetation. What I shall have to say, therefore, cannot prove very profitable or interesting to you, and certainly not at all satisfactory to myself.

The beginning of insect life, like that of all other life, is the egg. Whoever is curious and observing in these matters will invariably find that the female, to whatever class she may belong, displays a wonderful instinct in depositing her eggs under conditions the most favorable for incubation. That is, they are deposited, if possible, upon or within such vegetable or animal substance as will afford nutriment to the young larvæ when hatched. The eggs of the Curculio are deposited within the plum; the pine Weevil in the young and tender shoots of the pine; the pea Weevil punctures the pods of the pea, and always opposite the pea itself, so that the egg is left within the kernel. The Borers of the apple trees, locust, and almost all other trees, deposit their eggs beneath the bark. Stalks of grain, barley and wheat, of the potatoes and mint, if not all other of the garden plants, are visited in a similar manner by some one or other of these vegetable pests.

I pass by another large class, called Parasites, that leave their eggs on animals, and some even in the bodies of caterpillars themselves, that the young larva may have the tissues surrounding them to feed upon when hatched. All have noticed sheep on a hot day seeking shady places in fence corners, or huddled together on bare ground in pastures, holding their noses close to the ground. It is to escape the Blye fly

that lays her eggs in their nostrils. The Horse Bot fly will make any horse wild with fear while laying her eggs upon his legs to find their way afterwards into his stomach. But these insects, with all the rest, are in turn attacked in a similar way by others still smaller than themselves, and they in their turn also. As the couplet has it in an odd but expressive way:

"For Fleas have other Fleas to bite 'em
And so on down ad infinitum."

The eggs in themselves are, of course, harmless, but that they contain elements of a wide-spread devastation to vegetable life will become apparent when these small dots, no larger than a pin's head, have taken their first step onwards and upwards to their perfect development.

Looking upon one of these at this stage, the inquiry may well be made—"What possible harm can this soft, naked, puny creature do to vegetable life?" If this question be asked that feelings of tenderness and compassion may be awakened in the heart of the would-be destroyer, that his hand raised for quick destruction may be stayed, I know of no better answer to be given the sentimental interrogator than this: "Wait till you see this creature eat."

At this period they are fairly launched upon the field of active life, and are capable of performing wonders in gastronomy. The fact is they *eat to kill*, and if left to themselves, undisturbed, they will accomplish the task before them. Having voracious appetites, they stand not much on ceremony, but fall upon whatever they find before them, asking no questions for conscience' sake. Their manner of eating and periods of rest for digestion are peculiar. They have only one meal a day. That begins when they first begin to eat, so that breakfast, ten o'clock lunch, dinner and supper so run into each other, are so intimately blended, that one is unable to determine the period when one leaves off and the other begins. Their periods of rest for digestion, if they have any, are also veiled in impenetrable gloom.

You will bear in mind that it is only in the caterpillar or

larva stage of their existence that they do eat — the only period when they are at all destructive to vegetation; at the other periods of their metamorphoses or transformation into other forms, being perfectly harmless.

There is another peculiarity about this caterpillar whose life history we are tracing which does not belong to the higher order of animals. It moults or casts its skin whenever it is in want of a new suit of clothes. The most of them do this four or five times during this period of their lives. They really have no choice in the matter, they are compelled to do it, and, having no tailor's bills to pay, it is presumable that they lay aside the old for the new suits with much gratification.

The explanation of all this, is, that the outer skin soon becomes dry, and will not admit of expansion. It is like stuffing sausages; the case will hold a given amount of minced meat; subject it to a pressure beyond its strength to withstand, and it bursts. Just so with the Caterpillar. He eats until his skin can't hold any more. He has not, as you see, worn out his clothes, but has either grown too big for them or they too small for him. Unlike the boy at dinner lamenting, because he had eaten so much roast beef, that he had no room for plum pudding; this Caterpillar of ours acknowledges no such weakness. He wades in with a rollicking voracity, regardless of all consequences. This process of stuffing goes steadily on, until his skin can no longer stand the pressure, when it is suddenly rent asunder, fore and aft, and he quietly slips out of it.

He now appears in a new covering, soft and flexible, and better suited to the growing rotundity of his person. His passion for eating is as voracious as ever, and in fact has increased, because his capacity for storage has been by this operation, materially enlarged. This process of moulting continues, until a period of immobility and apparent lethargy is reached, and the desire for food ceases. All the functions of life are seemingly suspended. He is no longer capable of injury to any one or anything. He now seems in his utter

helpless condition, to ask forgiveness for all the harm he has done. Simply to be let alone that he may "Wrap the drapery of his couch about him, and lie down to pleasant dreams."

This change or transformation, when accomplished, is called the pupa or chrysalis state, and is performed in various ways, according to the habits of the different species. The moths spin a covering of silk, called cocoons, like the silk worms, which are attached to twigs of trees, and pass the winter in this state. Others seek retired places under stones or bark of trees. The Beetles transform in the earth, and others according to that imperative law of their being, which impels them to seek conditions most favorable for the future life of their species.

The length of time they remain in this condition varies greatly. Some Butterflies, for instance, bursts these cerements in a few days; having several broods in one season.

The Moths pass the winter, thus appearing only as the perfect insect in the early spring.

The Beetles remain for years in this bondage before gaining their liberty.

But all of them, under whatever condition their transformation may take place, give no indication in outward appearance what the future insect will be.

When they leave the pupa state, they have attained their full size. I refer now to the Butterflies and Moths. They grow no more, eat no longer. They are now provided with wings and are decked out in the most brilliant colors, and with their gay and resplendent plumage glistening in the sun, are doubtless quite proud of their fine appearance. Indeed what spectacle can be more beautiful than the gaudy butterflies, with plumage more varied than the peacock; vieing with the splendor of the gayest flowers; shining with all the varieties of prismatic brilliancy; darting hither and thither from plant to plant; soaring aloft on undulating wing, or poised with dainty foot for repose, upon the rim of the flower cup? "How wonderful the transformation from the loathsome larvæ to the

chrysalis, and thence to the gay and aerial existence of the perfect insect."

The Caterpillars, whose history I have thus far briefly, and I am conscious very imperfectly traced, have only one more duty to perform, and that is to provide for their kind. The sexes meet, and having provided for the propagation and continuance of their species, the male now no longer of use in the "insect economy," soon dies, and the female having deposited her eggs, follows suit.

We will now turn our attention to a few, only, of that class of insects denominated injurious and beneficial to vegetation. I suppose they are thus classified, because although naturalists may divide them into any number of orders and sub-orders, generas and species, yet the farmer recognizes them only under two divisions, viz: the friends and foes of his crops.

