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## **Transactions of the Wisconsin State Agricultural Society including proceedings of the state agricultural convention, held in February, 1879, and practical and useful papers. Vol. XVII 1878/1879**

Wisconsin State Agricultural Society

Madison, Wisconsin: David Atwood, State Printer, 1878/1879

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TRANSACTIONS  
OF THE  
WISCONSIN  
STATE AGRICULTURAL SOCIETY

INCLUDING PROCEEDINGS OF THE  
STATE AGRICULTURAL CONVENTION,  
*Held in February, 1879,*  
AND  
PRACTICAL AND USEFUL PAPERS.

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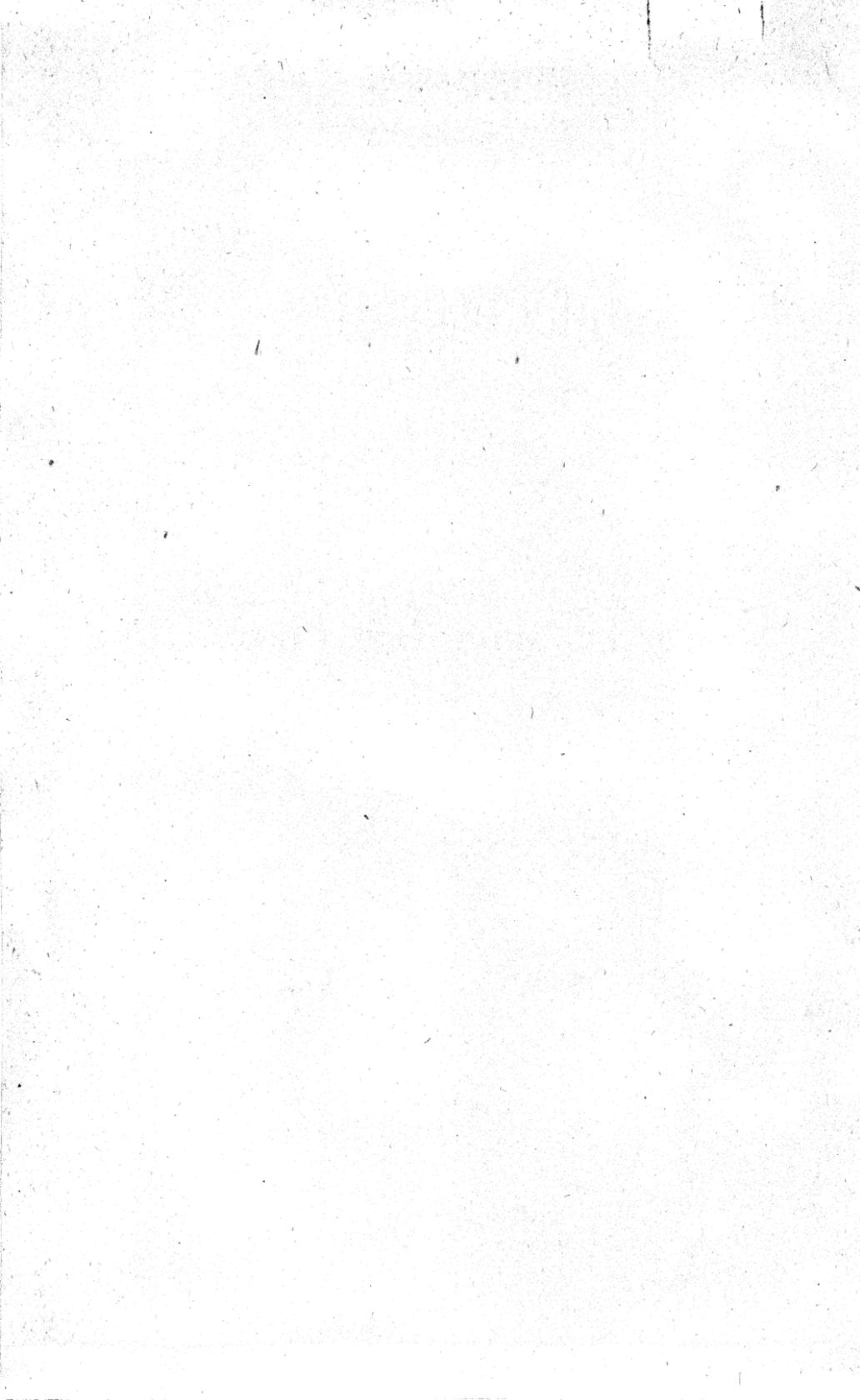
VOL. XVII.— 1878-79.

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PREPARED BY  
GEO. E. BRYANT, SECRETARY.

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



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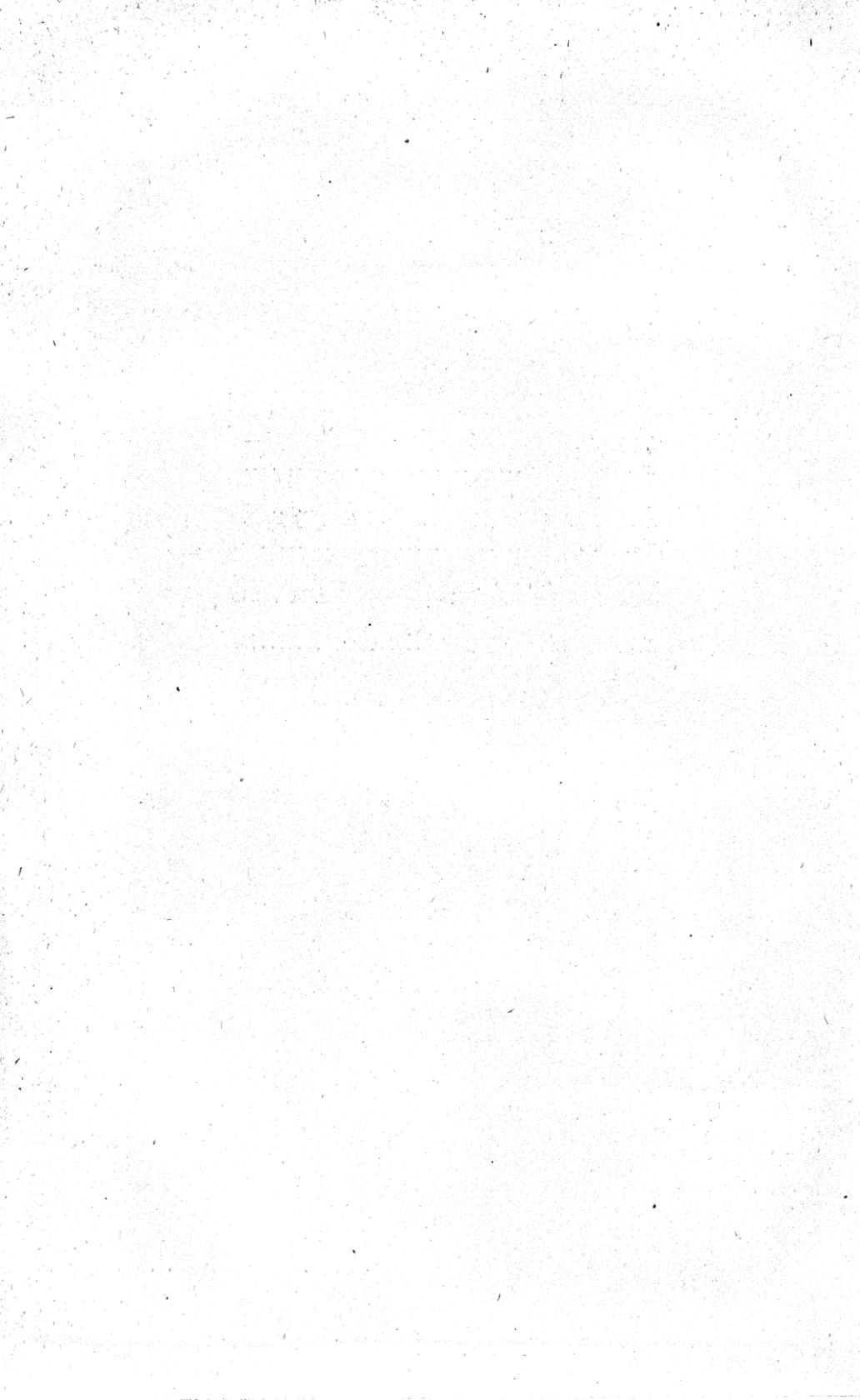
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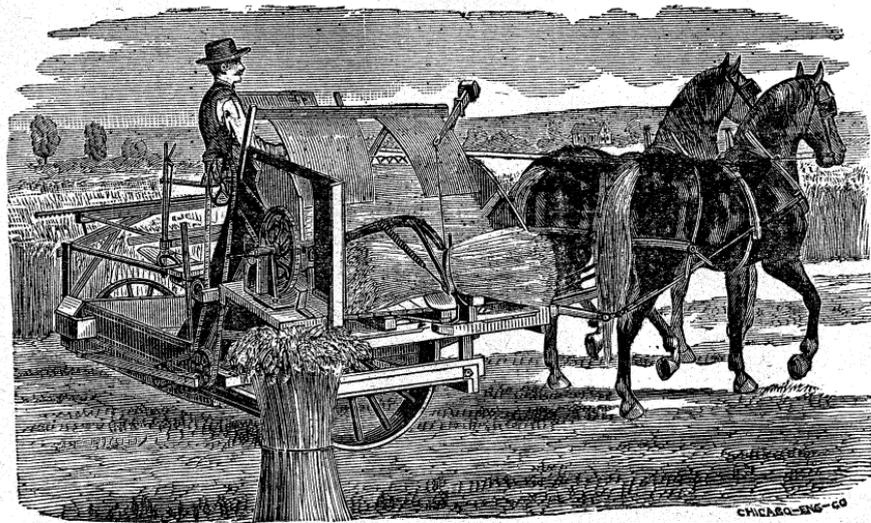
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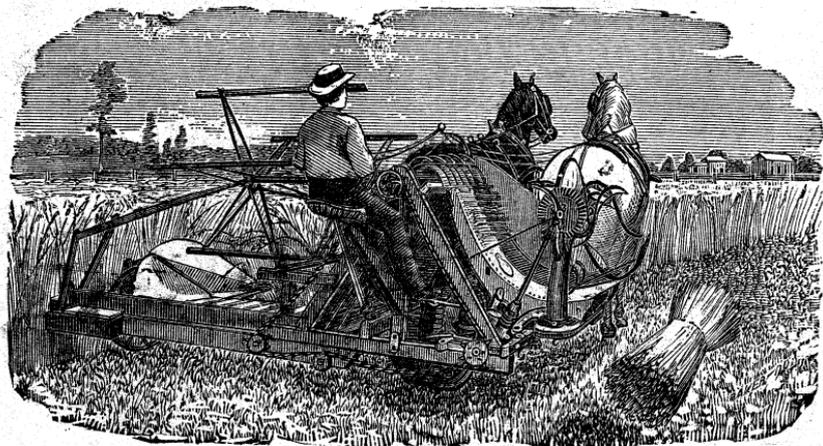
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# CONSTITUTION.

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## ARTICLE I.

### OF THE NAME AND OBJECT OF THE SOCIETY.

This society shall be known as the "Wisconsin State Agricultural Society." Its objects shall be to promote the advancement of agriculture, horticulture, and the mechanical and household arts.

## ARTICLE II.

### OF THE MEMBERS.

The society shall consist of life members, who shall pay, on subscribing, twenty dollars, and of honorary and corresponding members, who shall be elected by a two-thirds vote of all the members of the executive board, at any regular meeting. The presidents of county agricultural societies shall be members *ex-officio*, entitled to the same privileges as life members, and, together, shall be known as the general committee of the society.

## ARTICLE III.

### OF THE OFFICERS.

The officers of the society shall consist of a president, one vice president for each congressional district of the state, a secretary, a treasurer, and seven additional members, who shall hold their respective offices for the term of one year from the first day of January next succeeding the date of their election, and until their successors shall have been elected; and all of whom, together with the ex-president latest in office, and the president and general secretary of the Wisconsin Academy of Sciences, Arts and Letters, shall constitute the executive board.

## ARTICLE IV.

### OF THE POWERS AND DUTIES OF OFFICERS.

The presidents and vice presidents shall perform such duties as are common to such officers in like associations, as may be required by the executive board.

The secretary shall keep the minutes of all meetings, and have immediate charge of the books, papers, library, and collections, and other property of the society. He shall also attend to its correspondence, and prepare and

superintend the publication of the annual report of the society, required by law.

The treasurer shall keep the funds of the society and disburse the same on the order of the president, or a vice president, countersigned by the secretary, and shall make report of all receipts and expenditures at the regular meeting of the society in December.

The executive board shall have power to make suitable by-laws to govern the action of the several members thereof. They shall have general charge of all the property and interests of the society, and make such arrangements for the holding and management of general and special exhibitions as the welfare of the society and the interests of industry shall seem to require.

The general committee shall be charged with the interests of the society in the several counties where they respectively reside, and constitute a medium of communication between the executive board and the public at large.

## ARTICLE V.

### OF MEETINGS AND ELECTIONS.

The annual meeting of the society for the transaction of general business shall be held in its rooms in Madison, on the first Wednesday in December, at nine o'clock A. M., in each year, and ten days' notice thereof shall be given by the secretary, in one or more papers printed in the city of Madison.

The election of officers of the society shall be held each year during and at the general exhibition, and the exact time and place of the election shall be notified by the secretary in the official list of premiums and in all the general programmes of the exhibition.

Special meetings of the society will be called by order of the executive board, on giving twenty days' notice in at least three newspapers of general circulation in the state, of the time, place and object of such meetings.

At any and all meetings of the society, ten members shall constitute a quorum for the transaction of business, though a less number may adjourn from time to time.

## ARTICLE VI.

### OF AMENDMENTS.

This constitution may be amended by a vote of two-thirds of the members attending any annual meeting; all amendments having been first submitted in writing at the previous annual meeting, recorded in the minutes of the proceedings, and read by the secretary in the next succeeding meeting for the election of officers. All amendments proposed shall be subject to amendment by a majority vote at the meeting when presented, but not thereafter.

# BY-LAWS.

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## SECTION I.

### OF OFFICERS.

The officers of the society shall, *ex-officio*, fill the corresponding offices in the executive committee.

## SECTION II.

### OF THE DUTIES AND POWERS OF OFFICERS.

*The duties of the President*, in addition to those defined by the Constitution and the By-Laws regulating the duties of the permanent committee, shall be as follows, to wit:

1. To inspect the fair grounds after they shall have been prepared for the annual exhibition by the special committee of arrangements, appointed for that purpose, and suggest such modifications or further preparations as he may deem necessary.
2. To formally open the annual fair of the society, at such time as the executive committee may prescribe, with an appropriate address.
3. As the executive head of the society, to have a general supervision and control of the entire exhibition, subject only to the authority of the executive committee.

*The duties of the Secretary*, more specifically defined than in the constitution, shall be as follows:

1. To make a faithful record of each meeting of the executive committee, and keep such record in a condition for the convenient reference of any member thereof, at any time; also to make a record of every order drawn on the treasurer, and delivered to parties in whose favor they were so drawn — separately entering and numbering the orders drawn to pay premiums and those to pay general expenses, and so defining them — and of all moneys due the society; in all cases holding the parties so indebted responsible therefor until they shall have presented him a certificate from the treasurer, showing that the same has been paid.
2. To open and carry on such correspondence as may be advantageous to the society or to the common cause of agricultural improvement, not only with individual agriculturists and eminent practical and scientific men of

other industrial pursuits, but also with other societies or associations whose objects are kindred to ours, whether in this country or in foreign lands, and to preserve a journal of such correspondence in the archives of the society.

3. To collect and arrange for convenient examination, standard agricultural works and periodical publications, together with such models, machines and implements as may be donated to, or otherwise acquired by the society.

4. To investigate, as far as practicable, the nature of fertilizers, indigenous and cultivated plants, insects injurious to vegetation, etc., and to collect and preserve such specimens thereof as will illustrate the natural history and agricultural resources, condition and progress of the state.

5. To institute, and collect reports therefrom, needed experiments relative to the preparation of the various soils of the state for economic culture, the cultivation of different grains, fruits and garden vegetables, the breeding and raising of stock, etc.

6. To visit, by the advice of the executive committee, or as his own judgment may direct, the various portions of the state, and to give lectures on the science and practice of agriculture, wherever and whenever they may be deemed most necessary or desirable.

7. To co-operate with the superintendent of public instruction and the agent of the normal school board, for the introduction and use in the schools of Wisconsin, of standard works on agriculture and the other industrial arts and sciences.

8. To attend as many as possible of the industrial exhibitions of this country, particularly the county fairs of Wisconsin; to co-operate with the president and special committee of arrangements, for the judicious preparation and management of our state exhibition; and to have the sole supervision and control of the office of entry thereat.

9. To carefully prepare and superintend the publication of the annual report of the society to the governor of the state, embodying therein the proceedings of the State Agricultural Society, an abstract of the reports of the incorporated county agricultural societies of the state, and such reports, essays and addresses, or other matter of information, as may be calculated to enhance the value of said report.

Finally, it shall be his duty, not only by the means above named, but also through such other instrumentalities as he may devise, and the committee approve, to devote himself faithfully and unreservedly to the promotion of the industrial interests of the state.

*It shall be the duty of the Treasurer—*

1. To receive primarily and exclusively all moneys due the society, from whatever source.

2. To keep a full and faithful record of all receipts of moneys coming into his hands, and of the sources whence derived, in a book specially furnished by and belonging to the society, and to have the same open at all reasonable times, to the inspection of any person or persons authorized by the executive committee to make such examination.

3. To likewise keep an exact record of every order by him paid; and such record must be verified by the proper vouchers, showing that the sums therein named have been by him so paid.

### SECTION III.

#### OF MEETINGS.

*The Executive Committee* shall meet annually, on the day preceding the day on which the annual meeting of the society is held, on Monday preceding the first Tuesday of February, and again on the first day of the annual fair.

They shall also meet at the call of the secretary, the president and a vice president of the society concurring — and may adjourn to any stated time.

### SECTION IV.

#### OF A QUORUM.

At any meeting of the Executive committee, four members thereof shall constitute a quorum for the transaction of business.

### SECTION V.

#### OF PERMANENT COMMITTEES.

There shall be two permanent committees of the executive committee, which shall be respectively styled the *Standing Committee* and the *Finance Committee*.

*The Standing Committee* shall consist of the President, the Secretary and the Treasurer, who shall have power in the recess of the Executive committee to draw orders on the treasury for all necessary current incidental expenses. But the Executive committee shall have authority, and are hereby required to revise the proceedings or transactions of said Standing committee, and indorse or disapprove of the same.

*The Finance Committee* shall consist of the President and Treasurer, and it shall be their duty to suggest means for increasing the revenues of the society.

They shall also have authority to invest any portion of the funds of the society that may from time to time be set apart by the Executive committee for investment, disposing of such funds, upon such terms and conditions as may be prescribed by the said Executive committee.

Each of the above named sub-committees shall be responsible for the faithful discharge of their duties to the Executive committee, to whom an appeal may at any time be taken from their acts or decisions.

The auditing, adjusting, allowing or rejecting of all bills, claims or demands, of whatsoever nature, against the society, and the issuing of orders upon the treasurer for payment of the same — except for the current inci-

dental expenses of the society, as by this section already provided for — shall devolve upon the Executive committee; and it shall be the duty of said committee to annually examine the books, papers and vouchers of the treasurer and secretary, and compare the same, and adjust the accounts between those officers and the society, and to report thereon at the annual meeting in December.

## SECTION VI.

### OF THE ORDER OF BUSINESS.

The following order of business shall be observed at all meetings of the Executive committee:

1. Reading the minutes of the preceding meeting.
2. Reading the minutes and reports of the Standing committee.
3. Reading the minutes and reports of the Finance committee.
4. Report of Auditing committee.
5. Report from special committees.
6. Communications from the secretary.
7. Communications from members of the committees.
8. Unfinished business.
9. Miscellaneous business.

This order of business may be suspended, however, at any time, by a vote of the majority of the members present.

## SECTION VII.

### OF THE FISCAL YEAR.

The fiscal year of this society shall commence on the first Wednesday of December in each year, and all annual reports of the year previous shall be made up to that time.

## SECTION VIII.

### OF THE EXPIRATION OF THE TERMS OF OFFICE.

The terms of office of all the officers of this society shall expire on the 31st day of December, in each year.

## SECTION IX.

### OF AMENDMENTS.

These by-laws may be amended by any regular meeting of the Executive committee by a vote of eight of the members thereof.

## LIFE MEMBERS.

Names.	Residence.	Names.	Residence.
Adams, James .....	Janesville.	Blanchard, Willard.	Windsor.
Adams, Isaac .....	Cottage Grove.	Bostwick, J. M. ....	Janesville.
Adams, L. L. ....	Stoners Prairie.	Bostwick, R. M. ....	Janesville.
Alexander, O. ....	Milwaukee.	Bonnell, James. ....	Milwaukee.
Allen, J. W. ....	Janesville.	Bonnell, Lansing ..	Milwaukee.
Allen, W. C. ....	Delavan.	Boorse, Henry. ....	Granville.
Allen, H. M. ....	Evansville.	Boyce, A. A. ....	Lodi.
Allis, Edward P. ....	Milwaukee.	Boyd, R. B. ....	Milwaukee.
Angel, R. R. ....	Janesville.	Bowen, J. B. ....	Madison.
Angel, W. H. ....	Sun Prairie.	Bowman, J. M. ....	Madison.
Atkins, Albert R. ....	Milwaukee.	Bradley, C. T. ....	Milwaukee.
Atwood, David ....	Madison.	Braley, A. B. ....	Madison.
Atwood, Wm. T. ....	San Francisco.	Brazen, Benj. ....	Wauwatosa.
Atwood, R. J. ....	Madison.	Brichener, G. H. ...	Sheboygan F's.
Armour, P. D. ....	Milwaukee.	Briggs, F. ....	Madison.
Armstrong, L. G. ....	Boscobel.	Brockway, E. P. ....	Ripon.
Arnold, I. M. ....	Milwaukee.	Brodhead, E. H. ....	Milwaukee.
Arnold, A. A. ....	Galesville.	Brown, Jas. J. ....	Madison.
Aspinwall, D. M. ....	Farmington.	Brown, J. A. ....	Milwaukee.
Ayres, J. W. ....	Kenosha.	Brown, T. ....	Madison.
Barron, H. D. ....	St. Croix Falls.	Bruce, A. T. ....	Milwaukee.
Babbitt, Clinton ....	Beloit.	Bryan, John. ....	Cross Plains.
Babbitt, D. H. ....	Janesville.	Bryant, D. D. ....	Madison.
Bacon, I. P. ....	Westport.	Bryant, G. E. ....	Madison.
Bacon, W. D. ....	Waukesha.	Bull, Stephen. ....	Racine.
Bailey, A. P. ....	Oshkosh.	Bullard, James ....	Evansville.
Bailey, M. T. ....	Madison.	Bump, N. P. ....	Janesville.
Baker, Robt. H. ....	Racine.	Bunker, Geo. ....	Madison.
Barlass, Andrew. ....	Emerald Grove.	Burgess, J. M. ....	Janesville.
Barlass, David. ....	Emerald Grove.	Bush, Samuel. ....	Milwaukee.
Barnes, George ....	Janesville.	Button, Henry H. ..	Milwaukee.
Barrows, E. S. ....	Chicago.	Burnham, Miles. ....	Danville.
Baxter, Geo. ....	Windsor.	Burnham, A., Jr. ..	Milwaukee.
Bates, A. C. ....	Janesville.	Burnham, J. L. ....	Milwaukee.
Beecroft, W. G. ....	Madison.	Byrne, John A. ....	Madison.
Bement, E. ....	Oregon.		
Bemis, Jervis. ....	Footville.	Casar, Wm. ....	Janesville.
Benedict, J. D. ....	Bristol.	Camp, H. H. ....	Milwaukee.
Benedict, S. G. ....	Providence, R.I.	Cantwell, M. J. ....	Madison.
Benedict, W. G. ....	Milwaukee.	Capron, Geo. ....	Boston, Mass.
Benson, S. W. ....	Bloomfield.	Carleton, W. D. ....	Sun Prairie.
Bigelow, F. G. ....	Milwaukee.	Carpenter, J. A. ....	Waukesha.
Billings, Earl. ....	Madison.	Carpenter, J. E. ....	Windsor.
Bird, I. W. ....	Jefferson.	Carpenter, J. H. ....	Madison.
Bird, T. E. ....	Madison.	Carpenter, S. D. ....	Carthage, Mo.
Bishop, John C. ....	Fond du Lac.	Carr, N. B. ....	Madison.
Black, John ....	Milwaukee.	Carr, Joseph S. ....	Eau Claire.
Blair, Franklin J. ....	Milwaukee.	Carter, A. M. ....	Johnstown.