A sure and safe line may be drawn between these, so that one may be easily distinguished from the other. The *carnivorous* insects being uniformly his friends, while the *herbivorous* are as surely his foes. The larvæ of all Butterflies are vegetable feeders, hence they are his chief enemies.

In the annual report to the Massachusetts Board of Agriculture, it is stated that upwards of fifty species of insects prey upon the cereal and grapes; some thirty ravage our garden vegetables; nearly fifty attack the grape vine; about seventy-five make their annual onset upon the apple tree, and as many more the plum, pear and cherry.

But do not be discouraged at this formidable array of invaders; beat them back. They indeed threaten great disaster, and will accomplish it unless an incessant warfare is waged against them.

A man every fall, brings me a basket of fine plums. Having heard that it was impossible to raise that fruit, I said to him once, "Don't the Curculio trouble you?" "Oh yes," he said, "But I trouble them a good deal more."

The Butterflies may be easily distinguished from the Moths. Butterflies mostly fly in the day time; have a knobbed antennæ, and carry their wings erect when in repose.

Moths fly mostly at night, their antennæ feathery have heavier bodies, and when in repose their wings are open as when flying, or folded on their backs. These winged insects that fly about a lighted lamp on a summer's evening all belong to the Moth family.

The common Cabbage Butterfly is white, and is well known.

A new species lately introduced from Europe, has committed sad havoc through the Southern States and Canada. When it reaches Wisconsin, as it surely will, good bye, saur kraut!

All have noticed the common yellow Butterflies, seen frequently in clusters around muddy places in the road way. The larvæ of these feed on clover as well as the garden vegetables.

If you have in your fields a dead tree upon which the bark hangs loosely; by pulling off a piece you will be very likely to find plenty of the Dart Moths beneath it. Being suddenly disturbed, for like other evil doers they prefer darkness to light, they will shoot out headlong in a blind way, in all directions.

These are the progenitors of the Cut Worm, that do so much damage in fields and gardens, by cutting off tender plants close to the ground. If the stalks have become too hard, they will ascend until a tender shoot is reached, when they will gnaw that off and drink the juice that exudes from the wound.

The Tent Caterpillar, that spins a tent in apple trees, is another great pest, and unless looked after and destroyed, will devour every green leaf and twig on the tree.

Among this class of Butterflies and Moths, there are many very beautiful, as I have before remarked, and as such may aid in the cultivation of the esthetics, but as a farm product, are decidedly an unprofitable investment.

In digging about your strawberry plants, if you find any dieing out prematurely, you will very likely turn up a soft bodied whitish grub with yellowish head, and about one and a

half inches long. If undisturbed, that grub would in time transform into the beautiful Goldsmith Beetle, so-called from its color; it being a bright gold yellow above and darker metallic lusture beneath. When found, it is well enough to thrust a pin through the right wing, cover as a cabinet specimen. Having done that much for the benefit of Science, proceed at once to put your number tens on all the rest for the benefit of your strawberry patch.

There is another beetle called the May Beetle, fully as destructive as this. You may know him by his brown color, plump body, slender legs and his droning flight about your room at night, if a lamp is lighted and he can gain an entrance.

You meet this grub when plowing, sometimes turning up countless numbers. It is about the same size and color as the Goldsmith. Black birds and turkeys are very fond of them. Doctor Harris says that the mischief done by the grub of this May Beetle, is at times incalculable. It eats the roots of grass, in many places the turf may be turned up like a carpet in consequence of the destruction of the roots. So large and voracious is this worm, that a dozen or so of them would be enough to ruin a small bed of strawberry plants.

I have no time at present to speak of many others of the same class, nor to refer to their evils. The Borers, Curculios, and thousands of others, all noxious insects, are destructive to plant life, but will mention only a few of the carnivorous and beneficial.

One is the Calosoma or Caterpillar hunter. This beetle not only hunts the caterpillar, but like most other hunters, he has a game supper whenever one is caught. Having long, slender legs, they are well fitted for running. They are found under stones or sticks, or dig holes in the ground where they lie in wait for their prey, or go out in search of it.

The Cicindela or Tiger Beetle, is another predacious beetle. They make short flights and frequent sand heaps, preferring warm sunny places. They are very hard to catch. I have spent hours at a time, with thousands of them within reach

and with all the appliances for capture, and been rewarded with only three or four specimens.

The Dragon flies, Water Scorpions, Ant Lions, and many others are also flesh eaters; they prey upon other insects, and are classed as beneficial.

Fearing that I am drawing too heavily upon time belonging to others, and the idea being prominent in my mind that possibly I have failed to interest you, I will only urge in conclusion, upon all our farmers who have the most ample opportunities for observation, not shared in by residents of cities, to enter upon the study of insects, if they have not already done so, with zeal and energy. The study will be found to be vastly interesting, and is one of growing importance to them.

A few books, fully illustrated: Harris' treatise on injurious insects of Massachusetts, Packard's Entomology, Fitch's reports on the insects of New York, Walsh, of Illinois, and Riley, of Missouri, will all be of great aid in elucidating the subject of applied or economic Entomology.

DISCUSSION.

After the reading of the paper, Mr. J. P. Roe then said:

Would our friend who has just given this ably written and admirably read essay, answer a few questions relative to this combating of insects?

Mr. K. M. Hutchinson:

I am only an amateur, not being personally interested, only as a matter of study and recreation.

Mr. J. P. Roe:

We would naturally infer that the amount of observation and culture necessary to produce the essay, would enable a man to give us some hints as to the best method of combating this army of insects.

I have noticed what you alluded to about the cabbage worm. It commenced its ravages last summer.

I would ask if we can safely use White Hellebore?

Mr. K. M. Hutchinson:

I couldn't answer that question. All those questions are

matters of experiment. Whether Hellebore would answer that purpose, I do not know. I never have tried it because I do not raise cabbage.

Mr. J. P. Roe:

Paris green we are afraid of on heading cabbage.

Mr. K. M. Hutchinson:

I should suppose that Hellebore would be better. It is destructive to some extent, to the Aphides that assault your conservatory plants, but does not seem to have any permanent effect upon them.

Mr. J. P. Roe:

Tobacco smoke does have effect.

Mr. K. M. Hutchinson:

Yes sir. I suppose it does. I have smoked myself nearly crazy trying to kill them. I have had them drop down and cover the surface of the pot, apparently dead, but were only stupefied. If the smoke is confined about the pot, it will be effective, doubtless.

Mr. E. H. Benton:

I never had any trouble at all. A decoction of quassia kills them all. They infest nurseries, and apple trees, cherry trees and plum trees. I have always cured them by one application of quassia, and that is not poisonous to man at all.

It does not kill them, but it renders the foliage so distasteful to them, that they drop off and starve to death.