Names.	Residence.	Names.	Residence.
Carter, Guy .....	Janesville.	Darwin, A. G. ....	Brooklyn, N. Y.
Carver, P. S. ....	Delavan.	Daubner, Geo. H. . .	Brookfield Cen.
Cary, J. ....	Milwaukee.	Davidson, Adam. . .	Verona.
Case, J. I. ....	Racine.	Davis, G. L. ....	Milwaukee.
Chandler, Joseph C.	Madison.	Davis, John .....	Milwaukee.
Chandler, Samuel. . .	Milwaukee.	Davis, N. P. ....	Pierceville.
Chapman, T. A. ....	Milwaukee.	Davis, S. B. ....	Milwaukee.
Chase, Enoch. ....	Milwaukee.	Davis, W. ....	Center.
Chase, H. ....	Milwaukee.	Dean, E. B. . . . .	Madison.
Cheney, Rufus. ....	Whitewater.	Dean, N. W. ....	Madison.
Children, E. ....	Lancaster.	Dean, John S. ....	Madison.
Chipman, A. ....	Sun Prairie.	De La Matyr, W. A.	Elkhorn.
Chipman, C. R. ....	Waunakee.	Delaplaine, G. P. . .	Madison.
Church, Wm. A. ....	Milwaukee.	DeMor, A. B. ....	Milwaukee.
Clapp, G. W. ....	Fitchburg.	Dewey, Nelson . . .	Cassville.
Clark, C. M. ....	Whitewater.	DeWolf, E. ....	Fitchburg, Mas.
Clark, Lewis .....	Beloit.	Devoe, A. B. ....	McFarland.
Clark, Satterlee . . .	Horicon.	Dexter, W. W. ....	Janesville.
Cochrane, John. ....	Waupun.	Dickerman, Jesse A.	Verona.
Cogswell, A. W. ....	Brookfield.	Dickson, J. P. ....	Janesville.
Colby, Charles. ....	Janesville.	Dodge, J. E. ....	Lancaster.
Coleman, W. W. ....	Milwaukee.	Dodge, H. S. ....	Milwaukee.
Colladay, Wm. M. . .	Stoughton.	Doblittle, W. J. . . .	Janesville.
Colton, John B. ....	Madison.	Doris, John .....	Milwaukee.
Cooper, E. J. ....	Mineral Point.	Dorn, M. M. ....	Madison.
Cornell, James. ....	Oshkosh.	Dousman, T. C. . . .	Waterville.
Cornwell, H. H. ....	Verona.	Dow, O. P. ....	Palmyra.
Corrigan, John. ....	Cedarburg.	Drakeley, S. ....	Madison.
Cottrill, J. P. C. ....	Milwaukee.	Drury, E. W. ....	Fond du Lac.
Cottrill, W. H. ....	Milwaukee.	Dunlap, S. ....	Burke.
Cottrill, C. M. ....	Milwaukee.	Dunn, Andrew. ....	Portage City.
Cory, J. ....	Footville.	Dunn, Wm. ....	Madison.
Crampton, N. B. ....	Madison.	Dunning, Abel . . .	Madison.
Crawford, J. B. ....	Baraboo.	Durkee, H. . . . .	Kenosha.
Crawl, John. ....	Center.	Dutcher, J. A. ....	Milwaukee.
Crilley, John J. ....	Milwaukee.	Dwinnell, J. B. ....	Lodi.
Crocker, Hans. ....	Milwaukee.	Eaton, J. O. ....	Lodi.
Crosby, J. B. ....	Janesville.	Echlin, J. O. ....	Janesville.
Cross, J. B. ....	Milwaukee.	Egerton, E. W. ....	Summit.
Crossett, B. F. ....	Janesville.	Edmunds, F. W. ....	Madison.
Culver, Caleb E. . . .	Shopiere.	Elderkin, Ed .....	Elkhorn.
Cummings, Wm. ....	Fitchburg.	Elliott, E. ....	Lone Rock.
Curtis, L. S. ....	Wauwatosa.	Elliott, Jos. T. ....	Racine.
Curtis, F. C. ....	Rocky Run.	Ellis, J. A. ....	Chicago.
Curtis, Seymour. . . .	Fitchburg.	Ellsworth, O. ....	Milwaukee.
Curtis, D. W. ....	Fort Atkinson.	Ellsworth, L. ....	Milwaukee.
Curtis, Dexter. ....	Madison.	Ellsworth, W. J. ....	Madison.
Cutting, J. W. ....	Harmony.	Elmore, A. E. ....	Green Bay.
Daggett, M. L. ....	Madison.	Elmore, R. P. ....	Milwaukee.
Dahlman, Anthony . .	Milwaukee.	Eldred, John E. ....	Milwaukee.
Dahlman, John. ....	Milwaukee.	Elson, Charles. ....	Milwaukee.
Dann, Obed. ....	Janesville.	Emmons, N. J. ....	Milwaukee.
Danks, E. P. ....	Stoughton.	Enos, Elihu. ....	Waukesha.
Daniels, W. W. ....	Madison.	Esterly, Geo. W. . .	Whitewater.
Darling, K. A. ....	Fond du Lac.	Fairbanks, E. ....	St. Johnsb'y, Vt.

Names.	Residence.	Names.	Residence.
Farwell, L. S. ....	Chicago.	Green, Anthony...	Milwaukee.
Fenn, G. W. ....	Janesville.	Green, Geo. G. ....	Milwaukee.
Ferguson, D. ....	Milwaukee.	Greene, N. S. ....	Milford.
Ferguson, Benj. ....	Fox Lake.	Green, Samuel. ....	Fitchburg.
Fernly, Jno. ....	La Grange.	Greenleaf, E. B. ....	Milwaukee.
Field, Martin. ....	Mukwanago.	Greenman, C. H. ....	Milton.
Field, W. W. ....	Boscobel.	Greenman, H. D. ....	Milwaukee.
Fifield, L. ....	Chicago.	Gregory, J. C. ....	Madison.
Fifield, D. E. ....	Janesville.	Grinnell, J. G. ....	Adams.
Fifield, E. G. ....	Janesville.	Groom, John. ....	Madison.
Finch, Lorin. ....	Bradford.	Grubb, W. S. ....	Baraboo.
Firmin, F. H. ....	Madison.	Guernsey, Orrin. ....	Janesville.
Fisher, C. C. ....	Center.	Gurnee, J. D. ....	Madison.
Fisher, Elijah. ....	Newark.		
Fisher, S. S. ....	Center.	Haight, J. M. ....	Sacramento, Cal
Fisher, Seth. ....	Center.	Haight, Nicholas ..	Madison.
Fitch, D. ....	Madison.	Hall, Augustus. ....	Janesville.
Fitch, W. F. ....	Madison.	Hallock, Youngs ..	Middleton.
Fitch, W. G. ....	Milwaukee.	Hall, H. P. ....	Madison.
Fitzgerald R. P. ....	Milwaukee.	Hanchett, A. M. ....	Hanchettville.
Fletcher, John. ....	Springfield.	Hancock, Brad. ....	Marshall.
Flint, J. G., Jr. ....	Milwaukee.	Hanks, A. S. ....	Milwaukee.
Folds, Geo. H. ....	Madison.	Hammond, L. M. ....	Janesville.
Foot, E. A. ....	Kansas.	Hammond, E. S. ....	Fond du Lac.
Foot, A. E. ....	Milwaukee.	Harington, N. H. ....	Delavan.
Fowle, Jacob. ....	Oshkosh.	Harris, Jas. ....	Janesville.
Fowler, James S. ....	Milwaukee.	Harvey, J. W. ....	Madison.
Fox, W. H. ....	Fitchburg.	Hasbrouck, W. ....	Eau Claire.
Fratt, N. D. ....	Racine.	Hastings, S. D. ....	Madison.
Frank, A. S. ....	Madison.	Hausmann, Jos. ....	Madison.
Frank, George R. ....	Boscobel.	Hawes, J. F. ....	Madison.
Frankfurth, Wm. ....	Milwaukee.	Hawes, W. N. ....	Verona.
Freeman, C. F. ....	Milwaukee.	Hayes, A. J. ....	Milwaukee.
Friedman, Ignatius. ....	Milwaukee.	Hazleton, Geo. C. ....	Boscobel.
French, Jonathan. ....	Madison.	Hazen, Chester. ....	Ladoga.
Fuller, M. E. ....	Madison.	Heifenstein, J. A. ....	Milwaukee.
Fuller, F. D. ....	Madison.	Hempstead, H. W. ....	Milwaukee.
Furlong, Thos. T. ....	Chicago.	Hicks, J. H. ....	Oshkosh.
Furlong, John. ....	Milwaukee.	Hibbard, W. D. ....	Milwaukee.
		Hibbard, Wm. B. ....	Milwaukee.
Gammons, Warren. ....	Middleton.	Higbee, A. T. ....	Stoughton.
Gates, D. W. C. ....	Madison.	Hill, H. J. ....	Madison.
Gaylord, Aug. ....	New York City.	Hill, James H. ....	Madison.
Gernon, George. ....	Madison.	Hill, J. W. P. ....	Windsor.
Gibbs, Chas. R. ....	Whitewater.	Hill, P. B. ....	Milwaukee.
Gilbert, Thomas. ....	Oregon.	Hill, Robt. ....	Milwaukee.
Giles, H. H. ....	Madison.	Helmer, A. M. ....	Milwaukee.
Gillett, R. E. ....	Tomah.	Hiner, W. H. ....	Fond du Lac.
Goodnow, H. D. ....	Madison.	Hinkley, B. R. ....	Summit.
Goodrich, Ezra. ....	Milton.	Hobart, L. J. ....	Milwaukee.
Goodrich, G. ....	Whitesville.	Hodge, R. bt. ....	Janesville.
Gould, L. D. ....	Madison.	Hodson, C. W. ....	Janesville.
Grady, F. M. ....	Fitchburg.	Hoefinger, Carl. ....	Wausau.
Graham, Alexander. ....	Janesville.	Hogan, Gilbert. ....	Janesville.
Grant, S. B. ....	Milwaukee.	Hollister, R. M. ....	Janesville.
Grant, Albert. ....	Milwaukee.	Holmes, A. M. ....	Milwaukee.
Graves, R. A. ....	Ripon.	Holt, David. ....	Madison.
Graves, S. W. ....	Rutland.		

Names.	Residence.	Names.	Residence.
Holton, Edward D..	Milwaukee.	Lamb, F. J.....	Madison.
Hopkins, Bedford B.	Milwaukee.	Landauer, Max.....	Milwaukee.
Hopkins, James ....	Madison.	Lapham, Henry....	Summit.
Hopkins, E. C.....	Milwaukee.	Larkin, B. F.....	Madison.
Hoskins, J. W.....	Milwaukee.	Larkin, C. H.....	Milwaukee.
Hoskins, Alfred.....	Janesville.	Larkin, Daniel....	Madison.
Houston, Peter.....	Cambria.	Larkin, William...	Madison.
Hoyt, J. W.....	Madison.	Lawrence, W. A...	Janesville.
Hulbert, E.....	Oconomowoc.	Lawton, J. G.....	Green Bay.
Hume, Wm.....	Oshkosh.	Lazier, Ed.....	Madison.
Hutson, J. S.....	Stoughton.	Learned, J. M.....	California.
Hudson, John.....	Madison.	Leidersdorf, B....	Milwaukee.
Hyde, Edwin .....	Milwaukee.	Leitch, W. T.....	Madison.
		Leitch, W. T., Jr...	Vienna.
Isley, Chas. F.....	Milwaukee.	Leslie, John.....	Madison.
Inbusch, J. H.....	Milwaukee.	Lester, Waterman..	Janesville.
Ingham, A. C.....	New York.	Lewis, Herbert A..	Madison.
		Lewis, John L.....	Madison.
Jacobs, William....	Madison.	Lindsey, E. J.....	Milwaukee.
Jackman, Hiram....	Chicago.	Little, Thos H....	Janesville.
Jeffrey, Geo.....	Smithville.	Lloyd, Lewis.....	Cambria.
Jenks, S. R.....	Madison.	Lockwood, John...	Milwaukee.
Jenkins, J. C.....	Janesville.	Ludington, H.....	Milwaukee.
Jerdee, L. P.....	Madison.	Ludington, James .	Milwaukee.
Jerdee, M. P.....	Madison.	Ludlow, A.....	Monroe.
Johnson, Jno., Jr ..	Madison.	Lucy, O. K.....	Columbus.
Johnson, M. B.....	Janesville.	Lyman, H.....	Dakotah.
Johnson, Joseph...	Hartland.	Lynch, T. M.....	Janesville.
Johnston, John.....	Milwaukee.	Lynde, W. P.....	Milwaukee.
Johnson, Hugh L...	Milwaukee.	Lysaght, Wm. ....	Belleville.
Johnson, John.....	Milwaukee.		
Jones, C. H.....	Sun Prairie.	Main, Alex H.....	Madison.
Jones, John N.....	Madison.	Mann, I. L.....	Fitchburg.
Juneau, Paul.....	Juneau.	Mann, J. E.....	Sun Prairie.
Janssen, E. H.....	Mequon.	Mann, Henry.....	Milwaukee.
		Mann, Curtis.....	Oconomowoc.
Kellogg, Geo. J.....	Janesville.	Macy, J. B.....	Fond du Lac.
Keiwert, Emil.....	Milwaukee.	Manwaring, Wm ..	Black Earth.
Kent, A. C.....	Janesville.	Marshall, Samuel .	Milwaukee.
Kershaw, C. J.....	Milwaukee.	Martin, A. C.....	Ashton.
Kershaw, W. J.....	Milwaukee.	Martin, C. L.....	Janesville.
Keyes, E. W.....	Madison.	Martin, Nathaniel .	Monroe.
Kimball, M. G.....	Sheboygan.	Martin, S. W.....	Madison.
Kimball, John.....	Janesville.	Mason, George A..	Madison.
Kingsley, S. P.....	Springfield.	Masters, E. D.....	Jefferson.
Kingston, J. T.....	Neceedah.	Mathews, A. K.....	Milwaukee.
Kiser, W. C.....	Madison.	Matteson, Clinton..	Rosendale.
Kiser, J. C.....	Oregon.	Matts, J. H. B....	Verona.
Klauber, Samuel...	Madison.	Maxson, O. T.....	Waukegan.
Knight, E.....	Sun Prairie.	May, A. C.....	Milwaukee.
Kneeland, Moses...	Milwaukee.	Mayhew, T. J.....	Milwaukee.
Kneeland, James...	Milwaukee.	Mayhew, J. L.....	Milwaukee.
Knowles, Geo.....	Milwaukee.	McCarty, F. D.....	Fond du Lac.
Knapp, J. G.....	Tamps, Florida	McConnell, T. J...	Madison.
Koss, Rudolph.....	Milwaukee.	McCormick, J. G..	Madison.
		McCullough, And .	Emerald Grove.
Ladd, M. L.....	Sugar Creek.	McDonald, A.....	Alloa.

Names.	Residence.	Names.	Residence.
McDougal, Geo. W.	Madison.	Paul, Geo. H. ....	Milwaukee.
McDowell, H. C. ....	Oconomowoc.	Payne, Wm. ....	Janesville.
McGeoch, P. ....	Milwaukee.	Payne, H. C. ....	Milwaukee.
McLaren, Wm. P. ....	Milwaukee.	Peffer, G. P. ....	Pewaukee.
McNiel, David. ....	Stoughton.	Pember, R. T. ....	Janesville.
McGregor, Alex. ....	Nepeuskum.	Perkins, P. M. ....	Burlington.
McPherson, J. P. ....	Springdale.	Perrine, L. W. ....	Janesville.
Merrill, Alf. ....	Madison.	Perry, B. F. ....	Madison.
Merrill, S. S. ....	Milwaukee.	Pfister, Guido. ....	Milwaukee.
Miller, John. ....	Madison.	Phelps, A. Warren. .	Milwaukee.
Mills, Simeon. ....	Madison.	Pierce, C. L. ....	Milwaukee.
Miner, Cyrus. ....	Janesville.	Pilgrim, D. T. ....	West Granville.
Miner, John B. ....	Milwaukee.	Pinney, S. U. ....	Madison.
Mitchell, Alex. ....	Milwaukee.	Pickney, B. ....	Fond du Lac.
Mitchell, J. L. ....	Milwaukee.	Plankinton, John. .	Milwaukee.
Morden, E. ....	Madison.	Plumb, J. C. ....	Milton.
Morehouse, L. H. ....	Milwaukee.	Plumb, T. D. ....	Madison.
Morse, Samuel. ....	Milwaukee.	Plummer, B. C. ....	Wausau.
Moseley, J. E. ....	Madison.	Pond, Samuel A. ....	Albany.
Mosher, J. C. ....	Lodi.	Porter, Wm. H. ....	Marshall.
Moxley, A. R. ....	Madison.	Porter, G. E. ....	Eau Claire.
Mullen, James. ....	Milwaukee.	Post, David. ....	Milwaukee.
Murray, George. ....	Racine.	Power, D. G. ....	Milwaukee.
		Powers, D. J. ....	Chicago.
		Powers, W. J. ....	Black Earth.
		Pratt, E. E. ....	Chicago.
Nash, C. D. ....	Milwaukee.	Pres. St. Peter's Val.	
Nazro, John. ....	Milwaukee.	Farmer's Club. ....	Springfield.
Needham, J. P. ....	Wauwatosa.	Pritchard, P. M. ....	Fitchburg.
Newcomb, S. B. ....	Cold Spring.	Proudfit, Andrew. .	Madison.
Newton, Ephriam. .	Oregon.		
Newton, I. S. ....	East Middleton.		
Nicholas, L. T. ....	Janesville.	Rawson, C. A. ....	Madison.
Norris, C. W. ....	Milwaukee.	Ray, Charles. ....	Milwaukee.
Norton, J. B. ....	Madison.	Raymond, S. O. ....	Geneva.
Nowell, W. A. ....	Milwaukee.	Riordan, Charles. .	Oshkosh.
		Reed, Harrison. ....	Jack'nville, Fla.
Ober, R. P. ....	Milwaukee.	Ressigue, A. C. ....	Janesville.
Ogilvie, Robert. ....	Madison.	Reynolds, Thomas. .	Madison.
Oliver, Joseph B. .	Milwaukee.	Reynolds, John. . .	Kenosha.
Olney, C. W. ....	La Cygne, Kan.	Rexford, J. D. ....	Janesville.
Orr, G. H. ....	Verona.	Rice, E. M. ....	Whitewater.
Ott, Geo. V. ....	Madison.	Richards, Richard. .	Racine.
		Richardson, D. ....	Middleton.
Page, H. M. ....	Madison.	Richardson, James. .	Buffalo, N. Y. . .
Palmer, H. L. ....	Milwaukee.	Richardson, R. J. . .	Janesville.
Palmer, J. Y. ....	Oregon.	Richardson, H. ....	Janesville.
Palmer, O. M. ....	Oregon.	Richmond, Amaz'h. .	Whitewater.
Palmer, Henry. ....	Oregon.	Riebsam, C. R. ....	Madison.
Park, John W. ....	Vernon.	Robbins, J. ....	Vienna.
Park, Wm. J. ....	Madison.	Robbins, J. V. ....	New York.
Parker, C. H. ....	Beloit.	Roddis, R. ....	Milwaukee.
Parmley, Ira. ....	Center.	Rodgers, Lawrence. .	Westport.
Parsons, P. B. ....	Madison.	Roe, J. P. ....	Franklin.
Partridge, J. S. ....	Whitewater.	Rogers, C. H. ....	Milwaukee.
Patten, L. F. ....	Janesville.	Rodgers, D. J. ....	Milwaukee.
Patton, Jas. E. ....	Milwaukee.	Rogers, J. S. ....	Burlington.
		Rogers, Anson. ....	Janesville.

Name.	Residence.	Name.	Residence.
Rogers, H. S.....	Milwaukee.	Stark, Charles A....	Milwaukee.
Ross, James.....	Botany Bay.	Steele, Ches'er....	Milwaukee.
Rowe, Richard W....	Madison.	Stevenson, Isaac....	Marinette.
Rowe, W. E.....	Mazomanie.	Stevens, Geo. C....	Milwaukee.
Ruggles, J. D.....	San Francisco.	Stevens, J. T.....	Madison.
Russell, Harvey....	Milwaukee.	Steensland, H.....	Madison.
Ryder, James K....	Waterloo.	Stewart, C. K.....	Danville.
		Stewart, G. H.....	Colorado Sp'gs, Col.
Sage, E. C.....	New Lisbon.	Stilson, Eli.....	Oshkosh.
Salisbury, R. W....	Fitchburg.	St. John, J. W.....	Janesville.
Salisbury, D. F....	Fitchburg.	Stockman, John....	Milton.
Sanderson, Edw....	Milwaukee.	Stone, G.....	Beloit.
Sanderson, R. B....	Madison.	Storm, Wm.....	Madison.
Sarles, John H....	Boscobel.	Stowe, La Fayette..	Sun Prairie.
Schute, Charles....	Milwaukee.	Street, Richard....	Waukesha.
Schutt, U.....	Janesville.	Sutherland, C.....	Syene.
Scott, S. B.....	Milwaukee.	Swain, Wm. W.....	Madison.
Seville, James....	Merrimac.		
Sexton, Kellogg....	Milwaukee.	Tallman, W. H....	Janesville.
Sexton, W. F.....	Milwaukee.	Taylor, E.....	Mukwanago.
Simmons, C. J.....	Monroe.	Taylor, W. R.....	Cottage Grove.
Sinclair, Jeff.....	Milwaukee.	Tenney, H. A.....	Madison.
Sharp, J. W.....	Iowa.	Tenney, D. K.....	Chicago.
Shaw, J. B.....	Milwaukee.	Tenney, Samuel....	Durham Hill.
Sheldon, A. H.....	Janesville.	Terry, A. H.....	Milwaukee.
Sheldon, D. G.....	Madison.	Terwilliger, Jas....	Syene.
Sheldon, S. L.....	Madison.	Thorson, John....	Milwaukee.
Shepherd, C.....	Milwaukee.	Tibbits, Geo. M....	Milwaukee.
Sherman, Amaziah..	La Prairie.	Tierney, K.....	California.
Sherman, George....	La Prairie.	Thompson, W. H....	Chicago.
Sherman, J. M.....	Burnett.	Thompson, Dr. W....	Madison.
Sherwood, J. C.....	Dartford.	Thorp, J. G.....	Eau Claire.
Shipman, S. V.....	Chicago.	Todd, J. G.....	Janesville.
Skelley, Charles....	Janesville.	Tolford, J. W.....	Neillsville.
Skinner, George J..	Sioux Falls, D. T	Torgerson, Lars....	Madison.
Skinner, E. W.....	Turner, D. T	Torrey, R. D.....	Oshkosh.
Slaughter, W. B....	Middleton.	Towale, John....	Mouadville.
Sloan, I. C.....	Madison.	Treat, R. B.....	Chicago.
Slocum, G. A.....	Chicago.	Treat, George E....	Milwaukee.
Smith, Wm. E.....	Milwaukee.	True, W. H.....	Fitchburg.
Smith, Winfield....	Milwaukee.	Twining, M. S....	Magnolia.
Smith, Angus.....	Milwaukee.		
Smith, Adam.....	Burke.	Utter, Jas.....	Oregon.
Smith, George B....	Madison.		
Smith, J. B.....	Milwaukee.	Van Brunt, W. A..	Horicon.
Smith, S. W.....	Janesville.	Van Cott, Albert B.	Chicago.
Smith, H. L.....	Janesville.	Van Etta, Jacob....	Madison.
Smith, M. C.....	Janesville.	Van Kirk, N.....	Milwaukee.
Smith, S. B.....	Vernon.	Van Norstrand, A H	Green Bay.
Smith, J. Maurice..	Chicago.	Van Schaick, I. W.	Milwaukee.
Snell, H.....	Madison.	Van Slyke, N. B....	Madison.
Spaulding, William.	Janesville.	Vaughan, O. A....	Lodi.
Spaulding, Joseph..	Janesville.	Viall, Andrus.....	Madison.
Spencer, James C..	Milwaukee.	Vilas, Chas. H.....	Cleveland, O.
Spencer, R. C.....	Milwaukee.	Vilas, L. M.....	Eau Claire.
Squier, Thomas H..	Waterloo.	Vilas, Wm. F.....	Madison.
Stannard, A. C.....	Milton.		

Name.	Residence.	Name.	Residence.
Wackerhagen, E....	Racine.	Wiley, O. S.....	Benton Hrbor, Mich.
Wait, J. B.....	Waitsville.	Williams, C. H....	Baraboo.
Warren, J. H.....	Albany.	Williams, D.....	Darien.
Warren, W. R.....	Madison.	Williams, Daniel..	Summit.
Webster, James....	Danville.	Williams, G. G....	Whitewater.
Webster, Martin....	Fox Lake.	Williams, J. P....	Janesville.
Webb, James A....	Janesville.	Williams, Randall.	Janesville.
Welch, W. ....	Madison.	Williams, S. B....	Madison.
Wells, Daniel L....	Milwaukee.	Williams, S. G....	Janesville.
Werner, John.....	Sauk.	Wilson, Wm.....	Westport.
West, A. H.....	Madison.	Wilson, Zebina....	Palmyra.
West, Henry.....	Madison.	Wood, J. W.....	Baraboo.
West, S. C.....	Milwaukee.	Wolcott, E. B....	Milwaukee.
West, Henry M....	Milwaukee.	Wooley, J. T.....	Milwaukee.
Whaling, J. M....	Milwaukee.	Wootton, Robert...	Madison.
Wheeler, Geo. F....	Waupun.	Worthington, B. M.:	Madison.
Wheeler, Guy.....	La Prairie.	Worthington, D....	Chicago.
Wheeler, W. A.....	Middleton.	Worthington, Geo..	Milwaukee.
Wheeler, L. A.....	Milwaukee.	Wright, D. H.....	Madison.
Wheelock, W. G....	Janesville.	Wright, Geo.....	Mt. Horeb.
Wheelwright, J....	Middleton.	Wright, J. S.....	Emerald Grove.
Whiting, W. F....	Milwaukee.	Wright, Josiah S...	Janesville.
Whitney, W. F....	Milwaukee.	Wylie, Geo. W....	Elkhorn.
Wicks, Thomas....	Milwaukee.		
Wight, O. W.....	Milwaukee.	Young, J. E.....	Janesville.
Wightman, H.....	Black Earth.		
Wilcox, C. T.....	Janesville.	Zwietusch, Otto...	Milwaukee.
Wilkins, A. W.....	Milwaukee.		

# OFFICERS OF THE SOCIETY.

1878.

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## PRESIDENT.

N. D. FRATT, RACINE.

## VICE PRESIDENTS.

1st Cong. Dist.	—	J. S. PARTRIDGE, WHITEWATER.
2d	“	A. A. BOYCE, LODI.
3d	“	J. H. WARREN, ALBANY.
4th	“	HARRISON LUDINGTON, MILWAUKEE.
5th	“	SATTERLEE CLARK, HORICON.
6th	“	R. D. TORREY, OSHKOSH.
7th	“	JOHN S. DORE, NEILLSVILLE.
8th	“	JOHN T. KINGSTON, NECEDAH.

## SECRETARY.

GEORGE E. BRYANT, MADISON.

## TREASURER.

CYRUS MINER, JANESVILLE.

## ADDITIONAL MEMBERS OF THE EXECUTIVE COMMITTEE.

DR. C. L. MARTIN, JANESVILLE.	GEO. H. DAUBNER, BROOKFIELD.
H. C. McDOWELL, OCONOMOWOC.	ISAAC STEVENSON, MARINETTE.
H. P. HALL, MADISON.	CHESTER HAZEN, LADOGA.
W. W. FIELD, BOSCOBEL.	ELI STILSON, OSHKOSH.

# OFFICERS OF THE SOCIETY.

1879.

---

## PRESIDENT.

N. D. FRATT, RACINE.

## VICE PRESIDENTS.

1st Cong. Dist. —	DR. C. L. MARTIN, JANESVILLE.
2d	“ A. A. BOYCE, LODI.
3d	“ J. H. WARREN, ALBANY.
4th	“ HARRISON LUDINGTON, MILWAUKEE.
5th	“ SATTERLEE CLARK, HORICON.
6th	“ R. D. TORREY, OSHKOSH.
7th	“ JOHN S. DORE, NEILLSVILLE.
8th	“ B. G. PLUMBER, WAUSAU.

## SECRETARY.

GEORGE E. BRYANT, MADISON.

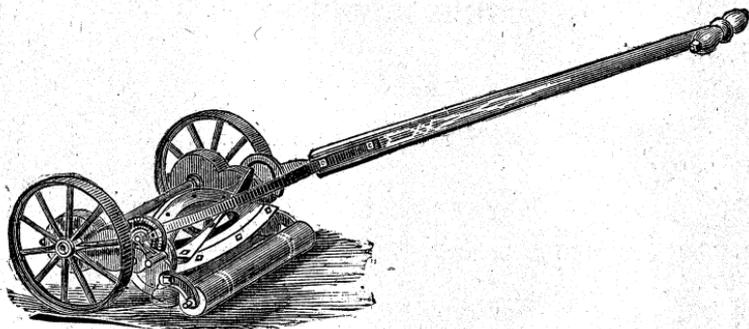
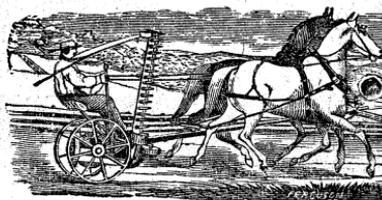
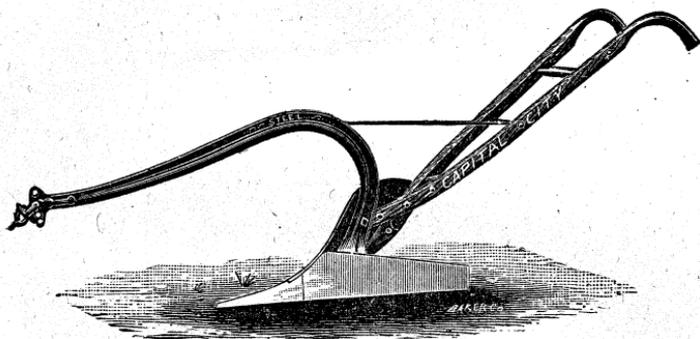
## TREASURER.

CYRUS MINER, JANESVILLE.

## ADDITIONAL MEMBERS OF THE EXECUTIVE COMMITTEE.

CLINTON BABBITT, BELOIT.  
W. H. FOX, OREGON.  
A. A. ARNOLD, GALESVILLE.  
W. S. BACON, WAUKESHA.

WM. LYSAGHT, BELLEVILLE.  
CHESTER HAZEN, LADOGA.  
ELI STILSON, OSHKOSH.  
W. W. FIELD, BOSCOBEL.



# TRANSACTIONS.

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## ANNUAL REPORT.

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*To His Excellency, WM. E. SMITH,*

*Governor of Wisconsin:*

SIR:—I have the honor to present for your consideration, the Seventeenth Annual Report of the Wisconsin State Agricultural Society, trusting you will find it equal in worth to its predecessors. The lesson taught the farmers of Wisconsin by the year 1878 ought not soon to be forgotten. [A favorable spring induced the planting of a large increase in acreage of wheat (probably 30 per cent. over the year preceding), and prospect of an abundant harvest was most flattering up to almost the very day of harvesting; and yet the crop was comparatively little. Corn and hay were gathered in great abundance, but the low price of pork has not been satisfactory or remunerative to Wisconsin farmers. While the pursuit of "mixed husbandry" will probably be in the future, as in the past, the avocation of Wisconsin's people, the signs of the times point with great certainty to the probably very great increase of the dairy interests of the state. At the Centennial Exhibition in 1876, at Philadelphia, Wisconsin ranked second to no state in her exhibit of cheese; and in the autumn of 1878, at the great international dairy fair held in New York, an honored citizen of Wisconsin was awarded, not only the first, but the highest prize ever offered for butter.

Our soil, water and climate seem to be peculiarly adapted to the growing of grass, and grass is the foundation of all good farming. "Grass is king." Thousands of acres laying in their native wildness

north of the Wisconsin, will ere long resound to the tinkle, tinkle, of the bells of the best of dairy cows. Thousands of farms along the great highway of the Wisconsin Central Railroad, will ere long be opened, and the dwellers at Ashland, on Lake Superior, will soon have cream with their fish. A rapidly growing interest in the *kind* of stock that shall be kept for profit, is manifest to the most casual observer. "Bark River cows" are in our oldest counties, like the deer, seen no more, but in their place, the stately short-horn or mild-eyed Jerseys feed in our pastures green. The annual exhibitions of the various agricultural societies of the state have done very *much, most* towards improving the live stock owned in the state. Our State Agricultural Society has tried to keep up with the times, in the kind and number of its premiums, and yet, on account of the debt it incurred in 1876, it has not done what it desired. It has, however, been true to itself and its patrons; it has paid its obligations at par; our exhibition of 1878, was all that was anticipated; and it is believed that the cavalcade of horses and cattle, exhibited to your excellency and President Hayes, have seldom been excelled in any state.

The convention in February was largely attended by representative men from most of the counties of the state. Great satisfaction was felt at your appointment of Hon. Hiram Smith as a regent of the University, and a wish was expressed that you might appoint one more *live farmer* to that board.

We much need an increased number of volumes; two thousand more would be gladly and eagerly taken by the farmers of the state, and it would seem as though the great farming state of Wisconsin ought to furnish the *postage* for the distribution of these so much sought after transactions, as it does to the publications of its other departments.

Some legislation is needed to bring the state society into closer connections with the local societies. Hundreds of letters are yearly received from sister states and foreign countries, inquiring of our crops, climate, etc. Agriculture is the great leading interest of our state, and should be fostered and encouraged by the state, as it fosters and encourages its other interests.

Fifty-seven local societies have filed their reports in pursuance of law. The autumn of 1878 was very unfavorable for fairs, and few societies were able to meet their indebtedness.

The transactions of the board, up to and including its February meeting, 1879, and a summary of the proceedings of the convention, is herewith submitted, together with some addresses delivered at various times at other meetings during the year.

For the Executive Board.

GEO. E. BRYANT,  
*Secretary.*

## PROCEEDINGS.

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### EXECUTIVE BOARD MEETINGS.

In accordance with the requirements of the by-laws of the Wisconsin State Agricultural Society, the executive board met at the agricultural rooms in the capitol, September 9, 1878.

Present, President Fratt, Vice-Presidents Boyce, Warren, Ludington, Clark, Torrey and Door, Treasurer Miner, and Messrs. Martin, McDowell, Daubner, Field, Hazen, Stilson, and Secretary Geo. E. Bryant.

President N. D. Fratt in the chair; who called to order and stated the board was convened for the purpose of acting upon such matters as might be deemed important relative to the annual fair. On motion, Vice-President Clark was appointed to go to Portage City and meet the president, Rutherford B. Hayes, President of the United States, and his party, and accompany them on the following day to the society's exhibition. After remarks by members of the board, adjourned to Tuesday evening at 7:30 P. M., at which time a reception was given President Hayes in the assembly chamber of the capitol.

The board met on each evening during the fair, adjusted all matters of difference which arose, giving such directions as were important, and adjourned on Saturday, after auditing and paying the premiums awarded and claims allowed.

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### DECEMBER MEETING.

STATE AGRICULTURAL ROOMS,  
*December 3, 1878.*

As provided by the by-laws and pursuant to published notice, the executive board met in their rooms in the capitol, December 3, 1878. Quorum present.

President Fratt in the chair, who stated that the meeting was for the purpose of settling with the treasurer, comparing his vouchers with the warrant account of the secretary, and any other general business.

Cyrus Miner, treasurer of the society, presented his report, showing the financial exhibit of the society for the fiscal year ending December 3, 1878, and which may be found in the volume of transactions for 1878-9, under the head of Annual Meeting. Which report was compared and examined with the books of the secretary by President Fratt and the finance committee, Harrison Ludington and Satterlee Clark, and affirmed.

On motion of Cyrus Miner the secretary was directed to correspond with the holder of the mortgage against the society's property in the city of Madison, to ascertain if he would accept the payment of the same.

On motion adjourned.

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## FEBRUARY MEETING.

STATE AGRICULTURAL ROOMS,  
MADISON, *February 3, 1879.*

The executive board of the Wisconsin State Agricultural Society met in their rooms, in the capitol, at 7:30 P. M., as required by the by-laws.

Present, President N. D. Fratt, Vice-Presidents C. L. Martin, A. A. Boyce, Harrison Ludington, Satterlee Clark, R. D. Torrey, John S. Dore, and additional members, Clinton Babbitt, Wm. H. Fox, W. W. Field, A. A. Arnold, W. D. Bacon, Chester Hazen, Treasurer Cyrus Miner, and Secretary George E. Bryant.

President N. D. Fratt in the chair.

Reports of superintendents were read to the board.

Secretary reported that he had been in correspondence with the holder of the note and mortgage against the society, and that the same would not be due until February, 1880, and the holder refused to take any part of said indebtedness.

Adjourned till 9 A. M., Tuesday.

TUESDAY, *February 4th*, 9 A. M.

Board met. President Fratt in chair.

Most of the day was spent in revising the premium list and discussion upon the same.

Satterlee Clark, Harrison Ludington and Wm. H. Fox were elected auditing committee.

Voted, that the fair be held from the 8th to the 12th of September, 1879.

Voted, that the president of the society be superintendent of grounds, with power to employ an assistant.

Voted, that the published Herd-books of the several breeds of cattle shall be evidence of purity of blood.

Voted, that the superintendent of the machinery department be authorized to exchange such shafting as is owned by the society for such other as, in his judgment, will be most beneficial to the society.

Voted, that the exhibition be open to the world.

The following resolution was adopted:

*Resolved*, That a committee of two be appointed, who, with the president of this society, shall have power to locate the State Fair for 1879, conditioned that said committee shall require the city where said fair is located, to place their grounds, buildings, etc., in such condition as shall be satisfactory to said committee.

Chair appointed Martin and Field as additional members of such committee.

On motion, adjourned.

MADISON, WIS, *March 1*, 1879.

To GEO. E. BRYANT, *Secretary State Agricultural Society*:

I am directed by the committee appointed in February to locate the State Fair for 1879. To inform you that the said committee met February 20th, and passed the following resolution, and that the requirements of the same have been complied with, and that the fair is located at Madison for 1879.

Your obedient servant,

W. W. FIELD, *for the Committee*.

*Resolved*, That the State Fair of 1879 be located in the city of Madison, conditioned that the sum of six hundred dollars be subscribed by the citizens of said city, by the 1st day of March, 1879, to make certain necessary repairs upon the State Fair grounds.

MADISON, Feb. 20, 1879.

SOCIETY MEETINGS.

ELECTION OF OFFICERS.

MADISON, *September 6, 1878.*

In accordance with the requirements of the constitution, and after due notice by the secretary, the life members of the Wisconsin State Agricultural Society convened at the agricultural rooms in the capitol, at Madison, at 8 o'clock P. M., to elect officers for the year 1879. President Fratt in the chair. The president said the society was convened for the purpose of electing officers for 1879, and other constitutional work.

Secretary read the constitutional amendment which was submitted at the previous annual meeting.

Voted, that the chair appoint a committee of nine, one from the state at large and one from each congressional district, to recommend candidates for the offices of 1879.

The following committee was appointed:

- State at Large — Clinton Babbitt, of Beloit.
- First District — Amaziah Sherman, of Janesville.
- Second District — Levi B. Vilas, of Madison.
- Third District — J. H. Warren, of Albany.
- Fourth District — F. J. Blair, of Milwaukee.
- Fifth District — Satterlee Clark, of Horicon.
- Sixth District — Eli Stilson, of Oshkosh.
- Seventh District — A. A. Arnold, of Julesville.
- Eighth District — H. D. Barron, of St. Croix Falls.

The committee retired, and by their chairman submitted the following report:

For officers of the society:

PRESIDENT:

N. D. FRATT, Racine.

VICE PRESIDENTS:

- First Congressional District — C. L. MARTIN, Janesville.
- Second Congressional District — A. A. BOYCE, Lodi.
- Third Congressional District — J. H. WARREN, Albany.
- Fourth Congressional District — HARRISON LUDINGTON, Milwaukee.
- Fifth Congressional District — SATTERLEE CLARK, Horicon.
- Sixth Congressional District — R. D. TORREY, Oshkosh.
- Seventh Congressional District — JOHN S. DOOR, Neillsville.
- Eighth Congressional District — B. G. PLUMBER, Wausau.

## WISCONSIN STATE AGRICULTURAL SOCIETY.

SECRETARY:

GEORGE E. BRYANT, Madison.

TREASURER:

CYRUS MINER, Janesville.

ADDITIONAL MEMBERS OF EXECUTIVE COMMITTEE:

CLINTON BABBITT, Beloit.

W. D. BACON, Waukesha.

WM. H. FOX, Oregon.

CHESTER HAZEN, Ladoga.

W. W. FIELD, Boscobel.

WM. LYSAUGHT, Belleville.

A. A. ARNOLD, Galesville.

ELI STILSON, Oshkosh (ex-president).

On motion of Hon. Wm. T. Lietch, the report of the committee was accepted and adopted.

On motion of George Baxter, the society adjourned *sine die*.

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 ANNUAL MEETING.

STATE AGRICULTURAL ROOMS,

December 4th, 1878.

As required by the constitution, the Wisconsin State Agricultural Society met in their rooms in the capitol, at 3 o'clock P. M. President N. D. Fratt in the chair. Quorum present.

On motion of Vice President Clark, the following amendment to the constitution was adopted:

Amend subdivision 1 of article V of the constitution, entitled "Of meetings and elections," so that it shall read as follows:

The annual meeting of the society, for the transaction of general business, shall be held in its rooms in Madison on the first Wednesday in December, at 9 o'clock A. M., in each year, and ten days' notice thereof shall be given by the secretary, in one or more papers printed in the city of Madison.

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Cyrus Miner, the treasurer, presented his annual report, showing the financial condition of the society for the fiscal year ending December 3, 1878, bearing the approval of the executive board.

TREASURER'S REPORT.

For the year ending December 3, 1878. Approved by the auditing committee and a committee appointed by the society, and the vouchers deposited in the office of the secretary.

STATE AGRICULTURAL ROOMS,  
MADISON, December 3, 1878.

*To the Executive Board of the Wisconsin State Agricultural Society:*

GENTLEMEN:—I have the honor to submit the following report, showing the financial transactions of your society for the year ending December 3, 1878.

Respectfully submitted,

C. MINER, *Treasurer.*

AGRICULTURAL ROOMS,  
MADISON, December 3, 1878.

RECEIPTS.

Amount from Treasurer Blair .....	\$1,161 02
State Treasurer .....	2,000 00
sale of tickets .....	11,899 03
Secretary, entry fees.....	1,238 00
ground rent.....	2,119 16
life membership .....	160 00
advertising .....	125 00
sale of land.....	126 80
Plankinton & Armour, special premium.....	25 00
Layton & Co, special premium .....	25 00
Milwaukee Chamber of Commerce, spec. prem.	50 00
sale of grain.....	66 08
R. L. Colvin, return postage .....	6 20
	<hr/>
	\$19,001 29
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## DETAILED STATEMENT OF EXPENDITURES,

As compared with the warrant account of Secretary.