Mr. J. P. Roe:

Two years ago last summer the strawberry crop was cut off, nearly reduced at least three-quarters in amount, by an enemy, I think a bug very much resembling what children used to call the snapping bug; that would bend its back and fetch up with a snap; a blackish bug, long in the body, pointed in the head; a sort of triangular head, and seemed to be in any numbers under the mulch of the strawberries. In the morning on going out, you would find your berries, to use a phrase, the same as if they had been mumbled over, and the berry in a mussed state.

Mr. K. M. Hutchinson:

My strawberries have been troubled in the same way, but I attributed it to the birds.

Mr. J. P. Roe:

We find them eaten so in the night; in a single night. I thought it was possible that my friend might throw light upon it.

Mr. K. M. Hutchinson:

In relation to the cut worm, they have got to be watched and picked, like the potato bug and the tomato worm.

Mr. J. P. Roe:

There is only one question more in regard to combating insect life. I see it mentioned that by constantly kindling fires at night, on summer evenings, that vast numbers would be destroyed by either smoke or flame. There are the terrible exigencies in the battle field, when, to check a retreat that is going into a route, we turn our guns into a column, though part of them are our own friends. In this case we have the carnivora and herbivora. We do not want to beat off our own friends. By kindling these fires would you be likely to destroy too large a per cent. of our friends at the same time?

Mr. K. M. Hutchinson:

You would not. Look at a lamp post where the gas has been burning during the night, and you will find countless numbers of your foes, the millers, have been killed by the flame.

Mr. E. H. Benton:

There are two ways of combating the cut worm and the bugs that eat the vines.

I take pieces of wood and make a frame about a foot square, and tack a little musquito bar over them, and set them over the young plants. That will keep the yellow bug off and the cut worm.

Another practical way to keep them away, is to take a ring of any material, about a half a foot in diameter, and put

some pins in it so as to make a row of holes around your cabbage plant, and the cut worm will fall into the holes and can not get out.

Mr. P. S. Bennett:

Does he not crawl into the ground sometimes?

Mr. E. H. Benton:

He will sometimes. If your ground is thoroughly fall plowed, and again the following spring, so as to destroy all the larvæ you would probably only have visitors from other quarters.

Mr. J. P. Roe:

Plant your corn deeply and put a small stone on one side of the hill, for the bird to stand on when starting the corn, and it comes up suddenly and unexpectedly, and the bird falls backward, and the concussion is dangerous. I have tried putting something around the plant. This is recommended. With that view, after the close of my ministration, I thought that my old barrel of sermons would be valuable. I thought I could put them to a good use in keeping off the cut-worm. I cut up considerable of the manuscript, and was told, to make the thing doubly sure, that I had only to saturate them with a little kerosene, just envelope your tomato plant in this circle of paper; the cut-worm approaches and he sees the wall around it, and what with the wall itself and the odor of the obstacle, it is sufficient cause to make him turn his nose the other way. My experience is this: I found to my dismay that my tomatoes were cut off and laid right across the top; and, looking inside of the paper, there was Mr. Cut-worm curled right up inside of it. Probably the theology inclosed in the paper was at fault.

Mr. E. H. Benton:

I will give you five dollars for every cut-worm, if the gentleman will adopt my remedy and take a siding a foot long and cover it over with mosquito bar and set it over the plants.

Mr. G. W. Wainright:

I was about to say that if the gentleman had been thoroughly orthodox at the time he preached those sermons, that

he would have been saved the expense of kerosene. The difficulty was there was not brimstone enough in the manuscript. That reminds me of a little anecdote that took place sometime ago. I do not know that it has any bearing on the bug question, nevertheless there is a point to it. I was overtaken once with a brother clergyman by a very severe storm. He said: "Our linen will get all wet." I said: "I don't care about my linen if the sermons don't get wet." Said he: "Yours won't hurt, they are all so full of brimstone."

I find, in relation to the cut-worms, that I keep my tomato plants and a few early cabbage and cauliflowers, and such, by taking tin fruit cans and taking off the two ends. I usually put my early plants in these cans and get them started before putting them in the garden, and putting out the whole thing, having the tin protrude a little above the ground.

Mr. P. S. Bennett:

All this is unquestionably true, but the difficulty is in operating upon a large scale.

Then, in regard to Mr. Roe's experiment, the gentleman has about the same idea that occurred to me. Those insects may have been orthodox. That was the reason they kept away from the manuscript, and I do not believe they needed the kerosene even. However, that is only a matter of opinion. I would not lay it down as a dogma.

This question of destroying the insects is certainly a very important one, if we can only learn anything about it.

Now the President of our Society is not here; if he was he could make some remarks on this subject better than I can. He is a very practical man. Of course he has a good deal to learn yet, and is trying to learn it. To my knowledge he has experimented pretty thoroughly, and did the past summer, in fighting with some of these foes, utterly without success. I was in his garden at one time and he was making a series of experiments with Paris Green and with other substances, and he was making some experiments by way of saturating the ground around the plant. Well, you see that

could be done, but the crop will cost two or three times more than what it will bring when it is brought into the market.

This process of Mr. Benton's, of covering up the hills of watermelons, cucumbers and others, is effectual — will do it every time.

Mr. J. P. Roe:

The idea advanced by our friend, the President, I might allude to, because he is not here. I mean the use of poultry, young turkeys, in his garden. Speaking of frames, I have tried them, and I have got hundreds that I am ready to turn over to Mr. Benton. If you use mosquito bar, the tendency is, unless you are very careful, as the phrase is, to draw the plants. My cucumbers and melons were seriously drawn. In an incredible short space of time, the plant was right up against the top of the frame. I noticed that those outside, that ran the gauntlet of the bugs, had double the growth of those so carefully housed. I made these frames by the hundred, carrying tomatoes by the acre. I don't know of any other plan yet brought forward that is practical, or better than the fire by night, or the use, as the President suggested, of poultry in the garden. Here I would say, keep your Brāhmas out of the garden, for they are more destructive than the insects themselves. It seems the lighter breeds of poultry might work to better satisfaction, especially the Bantams and the Hamburgs, and like breeds of fowls. Young turkeys are doing their good work. Mr. Smith, I am told, had at one time no less than one hundred young turkeys in his garden.

Mr. Eli Stilson:

This question of insects is one of the utmost importance to the farmer. We have insect foes, so many of them, and we have them to contend with on so large a scale that a plan that may be of benefit, or an important plan for the garden, cannot be the plan, as a rule, for the farmer.

Friend Benton's plan of either punching holes around the hill or covering every hill in a forty acre field of corn in clover sod would not pay.