No.	To whom and for what.	Amount.
1	Boyce, A. A., executive meeting . . . . .	\$4 50
2	Martin, C. L., executive meeting . . . . .	8 00
3	Clark, Satterlee, executive meeting . . . . .	10 50
4	McDowell, H. C., executive meeting . . . . .	10 50
5	Blair, J. F., executive meeting . . . . .	8 50
6	Bryant, Geo. E., executive meeting . . . . .	4 00
7	Zimer, L., premium, 1877 . . . . .	6 00
8	Field, Miss Ella, secretary's clerk, 1877 . . . . .	57 50
9	Menzies, Wm., premium, 1877 . . . . .	35 00
10	Littlefield, G., premium, 1877 . . . . .	20 00
11	Racine Silver Plate Co . . . . .	228 00
12	Keyes, E. W., postage . . . . .	5 00
13	Keyes, E. W., postage . . . . .	10 00
14	Keyes, E. W., postage . . . . .	2 00
15	Nichols, J. H., premium . . . . .	5 25
16	Clark, Satterlee, executive meeting . . . . .	9 50
17	Martin, C. L., executive meeting . . . . .	11 00
18	McDowell, H. C., executive meeting . . . . .	11 50
19	Ludington, H., executive meeting . . . . .	9 00
20	Hazen, C., executive meeting . . . . .	13 50
21	Boyce, A. A., executive meeting . . . . .	10 38
22	Daubner, Geo. H., executive meeting . . . . .	12 57
23	Miner, C., committee and executive meeting . . . . .	15 15
24	Stilson, Eli, executive meeting . . . . .	14 10
25	Dore, J. S., executive meeting . . . . .	14 25
26	Phillips, A. J., premium, 1877 . . . . .	3 00
27	Thomson, J. E., premium, 1877 . . . . .	40 00
28	Blair, F. J., order of board . . . . .	24 00
29	Bloedel & Mueller, medals . . . . .	33 76
30	Long, N., premium, 1877 . . . . .	7 50
31	Lee, Wm. F., premium, 1877 . . . . .	100 00
32	Welch, Wm., settlement of account . . . . .	10 00
33	King, Edward, premium, 1877 . . . . .	75 00
34	Miner, C., committee meeting . . . . .	5 40
35	Stilson, Eli, committee meeting . . . . .	12 10
36	Boyce, A. A., committee meeting . . . . .	4 88
37	Clark, Satterlee, committee meeting . . . . .	7 00
38	Fratt, N. D., convention and executive meetings . . . . .	40 21
39	Fisher, C. C., premiums, 1877 . . . . .	3 00
40	Connors H., premium, 1877 . . . . .	15 00
41	Brown, L. D., interest . . . . .	315 00
42	Keyes, E. W., postage . . . . .	3 00
43	Bryant, Geo. E., salary . . . . .	450 00
44	Field, W. W., frames . . . . .	3 55
45	Keyes, E. W., postage . . . . .	5 00
46	Nichols, J. H., express . . . . .	3 75
47	Colvin, R. L., postage . . . . .	25 00
48	Keyes, E. W., postage . . . . .	2 50
49	McGowan, E., superintendent, 1877 . . . . .	20 00
50	Griswold, N., premium, 1877 . . . . .	6 50
51	Menhane F., freight . . . . .	2 33
52	Keyes, E. W., postage . . . . .	25 00
53	Keyes, E. W., postage . . . . .	6 00
54	Keyes, E. W., postage . . . . .	10 00
55	Menhane, F., freight . . . . .	3 32
56	Keyes, E. W., postage . . . . .	20 00

*Detailed Statement of Expenses—continued.*

No.	To whom and for what.	Amount.
56½	Slaughter, B. C., work on entry books.....	\$25 00
57	Keyes, E. W., postage.....	10 00
58	Nichols, J. H., express.....	2 05
59	Booth, W. A., express.....	80
60	Park, W. J., sundries.....	2 85
61	Keyes, E. W., postage.....	2 50
62	Thompson, T. C., reporting.....	100 00
63	Keyes, E. W., postage.....	3 00
64	Levinson, T., post bills.....	5 00
65	Booth, W. A., express.....	3 70
66	Nichols, J. H., express.....	80
67	Keyes, E. W., postage.....	8 00
68	Bryant, Geo. E., salary.....	450 00
69	Keyes, E. W., postage.....	5 00
70	Bryant, Geo. E., hand-books.....	13 00
71	Keyes, E. W., postage.....	8 00
72	Kelley, J., whitewashing.....	25 00
73	Keyes, E. W., postage.....	15 00
74	Keyes, E. W., postage.....	2 00
75	Nichols, J. H., express.....	2 40
76	Booth, W. A., express.....	2 50
77	Keyes, E. W., postage.....	11 20
78	Gibson, Chas., premium 1877.....	10 00
79	Parmier, E. D., freight.....	10 72
80	Keyes, E. W., postage.....	5 60
81	Fuller, G. B., premium.....	100 00
82	Fuller, G. H., premium.....	50 00
83	Freeman, H. H., premium.....	100 00
84	Drakel, Saml., premium.....	200 00
85	Doubleday, Geo. B., premium.....	150 00
86	Marlow, G. S., premium.....	125 00
87	Lindsley, E. J. & Wm., use of engine.....	50 00
88	Torrey, E., assistant superintendent.....	31 50
89	Torrey, R. D., paid night watch.....	6 00
90	Pierce, A. J., assistant superintendent.....	21 00
91	Torrey, R. D., paid sundries.....	6 10
92	Torrey, R. D., superintendent.....	76 00
93	Lowe, E., premium.....	32 50
94	Greenman, H. H., premium.....	31 50
95	Warren, W. R., assistant superintendent.....	27 00
96	Sutterly, H., assistant superintendent.....	35 00
97	Dore, J. S., superintendent.....	40 00
98	Field, W. W., superintendent.....	20 00
99	Round, H. H., assistant superintendent.....	17 50
100	Fuller, F. K., assistant superintendent.....	17 50
101	Bradley, W. H., assistant superintendent.....	17 50
102	Bean, W., assistant superintendent.....	7 00
103	Warner, A., assistant at gate.....	17 50
104	Robertson, A. J., assistant at gate.....	17 50
105	Fellows, R. R., assistant at gate.....	17 50
106	Rushnell, M. C., assistant at gate.....	21 00
107	Void.....	
108	Bemis, F., night watch.....	6 00
109	Stilson, D. E., night watch.....	6 00
110	Ritcher, Wm., assistant superintendent.....	15 00
111	Bemis, Wm., assistant superintendent.....	14 00
112	Taylor, J. F.....	8 00

*Detailed Statement of Expenditures — continued.*

No.	To whom and for what.	Amount.
113	Adams, J., superintendent.....	\$31 50
114	Haven, Wm., night watch.....	6 00
115	Wagstaff, Wm., night watch.....	12 00
116	Bem's, Jervis, assistant superintendent.....	24 50
117	Void.....	.....
118	Boyce, A. A., superintendent.....	40 00
119	Stilson, E. i, superintendent.....	64 00
120	Shrake, S., leader band.....	100 00
121	Thompson, Mrs. Geo., board band.....	50 00
122	Hazen, C., superintendent.....	36 00
123	Loaf, M. W., as'istant superintendent.....	12 25
124	Graffio, H. C., assistant superintendent.....	21 00
125	Sanborn, J. C., assistant superintendent.....	4 00
126	Irwin, Mark, assistant superintendent.....	7 00
127	Graffney, H. C., assistant superintendent.....	15 00
128	Fox, A. C., assistant superintendent.....	14 00
129	Williams, H., assistant superintendent.....	22 00
130	Wall, James, police.....	8 00
131	Bean, F. W., police.....	8 00
132	Palmer, E. W., police.....	8 00
133	Warner, Frank, police.....	8 00
134	Byant, H. A., assistant marshal.....	32 50
135	Fisher, S. W., assistant marshal.....	26 00
136	Palmer, C., assistant marshal.....	26 00
137	Larkin, D., police.....	8 00
138	Ferguson, F., police.....	2 00
139	Garvie, J., police.....	8 00
140	Palmer, J. P., police.....	8 00
141	Palmer, O. W., police.....	8 00
142	Osterson, C., police.....	8 00
143	Cooper, C., police.....	2 00
144	Brooks, T., police.....	8 00
145	Vomderson, G., police.....	10 00
146	Dubner, A., police.....	8 00
147	Franz, T., police.....	8 00
148	Coon, C. L., police.....	8 00
149	Ormsby, F. C., police.....	8 00
150	Calkins, J. G., police.....	8 00
151	Hicks, J. S., police.....	16 00
152	Leonard, M., police.....	6 00
153	Torrey, W. W., police.....	10 00
154	Gifford, G., police.....	10 00
155	McDonald, A., police.....	4 00
156	Cannon, Thomas, police.....	8 00
157	McFarland, H., police.....	6 00
158	Clapp, G. W., police.....	8 00
159	Hooper, Wm., police.....	6 00
160	Smith, H., police.....	8 00
161	Boyd, J., police.....	8 00
162	Chamby, G. W., premium.....	20 00
163	Birdsey, C., premium.....	20 00
164	Boyce, C., premium.....	70 00
165	Wood, J. W., premium.....	60 00
166	Hook, S., premium.....	9 00
167	Mosher, D., premium.....	40 00
168	Hook Bros., premium.....	25 00

*Detailed Statement of Expenditures — continued.*

No.	To whom and for what.	Amount.
169	Cheney, Ellen, premium.....	\$8 00
170	Reed, Wm., premium. ....	43 00
171	Joiner, S. H. & A. C., premium.....	106 00
172	Bates, Mrs. A. C., premium....	8 00
173	Wyllie, G., premium.....	15 00
174	Pilgrim, D. S., premium.....	43 00
175	Baker, J. W., premium.....	21 00
176	Featherstone, H., clerk.....	21 00
177	Daubner, Geo. H., premium.....	93 00
178	Jeppcg, Geo., premium.....	18 50
179	Pember, R. T., premium.....	15 00
180	Proctor, Wm., premium.....	10 00
181	Johnson, F., omnibus.....	15 20
182	Boyd, J., police.....	8 00
183	Daubner, A., police.....	8 00
184	Daubner, Geo. H., superintendent.....	40 00
185	Holton, E. D., premium.....	20 00
186	Sherman, Mrs. A., premium.....	8 00
187	Sherman, A., assistant superintendent.....	10 50
188	Wells, W. L., premium.....	105 00
189	Vanpelt, M., premium.....	2 00
190	Wucler, N. P., premium.....	8 00
191	Leicht, Wm., premium.....	13 00
192	Martin, C. L., superintendent.....	24 00
193	Wood, J. W., premium.....	5 00
194	Void.....	.....
195	Cark, Mrs. J. T., premium.....	1 50
196	Joiner, R., premium.....	4 00
197	Waterman, H., premium.....	5 00
198	Maxon, J., premium.....	43 00
199	Clark, J., assistant superintendent.....	21 00
200	Roper, J. A., assistant superintendent.....	21 00
201	Clark, D. J., assistant superintendent.....	21 00
202	Miller, F., assistant superintendent.....	21 00
203	Knoff, Fred, assistant superintendent.....	21 00
204	Fuller, F. D., premium.....	16 00
205	Hazen, C., premium.....	167 00
206	Void.....	.....
207	Void.....	.....
208	Smith, Stanley B., treasurer's clerk.....	17 50
209	Smith, H. A., treasurer's clerk.....	17 50
210	Atwood, Chas., treasurer's clerk.....	17 50
211	Gordon, R. D., treasurer's clerk.....	14 00
212	Wooton, C. R., treasurer's clerk.....	17 50
213	Bowerman, N., treasurer's clerk.....	10 50
214	Hopkins, A. A., treasurer's clerk.....	17 50
215	Bates, J. W., treasurer's clerk.....	12 25
216	Main, W. C., treasurer's clerk.....	12 25
217	Haywood, V. A., at grand stand.....	18 50
218	Boyce, A. A., premium.....	3 50
219	Plumb, W. J., assistant superintendent.....	19 50
220	Plumb, J. E. & Son, premium.....	68 00
221	Frat, N. D., per diem as president.....	20 00
222	McDowell, H. C., superintendent.....	40 00
223	Hami ton, A., premium.....	10 00
224	Oleson, Ole, labor.....	.....

*Detailed Statement of Expenditures—continued.*

No.	To whom and for what.	Amount.
225	Gaston, E., premium .....	\$4 00
226	Clark, Saterlee, superintendent .....	52 00
227	Clark, Saterlee, paid sundries .....	7 00
228	Williams, D., clerk to president .....	17 50
229	Calkins, J. S., police .....	2 00
230	Hildebrandt, J., premium .....	5 50
231	Olin, P., premium .....	10 00
232	Smith, F., premium .....	5 00
233	Warren, J. H., superintendent .....	39 65
234	Baldwin, Mrs. M. L., assistant superintendent .....	21 50
235	Wood, A., assistant superintendent .....	18 00
236	Miner, C., treasurer .....	33 10
237	Post, John, premium .....	2 00
238	Peas, Ella, premium .....	2 00
239	Worker, Levi, premium .....	4 00
240	Owen, J. C., premium .....	26 00
241	Marks, Wm., premium .....	4 00
242	Hazen, J., premium .....	12 50
243	Butcher, E. D., premium .....	200 00
244	Colwell, R., .....	8 00
245	Kellog, Geo. A., assistant superintendent .....	21 00
246	Kellog, L. S., premium .....	31 00
247	Palmer, Wm., premium .....	6 50
248	Crane, J. T., premium .....	2 00
249	Spaulding, J. S., premium .....	1 00
250	Palmer, H. S., premium .....	1 00
251	Fergus, A., premium .....	58 25
252	Storey, A. J., premium .....	39 00
253	Slater & Ball, work in machinery department .....	24 50
254	Lamphier, L., premium .....	14 00
255	Slevekler, Geo., painting .....	7 00
256	Atwood, David, printing .....	102 00
257	Main, A. H., assistant to treasurer .....	47 60
258	King, F., premium .....	3 00
259	Stone, J. N., premium .....	10 00
260	Main, A. L., premium .....	7 00
261	Ashley, Mrs. A., premium .....	15 00
262	Sutherland, C., premium .....	14 00
263	Smith, E. and J., premium .....	50 00
264	Smith, E. and J., premium .....	39 00
265	Void .....	
266	Pitman, W. G., premium .....	32 00
267	Martin, A. C., premium .....	15 00
268	Riverside Printing Co. ....	95 00
269	Whitby, James, labor .....	16 00
270	Schuchof, A. J., premium .....	7 00
271	Storms, Wm., good .....	7 24
272	Shrop, Anna, premium .....	2 00
273	Democrat Co., printing .....	21 50
274	Ogilvie, Robert, premium .....	80 00
275	Ogilvie & Curtis, premium .....	375 00
276	Ogilvie, Wm., premium .....	41 00
277	Rice, Aannah, premium .....	3 00
278	Blanchard, J., premium .....	5 00
279	Comstock, G. W., premium .....	6 00
280	Gallager, Julia, premium .....	5 00

*Detailed Statement of Expenditures — continued.*

No.	To whom and for what.	Amount.
281	Marquise, M., premium .....	\$23 00
282	Wilson, H. C., premium.....	21 00
283	Melville, John, premium.....	4 00
284	Gray, Robert, premium.....	4 09
285	Wagman, E., premium.....	4 00
286	Leverson, S. H., premium.....	5 00
287	Adams, J., premium .....	10 50
288	Clark, C. R., premium.....	10 00
289	Comstock, C. L., premium.....	5 00
290	Inglesbee, S., premium.....	81 10
291	Heenan, M. L., premium.....	2 00
292	Case, F. W., superintendent.....	32 00
293	Cady, T., labor .....	8 00
294	Jones, J. N., premium.....	9 00
295	Palmer, W., police.....	8 00
296	Palmer, Wm., police.....	8 00
297	Hicks, J. H., night watch.....	2 00
297	Bancroft, W., labor .....	15 00
299	Cooper, C., labor.....	5 00
300	Cramer, H., premium .....	11 00
301	Daily, W., clerk.....	10 00
302	Pepper, Kate, premium .....	20 00
303	Pepper, Jane, premium .....	9 00
304	Pepper, G. R., premium.....	38 00
305	Foley, W., premium.....	20 00
306	Goodrich, C. P., premium.....	57 00
307	Taylor, N. W., telegraph.....	70
308	Wooten, B., labor.....	4 00
309	Williams, H. C., clerk.....	10 00
310	Anderson, Mrs. Ellen, premium.....	2 00
311	Zercks, C., premium .....	5 00
312	Mallery, P., premium .....	20 00
313	Void .....	.....
314	Quackenbush, E., premium.....	4 00
315	Kiser, W. C., premium.....	90 00
316	Johnson, S. J., premium .....	9 00
317	Hall, S. H., premium.....	20 50
318	West, A. H., premium.....	16 00
319	Vilas, Mrs. F. M., premium.....	9 00
320	Hawes, Wm., labor.....	12 00
321	Johnson, J., premium.....	2 50
322	Squires, Wm., premium.....	2 00
323	Ferguson, C., premium.....	3 75
324	Clark, J. H., use of crockery.....	3 62
325	Viull, A., premium.....	5 00
326	Highans, H., forage.....	138 90
327	Capperg, H., labor.....	6 50
328	Higham, L. D., forage.....	17 81
329	Stannard, H., clerk.....	25 50
330	Slaughter, R. G., clerk.....	39 50
331	Terwilliger, J., premium.....	8 00
332	Pierce, J., labor.....	45
333	Vandusen, A., carpenter.....	38 00
334	Kelley, Ewd., labor .....	14 00
335	Dauids, Abbe, premium .....	3 00
336	Webster, J. A., painting.....	2 50

*Detailed Statement of Expenditures—continued.*

No.	To whom and for what.	Amount.
337	Byler, T., labor.....	\$15 00
338	Riley, F., watchman.....	2 00
339	Squeecher, J., premium.....	20 00
340	Mulligan, J., labor.....	9 00
341	Paine, J. C., forage.....	68 85
342	Grady, F. M., forage.....	37 50
343	Kitzbrath, Mrs., A., premium.....	4 00
344	Tenney, H. A., assistant superintendent.....	10 00
345	Cook, G., premium.....	20 00
346	Wooden, Mary, premium.....	6 50
347	Holm, William, premium.....	4 00
348	Palmer, N. W., premium.....	113 00
349	Kroncke, H. S., premium.....	3 00
350	Boyce, B., premium.....	33 00
351	Harker, J., premium.....	2 00
352	Lary, Mrs. Julia, premium.....	18 50
353	Glaglow, E., premium.....	4 00
354	Burress, Mrs. J., premium.....	6 00
355	Florm, A. J., premium.....	1 00
356	Sullivan, Mrs. W. J., premium.....	11 00
357	Tschudg, J. J., premium.....	27 00
358	Jones, A. F., premium.....	15 00
359	Glasser, L. P., carpenter.....	39 50
360	Dean, N. W., premium.....	20 00
361	Brett, J. E., premium.....	12 00
362	Lewis, H. A., premium.....	1 00
363	Myers, Aaron, premium.....	43 00
364	Clark, Satterlee, committee.....	12 00
365	Barker, George, premium.....	2 00
366	Doolittle, J. R., annual address.....	35 00
367	McLaughlin, Ella, labor.....	10 00
368	Campbell, L. A., premium.....	4 50
369	Sanford, George W., premium.....	18 00
370	Comtwell, L. A., printing.....	102 50
371	Scrampton, W. S., premium.....	4 00
372	Leitch, William, clerk.....	17 50
373	McKee, J., forage.....	7 64
374	Grady, James, forage.....	54 00
375	Kiser, J. C., premium.....	51 00
376	Ga y, M. M., premium.....	10 00
377	Thompson, A., premium.....	20 00
378	Hall, J. H., clerk.....	17 50
379	Hook & Haren, pipe work.....	116 40
380	Conklin & Gray, forage.....	40 25
381	Huginin, W. C., premium.....	36 00
382	B ker, L., premium.....	20 00
383	Root, C. H., premium.....	3 00
384	Kitzrow, William, premium.....	49 50
385	Welch, William, labor.....	21 50
386	Laymon, M. C., premium.....	2 00
387	Stilson, Eli, premium.....	186 00
388	Patterson, G. A., telegraph.....	15 00
389	Swanson, C., clerk.....	25 50
390	Duncan, J. P., premium.....	18 00
391	Jacobs, William, premium.....	4 00
392	Dawson, L., premium.....	85 00

*Detailed Statement of Expenditures* — continued.

No.	To whom and for what.	Amount.
393	Bryant, Geo. E., premium.....	\$162 00
394	Higgins, M., labor.....	2 50
395	Burger, M., forage.....	39 50
396	Dean & Son, sawdust.....	1 50
397	Nichols, J. H., express.....	2 00
398	Horton, Geo., premium.....	3 00
399	Ainsworth, whitewashing.....	117 25
400	Webster, C. H., premium.....	8 00
401	Rowles, T., premium.....	10 00
402	Bunker & Brown, lumber.....	877 59
403	Field, Miss Ella, clerk.....	23 50
404	Dorn, M. M. & Co., livery.....	187 75
405	Nichols, C. P., premium.....	2 00
406	Fuller, Frank, clerk.....	17 50
407	Oulby, J., premium.....	71 00
408	Bryan, H., labor.....	33 00
409	Hollister, J., labor.....	3 00
410	Brookbat, labor.....	1 00
411	Warner, W. C., premium.....	3 00
412	Bryant, Geo. E., sundries.....	27 00
413	Sherman, J., ice.....	5 75
414	Brown, Mrs. Geo., premium.....	12 00
415	Brown, P. W., premium.....	7 50
416	Warner, Frank & Co., goods.....	100 14
417	Pease, W. C., premium.....	6 00
418	Church, Whitewater, pitcher.....	60
419	Watts, J. H. B., premium.....	2 00
420	Sykes, A. C., premium.....	5 00
421	Memhard, F., cartage.....	17 55
422	Taylor, H., premium.....	8 00
423	Riley & Co., livery.....	46 00
424	Heistant, J. H., premium.....	8 00
425	Heistant, Mrs., premium.....	9 00
426	Chapman, Mary E., premium.....	3 00
427	Phillips, A. J.....	44 00
428	Jefferson, F., omnibus.....	17 00
429	McKern, F., night watch.....	2 00
430	Jones, J. N., hardware.....	17 00
431	West, H. H., hotel expenses of President Hayes.....	76 80
432	Bryant & Brasse, premium.....	65 00
433	Storms, Wm., clerk.....	21 50
434	Danforth, F., premium.....	5 00
435	Bishop, A., police.....	47 00
436	Green, Mary, premium.....	2 00
437	—, —, premium.....	1 00
438	Salisbury, D. H., premium.....	8 00
439	Phillips, H., premium.....	15 00
440	Boyd, Mrs. Robt., premium.....	13 00
441	Aspinwall, M., premium.....	5 00
442	Richmond, T. J., premium.....	2 50
443	Roberts, H. J., premium.....	25 00
444	Roberts, H. J., premium.....	14 00
445	Fox, Arthur, clerk.....	11 00
446	Davis, J. N., premium.....	2 50
447	Field, W. W., clerk.....	28 00
448	Baxter, Geo., clerk.....	21 50

*Detailed Statement of Expenditures—continued.*

No.	To whom and for what.	Amount.
449	Wood, J. H., premium.....	\$25 00
450	Pilgrim, D. T., premium.....	25 00
451	Brown, R. W., premium.....	5 00
452	Philowell, premium.....	1 00
453	Baldwin, P., premium.....	10 00
454	Grady, H. C., premium.....	9 00
455	Wait, E. & Son, premium.....	10 00
456	Mallory, Mrs., premium.....	12 00
457	Colvin, Mrs. R. L., premium.....	2 00
458	Pardee Bros., goods.....	1 73
459	Cosgrove, M., labor.....	22 00
460	Osgood, C., labor.....	5 50
461	Cosgrove, M., nails.....	2 75
462	Atwell, R. A., premium.....	8 00
463	Lamp, H. C., labor.....	1 00
464	Rice, Mrs. C. A., premium.....	1 00
465	Lewis, E. D., premium.....	3 00
466	Rutherford, J., premium.....	34 00
467	Crowie, H., premium.....	3 00
468	Klauber & Son, ribbons.....	6 80
469	Rasford, P. D., premium.....	10 00
470	Mendon, Edw., premium.....	2 50
471	Wildham, C., premium.....	8 00
472	Thong, Edw., premium.....	10 00
473	Wilson, E., premium.....	13 50
474	Sullivan, M. M., premium.....	2 00
475	Stuart, J. W., premium.....	6 00
476	Philpert, J., premium.....	10 00
477	Keyes, E. W., postage.....	3 00
478	Waldron, M. N., premium.....	4 00
479	Booth, W. A., express.....	1 45
480	Delmaty, W. A., premium.....	10 00
481	Kircher, J., premium.....	3 00
482	Gilman, J. A., premium.....	15 00
483	Bryant, Geo. E., salary.....	900 00
484	McDougal, G. W., chief marshal.....	42 00
485	Howlet, H. H., premium.....	6 00
486	Hooker, Wm., labor.....	17 00
487	Jacks, W., premium.....	35 00
488	Hovey, E. E., premium.....	4 00
489	Stilson, Eli, premium.....	24 00
490	Riley & Co., livery.....	2 00
491	Foster, P. J., premium.....	7 50
492	Root, Nellie, premium.....	4 00
493	Stuart, J., premium.....	5 00
494	Patterson, J. M., premium.....	9 00
495	Park, W. J., sundries.....	1 50
496	Schaster, H., premium.....	1 00
497	Steele, M., barrel.....	1 00
498	Baker, H., premium.....	5 00
499	Fox, Kittie, premium.....	6 00
500	Gould, R. L., premium.....	6 85
501	Harding, Geo., premium.....	60 00
502	Tenney, H. A., assistant superintendent.....	20 00
503	Everhart, Geo. W., premium.....	15 00
504	Miles, Jesse, premium.....	2 00
505	Hume, M. G., premium.....	7 00
506	Doubleday, Geo. D., premium.....	10 00

*Detailed Statement of Expenditures—continued.*

No.	To whom and for what.	Amount.
507	Fowler, N. P., premium .....	\$28 00
508	Crawford, J. N., premium .....	105 00
509	O'Malley, Kate, premium .....	4 00
510	Roff, Wm., premium .....	8 00
511	Doane, D., premium .....	20 00
512	Stetson, A., premium .....	50 00
513	Powers, L. A., premium .....	11 00
514	Mears, C. L., premium .....	2 00
514 <sup>1</sup> / <sub>2</sub>	Newton, C., premium .....	9 00
515	Laramy, J. W., premium .....	40 00
516	Kroncke, H. G., goods .....	9 60
517	Lazier, Edward, goods .....	2 15
518	Brown, R., premium .....	62 00
519	Stebbins, A., premium .....	7 00
520	Parsons, P. B., premium .....	2 50
521	Sheldon & Co., machinery department .....	25 78
522	Sheldon & Co., machinery department .....	25 00
523	Tracy, A., labor .....	4 50
524	Willman, R. L., premium .....	3 50
525	Malony, Geo., premium .....	20 00
526	Martin, L., premium .....	10 00
527	Chapman, A., premium .....	5 00
528	Martin, F. R., premium .....	2 00
529	Darey, R., premium .....	40 00
530	Keyes, E. W., postage .....	2 50
531	Keyes, E. W., postage .....	3 00
532	Higgins, P., labor .....	3 00
533	Bixby, J., premium .....	10 00
534	King, C., premium .....	50 00
535	Booth, W. A., express .....	1 00
536	Calloday, M., premium .....	8 00
537	Alex, G., labor .....	27 00
538	Bigelow, L. F., premium .....	6 00
539	Gibson, C., premium .....	20 00
540	Keyes, E. W., postage .....	1 00
541	Curtis, F. C., premium .....	2 00
542	Liepert & Co., diploma .....	25 00
543	Curtis & Ogilvie, goods .....	9 08
544	Nichols, J. H., express .....	2 05
545	Johnson, J., premium .....	111 00
546	Minch, Levi, premium .....	2 00
547	Baker, J. & L., use of crockery .....	1 08
548	Sheldon, Daly & Sturm, premium .....	2 00
549	Campbell, J., premium .....	3 00
550	Leitch, W. A., premium .....	3 00
551	Mueller Bros., medals .....	34 96
552	Keyes, E. W., postage .....	3 00
553	Steel, S. D., premium .....	4 00
554	Slaughter, B. C., premium .....	2 00
555	Sheldon, S. L., harrows for track, 35,367 .....	18 00
Total amount of orders .....		\$14,920 85

*Detailed Statement of Expenditures* — continued.

Total amount of orders.....	\$14,920 85
Dinner tickets .....	374 80
Orders Nos. 529, \$3 00; 359, \$5 00, 1877 .....	8 00
	<hr/>
	\$15,803 65
Orders drawn and not presented, Nos. 141, \$8 00; 545, \$111 00; 549, \$3 00 .....	122 00
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	\$15,181 65
Cash balance .....	3,819 64
	<hr/>
	<u>\$19,001 29</u>

A mortgage of \$3,500, with interest at 9 per cent., since March, 1878, is due by the society.

On motion of Vice President Boyce, a committee of three was appointed by the chair to examine the treasurer's report, consisting of W. T. Lietch, P. B. Barsons, and Ed. Lazier.

The committee, after a full examination of all vouchers, books, etc., reported as follows:

The committee appointed to examine the vouchers of the treasurer, and compare them with the books of the secretary, beg leave to report that we have discharged that duty, having compared the vouchers with the report and with the orders drawn, and find them correct.

All of which is respectfully submitted.

WM. T. LIETCH,  
ED. LAZIER,  
P. B. PARSONS.

On motion of Vice President Ludington, the report was unanimously adopted.

On motion, the society adjourned.

## EXHIBITION OF 1878.

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### OPENING ADDRESS.

BY N. D. FRATT, PRESIDENT.

*Friends and fellow-members of the State Agricultural Society:*

— It is my pleasant duty to welcome you on this annual recurrence of our state fair. This I do with great satisfaction, and I express the hope that this our 25th reunion, may be made pleasant and profitable to all of us. That these yearly gatherings of wide awake, intelligent, enterprising and skillful producers, must be of immense service to themselves and the country, there is no room to doubt. You are representative men in your specialties. Gathered from all parts of the state, you bring with you the choicest results of your labor and knowledge; you do this frequently with pecuniary loss, but with the hope of ultimate reward; you do it in generous rivalry, and with a hearty desire for the good of all; coming thus, you are open to learn and free to teach. You will compare your products with those of others near and far; you will judge modes of production differing from your own; take note of labor-saving implements and processes; get ideas of value on all subjects connected with your calling, and take them home with you, getting the benefit of this knowledge in your own practice. You will also awaken the spirit of improvement in your neighbors.

The advantages indicated are but few of the many which result from these great gatherings. Who can estimate the money value of the country, of improved breeds of horses and cattle. Their introduction has depended mainly upon the spirit of emulation, and the knowledge of them gained through the agricultural societies and our yearly fairs. Yet the education awakening thought and developing æsthetic tastes is of far greater value than money to us as working men. Shakespeare says: "The hand of little employment hath the daintier sense." It is the province of our

society to show that delicate perception of beauty and noble realization of power is consistent with the horny hand of labor. Who can look for a moment upon the magnificent horses here gathered, wonderful for splendid power or graceful beauty; or the stately cattle brought for your admiration and instruction, without experiencing emotions of delight. I have not time in the few words I shall utter to commend properly this admirable display in detail, or even in its principal departments; nor show how these various exhibitions tend to awaken thought and feeling, and develop in us working men and women our mental and moral natures. But I will here venture the assertion which I fully believe, that our fair in all its departments, in its show of live stock, always fine, in the show in agricultural hall, in the wonderful beauty in horticultural hall, in the fine art department, in manufacturers' hall, and in the machinery department, there are educational influences at work which transcend in power and importance as means of awakening sight, thought and admiration, those greatest elements of education, all other influences whatever, operative in the same period throughout the length and breadth of this land; understand me to mean, that no where in the land, during the same time, and to the same number of souls, are there in operation such educational advantages as we now and here enjoy. So much active practical thought concerning the useful, so much keen delight in the beautiful, also practical, as are here exercised.

So much, however imperfectly said, concerning the benefits of these fairs to us as working and thinking men. I have long been accustomed to think of the farmer's vocation as one of the noblest on earth, as one of the most dignified and the most consonant to an exalted conception of manhood which can be pursued. I love to look upon it in this light, and when I so look upon it I think of the German poet's ideal of a noble manhood —

“Free though they reason,  
Through obedience strong,  
Through meekness great,  
And rich with wealth which long  
Lay in thee all unconsciously.

Lord, too, of Nature,  
Who invites thy chains,  
And tasks thy strength with unremitting pains,  
Till she shines out renewed,  
Redeemed by thee.”

This is the ideal conception of the agriculturist; what he should be to attain his full privilege. Surely if there be any class of men whom the Almighty has made to be co-workers with himself, it is that of intelligent tillers of the soil, commonly called producers; they are in a sense creators. He has ordained that they, through their labor and skill, shall produce, from the apparently inert element in nature, forms of beauty and use which before did not exist; forms of beauty which tend to make the earth a paradise and of use, which are the basis of all prosperities and industries. The agriculturist evokes from nature living organisms which are in themselves the source of the life and energy of the world. We would not discriminate too nicely between the relative values of different industries, but we must remember that money is but the representative and the measure of wealth, and that wealth, in all its forms, is the result of labor, of labor guided by science. Let us endeavor to form some idea of the vastness of agricultural interests by the mention of a few statistics culled from the last national census, that of 1870.

Of the 12,500,000 persons engaged in all classes of occupations, 6,000,000, or nearly one-half, were engaged in agriculture; the cash value of the farms, implements and live stock was placed at upwards of \$11,000,000,000, more than one-third of all the real and personal property in the land, and the total estimated value of farm productions was \$2,448,000,000. There were over 2,000 establishments for the manufacture of agricultural implements, employing a capital of \$34,000,000, producing implements that year to the value of over \$50,000,000. In 1870 there were ninety-three agricultural and horticultural journals published, with an aggregate annual issue of 21,500,000 copies. There are at the present time not less than 2,000 agricultural and horticultural boards, clubs and societies, organized and in operation. From these figures, we may better realize something of the immensity and wealth of this great industry, and the support it must give to the great body of our people, the other half engaged in other occupations. We can see that in the direct supply of food to the world, in the transmission and distribution of products, and in the demand for the manufacture of implements and machinery, agriculture is, indeed, the basis of the general prosperity.

Would it be out of place here to ask if these immense interests

should not be better represented in the halls of our national legislatures; if scientific and practical men, familiar with the wants of the farmer, and skilled in the various agricultural economies, should not have place in the legislative and executive departments of government, rather than fill them with theoretical lawyers and speculative moneyed men! And now, my friends, let us congratulate each other, and be thankful, that during the unexampled period of financial depression and ruin from which the country seems now to be slowly emerging, we as a class have been comparatively so little affected. How favorably will the farmer's lot compare in this respect with that of most others, even in prosperous times with the mercantile class. The temptation to hazardous speculation is so common, that failure is the rule rather than the exception. Those of us who have taken note of the commercial ventures and failures during the past few years, have a melancholy review of an almost uninterrupted succession of losses and bankruptcies. With a few, and only a few instances, of lasting success, these failures, attended by harrassing cares and blasted hopes, often mean not monetary loss alone but mental and moral ruin. From this temptation to inordinate speculation we are, as a consequence of the regularity and stability of our course of labor generally free; our capital though small is securely invested; it cannot take to itself wings and fly away, if we use only ordinary prudence. We expect to pay for what we get, and do pay for it. We sow our grain confidently expecting one year with another a remunerative harvest. We feed stock and manure fields, feeling sure that in time we shall be rewarded in proportion to the labor and knowledge we have used. Thus with patience and attentive care we steadily grow into independence and comfort. Let us occasionally look from our secure and retired homes upon the troubled world without; glance upon the rapid rises and ignominious failures, even in times of ordinary prosperity, and note the disasters and ruin on every hand, when a so-called monetary crisis sweeps over the land, and then let us thank God that we are farmers.

But, my friends, when I advise content and thankfulness in our calling, I do not recommend content with our condition. I am not one of those who would sing with Dickens, charity, children. Be contented with our rations, and always keep our proper stations.

We have no proper stations; our proper duty and interest is to keep moving; our motto, forward! We must keep pace with the enterprise and science of the age. I ask your attention for a few moments longer, while I speak of the connection of science and agriculture. A hundred years ago, agriculture as an art was practiced as well as now, but the science of agriculture is of modern growth. Thirty or forty years ago there was a great tendency to cry down book farming; then seeds would not grow if planted in the wrong time of the moon; then meat shrank in the pot if not killed in the right time of the moon. Now, though we would not believe all we find in books, all the science of the age which applies to farming is to be found in books, and it is to be found no where else. It is the classified wisdom of practical men; found out by experience in all the various lines of our business, placed just where we can get it most readily and easily. It is in this age vain to labor without it. I hope none of us will ever undervalue genuine science. It is our only security against quackery, empiricism, delusive theories, and whatever would tend to mislead us, whether found in books, in agriculture journals or in the practice of those around us.

Standing here almost in the shadow of our State University, which comprehends as its province all science and all learning, seeing its agricultural college and its experimental farm, we have the value of knowledge and its connection with agriculture brought forcibly and pleasurably home to us. Let us justly pride ourselves on these and our other educational and philanthropic state institutions. They give us a forward position in the family of states. They are the sure grounds of consideration abroad and of progress at home. They mark the intelligence and the virtue of our people, and in connection with our institutions of religion, give us the surest promise of intelligence and virtue in the future. And now, gentlemen, I will occupy your time no further. I thank you for your attention, and wish you enjoyment and profit in the exhibition before you. I now pronounce this 25th annual fair open to the public.

ADDRESS OF HIS EXCELLENCY, HON. WM. E. SMITH,  
Governor of Wisconsin.

On the occasion of the reception by the State Agricultural Society of the President of the United States, from the balcony of the Park Hotel, at 12 o'clock M., September 10th, 1878:

*Fellow Citizens:*— We are honored this day with the presence of the chief magistrate of the nation, Rutherford B. Hayes, president of the United States. [Applause.] I am not aware that any of his predecessors have ever set foot within our borders while occupying that high office. We are therefore unskilled in all those due forms and ceremonies which should characterize the reception of the president. But we may make up in warmth of greeting whatever may be lacking in form and ceremony. Mr. President, speaking on this occasion for the whole people of the state, as well as for these present, as myself, I extend to you a welcome most cordial and sincere. It rejoices our eyes to look upon you. We have heard somewhat of you as a citizen, a soldier, a governor, and as president. We know that in these relations of life you have borne yourself with distinguished honor, courtesy, and forbearance, bringing to the discharge of every duty, whether in private or official station, the best results of mature consideration and honest effort. We therefore not alone as the president, but as a distinguished representative of our country's citizen soldiers and as our fellow citizens and friend, greet and welcome you to Wisconsin. Welcome, sir, thrice welcome to Wisconsin.

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MAYOR SMITH'S WELCOME.

Mayor Geo. B. Smith's words of welcome were as follows:

*Mr. President:*— It would not be becoming in me, under the circumstances, to enlarge upon the generous welcome which has just been extended to you by the governor, in behalf of the people — the whole people of this commonwealth. I am only here, sir, in the humble capacity of mayor of this beautiful city, to say to you that whatever I can do — that whatever this people can do — to make your stay pleasant, will be done, and we shall endeavor

to do everything in our power, during the short time you remain with us, to make your stay not only pleasant, but your visit and the visit of your good lady, memorable as one of the pleasant experiences in your life.

### THE PRESIDENT'S REPLY.

President Hayes replied as follows:

*Fellow Citizens:* — I appear before you at this time with no purpose of making an extended address. I desire merely, in a single word, to make my acknowledgments to the governor of Wisconsin, to the mayor of Madison, and to the people they represent, for this hearty welcome; and on the suggestion of gentlemen connected with the Agricultural Society, I wish to announce there will be further speaking, in which I am expected to take part, at the fair grounds, at three o'clock this afternoon. [Applause.]

The presidential party left the Park Hotel at 2:30 o'clock, being transported in carriages to the fair grounds, which were reached a half hour later.

The party filed in front of the grand stand, the carriages there stopping, while President and Mrs. Hayes, Attorney General Devens, Gen. Albert J. Meyer and others, accompanied by Hon. N. D. Fratt, president of the Agricultural Society, Gov. Wm. E. Smith, Mayor Geo. B. Smith, representatives of the press and several leading citizens, ascended to the judges' stand.

Some 15,000 people were packed in the grand stand, on the race track, and about the place. Considerable enthusiasm followed upon the appearance of the president in the balcony, which subsiding, the programme proceeded as follows:

### WELCOME BY PRESIDENT FRATT.

*Fellow Citizens:* — This is, perhaps, the most important event that has ever occurred in this state. Wisconsin is a state of thirty years standing, and this is the first time in our history we have had a live president to pay our respects to.

Mr. President, in behalf of the Wisconsin State Agricultural Society, I bid you welcome to our grounds, and extend the hospitalities of myself and associates to you.

Ladies and gentlemen, I now have the pleasure of introducing to you our distinguished guest, Rutherford B. Hayes, president of the United States. [Applause.]

### PRESIDENT HAYES,

After the applause had subsided, spoke as follows:

*Ladies and Fellow Citizens:*—I would like, in opening the few remarks I have to make this afternoon, if I felt that I could safely do so, to undertake to catalogue the various advantages and attractions possessed by Wisconsin and the city of Madison. But we have seen so many and heard of so many others that we have not seen, that the catalogue would be unreasonably long. I assure you, however, that all who are traveling with me, if I may judge from the expressions I have heard, are sufficiently impressed by the very great advantages of your state, and with the superior attractions of your beautiful Capital City.

We know something of the benevolent institutions of your state — so honorable to its people. We can see this prosperous and growing University and the beginning of an observatory there, as we are told, thanks to the enlightened liberality of a citizen, Gen. Washburn, who has the good fortune, as well as the wisdom, to see that his public benefactions are properly distributed in his life time — and I might go on with this — this beautiful fair ground, not surpassed, perhaps, anywhere. As yet, we have not visited the fair, so I may not speak of its attractions. Altogether, however, Governor of Wisconsin, Mayor of Madison, President of the Agricultural Society, we thank you for your invitation to visit you, and for the generous hospitality and welcome that has greeted us. When I started upon this visit to the northwestern states, to be present, as I knew I should be, at several agricultural and some of the mechanical fairs of this part of the United States, institutions established in the interests of the material prosperity of the country, it occurred to me that, if it were possible, I ought to try to say something that should advance and promote the material prosperity of the country, not expecting, not even hoping, that much could be done by any words of mine; but it did not occur to me that, after the five years of business stagnation and depression throughout the country, the time had come when words of encouragement, to give

increased confidence to those who already have confidence, and a greater hope to those who already are hopeful, would be fitting and proper.

Now, my friends, on this general subject, my occupations have naturally led me to consider the condition of the government, and of the burdens which, by reason of the government, rest upon the capital, the business and the labor of the country; and if I could demonstrate to the people of these states that, notwithstanding the depression of the times, these burdens have been made lighter and lighter during these years since the close of the war, it seems to me that it would be doing a useful thing; and I therefore invite you to attend for a moment upon a course of remarks which I pursued at St. Paul and at Minneapolis, and to which I shall add something not said there, bearing upon the general proposition that there has been great improvement and great progress in lifting burdens from the people in the last thirteen years, and especially in the five years since the panic; and in doing this, my friends, do not misunderstand me — I am not here even to refer to what has been done in that way during the short period of the administration which was inaugurated in March, 1877. The most of what has been done, I think of in connection with such names as Mr. Hugh McCulloch, Secretary of the Treasury in Mr. Johnson's time, and Gov. Boutwell, the Secretary of the Treasury in Gen. Grant's time.

When the war closed, it left us with many grave questions pressing for consideration and decision, and perhaps none more grave or difficult than that about the debt. The debt, as ascertained, was \$2,757,000,000, and that in a country that had known almost no national debt at all; and the actual debt was more than that, for we owed to the soldiers that had not been paid; we owed for quartermaster and commissary stores; and the actual debt was not less than \$30,000,000,000 thirteen years ago to-day. Worse than that, all nations in war are compelled to borrow money, and they are compelled to borrow at such rates as the men who have money to lend choose to ask. Our burden of interest on that debt was over \$150,000,000 a year. For interest alone, we were paying in 1865, after peace, double the expenses of the government in any year of peace prior to the rebellion. Well, now how are we? Fortunately, Secretary McCulloch did not regard a na-

tional debt as a national blessing, and he adopted the policy of reducing the debt, thereby strengthening the credit of the nation, and in that way enabling us to get our money at lower rates of interest; to refund the debt on better terms. Now, among the wise men of the country, through the press and upon the platform, there were a number who told the people that that debt would never be paid — the great nations never paid their war debts; that it would be like the debt of England and France — a burden upon us and our posterity for all generations. Hugh McCulloch and the people of the United States were fortunately wiser than that. They believed that the debt could be honestly paid, according to its spirit and the letter of the obligations creating it, and they went to work, and, from that day to this, every year has seen a material reduction of the debt; and to-day, instead of \$3,000,000,000, it is only about \$2,000,000,000 — nearly one-third paid off in thirteen years. [Applause.] By reason of the improved credit, the interest of that debt has been changed until, to-day, it is only \$75,000,000 a year, instead of 151,000,000 a year. More than a third of the interest has been cut off. If we were to put into a sinking fund, to-day, at four per cent. interest, the reduction of the rate of interest, it would pay the whole debt in less than twenty-five years. But that is not all. Every man in this community is not only relieved somewhat of the burden of that great debt, but all engaged in business, who have to borrow money, understand that the rate of interest that shall be paid by the government of the United States influences, I might almost say regulates, the interest that you are to pay. If the government pays seven and three-tenths per cent. with such securities as government bonds, none of you can get it for any less. Nay, it will be ten, twelve or fourteen for the citizen; and when we get it down to four, that brings it down for every citizen borrowing money in the United States. [Applause.] In short, a good national credit means a good credit for the individual. Lower rates of interest for the government mean lower rates of interest for business men everywhere. But, again, in reference to this debt, only seven years ago, in 1871, it was ascertained as near as such a fact can be ascertained, that our bonds owned abroad amounted to from 800,000,000 to \$1,000,000,000. That we were paying from fifty to sixty millions of dollars a year to go across the water, and now we have ascertained in the same

way that those bonds have been coming back under the changed balance of trade, until to-day there is owned abroad only from \$200,000,000 to \$300,000,000. Instead of sending abroad each year \$50,000,000 or \$60,000,000, we now send abroad only from \$12,000,000 to \$15,000,000. Now, that is the debt, greatly diminished, interest greatly diminished, owned at home instead of abroad. Well, take taxation. When the war ended, the first year of peace our taxes were \$488,000,000 for national purposes. Custom duties and internal revenue duties amounted to \$488,000,000. To-day they amount to \$240,000,000, an improvement of almost \$250,000,000 in the taxes that burden the capital and labor of the country; expenditures the same, a diminution almost equally as great; and this decrease has gone straight on during the period of the panic. Well, now take the other side. We have less debt, we have less taxes, we have greatly improved currency and exports and imports. Let us look at these two things just for a moment. Our currency, thirteen years ago — bank note paper and greenbacks — amounted to six or seven hundred millions of dollars. It amounts to about that now. But then each dollar was worth 69 cents. To-day each dollar is worth  $99\frac{1}{2}$  or  $99\frac{3}{4}$  cents. [Applause.] Then our six or seven hundred millions of dollars was worth only about \$500,000,000. To-day it is worth about six or seven hundred millions of dollars. But better than that: Then our currency was fickle, and it fluctuated in value from day to day; we had Black Fridays, days when it went up, and then we had other days when it went down; and now what effect had that upon the plain people of the country, the producers and laborers, the middle men, the men who buy and sell — do it if they have good sense for profit? They understand very well that this fickle standard of value may be against them. They may buy at one price and sell at another, but the currency may vary in such a way as to make it against them. Therefore they put on enough profit for the purchaser and laborer to pay, to make up the shifting standard of the value of currency, and at last the laborer of the country and the producer of the country pay for the fickleness of the standard. Now how is it? We have brought the greenback, the national bank note, and all kinds of paper money to within a half to a quarter of a cent of the value of gold and silver, and there it sticks, steady as the level of your lakes. Why, in four months, in five months, the variation

of the currency has not reached more than the fraction of a cent. Then we have a better currency.

But perhaps more interesting to you as farmers, is the condition of our export and import trade. For five years before the panic the balance of trade against the United States was \$100,000,000. That is to say, we bought of those men across the ocean \$100,000,000 more than we sent them, and balances have to be made up in cash. How is it now? Why, last year the balance of trade in our favor was \$247,000,000, more than ever before, and as an average for three years past, we gained between three and four millions of dollars, as compared with the period next before the panic. And how does that come? Then we sent between two and three hundred millions of dollars of agricultural products abroad. We are sending living animals, we are sending bread and bread stuffs, that means wheat largely, and corn. We are sending leather. We are sending some manufactured goods that never went abroad before. We are beating them with our watches in Paris, and sending watch-works actually up to the shops where they make watches in Switzerland, because we do it better than they do. We are gaining then, my friends, in this whole business, of between us and abroad. Now I am not here to discuss the question of the balance of trade—a very abstruse matter—economists differ about that. But there is one thing we did not differ about. It is a good deal better to have a hundred millions on our side than against us. That we understand, and that is the way it is to-day. Now the encouragement and the hope that I would draw from all these facts is that we are getting along to better and better times, and on this journey of ours to the west we learned another fact that I had not got into my prepared budget of material when I left Washington, and that is this: East of the mountains there are a great many people out of employment, not half so many out of employment that really want to work as they pretend, but there are a great many. Now they said to us that all the good lands in the United States were taken up—there was no more left. “We have got now to support ourselves as they do in Europe, on what we have got.” Well, we have been out there; we have been clear out there, nearly into the center of the American desert; and right in the center of that desert Mr. Dalrymple took us at a trot and a gallop in his buggy around for about an hour and a half through 13,000 acres of wheat

field which had averaged, this year, twenty-four bushels to the acre of first-class wheat [cheers], and that in the desert [laughter]; and the land cost them, I am told, about one dollar an acre. Now what is the trouble? Is it that they have not room enough? The world has laughed a great deal at Mr. Greeley for a favorite phrase of his, "Young man, go west," — but Mr. Greeley was wiser than those that laughed at him. There is good sense in that. Every thousand people that go west make it just that much easier for those that are left at the east to get employment, and when they get west they build them homes. They want carpets; they want furniture; they want every description of supplies, and they give just that much more employment to the manufacturers of the east. And that is not all. They go to work and they raise their twenty-four bushels of wheat to the acre, and help feed those men at the east, and so the movement of population that is now going on more rapidly than ever before in this country, to Texas in the south, to Kansas in the center, to Dakota and Minnesota in the north, is steadily helping us on to that period of better times of which I think we are now on the threshold. And now, my friends, this is the picture. May I talk a little of my own convictions as to remedies that are proposed for these hard times. [Applause and cries, "Go on! Go on!"] I do not like to mingle in mere partisan discussions and I do not propose to, but I have some friends who tell me, and very good friends too — as I heard at my home — that after all our trouble is that our currency is not cheap enough and that it will not stay at home. It goes abroad, and therefore they tell me that they want a currency that is so cheap that it is better for us than that costly currency, gold and silver, and of such quality that it will not go away. [Laughter.] Now I say that that is a very desirable quality in currency. You have all found it so. If you can keep it, it is a good thing. Let us talk about that a little. First, the cheapness of the currency. They tell me what they wish is this: The United States ought to say (the speaker holding up a piece of paper the size of a dollar bill), "This is one dollar anywhere in the United States, by act of congress" — a piece of paper about the size of that, probably: "Of course, we do not want to counterfeit it." I am afraid it would not be a great while after it was issued that nobody would want to counterfeit it. [Laughter.] But, that in order that it should be as good as possible, we would print it on

good paper — the people are accustomed to good paper; they would have it look like a national bank note, or a greenback — good type, good-looking pictures on it, good engraving. And now what does it cost? They say they want a cheap currency. What does that "dollar" cost? About this size the paper would be (indicating). Now, if it is a gold dollar, or a silver full dollar, we know what it costs; and that is, it costs, take the world over, about a day's work; that is what it costs; it costs about a bushel of wheat; that is what each dollar costs. But now what does the new currency cost, each dollar? Well, they tell me it costs rather less than a cent; that piece of paper, all pictured off nicely, ready for currency, costs about a cent. Now that is a good operation. To make it out of gold or silver, it will cost us a bushel of wheat, or a day's work, but there it costs only the one-hundredth part of a day's work, or of a bushel of wheat. That is a good operation. "We will do that; we will do that." But stop! Is that best? Let us see. Why, it don't cost any more to make that "two dollars" than "one dollar." [Laughter.]