Next to the chinch bug, at the present day, the cut-worm is our most terrible enemy. We wish to grow large quantities of clover, and in the rotation, when this clover is put into a cultivated crop, this cut-worm to-day, which I think is entirely a different species from what we had formerly — more nimble, lighter color, voracious — is becoming a terror to the farmer. The only way I can see out of the difficulty is in a proper rotation of crops, and to find the different periods and times in which he passes through the different stages of life, that we may seek the proper time to cultivate, that we may destroy him; and to ascertain, if possible, when he is in different conditions; when he is susceptible of being destroyed by cultivation, and adopt that period for cultivation, and thus destroy them. It is said by planting late we will destroy but we will destroy the corn too.

I planted last year forty acres of corn on sod. There was not but one hill to the acre but that stood until the cut-worm took it. I planted up to the 15th of June, and then only got half a crop.

Mr. E. H. Benton:

Now, a little common sense will settle this matter about the cut-worm in the corn-field. I will give you a brief idea: Turn over the clover sod about the middle of May; roll it so as to bring it compactly to the bottom of the furrow; if you can plow your furrow so as to be flat, that is essential, if you cannot, you have got to roll it across the furrow to bring it down flat. The reason is this, to immediately commence the process of decay of the green leaf. Why? So as to render it unfit for the existence of the cut-worm. Harrow it thoroughly after you have rolled it so as to destroy any plant that may be on the surface. My point is to leave nothing for the cut-worm to live on; to induce fermentation and destruction of vegetable matter by rolling, and destroy everything green that is on the surface by harrowing. Repeat this process about once a week for three times; that will bring you to corn planting about the 3rd or 5th of June. You will

then have a field that is fit for an onion bed; and I will venture any man that will try that that he will not find a cut-worm. I do not say that is theory, because it has been tried. The cut-worm, not having anything to live on, has to die. If you do not thoroughly roll the surface, the air gets down, and there being some pieces of clover growing there, the cut-worm lives. You must do the work thoroughly.

Mr. J. P. Roe:

I am sorry to interfere with our worthy friend's theories, but I am bothered with facts.

A near neighbor of mine, who is an extensive onion grower, has a piece of land that has not been in sod for years. It has been literally as clean as an onion bed. Nearly two years ago last spring the difficulty was infinitely the worst, nearly three-fourths of his onions that reached the height of six inches were cut off by the cut-worm. There was no clover there and he has been remarkably cleanly in cleansing his land of weeds — so you cannot give that as a reason for the preservation and enjoyment of cut-worm life — but they were there and in incredible numbers. It seemed as though he could pick, in a short distance on a row, fifty or sixty at one sitting without having to go any further. The question of sod ground does not seem to quite meet the issue as in the case of my neighbor. There seemed to be myriads of them. Last season they attacked it worse than ever before. They destroyed more than three-fourths of his crop of onions.

Mr. Chester Hazen:

I want to know what time, what season of the year, the cut-worm worked in that onion bed.

Mr. E. W. Saunders:

I believe I know whom that gentleman refers to, and I believe I saw those onions. They were grown alongside of a grass patch. It is possible that they traveled from the grass patch on to the onions.

Mr. J. P. Roe:

Even granting his premises correct, why, if they have got

everything comfortable, with grass over them, why go into that empty ground after onions?

Mr. E. W. Sanders:

I will say I never could have any ducks in the garden. Their feet were too big. But if he wants to know what will pick up grubs and worms that come above the surface, I will tell him. I keep small fowls; let them run where they please; I hardly ever have trouble in their touching cabbages, or anything else; I feed them all they want. If there comes a little shower, angle-worms and grubs come to the surface. The fowls run out and pick up everything. They will thoroughly rid the ground as far as they go. I am talking of them for garden purposes. I had a piece that was covered with angle-worms. In a year after I flooded it with fowls. I had no more angle-worms.

As far as setting a fire is concerned for destroying insects, I think a lamp set in a tub of water, or a large pan of water, is much preferable. If you set it in the water at night, you would be surprised in the morning to see the amount of insects of all sorts that fly by night.

There is another thing. I have had two nice hickory shade trees. For the last two or three years, limbs as thick as that, about two feet from the end, would fall off, green, and there is a live grub worm in them. I never heard of anybody else having the same trouble.

Mr. Eli Stilson:

That is the limb borer. The remedy is to pick up and burn all these pests. The worm invariably, by instinct, commences at the end of the limb and saws it almost in two, and when there comes a blow the limb drops to the ground, and there undergoes a transformation on the ground. The remedy is to pick them up and burn them.

Mr. Orrin Hatch:

With regard to this cut worm, I want to give you my little experience. I broke up a piece of clover and timothy sod six years ago. I broke up about five acres of an eleven-acre field in the month of August, immediately after harvest,

and when the grass began to start between the furrows, I took a harrow or cultivator, one or the other, I don't remember which, and run through it and covered the grass. The next spring, in time to plant corn, I broke up the other six acres of the field. The cut-worms took every hill, or nearly every hill, of that which was broken in the spring, twice over. On the third planting we got a crop of little corn. On the ground that was broken up in August, the year before, there was not a hill missing, except a few that the blackbirds took.

My philosophy of this is that the cut-worms, like every other insect, must have something to subsist upon, and if you will break up your sod the previous year in time to have entire decomposition take place and all vegetation killed before the time of planting corn, that the cut-worms will be dead.

Mr. Eli Stilson:

These are facts we are seeking for. Here is one instance of a field being broken in the fall, producing no cut-worms, while the other crop on the part of the land plowed in the spring is destroyed by the worms. I have, in coincidence with that, a similar case last year on a small scale. Mine was broken late. There were a very few cut-worms on that which was broken the last days of September or the first days of October. That which was broken in May was entirely destroyed, and the second crop was two-thirds destroyed, and the third we succeeded in getting a stand of corn, but only half a crop. Here is a remedy, where we can cultivate to avoid these pests. That is what we want, and we want to know their habits.

With my experience, this past season I have forty acres of grass ground now ready plowed for my corn the coming season, hoping that I might be as successful on a large scale as I was on a small scale.

Mr. E. H. Benton:

Right in my neighborhood, there is a man by the name of

Thomas Price, that had a field troubled with the cut-worm. You could take up a piece of sod as large as my hands, and shake out a dozen of them. McKnight, a neighbor, had some plowed in the same way. Price planted his corn, and the cut worms destroyed it all. Price re-plowed it and harrowed it and planted it, and he had a good crop. The other man did not disturb his land at all, and he had only half a crop and it was pretty late.

Mr. Eli Stilson:

I have a case of a neighbor whose farm adjoins mine, who pursued this very course. His first planting failed; he re-planted and re-harrowed, re-marked in June, and the second crop entirely failed. After re-harrowing, they re-cultivated, re-marked, and the second crop entirely failed.