Then were we not a little hasty only to make it "one?" We will make it "two," and it still costs only a cent. Now, my friends, don't you see that we made only ninety-nine cents on it before; now, we make a dollar and ninety-nine cents? But if we would undertake to make two dollars out of gold and silver, it would take two days' work, or two bushels of wheat. But stop; are we right? Why, it is just as cheap to make that "ten dollars." Let us make it ten dollars then, and make nine dollars and ninety-nine cents in the operation. Instead of paying for it ten days' work, or ten bushels of wheat, we will give just exactly the one-hundredth part of a day's work for our ten dollar bill. We are doing well, but not wisely, for we might just as well make it a hundred — it will cost no more, or a thousand — it will cost no more, and now we will pay off our whole national debt with it, and that is what we want, they tell us. Why stop at that? Why not pay all the expenses of our government with it, and not tax the people at all? [Laughter.] It only costs a cent for a hundred dollars or a thousand dollars, and then, Mr. Senator or Mr. Representative, we will pay you easy [laughter], and somebody would turn back on me and say, "yes, Mr. President, and we will pay you off easy, too." [Amusement.] Now, my friends, doesn't it begin to dawn upon the simplest mind

that there is some mistake about this? That that is inflation, and that inflation is nonsense? The *real thing* is what we want — no sham. But the friends say: "It will stay at home; it won't go abroad; good here, good nowhere else; therefore, it will stay here."

Is that good? Let us see about that. Let us have the United States act upon that principle; none of our money will be taken abroad — and so we will keep it. If that is good for the United States, would it not be well for Wisconsin. Wisconsin sends her money to New York and to New England, and the big cities east. Why not keep it at home? Let Wisconsin make her own money in the same way, then; now, if that is good for Wisconsin, why is it not good for Madison — not be sending off to Milwaukee and Chicago, and so on; let Madison make her own money; if it is good for Madison, why isn't it good for John Smith, the grocer? Let him make his own money. "This is one dollar, John Smith." He will never spend it; he can keep it; it will stay at home. [Great laughter.]

No, no, my fellow citizens; the men who made the constitution of the United States said: "Congress shall have power to *coin* money." Gold and silver are the money of the world and have been ever since the days of Abraham, and you cannot change it by legislation. Either that, or paper that will command that, is a sound constitutional currency. [Hearty applause.] Then, my first objection to this, my friends, is: either to get your currency you have got to change the constitution of your country or violate the constitution of your country. Change it! What are we troubled about? We want to get relief. When will you change it? Gentlemen have introduced resolutions into congress to change it, thereby admitting that under the constitution as Washington and the fathers made it they cannot do this — and so they want to change it.

Now, long before they can change it, the march of events will bring us again to wheels of industry everywhere in motion, and a prosperous and a happy country. Then, my friends, let us remember that with every day, more and more of our products of the soil and our products of the shop are going to Europe, connecting us with the commerce of the world. We should conduct our financial system, then, on principles and instrumentalities such that the experience of the world, and the general judgment of the commer-

cial world would sanction our principles and our instrumentalities, and we know what that is. We know how the commerce of the world is bound together. We have the good fortune, my friends, to have here the gentleman who, under the laws of the United States, under the government, has charge of the weather of the United States, and he tells us that this air that enwraps the globe is a unit, and that any great disturbance, any great commotion, anywhere, on any sea or any continent, sooner or later, is felt on every other sea and every other continent; and so it is with the commotions and the disturbances in the commercial world. Anything seriously affecting any great nation, soon affects all the others. This panic that has afflicted us has afflicted others also, clear around the globe.

Now, my friends, let me say: the true need is, when we are marching steadily on to the threshold of better times, "be wise enough to let well enough alone." [Applause.] What we want is a restoration of confidence — a restoration of confidence comes only with stability in legislation and in conduct. Let us then try no new experiments, but march in the path marked out by the fathers. Let us say our restored financial prosperity shall rest upon a national credit unimpaired, without taint or stain, and upon a currency solid and constitutional — that defrauds no one. Let it be a currency such that honest capital, for there is honest capital, and plenty of it; that honest business enterprise, for there is honest business enterprise; that honest labor, for there is honest labor, shall all have, also, honest money. [Cheers.]

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#### UNITED STATES ATTORNEY GENERAL DEVENS

was then introduced, and spoke as follows:

I wish it were in my power, fellow citizens, to reinforce, by some argument or illustration of mine, the remarks which you have just heard from the President of the United States. They have been made so clear and distinct that it seems to me every man who is within the sound of his voice must have fully comprehended them.

My assent to them is of no importance; indeed, at one of the places where we have been during this pleasant tour, I observed

that the morning paper, after reporting the remarks of the president — which, though different in form and expression, were in substance such as he has delivered to-day — said that “the attorney general made a little speech, and assented, *of course*, to everything the president said.” Well, gentlemen, that was well enough, and correct enough — because the president selects, of course, gentlemen who are to be about him in the place of the officers who are to be the heads of departments and constitutional advisors, from those who agree with him; not necessarily in detail, but in the general principles upon which he conducts the government of the United States — so that is of no consequence here, whether I give my assent; but it is of much consequence, it seems to me, whether this great and intelligent audience, which has heard the president upon this interesting subject of the finances of the country, depart from here, calming reflecting: “Well, now, that is an argument which is not susceptible of an answer,” whether it is not an argument that should properly carry conviction among every sound, thinking set of people.

We of the north, in the northern and eastern states, think we understand our own interests. At any rate, the people of New England generally have that reputation; and we of New England know that there is nothing so important to us as a prosperous south and a prosperous west. We are a manufacturing nation, and have long been such; it is long since Massachusetts has been able to feed her own people from her own soil; she depends on you for that, and she expects to pay you, either in good, honest coin, or good honest work, in the various manufactures which she has to sell; she, like you, considers that not only these United States are a nation, but that they are a part of the great family of nations; that the interests of commerce link them all to all the other nations; that a common currency is absolutely necessary to sustain the balance of trade — a currency used by the whole world. We know very well that it is through the cotton of the south, and through the wheat of the west, that we are enabled to maintain this great balance in favor of the United States, amounting, as the president has just told us, to \$217,000,000. We know well that it is through your efforts that we are enabled to maintain that balance in our favor, and to make the rest of the world pay it to us in money.

We do the best we can with our manufactures, not only to sell

them throughout our own broad land, but to send them abroad; the people of New England cannot be accused of a want of enterprise or of energy in that way; we sell to South America and to China, and as the president has said of the watches made in Waltham, in Massachusetts, their movements are so fine and so accurate, that to-day they are sold in Geneva. And more than that, gentlemen, it is true that some of the descriptions of cotton that are made in Lowell and in Lawrence are exported and are sold at Manchester, in England; and that is really something like bearding the lion in his den — to undertake to sell cotton goods in the great place where Britain manufactures them. [Applause.] But after all, those are particular kinds and classes in which the skill of our manufacturers has enabled them to compete, and the balance of trade still must be met by the great products for which the world calls upon us from the west and the south; so, while it is very hazardous for one person to advise another person as to his interests, yet in this matter of a currency which is to be the same in Madison and in Europe, it seems to me the west and the south are interested more, if possible, than the east. But, my friends, I do not intend, after the full argument you have listened to from the president, to continue or to adopt this line of remark. I intend only to express the pleasure which I have experienced in this visit to the northwest; at the kindness which we have received everywhere — those of us who have accompanied the president — at the regret that we feel that our visit is now drawing to a close, and at the pleasure that we feel that we have been able to meet you at this great gathering of the industrial interests of the state of Wisconsin, at her capital.

These states of the northwest are a matter of great interest to the people of the whole Union, and to the people of the "old thirteen" states. These states, when the Union was formed, were a wilderness. If, my friends, a stranger visits St. Paul's Cathedral in London, he sees below it the monument of the architect of that noble edifice, and upon it is the inscription: "If you seek a monument, look around you." So, my friends, if you seek a monument of the American Union, look around at these great states which she has called into being. [Applause.]

In that day, when the constitution was being formed, these states were covered with grants, the lines of which were impossible to

be deciphered with accuracy, divided among the older states of the Union, as they had been given to them by the kings who were the former rulers of this country. The titles of Massachusetts and of Connecticut, and of nearly all the old states of the Union, extended all over these broad lands. But of all the titles, the title of Virginia was no doubt the best; let it be remembered for her, **always**, that to that Union about to spring into life, she gave with a generous hand this vast gift of her share in this mighty domain — that it might be used forever for the states who were then united. It is a happy omen, it seems to me, as I learn the name of the county in which your capital is located, and the name of the capital itself, that while your capital bears the name of the illustrious Madison, the fourth president of the United States, whose labors, perhaps, in the formation of the constitution, as shown by his valuable writings that were prepared in defense and in urgency of it, were perhaps greater than his labors as president, that the name of the county is the name of an eminent citizen of Massachusetts, Nathan Dane, of Beverly; Nathan Dane, who prepared the great ordinance of 1787, which, with the assent of all the states about then to be formed into the Union under the constitution, were sealed to freedom forever. [Applause.] They are all gone now; a race of men have succeeded the men who formed that constitution; those men who prepared it, and to whom is due so much of the credit of the ordinance of 1787; but they must be blessed and blessed forever among the happy homes of freemen. While I have been permitted to look with pleasure and interest upon vast farms containing thousands of acres, I do not know that I can better conclude these somewhat discursive remarks than by saying, I trust the time may come when those farms may be broken up into smaller ones, that can be tilled by each man, by the labor of his own hands and that of his children, his sons and his daughters, who are about him. [Applause.]

I wish prosperity and happiness to all the homes of Wisconsin. [Prolonged applause.]

HON. B. C. YANCY,

of Georgia, a gentleman long connected with the agricultural interests of that state, was then introduced, and spoke at great length, principally upon farm topics. He spoke of the frater-

nal relations desirable to be maintained between the north and the south, and of the material aid and sympathy now so unanimously tendered by the people of the north and east to the yellow fever sufferers in the Lower Mississippi Valley. He was frequently interrupted by applause.

GEN. ALBERT G. MEYER,

("Old Probabilities"), Chief Signal Officer of the United States, was next introduced. After the applause incident to the appearance of the famous weather clerk, the General said:

I thank you for the kind invitation which has brought me before you. The name and fame of Madison have not been wholly unknown to me. By no city of which I have knowledge has its claims to the establishment of a station of observation of the signal service been more persistently urged; or, I am as glad as you to know it, with more success. That station established, the next step must be to make it useful for the farmers of the vicinity and of the state; and if the state and city are as true to themselves in the future as they have been in the past, that utility will surely come.

When setting out upon the journey of the thousand miles, which have brought us from the east to the far west, and east again to Madison, I had hoped to see something of the farmers — of their farming, and more of the character, make and lay of the land the farmer works over; I had wished to do so because it is a part of our duties, in which we have the strong support of our commander-in-chief, the president, to aid in every way the weather-work of the signal service, the full fruition of the farmer's labors. We have been more than gratified; we have found everywhere a commerce and an agriculture, and a country whose extent and character must be roughly seen, at least, to be appreciated.

There ought to be no labor more willingly bestowed than that in caring for such interests. But it is no part of my duty, nor am I here to make speeches. I must thank you again for the courtesy of your attention; and with good wishes for your success, I must close. [Cheers for "Old Prob.," and prolonged enthusiasm.]

MRS. HAYES

Was then taken by the hand by President Fratt, of the Agricul-

tural Society, and escorted to the front of the balcony, Mr. Fratt introducing her to the multitude as the "honored Lady of the White House." Cheers upon cheers rent the air as Mrs. Hayes bowed her acknowledgments on every hand. Indeed, Mrs. Hayes was the idol of the populace wherever she appeared during the day, and was followed and gazed at by admiring, cheering crowds.

The reception commenced at 8 o'clock in the assembly chamber, under the supervision of the governor, officers of State Agricultural Society, and the citizens' committee. The public entered through the east door, and up through the right hand lobby of the chamber, passing in front of the presidential party, who stood in front of a highly decorated screen at the west end, and going through the left corridor. The attendance was very large, it being sometimes necessary to close the doors until the chamber could be cleared; the president, who is a good judge of such affairs, says that fully 6,000 people passed in salutation before him.

The chamber and rotunda were decorated with flowers, evergreens and flags, while at the basement of the rotunda a fountain was in full spray. The east facade of the capitol was hung with Chinese lanterns, as were also the trees along the carriage way to the Main street gate. The Park Hotel, where the presidential party were stopping, was brilliantly illuminated, as were many of the business establishments along Main street.

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## ANNUAL ADDRESS.

Delivered on the Fair Grounds, September 6th, 1878.

BY HON. J. R. DOOLITTLE.

*Mr. President, Ladies and Gentlemen:*—It is only in the temperate zone that man reaches his highest and best condition.

In all ages, he has shown, in that zone, his greatest moral, intellectual and physical powers.

Under the influence of the changing seasons in that zone, man is neither enervated by the continual heats of summer, nor chilled and made almost torpid by the eternal snows and frosts of the Arctic regions. There is just winter enough to prepare and

strengthen both man and beast, and even the earth itself, for the work and activities of the genial spring, the fruitful summer and the ripening autumn.

It is only in that zone, and in that climate, that during his whole history man has shown himself capable of enjoying, and of maintaining civil and religious liberty; and enjoying and maintaining the best forms of civilization.

And, what is equally true, as the basis and support of that higher civilization, in that zone alone has been found the most perfect systems of agriculture.

Ladies and gentlemen, it is our good fortune to live in that zone; our ancestors for centuries have lived in it; and we ourselves, to-day, live in the very best part of it.

It is no fiction of fancy; it is no idle boast to say: that within one hundred miles from the spot where we now stand, a geographical center could be found, around which a circle could be drawn upon the earth's surface, with a diameter of five hundred miles — six hundred — aye — a thousand miles, to embrace a great country; a country which, for agricultural resources, has no equal on earth; in either temperate zone, north or south; in the old world or in the new; unless, possibly, it may be that portion of old China between its great rivers, the Hoang Ho, or Yellow river on the north, and the Yangste-Kiang, or Blue river on the south, in that wonderful land of the Celestials. There, perhaps, for a thousand years, an area on earth's surface of a thousand miles in diameter has produced more food for man than any other. There, population is counted by hundreds of millions. It is, in fact, so dense that every part of that land is cultivated almost like a garden. Across that fertile land and to connect those great rivers, the Yellow and the Blue river — is the greatest canal ever made by man — six hundred and fifty miles long, from two hundred to one thousand feet wide, and ten feet deep, with hundreds of lateral canals made for commerce and navigation.

Compared even with that wonderful land of China, I verily believe that the great area in our northwest embraced within the circle I have supposed, including the states of Michigan, Ohio, Indiana, Illinois, Iowa, Minnesota and Wisconsin, is fully its equal in agricultural resources. As by natural law population is limited only by the means of subsistence, the stupendous questions natur-

ally arise: whether, in some distant future, the population of these seven great states will reach 100,000,000; whether the time will come when Wisconsin, instead of one and a fourth millions, will have 10,000,000 or 15,000,000; and what must, then, be our system of agriculture, to enable the produce of the soil to feed, clothe and shelter them?

That time will not come in your day, or in mine, for the unsettled territories of the United States, for many years to come, will present too inviting temptations for our enterprising and ambitious youth to allow any such density of population. But it is, by no means, so distant as at first one might suppose.

Within the twenty-seven years I have lived among you, in Wisconsin, I have seen its population increase five-fold; rise from 250,000 to more than 1,250,000. I do not doubt, if the children of some here do not live to see it, their grand-children will see the seven great states I have named contain as many people as the whole United States now contain, and, it may be, twice as many.

Much depends, of course, upon the character of the people, and of the government under which they live, whether liberty shall be preserved, and whether scientific agriculture can exist, so that population may go on until it reaches its natural limit.

The history of other times, and of other countries, shows this. Let me refer to the great valleys of the Euphrates and of the Nile.

The Euphrates is the largest river of Western Asia. It is one of those mentioned in the holy book, which rise in the garden of Eden, and flowing southeasterly nearly a thousand miles, empties into the Persian Gulf. That valley was as fertile as our country is, and, by a most perfect cultivation, aided by canals for irrigation, it was made to sustain millions of human beings in the earliest civilization of which we have reliable history. The city of Babylon was built in that valley.

London is the great city of our day. Paris is a great city, New York is a great city, Chicago and St. Louis are great cities. But neither in size nor public works are they to be compared with Babylon. The walls of that city were three hundred and fifty feet in height, eighty feet thick, and sixty miles in length, in circumference about the city. The river Euphrates flowed through it,

under those walls. It was only by digging a new channel for that great river, that Cyrus the Great, King of Persia, after a siege of many years, captured it, by leading his army into the city through the old river bed, under its walls.

I mention these only to show how great must have been the power of that nation, which ruled the world for nearly 1400 years, of which Babylon was the capital; and to show how vast must have been the agricultural products of that valley in those days, to feed and support its population. And yet, in extent, natural fertility and resources, that valley, great as it was, by no means equals our own great northwest.

I refer once more to the history of the valley of the Euphrates to show another thing; a thing very sad and humbling to human pride, viz.: how the devastations of war and the wretched misrule of centuries have wasted that fertile region. Its canals are all destroyed; its cities buried in ruins, and almost forgotten; even Babylon so completely destroyed that its site could hardly be found. It was first conquered by the Persians, then by the Greeks, then by the Romans, afterwards by the Arabs, and then by the Turks, under whose wretched misrule it has been almost worthless to mankind. But, thanks to the recent congress at Berlin, it is now placed under the quasi-protectorate of Great Britain. That will enable her to build a railway from the eastern shore of the Mediterranean, opposite the island of Cyprus, to the Euphrates, and down that valley to the Persian Gulf, a result which I look upon as certain in the near future; because the same political necessities which compelled us, during our civil war, to build the Union Pacific railway, in order to cement more perfectly our Pacific empire fast to the Union, will constrain Great Britain to build such a railway; to bind to herself with still stronger bonds her East India empire. This, in the providence of God, may open the valley of the Euphrates to western ideas and to western agriculture, and withal to western and Christian civilization; the very essence of which is, in religion, to worship one God; in the family, to love and cherish one wife; and in politics, to ask for ourselves no rights which we do not willingly grant to all other men; in a word, to do unto others as we would have them do unto us. It may also lead to another thing; it may reopen Syria and the Holy Land, for the return, at last, of the Jews to their ancient

home, and thus complete that standing miracle upon earth which they have been and still are among the nations.

I mention only one more of the most famous agricultural lands in comparison with our northwest. I refer to the ancient land of Egypt, the valley of the Nile, the great river of northern Africa. Upon each side of that valley is a sandy burning desert. But within it for about 700 miles, the river overflows its banks every year, for about three months, from June to September. The extent of the overflow, upon an average, is only seven miles in width. As the waters subside, a deposit of rich slime and mud is left, not more than one-tenth of an inch in thickness, but of exceeding richness and fertility. The whole of that river bottom is composed of the deposits of centuries, and probably there is not, and never has been, upon earth, any lands capable of producing more. Its fertility to-day is as great as it was in the days of Pharaoh, 3,000 years ago. When the country fell under the sway of Rome, its fertility was so great, it not only fed the Egyptians, but it became the granary of Rome. Yet what is that valley with less than 10,000 square miles of fertile soil, though capable of producing a double crop, and a second crop by its artificial irrigation? What is that to be compared with these seven great and fertile states, with more than 300,000 square miles of fertile lands?

Ladies and gentlemen, I have called your attention to these things, not merely to show the importance of the northwest as a great food-producing country, but for the purpose of showing the necessity of a system of agriculture best adapted to maintain and to increase its further productions, without exhausting its fertility, to meet the wants of coming generations — to show, in a word,

#### THE NECESSITY OF SCIENTIFIC AGRICULTURE.

Do not understand by that, fancy farming, nor pedantic or book-farming, but the application of chemical truths and scientific research to the cultivation of the soil, and to the proper modes of tillage.

Fancy farming may be indulged in as a recreation by men with other means of support. Such men may pride themselves on it, and claim to be model agriculturists. They are not true farmers. Perhaps the distinction between one of these fancy agriculturists and a genuine farmer was never better defined than by the brilliant

and witty wife of one of them, not long ago, to Dr. Smith, of Racine. The doctor was known to her as a girl, and was at her marriage in Ohio, some ten or fifteen years before. After her marriage they removed to Illinois, and prospered. She was making her first visit at the doctor's at Racine. After a little, the doctor asked her how they were getting on in the world? She smiled and said, "We are getting on very well." This general answer did not quite satisfy the doctor's curiosity, and he plumply asked, "What business is your husband engaged in?" "He is an agriculturist!" she replied. "An agriculturist!" repeated the doctor, still unsatisfied. "I see, doctor," said she, "you do not understand what I mean by an agriculturist. Perhaps you do not know the difference between an agriculturist and a farmer. I will tell you. A farmer is a man who puts one dollar on his land and takes three dollars off, while an agriculturist is one who puts three dollars on and takes only one off!"

Editors, preachers and lawyers may be agriculturists. They seldom make good farmers. Horace Greeley, Henry Ward Beecher, William M. Evarts, and the like, are agriculturists. They put three — say five — dollars on, to every dollar they take off their land. Mr. Greeley said every pound of his butter cost a dollar, and his eggs cost more than a dollar a dozen. Men in other pursuits, with large salaries or revenues, may make fancy farming a luxury, a plaything, a recreation, but that is not real farming, nor worth consideration by farmers.

Yet there is another extreme of ignorant and parsimonious farming. It grows out of a prejudice against book farming, and is equally to be avoided by the intelligent farmer of our day. How much the world is indebted to the science taught in books by agriculture is almost beyond calculation. The book on agriculture by Lord Kames, called "The Gentleman Farmer," worked a revolution in the farming of Scotland in forty years. When he wrote that book, the science of farming was low, indeed. Their draught horses were miserable creatures, without strength or mettle; their oxen were scarcely able to bear their own weight — two going on a plow led by two horses; the ridges in the field, high and broad; in fact, enormous masses of accumulated earth that could not admit of cross plowing or cultivation; shallow plowing universal; ribbing, by which half the land was untilled, was a general practice over

the greater part of Scotland; a continual struggle between weeds and corn for superiority; the roller almost unknown; no harrowing before sowing, and the seed sown broadcast into rough and uneven ground, where half of it was buried; no branch of husbandry less understood than manure; potatoes generally planted in lazy beds; swine but little attended to, and a very few farms in Scotland proportioned to the skill and ability of the tenant.

But in forty years that whole system was changed, and, with hardly an exception, all these imperfections were removed. But during those forty years, this book of Lord Kames and other books upon agriculture were extensively circulated and read among the farmers of Scotland.

So, too, the scientific works and experiments of Jethro Tull, Arthur Young and Sir Humphrey Davy, in England, made a similar revolution there, and brought the science of chemistry to lend its aid to the great subject of agriculture. By means of that scientific knowledge, soils which for centuries in England had been devoted to wheat, and, under the old system, produced only six bushels, have been made under the guiding hand of scientific agriculture, to produce, on the average, eighteen bushels to the acre. So that the actual productive power of Great Britain, in the article of wheat alone, increased from 1801 to 1851, to the extent of supporting an additional population of 7,000,000; and that great result is to be ascribed (according to high authority) mainly to improved cultivation that comes from the application of science to agriculture. The same thing may be seen in our own country, and justifies all the expenditures made in the support of agricultural scientific schools, and especially of the science of chemistry as applied to agriculture.

Some good maxims were taught by the ancients. The Greeks and Romans had many works upon agriculture. Among the Greeks, of those that have come down to us, one of the best is a treatise by Zenophon, the historian and general. The Romans not only had works of their own, but borrowed from the Carthaginians. They caused to be translated into their language twenty-eight books of Mago, on agriculture. Among the Romans, farming was the most honorable of all callings. The famous Cincinnatus, who was called from his farm to lead the armies of the republic in time of war, was a practical farmer. But how many acres do you think he had in

his farm? Only seven. Be not surprised at that, for in that early day only seven acres of the public domain was assigned to each citizen for cultivation. He could have no more. Each citizen cultivated his farm with his own hands and those of his children. But in the late time when they made slaves of their captives in war, and conquered other territory, they cultivated their lands with slaves. But for a long time after that, even, no citizen was allowed to have over fifty acres. But at last, when slavery and the love of money had completely undermined the old republican ideas; when they were enervated by luxury, and could no longer work with their own hands; and when the love of liberty had given place to avarice and the love of power, they were allowed to hold estates of 500 acres.

You have all read of old Cato, the Roman senator. He was not only a senator, a true republican, but also a farmer. He wrote a book upon farming. "Our ancestors," said Cato, "regarded it as a grand point of husbandry, not to have too much land in one farm, for they considered that more benefit came by holding little and tilling it well." Virgil says — and that was after the empire had begun — "the farmer may praise a large estate, but let him cultivate a small one." And Curius, the Roman orator, went so far as to say: "He was not to be counted a good citizen, but rather a dangerous man to the state, who could not content himself with seven acres of land." But that was in the warm climate of Italy; any such small land limitation would not be applicable to more northern latitudes, and to a country and to a people like ours. And yet the time will come, if it has not already come, when monopoly of the public lands must be prohibited, not only to railway corporations but to all associations and individuals. Let me call attention to one or two instances of the monopoly of the public lands by individuals, to arrest public attention.

The Dalrymple farm in the Red River Valley of the north, embraces 100,000 acres on which over 13,000 acres of wheat were harvested this year. There is something to admire, something grand in such a vast tract of land, with a force of four hundred men, five hundred horses and mules, eighty broadcast seed sowers, a hundred and sixty fourteen-inch plows, two hundred steel pointed harrows, eighty self-binding reapers, fifteen forty-inch threshers and cleaners, all in movement under the control of one man, who commands

and organizes the whole like an army. Just think of one man turning off 325,000 bushels of wheat from a single farm, in a single year, and promising soon to raise that a million. But what is this after all but a vast land monopoly? A monopoly of the soil, whose direct tendency, in the end, is to produce great landlords on the one hand and practical serfs on the other.

In 1865 I was chairman of a joint committee of the two houses of congress to examine into Indian affairs. We went to New Mexico. We there saw a gentleman, Mr. Maxwell, who, by inheritance through his wife, of Spanish descent, and by purchase, became the possessor of a great Spanish grant. It contained hundreds of thousands of acres; more land, perhaps, than the whole of Dane county. It was indeed a lordly estate. He could look on his thirty or forty thousand acres, cultivated upon shares, he furnishing land, water, seed and teams for 250 New Mexicans, receiving half of the crop or produce of the land for his share, and feel that he was a prince in his domain. The mountains owned by him were filled with mines, also. To see his flocks of 40,000 sheep, 3,000 cattle and 500 horses was a grand sight. But, certainly, such a land system is not congenial to republican ideas, to the equal rights of men, and cannot be permitted to last without, in the end, producing an oppressive land monopoly.

This question of the land laws is looming up, in England, where all the small farms have been absorbed into the large landed estates, so that a few thousand men now own all the lands in England, Scotland and Ireland, where the great mass are mere tenants, peasants or paupers. It is not my purpose to dwell upon this subject, nor to discuss the limitations which should be placed upon the monopolies of the public lands. I will dismiss the subject, after a passing notice of two other of the most remarkable instances of land monopoly in this or any other country. The Astor estate, in the city of New York, for many years, has been controlled by the fixed and far reaching policy of its founder. The expenses of supporting all its owners consumes but a trifle of its income. That policy is: never to sell one foot of ground; always to buy, build and rent; from the rents to pay taxes, buy other lands, build and rent other houses with the ever increasing surplus. That policy, pursued for a hundred years in the future, as it has been in the past, will absorb the best portions of New York city. The

Vanderbilt will transferred to the control of one man a hundred millions of the best real estate on this continent or in the world. A strip of land two hundred feet in width, from the heart of New York through all the most populous cities and towns and counties of the state of New York, to Lake Erie; thence on both sides of that lake through Ohio, Canada, Michigan, Indiana and Illinois to the city of Chicago; a real estate the most valuable, the most princely and royal of any other; for, by his own single will, he can levy tolls upon all freight and passengers going over it; and, by his power over competing lines, he can fix almost at will those tolls — a power, a sovereignty, a lordship over the soil, and over the transportation of men and property which no prince or potentate in Europe can to-day, of his own individual will, exercise. But some railroad attorney may say that he does not own any real estate — he owns nothing but shares of stock in railroad companies, mere personal property, which passes by delivery like a note of hand. That is more fanciful than real. That is mere legal fiction. When we look this matter squarely in the face, railroads are *real estate*; the most solid kind of real estate; real estate obtained by exercising, in the name of the state, the power of eminent domain over the soil; real estate with more royal franchises, consisting of the monopoly of transporting freight and passengers over it by steam engines on iron or steel rails, and of levying tolls upon them.

So great are the annual gains of the Vanderbilt road that every year he can buy a new railway of 250 miles in length, fully equipped. Ten years may extend his lines to the Pacific, and put into his hands more power over passengers and property, and over the commerce of the country, than any monarch in Europe wields in his own right. Do not understand me as complaining of Mr. Vanderbilt. He is no more selfish, no more ambitious, no more grasping than other men. He is only carrying out to its final results the plan matured by his father, who, in many respects, was one of the ablest men who has ever appeared in the United States. I call attention to it as a great and startling fact — as one which will, in the end, bring up for discussion the true solution of the railroad problem and the whole question of land monopoly in this country.

Fellow-citizens, after it was announced that I was to deliver the address on this occasion, a friend of mine desired me to answer the

great and pressing question of the present moment, viz: What caused and still continues the panic and depression of 1873? and what is the remedy? As I entertain no opinion upon any public question which I desire to conceal, I will, so far as I can, without entering into a discussion of what might be regarded as a party question, with all due respect to the opinions of others, frankly answer that question; for it is undoubtedly the most important and most pressing question now in the minds of all thoughtful men.

First of all, I answer :

THE CAUSE OR CAUSES IS WAR.

The waste of values and property in our civil war, from 1861 to 1865; in the Franco-Italian war with Austria; in the war between Germany and Austria; and in the war between Germany and France, is beyond all computation. When you add to all this the loss of the labor of the millions of able-bodied men engaged in these wars — in the business of killing each other, and in consuming and destroying — the whole taken together, I have no doubt, is equal to one-fourth of all the accumulated capital of this country, if not of the civilized world, outside of England, who did not engage in them. I know the time has been when one would hardly dare to say that, expecting to find many men who would believe it. I have heard men so crazed that even in the senate of the United States they would stand up and say, the country never prospered so much as it did during the civil war. It was the wildest of all delusions; the dreams of imaginations intoxicated with military glamour and military glory. But the time has come at last, when thoughtful men not only realize but are willing to proclaim this awful truth: that during the wars of ten years, from 1861 to 1871, waged among civilized states, at least one-fourth of the reserved capital of this country, and perhaps even of the civilized world, outside of England, was wasted, sunk and destroyed. I repeat, in my opinion the cause or causes is war, war. War between other nations, and civil war among ourselves. Besides that chief cause there other causes for that depression, set in operation by war, both here and in other countries — most potent and direct causes. Let me state some of them. The inflation of prices caused by the expansion of paper currency, which followed the change from a coin to a paper standard of value, for all sales and for all

contracts. The creation upon that standard of vast debts, both national, state, city, corporate, railway and individual debts, secured by mortgage to an amount, as stated upon high authority, of \$812,000,000,000 in this country alone. The excessive building of railways; of probably more than 10,000 miles that do not pay. The forced and sudden payment by France to Germany of \$4,000,000,000 war indemnity, which produced there a most unnatural glut of money, followed by the expansion of prices and the most reckless and insane speculation in all species of property, real and personal; and followed, also, by the most unwise and most dangerous of all, the demonetization of silver as money by Germany, the Scandinavian states, and by the United States; a policy which sought to destroy, and came very near destroying, half the specie money of the world, and thereby of adding fifty per cent. to the burden of all debts, public and private. Add to these the potent and real but more remote causes, the act of congress of March, 1869, providing for the payment of \$1,700,000,000 of bonds, which, under the act issuing them, were currency bonds, in coin only, sent them abroad to pay the balances running against us, for which we received in return, during the years 1869, 1870, 1871 and 1872, in the main, silks and diamonds and articles of dress, luxury and extravagance manufactured abroad. And not among the least important, the long continued military rule, carpet-bag robbery, corruption and demoralization of the states of the south, at last so happily terminated by President Hayes.

The reckless extravagance for years of so many people at the north in their business, in their houses and in their living. Above all, the appalling fact that since the war closed in 1865, over \$5,000,000,000 has been collected from our people in federal taxes upon consumption; all that enormous sum, nearly equal to two-thirds of all the money of the world, having been wrung from them in taxes upon what they eat, drink and wear and consume. That besides what has gone into the federal treasury, thousands of millions more have been wrung from them to fill the pockets of special classes; the favored few in whose interests the laws are made. And bear in mind that all these vast sums our people have been compelled to pay, not in proportion to their wealth and their ability to pay, but in proportion to the mouths they feed and the backs they clothe. Bear all these things in mind, and you have a

pretty full answer to the question as to what caused and made so severe the depression of 1873. I do not say there are no other causes which have added to it and intensified it. But I cannot speak of those, without entering upon subjects upon which men and parties are now divided, and upon which they earnestly differ. While elsewhere, and on other occasions, I have not withheld but have frankly stated my opinions upon them, I would by no means do so here, and on this occasion enter upon the discussion of any party question. I speak to-day to men of all parties and upon subjects above mere party questions, in which all have a common interest, and in the main all are agreed.

I have, therefore, purposely refrained from speaking of the effects of the steps taken since 1873 to change back from the paper standard of value to the coin standard, or to discuss the best and wisest means of reaching our true normal condition in monetary affairs, when all our paper currency shall be equal in value to the money of the constitution, gold and silver coin; a condition which nine-tenths of all parties, republicans and democrats, nationals and greenbackers, really desire to reach, in the proper way and at the proper time, differing only as to the questions of time, mode and means of going there, upon which questions men differ widely, but in that difference are equally honest and equally earnest.

And now, in conclusion, a few words in answer to the no less important question, What is the remedy? In answering that, I shall only go so far as I may, without entering upon the discussion of party questions. And first of all, as the most sovereign cure for all, I would say, let us have peace and not war; not only peace between the north and the south, but peace with Mexico, and peace with all other nations, and peace among all nations. So far as possible, let us, as a nation, do all in our power to bring about that better era when international controversies shall be settled by arbitration and not by arms; when swords shall be beaten into ploughshares, and the nations shall learn to war no more. Instead of reckless extravagance, let us have economy; economy in living; economy in our houses; economy in our business; economy in public life; economy in town, county, city, state and federal administrations. If left to me, I would say: Instead of high protective tariffs, which, under pretext of putting money in the treasury, rob the many for the few, give us tariffs for revenue, resting

lightly upon articles of necessity; the lighter the better. Instead of laying the whole burden of federal taxation, as at present, upon consumption, which is no more nor less than a tax on living, or in other words a tax on life itself, let a fair proportion be raised by a graduated income tax upon the larger incomes, because the smaller incomes, being mainly consumed in the expense of living, are sufficiently saved upon the articles consumed; and because that is the only possible way in which the large incomes from interest on government bonds can be made to pay any proportion of the taxes, without violating the public faith.

And looking to the great future, and the millions upon millions to come after us, let us all take proper measures to restrict any monopoly in the public lands by corporations or by individuals; and also to prevent, by constitutional limitations, the future creation of enormous and lordly estates in lands or in railways; for, of all the aristocracies upon earth, there is none so dangerous or corrupting in a republic as a shoddy aristocracy — the aristocracy of money, whose ruling motive is avarice, whose worship is at the shrine of mammon, and whose god is gold. As the best and surest preventive of such an aristocracy, let us encourage a land system, and a system of agriculture which shall preserve the soil forever in the hands of millions of independent farmers, who will cultivate it with their own hands, and with their own children; and not a system where, as in England, a few landlords own all the lands, and the mass occupy them as tenants, menials, servants and hirelings, from generation to generation. Let us preserve a true land system and cherish a true system of scientific agriculture, and, above all, with it make the homestead and family the unit of our social and political life; and in order to give that unit its just power in the state, if left to me, I would give to each head of a family occupying a homestead, a double vote; one to represent him as a man, and the other to represent his family. With such safeguards our republic would be placed upon a solid basis. It would, in my opinion, last forever.

## PREMIUMS AWARDED.

### DEPARTMENT A — HORSES.

#### CLASS 1 — *Roadsters.*

Best stallion 4 year old and over, fourteen exhibits, C. Royce, Columbus	\$20 00
Second best, G. D. Doubleday, Whitewater	10 00
Best stallion 3 years and under 4, H. A. Phillips, Sun Prairie	15 00
Best stallion 2 years and under 3, three exhibits, M. P. Wheeler	8 00
Second best, R. Jones, Raymond	4 00
Best stallion 1 year and under 2, three exhibits, Hugh Williams	5 00
Second best, G. J. Morgerum, Madison	3 00
Best sucking stallion foal, second premium, Hugh Williams	2 00
Best brood mare 4 years and over, five exhibits, with foal by her side, Hugh Williams, Racine	15 00
Second best, F. D. Fuller, Madison	7 00
Best filly 3 years and under 4; second best, G. W. Comstock, Syene	6 00
Best filly 2 years and under 3, A. J. Story, Oregon	8 00
Second best, W. W. Waldron, Syene	4 00
Best filly 1 year and under 2, three exhibits, C. L. Comstock, Oregon	5 00
Second best, J. S. Hawks, Madison	2 00
Best sucking filly foal, F. D. Fuller, Madison	5 00
Second best, F. C. Curtiss, Rocky Run	2 00

#### CLASS 2 — *Horses for Agricultural Purposes.*

Best stallion 4 years old and over, fourteen exhibits, Albert Chapman, McFarland	\$20 00
Second best, M. M. Green, Oregon	10 00
Best stallion 3 years old and under 4, six exhibits, J. H. Gainey, Paoli	15 00
Second best, Reuben Boyce, Brooklyn	7 00
Best stallion 2 years old and under 3, eight exhibits, W. M. Colladay, Stoughton	8 00
Second best, J. Melvin, Dunn	4 00
Best sucking stallion foal, Wm. Holm, Verona	4 00
Second best, H. C. Gray, Oregon	2 00
Best brood mare 4 years old and over, with foal by her side, six ex- hibits, Aaron Myers, Verona	15 00
Second best, H. C. Gray, Oregon	7 00
Best filly 3 years old and under 4, five exhibits, Aaron Myers	12 00
Second best, A. J. Story	6 00
Best filly 2 years and under 3, eight exhibits, R. Colwell, Dixon	8 00
Second best, W. C. Hugunin, Janesville	3 00
Best filly 1 year and under 2, seven exhibits, Aaron Myers	5 00
Second best, Geo. Barber	5 00
Best sucking filly foal, Aaron Myers	5 00
Second best, L. Meisch	2 00
Best stallion and five colts, A. J. Story	25 00

CLASS 3 — *Draft Horses, Norman.*

Best stallion 4 years old and over, eight exhibits, E. D. Holton, Milwaukee .....	\$20 00
Second best, Thomas Bowles .....	10 00
Best stallion 3 years and under 4, J. A. Gilman, Sparta .....	15 00
Filly 3 years and under 4, H. A. Hawlett, second .....	6 00

CLASS 4 — *Draft Horses, Clydesdale and Others.*

Best stallion 4 years old and over, four exhibits, G. J. Morgerum .....	\$20 00
Second best, Wm. Porter .....	10 00
Best stallion 3 years and under 4, three exhibits, R. T. Pember .....	14 00
Second best, Mark Irwin, Dayton .....	7 00
Best stallion 2 years and under 3, Robert Ogilvie, Madison .....	8 00
Second best, Aaron Myers .....	4 00
Best stallion 1 year and under 2, four exhibits, Joseph O'Malley, Waunakee .....	6 00
Second best, H. A. and J. E. Cowice, Verona .....	3 00
Best brood mare 4 years old and over, with foal by her side, three exhibits, Robt. Ogilvie, Madison .....	15 00
Second best, John Rutherford, Verona .....	7 00
Best filly 3 years old and under 4, three exhibits, R. Boyce, Brooklyn .....	12 00
Second best, R. Boyce .....	6 00
Best filly 2 years and under 3, ten exhibits, Robt. Ogilvie .....	8 00
Second best, R. Boyce .....	4 00
Best sucking filly foal, three exhibits, Robt. Ogilvie .....	4 00
Second best, Aaron Myers .....	2 00
Best stallion and five of his colts, three exhibits, Robert Ogilvie, Madison .....	25 00

CLASS 5 — *Matched Horses and Mares.*

Best pair carriage horses or mares, not less than 15½ hands high, ten exhibits, M. Foley, Madison .....	\$20 00
Second best, W. A. De La Matyr, Madison .....	10 00
Best pair roadsters, fifteen exhibits, Geo. Malony, Sun Prairie .....	20 00
Second best, C. R. Clark, Blooming Grove .....	10 00
Best pair Normans, two exhibits, L. Birdsey, Columbus .....	20 00
Best pair Clydes, three exhibits, Robert Ogilvie .....	20 00
Second best, J. C. Kiser, Oregon .....	10 00

CLASS 6 — *Geldings or Mares for single harness.*

Best gentleman's roadster for single harness 4 years old and over, twenty-three exhibits, P. B. Doane .....	\$20 00
Second best, P. Peterson, Utica .....	10 00
Special premium by Hon. M. Anderson for best draft stallion and three mares of same breed, all the property of exhibitor, R. Boyce, Brooklyn .....	50 00

## LADIES' EQUESTRIANISM.

First premium, Miss Julia Monks, Fitchburg .....	\$50 00
Second premium, Miss Sarah Smith, Burke .....	40 00
Third premium, Miss Emma McKenna, Fitchburg .....	30 00

CLASS 7 — *Horses for Speed.*

TROTTING — TIME, 2:55 — PURSE, \$300.

First premium, G. D. Doubleday, "Resolute".....	\$150 00
Second premium, C. B. Fuller, "James Lupe".....	100 00
Third premium, S. Drakely, "Little Dick".....	50 00

RUNNING — MILE HEATS — PURSE \$250.

First premium, G. G. Marlow, "G. M. McMahon".....	\$125 00
Second premium, Wm. Butcher, "Jim Murphy".....	75 00
Third premium, John Tomlinson, "Big Indian".....	50 00

TROTTING — TIME, 2:35 — PURSE \$300.

First premium, S. Drakely, "Little Frank".....	\$150 00
Second premium, H. H. Greenman, "Whitewater Belle".....	100 00
Third premium, C. B. Fuller, "James Lupe".....	50 00

RUNNING — MILE HEATS — CONSOLATION PURSE, \$100.

First premium, Wm. Butcher, "Jim Murphy".....	\$50 00
Second premium, Wm. Wells, "Big Indian".....	30 00
Third premium, G. W. Chanly, "Chestnut Oaks".....	20 00

RUNNING — HALF-MILE HEATS — PURSE, \$150.

First premium, Wm. Butcher, "Allie Mc".....	\$75 00
Second premium, C. Boyce, "Larus".....	50 00
Third premium, W. L. Wells, "Red Rover".....	25 00

DEPARTMENT B — CATTLE.

CLASS 8 — *Short-horns.*

Best bull 4 years old and over, six exhibits, Ogilvie & Curtis, Madison,	\$25 00
Second best, Eli Stilson, Oshkosh.....	15 00
Best bull 3 years and under 4, four exhibits, George Harding, Waukesha.....	25 00
Second best, E. and J. Smith, Rochester.....	15 00
Best bull 2 years and under 3, eight exhibits, Eli Stilson.....	25 00
Second best, J. C. Kiser, Oregon.....	15 00
Best bull one year old and under 2, six exhibits, Ogilvie & Curtis.....	25 00
Second best, George E. Bryant and Allen Brasee, Madison.....	15 00
Best bull calf over 6 months and under 1 year, eleven exhibits, Eli Stilson.....	10 00
Second best, Eli Stilson.....	6 00
Best bull calf under 6 months, eight exhibits, Ogilvie & Curtis.....	10 00
Second best, J. C. Kiser.....	6 00
Best cow 4 years old and under, seventeen exhibits, Ogilvie & Curtis.....	20 00
Second best, J. C. Kiser.....	10 00
Best cow 3 years and under 4, seven exhibits, Eli Stilson.....	20 00
Second best, J. C. Kiser.....	10 00

Best heifer 2 years and under 3, six entries, Eli Stilson.....	\$20 00
Second best, J. C. Kiser .....	10 00
Best heifer 1 year and under 2, fourteen exhibits, Ogilvie & Curtis...	20 00
Second best, Ogilvie & Curtis .....	10 00
Best heifer calf 6 months and under 1 year, thirteen exhibits, Ogilvie & Curtis.....	10 00
Second best, Ogilvie & Curtis.....	5 00
Best heifer calf under 6 months, nine exhibits, E. and J. Smith.....	10 00
Second best, J. C. Kiser.....	5 00

CLASS 9 — *Devons.*

Best exhibition, not less than five head, eight exhibits, Luther Rawaan, Oak Creek.....	\$60 00
Second best, A. Homistan .....	40 00
Third best, Hiram Gooden, protested.	