Mr. J. P. Roe:

There is one difficulty with Mr. Benton's idea. That is waiting. We want to get the corn crop in as early as possible with safety, and if we are to wait until the time assigned by Mr. Benton, the 5th of June, we are at least half a month too late. We are apt to be taken by autumnal frost, and there we are caught on either horn of the dilemma.

You may recollect the suggestion in that very able address of Judge Pulling, in the specific he gave for preventing the ravages of the tobacco worm; late fall plowing. He pronounced it invariably a specific. In this fall plowing, I think we have in every way, the best remedy for the cut worm, where we have to combat them on a large scale.

The use of poultry will do very well in the garden, but how is it with the small fruit grower? With your raspberries, your currants, your strawberries; the toll that will be taken by your fowls will be too heavy. They will eat them; they go for them; they clean them out.

That is the experience of every fruit grower, and I built a Chinese wall around my chicken yard. You have got to have very young chickens, just hatched or younger. [Laughter.] The younger the better.

Mr. Eli Stilson, of Oshkosh, then read a paper on "The Farmer."

THE COMING FARMER.

BY ELI STILSON.

When I speak of the Coming Farmer, I wish to be understood as speaking of the characteristics of a class, of which he is the true type. From the day when the decree went forth, "Cursed is the ground for thy sake—in the sweat of thy face shall thou eat bread," man by necessity became a farmer, though in a primitive way.

Jacob understood some of the laws of stock breeding, and applied those laws persistently in his occupation. True, we do not learn of his selling a \$40,000 Duchess, or a \$14,000 Duke; but he did learn that in order to produce improvement in stock, it was necessary to breed from the most perfect specimens, and such as possessed the most good qualities.

It matters not whether the Durham ox, whose likeness was engraven on the Cathedral in Durham, in England, more than five hundred years ago, was descended from Jacob's herd or not, one thing is sure, that the laws of breeding, as understood by him, must have been applied to the production of that excellent specimen.

So with respect to the cultivation of the soil and the production of crops. Here and there, scattered throughout the civilized world, were single individuals and classes of men, discovering some of the laws that govern agriculture and applying them to production.

Some nations for a time have fostered and promoted agriculture, in ages past, but even then, a change in the reigning monarch would often throw agriculture in the back ground, by the martial ambition of the Sovereign. But in the ever changing vicissitudes of war, and the rise and fall of nations, agriculture was the first to suffer and the last to recover from the ruthless tread of war.

But it was reserved for the nineteenth century to make greater advances in science, arts, manufactures, machinery and progress, than had been made from the time that man first went forth to till the earth until that time. The second and third quarters of the nineteenth century have revolutionized the whole civilized world, by the rapid advance in arts, science and inventions. Steam, as a motive power, has entered every department of industry. The steamboat, the steamship, the railroad, the manufactory of every kind; and it has even entered the plow field and contended with the horse. Not that steam can plow cheaper, but it can plow quicker, and more than all it can *cultivate better and more thorough*.

Even Jupiter has been persuaded to harness his fiery steeds and carry news at every man's bidding.

Time and space are thus in a measure annihilated, and nations are brought into close proximity. The discoveries of to-day, are known throughout the world to-morrow.

What epoch, or what era, since man first went forth to till the earth, was ever so propitious for the coming farmer as the present?

This class has increased rapidly in England in the last fifty years; and in that time the productions of English soil have doubled. He has also crossed over the channel, into France and Germany, but has met with some check there by the war-like propensities of their Sovereigns. He was present at the planting of the principles of eternal liberty, at Plymouth Rock; he left his oxen in the field with his plow, and was present at the battles of Concord, Lexington and Bunker Hill; he came from his farm on the Potomac, at his country's call, when a Republic was born in a day, and helped to shape its future course by his wise counsel.

The fundamental principles of our free government, are not adverse to the growth and development of agriculture, though laws are often made oppressive to it, and in the interest of other classes.

THE VALLEY OF THE MISSISSIPPI FAVORABLE TO THE
COMING FARMER.

This valley, extending from the great lakes to the sunny south, and from the Alleghanies on the east to the Rocky mountains on the west, embraces in contiguous area, the greatest body of highly productive land by nature, on the globe. Man came, (I would that I could tell the truth and say they were all coming farmers,) and beheld how lavish nature had been of her choicest gifts, and they too often adopted a system of agriculture, which in the beginning was to cheat nature, but in the end would cheat themselves, and such have reaped the fruit of their doings.

While many have foreseen that the end under the soil exhausting system must be financial ruin, and have wisely adopted a different system; others have rushed blindly on, until their soil is badly exhausted, and they are discouraged, and decide that "Farming is a failure." Now the class the "Coming Farmer," is on the rapid increase, and those who have been pursuing the wrong policy must face about, and make quick step to the time of improvement, or they must abandon farming, or their condition will become more hopeless every year. The farmer now has in his reach, all the great improvements in arts, science and inventions, to aid him in his labors and researches; and he has the experience of successful farmers, in every department of agriculture, to guide him to ultimate success. A volume of practical information is now daily opened before him, each page of which is replete with experience and valuable information.

THE NEWSPAPER PRESS.

That great engine of civilization and liberty, is not now considered complete, unless it has one or more columns devoted to agriculture; and speed on the day when we shall have more of it and less of corrupt politics, "Our party right or wrong." The strictly agricultural press are doing much to speed on the coming farmer, in this wide field of improvement. Our institutions of learning are endeavoring to lend a help-

ing hand to agriculture, more than ever before. They have not yet been able to solve all the knotty problems, and reconcile theory with practice in all cases, but have furnished much material aid.

But above all others, the most encouraging feature of all, is this great uprising of the agricultural class, in their manhood and dignity, with a firm determination to acquaint themselves with all that pertains to their calling and occupation. This firm resolve that henceforth the head and hand shall work together; that the muscles shall no longer be overtaxed while the brain remains dormant, but that hereafter both shall work in unison.

Fifty years ago the farmer tilled his land with a wooden plow, with an iron edge or lay, which was some improvement on the Roman wooden plow, which was a crooked limb; but to-day the farmer requires a hardened steel plow, with a high polish and of the most approved form. Then he cut his grain by the slow and toilsome way of the sickle, but now with the reaper of the most approved pattern. The slow and tiresome flail contrasts feebly with the modern thresher of to-day, devouring bundles, and spouting forth grain and straw, so as to cause the late Emperor Napoleon to exclaim "It is terrible to behold!"

Now the farmer should be a man of science and culture, and fully understand his occupation and calling, otherwise these accelerated methods of production, will only become accelerated methods of exhaustion. He also needs a degree of mechanical skill, that he may keep those complex machines in working order, and know when they are in order.

The coming farmer will select that diversity of farming and variety, that is adapted to his soil, location, proximity to market and other surrounding circumstances. He will not grow wheat so exclusively as to impoverish his soil, and thus absorb his capital; but if wheat should be one of the crops he should decide to grow, he will combine it in a rotation of crops, and then by the use of clover, and plaster, and keeping of stock, and making a large amount of manure, he will secure a

high average yield per acre, and so produce at far greater profit. Clover will be the all-powerful word with which he will cause nature to unlock her stores at his bidding, but not grown for sale in the shape of hay, but to be used in the growing and fattening of stock, and growing of wool; and he will feed his land before it is hungry and rest it before it is weary. And his stock, whether they be horses, cattle, sheep or hogs, will be of the improved breeds. No scrub or inferior stock for him to waste on their keep what he has gained on production of his soil, neither in this climate will his stock be wintered without adequate shelter; consuming an undue proportion of food to preserve the warmth of their bodies, that should go to the production of flesh and fat.

He will grow fruit for the use of his farm and table, and in favorable seasons some for sale. He will not head his list of apples with Early Harvest, Baldwin, Newtown Pippin and Roxbury Russetts, if he lives in Wisconsin, neither will he be apt to set many Perry Russetts, although some nursery men may tell him the tree is hardy. Neither will he inquire of parties in New York what kinds he should set in Wisconsin. Farmers in this state have wasted thousands of dollars because they did not know what kinds would succeed.

But thanks to our Horticultural and Agricultural Societies and the labor of individuals, there are now sign boards placed along the way, that others may not waste time and money in going over the same grounds that we have gone over, to find their brightest hopes wrecked, and exclaim, "Had we known what we now know, our efforts would have been crowned with success!" But instead of such, their starting point may be the combined result of the experience of others who have preceded them, and their culminating point will be higher attainments and greater success. Experience has been collected and compared, and a chart drawn pointing out the danger, and now the amateur fruit grower can pursue his way with as much safety as the professional fruit grower, if he will only learn.

What has been done in fruit growing is now being done in agriculture, and I hope this convention has called out some facts and experience, that will not soon be forgotten, but that the future impress of the same, will result in good to the agriculture of this part of the state, and to all who may read the same. These gatherings of the agricultural classes, of every name and nature, are going to break down the barriers of isolation, with which the farmer has been surrounded, until many have become skeptical, doubting, and in a state of negative electricity and repel each other, and will not learn because of their prejudices, nor get out of the old ruts.

Separate branches of agricultural industry are organizing associations adapted to their particular calling, and are laboring with great success; and the coming farmer has them all at his command, so far as he may elect, to pursue their several callings.

In this grand march of improvement, when production is bound to be increased, and its net cost cheapened, the non-progressive farmer will fare even worse than before — he will be borne down by the legitimate effects of improved agriculture, unless he bestirs himself, and makes similar improvement. There is no such thing as stand-still with the farmer, for he must adopt a system of improved agriculture, improved stock and greater profits, and hence more valuable lands, or else pursue the depleting system, and sell or eat up his capital and end in discouragement and despair.

If we examine closely the following quotation in the *Country Gentleman* from the *London Agricultural Gazette*, we shall see some of the rapid changes that have been made in the last thirty-five years in England alone and her growing dependence on foreign agriculture, notwithstanding the rapid improvement of her own. It says: "It is not too much to say that the value of cattle, dairy products, meat and grain imported into this country equals, if it does not exceed, the entire agricultural rental of the United Kingdom. * * * Since 1840 our imports of wheat and flour have increased five-fold; of barley, nearly as much; of oats, seven-fold; of

butter and cheese, six-fold, and of beef, meat, bacon and pork fifty-fold.”

In our own country, in the older states, the entire growth of population is in the villages and cities. But by the rapid development of new Territories and States, caused by the immense subsidies and land grants to railroads by the General Government, production had a forced and unnatural and unhealthy growth; but the people have spoken in tones not to be misunderstood, that there must be no more squandering of the eminent domain, and hence we may look for a slower, but more healthy growth in the new States and Territories. and the agriculture of the older States must be improved, to meet the growing demands that are sure to be made on it to support the growing tendency of our population to city life, and to supply the foreign demand. And should a like period of thirty-five years in this country produce but a moderate part of the results that have followed in England in that time, agriculture will be severely taxed to keep apace with population and consumption.

Thirty-five years ago, Chicago was but a small village, and Milwaukee was claimed to be “too far from Green Bay to amount to much of a settlement,” but now the former has over one-third of a million of population, and the latter has its one hundred thousand.

We must endeavor to produce as much as possible on a given area and produce as cheaply as possible, and then if prices should again grow more remunerative, we will endeavor to endure it with patience. How many of you, like myself, were dairying in 1844, when butter brought eight cents and cheese four cents per pound, and other products in proportion? What farmer would like to return to those times and sell at those prices? Some men — farmers I liked to have said — will keep a breed of hogs which appear to be bred for speed and length of limbs and head, instead of weight of flesh, and they take from fifteen to twenty bushels of corn to produce one hundred pounds of pork, instead of

producing that amount from eight bushels, as he can with the improved breeds.

Let me suggest to the managers of fairs the propriety of putting in for this class of farmers, who are always complaining that the native stock has no fair show by the side of the improved stock, a premium under the heading of "Trials of Speed"—an agricultural hog trot as well as an agricultural horse trot. The same class do not believe in improved cattle, for they will winter theirs in the fence corners, without shelter; and they say they want a hardy kind, and so they buy scrubs, but I notice that a large per cent. of them die in the hardening process, and the few they have for sale will not sell for half their cost; and so such conclude that farming is a poor business and does not pay. To such we say, your conclusions in your own case are correct.

The coming farmer will be posted in matters of State. We do not wish to be understood that he will be a politician, according to the modern acceptation of the term, and resort to practices which are questionable and ways which are dark. But, having to deal with nature, which is ever truthful and honest to her votaries, he will require the same of his political rulers; and, finding them wanting in this, he will walk forth as David, when the giant of the Philistines defied the God of Israel, only instead of putting a small stone in his sling, he will put in the ballot, and it will matter not to what political party such unfaithful servant belongs, his fall is certain. He will even bear aloft, inscribed on his banner, Principle, Virtue and Integrity before Party.

OUR SONS AND DAUGHTERS.

We cannot ignore the high and responsible duty we owe our children, to provide for them a good, practical education to fit them to perform well their part in life. It matters not what may be their future calling or occupation in life, such an education has become an absolute necessity for their success, and without it their chances of success are greatly impaired. Mental training and culture are as absolutely necessary for

them if they are to remain on the farm as to enter the other avenues and walks of life.

We should render home attractive, and place at their command good books, periodicals and papers, that their minds may be stored with useful knowledge, and that they may be possessed of a well-balanced mind, while the very nature of their occupation, it rightly understood and obeyed, is productive of a vigorous and healthy constitution. Let us remember that all the other honorable callings of life are often replenished with the choicest treasures from the fireside of the farmer.

Whether they are to remain on the farm or tread the halls of legislation, the pulpit, or the forum, or whether they are to engage in mercantile pursuits, manufactures, arts or letters, let us throw around them hallowed and healthful influences, that when they shall go out to fight the battles of life they shall be noble men and women, and there shall be enshrined on their bright memories the farm home of their childhood, the happy home.

DISCUSSION.

Mr. J. P. Roe:

Could we bring up, if we have time, in direct communication with the subject that has just been read, *The Coming Farmer*, the various improvements that are necessitated by the condition of things — the best methods of preserving and applying manures of the farm.

The great question seems to be — how we can keep up the fertility, in view of the increased drain upon the resources of the soil. We are repeatedly taking from the soil its wealth, and how to restore it, how the farmer may use his manure pile and preserve it in its richness to the best advantage, and use all the manure resources at his disposal.

Mr. E. H. Benton:

The productiveness of the farming community for the support of life has increased three times as rapidly as the population, or, in other words, if the population has increased at the rate of ten per cent. during the last year the production

of the soil has increased thirty per cent., and the farmer is suffering for an income.

The idea is suggested there. Railroads have been run out into the Western country and the large number of toilers over this Western country has had effect on production, and production is largely in excess of the demand. Here we have one of the secrets of the immense pressure on the Western States at this time.

What we have produced is virtually going to bring us back less than what it cost. He points out a remedy; that is, stop building railroads; stop competing with one another in the agricultural line; go to living in cities.

The coming farmer will have direct reference to the laws of supply and demand. Instead of trying to produce the largest quantity, he will try to produce at less cost. I hope we will, all of us, take this into consideration, and watch the matter of population and the production of our farm. Raise less and raise it also at a less cost, and then we will be sure, always, to find more profit from farming.

Mr. J. P. Roe:

In Persia they adopt the course spoken of by our friend. They do not stop building railroads, for they have none. They went from the farming community into the cities, and we have terrible reports from our missionaries that in many instances they were compelled to eat one another.

VOTE OF THANKS.

On motion of Secretary Torrey, the Convention extended a vote of thanks to Vice-President Dana C. Lamb, of Fond du Lac, for the efforts he put forth to make the Convention a success and the members comfortable while here.

CLOSING REMARKS.

Mr. J. M. Smith, of Green Bay, spoke as follows:

Gentlemen: Now in parting we shall not probably, any of us, meet again until we meet next fall. I hope we shall all meet there, and all of us who are interested in our Northern Fair want to make it equal, at least, to the State Fair; not

that we are quarreling with the State Fair, but it is honorable and right to the officers of the State Fair if we shall beat them. We will do so if we can, but we shall do it in a straightforward, honorable way.

It is a matter of pride in Northern Wisconsin that the Valley of the Lower Fox River, from here down, is the best portion of our State, not for every purpose but for many purposes, and it rests upon us to develop it; if we do not do it, somebody will do it for us. If we run our farms down and work them out, our children will go off and leave the farms when we are gone, and leave them for some other men to work up.

We can make this portion of the State one of the garden spots of the Northwest. I have traveled it a good deal, and never in my life have I seen a finer country, a more beautiful country to look at, and a better country to sustain human life in than a very large portion of the country within seventy-five miles of where we are now gathered — where there are so many favorable combinations to get a large population, a living, vigorous population, as there are in this portion of the State.

Let us go to work and make it what we can make it and what we ought to make it. Let us make our crops better than ever before. I do not say it to boast of it, but I state it as a fact that I have raised large crops year after year uniformly, but I expect this coming season to raise a great deal larger crop than I have ever raised. I tell my boys that is the way out of hard times, bigger crops, better crops than we have ever had. Our land is capable of doing it and we will make it do it, and we shall do it, I have no doubt. I expect a large crop this coming season for various reasons. I think I know more; I have attended the Convention and heard papers read and heard men talk. I hope you have all gathered ideas in the same way. I know a good many things I did not know a year ago. I have seen my own mistakes that I think I can correct another year, and take advantage of my own mistakes in that way, and make my crops larger and better

than ever before. I say to myself now, is there anything I that I can do to that ground to make a bigger crop than I have done? If so, go at it and do it by putting the seed in the ground, and I tell you large crops will pay large prices, and good, common sense in the management of our land will make large crops, and large crops will pay and pay profitably. I never had a large crop in my life but paid a handsome profit; I never had a small crop but run me in debt; I never had a medium sized crop but brought me out even, sometimes a little behind; but these big crops pay, and pay handsomely.

Mr. R. D. Torrey:

Before adjournment, I want to call up one thing. Mr. Benton informed us that he did not believe in fall plowing, but he proposed to take a better way, and plow in the spring, and proposed to raise a big crop of corn. Mr. Stilson says he has already prepared his ground for raising a crop of corn, believing he can kill this cut-worm by fall plowing more effectually than he can by plowing in May or June, as Mr. Benton does. I would like these two gentlemen, either at this Convention, when next held, or at the next Convention of the State Society, or both, give their experience in destroying this cut-worm. Let us have something practical from these two gentlemen. We know they are both good, sturdy farmers, and I would like the result of this year on those two pieces of ground.

Mr. Eli Stilson:

I have just one word to say in regard to Agricultural Conventions. I have probably attended more of them in the State than any other man now present, and I never attended one but I reaped ample pay for my expense and my time. The very fact that I have listened to my friend over the way in regard to the success that he has had with fall plowing in regard to the cut-worm, will prompt me to keep on persevering, and it may result to my benefit a great deal.

In the last two years this enemy has cost me about two thousand dollars, probably nearer two thousand than one

thousand. My neighbor has pursued the same policy as Mr. Benton and it has failed. As I said before, our remedy, most probably, lies in the time of cultivation.

Mr. E. H. Benton:

I think you have probably erred. You spoke of somebody following my course and failing.

Mr. Eli Stilson:

It was a neighbor of mine. I don't know what time in June his last planting was done.

Mr. E. H. Benton:

He didn't have a roller.

Mr. Eli Stilson:

Yes, sir; he rolled and broke, and harrowed, and cultivated, and planted; and then harrowed it up entirely and re-rolled, and re-marked, and replanted again in June, and the second crop was an entire failure, and he sowed buckwheat or something of that kind.

It has always been my invariable rule to travel with my eyes and ears open, and I have traveled thousands of miles, connected with some other business, but I rarely travel but that I can see enough to pay my expenses. In regard to agricultural conventions, I have not been to one but that I have been manifoldly paid.

Although my hair is gray, I have not learned all of farming. We have so many circumstances to contend with. Life is too short without this combining and comparing experiences, and marking out the true way for us to pursue.

Mr. J. P. Roe:

In regard to this plowing, I think our worthy friend, as I understood him, plowed about the first of August.

Mr. Orrin Hatch:

Immediately after harvest, sometime in the month of August.

Mr. J. P. Roe:

That is well as far as it goes, but I would suggest another plowing after, and deeper if time and means will warrant it. This second plowing will pay, and pay well. There are foul

seeds; these will be destroyed. There are a great many enemies that work in the soil in the early autumn and in the summer, that are turned out in the cold in that season.

I would ask the question if there is any gentleman in the convention, who has had experience with growing onions on sod plowed the previous fall? I have heard of it. Has any one had any experience upon it? I have a large piece that I would like to put in onions, that is treated in that way. This was plowed in October. It is neither timothy nor clover. It is what you might term pasture land; land that has never been broken; virgin soil; simply pasture land; if is sod, white clover; June grass; a mixture we find in our lowland pasture. This was plowed about four or six inches in depth; it had but slightly decayed last fall.

Mr. Jas. Orvis:

I would like to inquire whether it will operate as a destroyer of the cut worm to plow in the fall?

Mr. Eli Stilson:

That is what we are inquiring about ourselves.

Mr. Jas. Orvis:

I understood you to say that it would.

Mr. Eli Stilson:

It proved so with two experiences of a single season.

Mr. Jas. Orvis:

I was going to give the facts of a case that occurred in the town of Oakfield last year.

A neighbor of mine, a year ago last fall, plowed up late in the fall ten acres of sod for corn. He fitted his ground in the spring, and the cut worms took every hill, there was not a hill standing. The neighbors planting on spring plowing were equally unfortunate, except in some cases they did not take every hill; but almost all the corn through our section of the country planted on sod, no matter whether it was plowed in the fall or spring, was all destroyed by the cut worm. We all planted twice, and a good many the third time. The result was we got a good crop of corn, but the fall plowing was just as bad as the spring plowing.

Mr. Eli Stilson:

What time did they plow in the fall?

Mr. Jas. Orvis:

I don't know what time in the fall.

Mr. Orrin Hatch:

My brother has just spoken about plowing in the fall. It was the Mr. Price that plowed so late in the fall. The decomposition did not take place of the vegetable life, the worms lived on until planting corn, and they consequently destroyed it. I think in some instances, Mr. Benton's rule will work well, if he plows early enough in the spring to have entire decomposition take place, and then give sufficient time for the worms to die; but to make everything sure, I think my plan is the best policy.

This piece of land I spoke of in my remarks a short time ago, I intended to make the experiment of sowing to winter wheat. All the stumps that were ever on it were on it when I was plowing. We took the stumps out while we were plowing. I decided to take the stumps out, consequently this six acres remained until spring. That which I broke early was decomposed. My men went through there and let their plow run through it, and it was as rotten as a muck heap.

Mr. Chester Hazen:

I have had some experience with the cut worm; my neighbors also. Most of them lost their corn crop where they planted on spring plowing. Last spring I was unfortunate enough to plow my land in the spring. I plowed up an old pasture; planted it about the 20th of May: it came up very nicely; the corn got up about two or three inches high. I watched it closely, expecting the worms would go for it. About the time they did commence, I went for them. It was a pretty serious job for me. I thought it was either kill or cure. I had ten men in the field about two*days. I got a pretty good crop of corn. My neighbors had almost every hill eaten up.

Mr. Whiting talked about it afterwards to me. He says

he has no trouble with the cut worm, either on fall or spring plowing, but he prefers fall plowing. He says he plows the land and lets it lay until about the 1st to the 5th of June, and then he plants it, and he does not want it to come up until the 15th. He says after that the cut worm is out of the way and dead, and will not hurt the crop.

A Voice:

How did you get rid of yours?

Mr. Chester Hazen:

We dug them out with a stick and killed them and squeezed them, and planted in some corn where they got it out. I did succeed in getting a crop of corn.

Mr. K. M. Hutchinson:

I would like to make the inquiry whether any of these gentlemen have ever seen a cut worm as late as October? One gentleman spoke about his fall plowing; that clover or grass land being turned over, that the worm would live in that clover or sod until the next spring, and then be ready to attack the corn as soon as it appears above ground.

Mr. Eli Stilson:

I never have seen them in the fall of the year that I recollect of.

Mr. K. M. Hutchinson:

And no one else has ever seen them as late as that. In the spring the miller first appears. Having found her mate, she then deposits her eggs near the roots of the plant that is to furnish food for the young worm, when it is hatched from the egg. As soon as hatched, it then commences its ravages upon the young crop within its reach. In due time the worm will seek some retired place in the ground or under sticks and stones, where it transforms into the chrysalis, in which state it remains perfectly harmless, until the next spring, when the same operation* is repeated.

Mr. J. P. Roe:

I would like to ask whether or not the method proposed by our friend across the way, is not a safe one; plowing early

in the summer; that is, plow as near as practicable to the 1st of August?

Mr. K. M. Hutchinson:

Most assuredly. Spring or summer plowing will be more likely to destroy the worm, because the worm is there, but the fall plowing will not, because there are none there to kill.

Mr. J. P. Roe:

This plowing about the first of August is beneficial?

Mr. K. M. Hutchinson:

That is a difficult matter for me to determine now, because I have no data by which to determine the period at which they go into the chrysalis state; their habits, and the depth to which they go.

Mr. J. P. Roe:

The philosophy of both methods, my friend's and Mr. Benton's, seem practically the same. That is to starve the worm; to get the food of the worm disposed of in time so that the crop may be saved. But there rests this difference between the two. The spring operation defers the planting rather too late in the season, for a man to take the risk of the frost. I think, gentlemen of the Convention, I would take the risk of the spring frost, rather than the fall frost. You can have your corn cut down even to the surface. I have a friend who plants an early variety of corn. He plants it as soon as the snow is off of the ground, incredibly early. It is cut down to the ground with the frost, and again and again comes up. He has a good crop and sells it at a high figure. If the fall frost strikes your crop in the fall, you have no remedy. If you plow in the fall, you gain most valuable time in the spring, when time is most valuable; and furthermore, you have the advantage, that when spring time of planting comes, you have your soil mellow and ready for use. There are no clover stems, but you have, as remarked by my friend, [Mr. Hatch,] the ground a perfect muck heap.

On motion the Convention adjourned *sine die*.

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