CLASS 10 — *Ayrshires.*

Best bull 3 years old and over, C. Hazen, Ladoga.....	\$20 00
Second best, J. Johnson, Hartland.....	10 00
Best bull 2 years old and under 3, Allen Stetson, Rochester.....	20 00
Best bull 1 year and under 2, three exhibits, Jos. Johnson .....	20 00
Second best, C. Hazen .....	10 00
Best bull calf over 6 months and under 1 year, Joseph Johnson.....	10 00
Second best, Joseph Johnson .....	5 00
Best bull calf under 6 months, three exhibits, C. Hazen.....	10 00
Second best, Joseph Johnson.....	5 00
Best cow 3 years old and over, ten exhibits, Joseph Johnson .....	15 00
Second best, C. Hazen.....	10 00
Best heifer 2 years and under 3, six exhibits, C. Hazen.....	15 00
Second best, C. Hazen.....	10 00
Best heifer, 1 year and under 2, nine exhibits, C. Hazen, Ladoga....	15 00
Second best, Joseph Johnson .....	10 00
Best heifer calf over 6 months and under 1 year, four exhibits, Chester Hazen.....	6 00
Second best, Joseph Johnson .....	3 00
Best heifer calf under 6 months, six exhibits, C. Hazen.....	6 00
Second best, Joseph Johnson.....	3 00

CLASS 11 — *Jerseys.*

Best bull 3 years old and over, three exhibits, Geo. E. Bryant, Madison.	\$20 00
Second best, N. N. Palmer, Spring Valley.....	10 00
Best bull 2 years old and under 3, Geo. E. Bryant, Madison .....	20 00
Best bull 1 year old and under 2, three exhibits, Ed. King, Whitewater	20 00
Second best, J. C. Philpot, Burke .....	10 00
Best bull calf over 6 months and under 1 year, Geo. E. Bryant, Madison .....	10 00
Best bull calf under 6 months, four exhibits, N. N. Palmer .....	10 00
Second best, Geo. E. Bryant, Madison .....	5 00
Best cow 3 years old and over, eight exhibits, Geo. E. Bryant, Madison	15 00
Second best, Geo. E. Bryant .....	10 00
Best heifer 2 years old and under 3, Geo. E. Bryant .....	15 00
Second best, N. N. Palmer.....	10 00
Best heifer 1 year and under 2, three exhibits, Geo. E. Bryant.....	15 00
Second best, Geo. E. Bryant.....	10 00
Best heifer calf over 6 months and under 1 year, Geo. E. Bryant .....	6 00
Second best, N. N. Palmer.....	3 00

Best heifer calf under 6 months, five exhibits, Geo. E. Bryant, Madison .....	\$6 00
Second best, N. N. Palmer, Spring Valley.....	3 00

CLASS 12 — *Galloways.*

Best exhibition, not less than five head, Peter Davy, Ashippan .....	\$40 00
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CLASS 13 — *Grade Short Horn.*

Best cow 3 years old and over, five exhibits, E. & J. Smith, Rochester...	\$15 00
Second best, E. & J. Smith.....	10 00
Best heifer 2 years and under 3, four exhibits, A. Abby, Madison....	15 00
Second best, Phin. Baldwin, Brooklyn.....	10 00
Best yearling heifer, five exhibits, Wm. C. Kiser, Syene .....	15 00
Second best, Wm. C. Kiser.....	10 00
Best heifer calf over 6 months and under 1 year, E. & J. Smith.....	6 00
Best heifer calf under 6 months, four exhibits, J. E. Owens, Brooklyn	6 00
Second best, E. & J. Smith .....	3 00

CLASS 14 — *Grade Jerseys.*

Best cow 3 years old, Edward King .....	\$10 00
Second best, E. King.....	7 00
Best heifer two years and under 3, three exhibits, John Hayes, Madison	10 00
Second best, E. King .....	5 00
Best yearling heifer, seven exhibits, E. King.....	10 00
Second best, F. M. Vilas, Madison .....	5 00

CLASS 15 — *Grade Ayrshires.*

Cow 3 years and over, second premium, J. J. Tchudy, Monroe.....	\$5 00
Best heifer 2 years and 3 years, Allen Stetson.....	10 00
Second best, J. J. Tchudy.....	6 00
Yearling heifer, second premium, J. J. Tchudy.....	5 00

CLASS 16 — *Working Oxen.*

Best pair working oxen, John Sprecher, Madison.....	\$20 00
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CLASS 17 — *Holsteins.*

Best exhibition, not less than five head, P. W. Laramy, Beloit .....	\$40 00
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CLASS 18 — *Herds.*

SHORT HORNS.

Best bull and four cows or heifers over 2 years old, Ogilvie & Curtis, Madison .....	\$80 00
Second best, Wm. Kiser, Syene.....	50 00

## AYRSHIRES.

Best bull and four cows or heifers over 2 years old, Chester Hazen, Ladoga .....	\$50 00
Second best, Jos. Johnson.....	30 00

## JERSEYS.

Best bull and four cows or heifers over 2 years old, N. N. Palmer....	\$50 00
Second best, G. E. Bryant.....	30 00

## SWEEPSTAKES.

Best bull of any age, eighteen exhibits, Eli Stilson, Oshkosh.....	\$50 00
Second best, Ogilvie & Curtis, Madison.....	30 00
Best cow or heifer of any age, twenty-two exhibits, Ogilvie & Curtis, Madison.....	40 00
Second best, Ogilvie & Curtis .....	20 00
Best cow and three of her calves, seven exhibits, owned by exhibitor, William C. Kiser, Syene, silver plate.....	40 00
Best bull and three of his get, owned by exhibitor, nine exhibits, Eli Stilson, Oshkosh, silver plate.....	40 00
Best bull and four heifers under 2 years, seven exhibits, Ogilvie & Curtis, Madison.....	80 00
Second best, George E. Bryant and A. Brasee, Madison.....	50 00
Best four calves bred and owned by exhibitor, eight exhibits, Eli Stil- son, Oshkosh .....	40 00
Second best, E. and J. Smith, Rochester .....	30 00

## DEPARTMENT C — SHEEP.

CLASS 19 — *American Merinos.*

Best buck 2 years old and over, eight exhibits, John Paul, Genesee..	\$20 00
Second best, O. Cook, Whitewater.....	10 00
Best buck 1 year old and under 2, seven exhibits, George M. Everhard, Kenosha.....	15 00
Second best, Crawford and Whitman .....	10 00
Best pen of three buck lambs, six exhibits, J. H. Paul.....	10 00
Second best, Crawford and Whitman.....	5 00
Best pen of three ewes, 2 years and over, seven exhibits, J. H. Paul.	20 00
Second best, Crawford and Whitman.....	10 00
Best pen of three ewes 1 year and under 2, five exhibits, J. H. Paul..	15 00
Second best, O. Cook .....	10 00
Best pen of three ewe lambs, seven exhibits, Crawford and Whitman.	10 00
Second best, J. H. Paul.....	5 00
Best exhibition, J. H. Paul, diploma.	

## SWEEPSTAKES.

Best buck and his cleansed fleece, with ten of his get, J. H. Paul. sil- ver plate.....	\$15 00
Second best, Crawford and Whitman, silver plate.....	10 00

CLASS 20 — *Long Wool.*

Best buck 2 years and over, seven exhibits, J. O. Malley, Waunakee..	\$20 00
Second best, Geo. Harding, Waukesha.....	10 00
Best buck 1 year and under 2, six exhibits, J. O. Malley.....	15 00
Second best, Jerome Bixby.....	10 00
Best pen of three buck lambs, ten exhibits, Arthur Fox, Oregon.....	10 00
Second best, J. O. Malley.....	5 00
Best pen three ewes 2 year and over, nine exhibits, J. O. Malley.....	20 00
Second best, Geo. Harding.....	10 00
Best pen of three ewes 1 year and under 2, eight exhibits, J. O. Malley	15 00
Second best, Geo. Harding.....	10 00
Best pen of three ewe lambs, eight exhibits, J. O. Malley.....	10 00
Second best, Geo. Harding.....	5 00

CLASS 21 — *Downs.*

Best buck 2 years and over, four exhibits, L. Baker, Waunakee.....	\$20 00
Second best, Geo. H. Daubner, Brookfield.....	10 00
Best buck 1 year and under 2, three exhibits, Geo. H. Daubner.....	15 00
Second best, Geo. H. Daubner.....	10 00
Best pen of three buck lambs, five exhibits, Geo. H. Daubner.....	10 00
Second best, Luther Rawson, Oak Creek.....	9 00
Best pen of ewes, 2 years old and over, eight exhibits, George H. Daubner.....	20 00
Second, L. Rawson.....	10 00
Best pen of ewes, 1 year and under 2, six exhibits, Geo. H. Daubner..	15 00
Second, L. Rawson.....	10 00
Best pen of ewe lambs, five exhibits, Geo. H. Daubner.....	10 00
Second, Geo. H. Daubner.....	5 00
Best exhibition of sheep, Geo. H. Daubner, Brookfield, diploma. /	

## DEPARTMENT D — SWINE.

## LARGE BREEDS.

Best boar 2 years and over, nine exhibits, D. Mosher, Beloit.....	\$15 00
Second best, R. W. Brown, Utica.....	10 00
Best boar 1 year and under 2, ten entries, R. W. Brown.....	10 00
Second best, F. Smith, Brooklyn.....	9 00
Best breeding sow 2 years and over, twelve entries, D. Mosher.....	15 00
Second, R. W. Brown.....	10 00
Best breeding sow 1 year and under 2, fourteen entries, B. S. Fowler, Heart Prairie.....	10 00
Second best, S. Hook, Sr., Brooklyn.....	5 00
Best breeding sow and 4 pigs, five entries, Geo. Wylie, Leeds.....	15 00
Second best, E. Wait & Son, La Grange.....	10 00
Best boar pig over 6 months and under 1 year, six exhibits, R. W. Brown, Utica.....	8 00
Second, M. B. Humes, Monroe.....	4 00
Best sow pig over 6 months and under one year, ten exhibits, R. W. Brown.....	8 00
Second best, R. Boyce, Brooklyn.....	4 00
Best boar pig under 6 months, forty exhibits, R. W. Brown.....	8 00
Second, Hook Brothers, Brooklyn.....	4 00
Best sow pig under 6 months, thirty-seven exhibits, R. W. Brown.....	8 00
Second best, B. S. Fuller, Heart Prairie.....	4 00

## SWINE—BERKSHIRES.

Best boar 2 years old and over, James Magson, Walworth.....	\$15 00
Second best, Wm. Ogilvie, Verona .....	10 00
Best boar 1 year and under 2 years, two exhibits, John E. Owens, Brooklyn.....	10 00
Second best, James Magson .....	5 00
Best sow 2 years and over, three exhibits, Wm. Ogilvie.....	15 00
Second best, Allen Stetson, Rochester .....	10 00
Best breeding sow 1 year and under, three exhibits, Allen Stetson....	10 00
Second best, James Magson .....	5 00
Best breeding sow with 4 pigs, James Magson .....	15 00
Second best, John E. Owens, Brooklyn.....	10 00
Best boar pig over 6 months and under 1 year, four exhibits, Wm. Ogilvie .....	8 00
Second best, James Magson .....	4 00
Best sow pig over 6 months and under 1 year, six exhibits, A. H. West, Madison .....	8 00
Second best, James Magson.....	4 00
Best boar pig under 6 months, six exhibits, A. H. West .....	8 00
Second best, James Magson .....	4 00
Best boar pig under 6 months, sixteen exhibits, A. H. West, Madison.	8 00
Second best, Arthur Fox, Oregon.....	4 00
Best sow pig under 6 months, thirteen exhibits, Wm. Ogilvie .....	8 00
Second best, F. D. Fuller, Madison .....	4 00

## SMALL BREEDS SWINE.

Best boar 2 years and over, S. H. & A. E. Joiner, Janesville .....	\$15 00
Second best, S. H. & A. E. Joiner, Janesville .....	10 00
Best boar 1 year and under 2, T. J. Anderson.....	10 00
Second best, S. H. & A. E. Joiner.....	5 00
Best breeding sow 2 years and over, S. H. & A. E. Joiner .....	10 00
Best breeding sow 1 year and under 2 years, S. H. & A. E. Joiner....	10 00
Second best, S. H. & A. E. Joiner.....	5 00
Best breeding sow with four pigs, T. J. Anderson....	15 00
Second best, S. H. & A. E. Joiner.....	10 00
Best boar pig over 6 months and under 1 year, three exhibits, S. H. & A. E. Joiner .....	8 00
Second best, J. J. Tschudy, Monroe .....	4 00
Best sow pig over 6 months and under 1 year, four exhibits, S. H. & A. E. Joiner .....	8 00
Second best, J. J. Tschudy.....	4 00
Best boar pig under 6 months, eight entries, S. H. & A. E. Joiner....	8 00
Second best, J. J. Tschudy .....	4 00
Best sow pig under 6 months, four exhibits, S. H. & A. E. Joiner .....	8 00
Second best, S. H. & A. E. Joiner.....	4 00
Special premium of Layton & Co., and Plankinton & Armour, pork packers, Milwaukee, Wis., best boar of any age, twenty-nine exhib- its, D. Mosher, Beloit.....	10 00
Best sow of any age, thirty-two exhibits, B. S. Fuller, Heart's Prairie.	10 00
Best six pigs under 8 months old, ten exhibits, R. W. Brown, Utica ..	5 00
Best boar and sow of any age, and five pigs same breed, nine exhibits, Hook Bros., Brooklyn.....	25 00

## DEPARTMENT E — POULTRY.

CLASS 23 — *Asiatic.*

Best trio Light Brahmas, eight entries, E. Quackenback, Sun Prairie	\$2 50
Best trio Dark Brahmas, six entries, Wm. D. Scampton, Madison....	2 50
Second best, D. J. Plumb, Milton .....	1 50
Best trio Buff Cochins, six exhibits, Ephraim Wilson .....	2 50
Second best, Wm. Palmer, Oregon.....	1 50
Trio Partridge Cochins, second, W. C. Hugunin, Janesville.....	1 50

## GAME.

Trio Irish Blue, second, E. Wilson, Lake Mills ..	\$1 50
Trio Brown Red, Johnny Hayes ...	2 50
Best trio Black Breasted Red, four exhibits, William Jacobs, Madison	2 50
Second best, Ernst Weymer.....	1 50
Best trio Game, any variety, Wm. Palmer, Oregon.....	2 50
Second best, Wm. Jacobs.....	1 50

## DORKING.

Best trio Plymouth Rock, sixteen exhibits, Ernst Weymer, Madison.	2 50
Second best, Robert Wootton.....	1 50

## SPANISH.

Best trio Black Spanish, four entries, Mrs. Janson, Madison.....	2 50
Second best, W. C. Hugunin... ..	1 50
Best trio White Leghorns, six exhibits, W. C. Hugunin .....	2 50
Second best, Ephraim Wilson .....	1 50
Best trio Brown Leghorns, three entries, W. C. Hugunin .....	2 50
Second best, W. C. Hugunin.....	1 50
Trio Black Hamburgs, S. H. Hall, Madison .....	2 50
Best trio Silver Spangled Hamburgs, four entries, W. C. Hugunin..	2 50
Second best, W. D. Scampton .....	1 50
Best trio Silver Penciled Hamburgs, four entries, J. R. Richmond,	
Whitewater.....	2 50
Second best, Ephraim Wilson.....	1 50

## FRENCH.

Trio Houdons, seven entries, Robert Wootton .....	2 50
Second, Robert Wootton.....	1 50

## POLISH.

Trio Black Polish, white crests, three entries, Ephraim Wilson .....	2 50
Second, J. M. Hildebrand, Madison.....	1 50
Trio White Polish, four entries, Ephraim Wilson... ..	2 50
Second, J. M. Hildebrand .....	1 50

## BANTAMS.

Trio golden Seabright, four entries, W. C. Hugunin. ....	2 50
Trio black-breasted red game, four entries, J. M. Hildebrand.....	2 50
Second, John S. Clark, Portage City.....	1 50

## TURKEYS.

Pair bronze turkeys, five exhibits, J. R. Davis, Sun Prairie.....	2 50
Second best, Ephraim Wilson.....	1 50
Pair turkeys, three entries, William Palmer .....	2 50
Second best, W. C. Hugunin.....	1 50

## WATER FOWLS.

Pair Bremen geese, W. C. Hugunin .....	2 50
Pair Aylesbury ducks, four exhibits, W. C. Hugunin.....	2 50
Second best, W. C. Hugunin.....	1 50
Pair raven ducks, four exhibits, W. C. Hugunin .....	2 50
Second best, W. C. Hugunin.....	1 50
Pair black Cayuga ducks, five exhibits, W. C. Hugunin.....	2 50
Second best, W. C. Hugunin.....	1 50
Pair Muscovy ducks, W. C. Hugunin .....	2 50
Second best, W. C. Hugunin.....	1 50
Best greatest variety, W. C. Hugunin, silver plate.....	10 00
Best exhibition fancy pigeons, M. Breitenbach, Madison, silver plate.	5 00

## DEPARTMENT F. — AGRICULTURE.

CLASS 24 — *Spring Wheat.*

Best spring wheat (Rio Grande), J. W. Wood, Baraboo.....	\$5 00
Second best, D. M. Aspinwall.....	3 00
Best spring wheat (Fife), D. T. Pilgrim, four entries.....	5 00
Second best, J. B. Duncan, Baraboo.....	3 00
Best spring wheat (Odessa), eleven exhibits, J. W. Wood.....	5 00
Second best, John Rutherford, Verona .....	3 00
Best winter wheat, twenty-one exhibits, J. W. Wood.....	5 00
Second best, D. T. Pilgrim .....	3 00
Best rye, nine exhibits, J. S. Gallagher, Cottage Grove .....	5 00
Second best, N. W. Dean, Madison.....	3 00
Best white oats, thirteen exhibits, J. W. Wood.....	5 00
Second best, A. J. Phillips, New Salem.....	3 00
Best black oats, eight exhibits, Warren Jacket, Verona.....	5 00
Second best, D. T. Pilgrim.....	3 00
Best barley, eight exhibits, D. T. Pilgrim .....	5 00
Second best, D. T. Pilgrim .....	3 00
Best buckwheat, ten exhibits, Stephen Hook, Sr.....	4 00
Second best, C. Sutherland, Syene .....	2 00
Best flax seed, five entries, D. T. Pilgrim.....	5 00
Second best, J. W. Wood.....	3 00
Best hops, N. W. Dean, Madison.....	5 00
Best timothy seed, six entries, D. T. Pilgrim .....	5 00
Second best, Warren Jacket (Clantarf).....	3 00
Best clover seed, five exhibits, N. W. Dean.....	5 00
Second best, J. W. Wood.....	3 00

Best peas, eight exhibits, J. W. Wood.....	\$5 00
Second best, Henry Taylor.....	3 00
Best beans, five exhibits, E. Newton, Oregon.....	5 00
Second best, John Rutherford.....	3 00
Best white dent corn, six exhibits, Edgar Vial, Madison.....	5 00
Second best, J. B. Duncan.....	3 00
Best yellow dent corn, fourteen exhibits, John Blanchard.....	5 00
Second best, James Terwilliger, Syene.....	3 00
Best white flint corn, James Terwilliger, four exhibits.....	5 00
Second best, Warren Jacket.....	3 00
Best yellow flint corn, fourteen exhibits, N. W. Dean.....	5 00
Second best, Warren Jacket.....	3 00
Best ten pounds of tobacco, five entries, J. R. Heistand, Blooming Grove.....	5 00
Second best, J. R. Heistand.....	3 00
Six pumpkins, four exhibits, Warren Jacket.....	3 00
Second best, Robert Gray.....	2 00
Best exhibit field products, four exhibits, D. T. Pilgrim (silver plate).....	25 00
Second best, J. W. Wood (silver plate).....	15 00
Milwaukee Chamber of Commerce, special premium.....	.....
Bushel winter wheat, twelve exhibits, J. W. Wood, Baraboo.....	25 00
Bushel spring wheat, twelve exhibits, D. T. Pilgrim.....	25 00

CLASS 25 — *Garden and Vegetable Products.*

Early Rose potatoes, eleven entries, Warren Jacket.....	\$3 00
Second best, B. A. Atwell.....	2 00
Any variety early potatoes, twenty-three exhibits, Jacob Kircher, Verona.....	3 00
Second best, H. C. Wilson, Blooming Grove.....	2 00
Half bushel peachblows, five exhibits, Warren Jacket.....	3 00
Second best, Robert Gray, Verona.....	2 00
Any variety late potatoes, ten exhibits, N. C. Warner.....	3 00
Second best, J. B. Duncan.....	2 00
Yellow Nonsenman sweet potatoes, J. W. Wood.....	3 00
Red Bermuda sweet potatoes, J. W. Wood.....	3 00
Four quarts Lima beans, eighteen exhibits, J. W. Wood.....	3 00
Second best, D. T. Pilgrim.....	2 00
Blood turnip beets, nine exhibits, J. A. Wood.....	3 00
Second best, George Jeffrey, Smithville.....	2 00
Long blood beets, eight exhibits, John Rutherford.....	3 00
Second best, J. W. Wood.....	2 00
Mangel wurzel beets, twelve exhibits, John Rutherford.....	3 00
Second best, M. E. Lyman, Reedsburg.....	2 00
Red Wethersfield onions, seven exhibits, W. Brown, Blooming Grove,	3 00
Second best, A. C. Sikes, Oak Hall.....	2 00
Yellow Danvers onions, four exhibits, B. A. Atwell, Madison.....	3 00
Second best, P. W. Brown.....	2 00
Any variety onions, eight exhibits, John Rutherford.....	3 00
Second best, E. C. Holt, Madison.....	2 00
Drumhead cabbage, seven exhibits, A. C. Sykes.....	3 00
Second best, S. H. Hall.....	2 00
Winnigstadt cabbage, seven exhibits, S. Hall, Madison.....	3 00
Second best, J. P. Marsden, Madison.....	2 00
Long orange carrots, eight exhibits, J. W. Wood.....	3 00
Second best, John Rutherford.....	2 00
Horn carrots, five exhibits, J. Wood.....	3 00
Second best, John Rutherford.....	2 00
Best head cauliflower, C. Wildhagen.....	3 00
Ten heads celery, four exhibits, Warren Jacket, Clantarf.....	3 00

Second best, N. W. Dean, Madison.....	\$2 00
Twelve ears early sweet corn, nine exhibits, S. H. Hall, Burke.....	3 00
Second best, C. Sutherland.....	2 00
Twelve ears late sweet corn, thirteen entries, Lyman A. Powers, Bloomington.....	3 00
Second best, J. W. Wood.....	2 00
Egg plant, four exhibits, Z. L. Wellman.....	2 00
Second best, J. W. Wood.....	1 00
Six nutmeg melons, H. Waterman, Rutland.....	2 00
Parsnips, eight exhibits, John Rutherford.....	3 00
Second best, Warren Jacket.....	2 00
Twelve large red peppers, nine exhibits, C. H. Root.....	2 00
Second best, Warren Jacket.....	1 00
Vegetable oysters, four exhibits, J. W. Wood.....	2 00
Second best, Z. L. Wellman.....	2 00
Six Hubbard squash, six exhibits, J. W. Wood.....	3 00
Second best, H. C. Wilson, Blooming Grove.....	2 00
Largest squash, fourteen exhibits, G. H. Norton, Madison.....	3 00
Second best, H. C. Wilson, two entries.....	2 00
Tomatoes, nineteen exhibits, B. A. Atwell, Madison.....	3 00
Second best, G. C. Holt, Madison.....	2 00
Flat turnips, six exhibits, James Campbell.....	3 00
Second best, J. W. Wood.....	2 00
Rutabagas, Warren Jacket.....	2 00
Exhibition of vegetables by professionals, S. H. Hall.....	10 00
Exhibition of vegetables by non-professionals, J. W. Wood.....	10 00
Second best, Warren Jacket.....	5 00

## CLASS 26.

June farm-made butter, eleven exhibits, C. P. Goodrich, Christiana..	\$15 00
Second best, C. Sutherland, Syene.....	10 00
Third best, George F. Brown.....	5 00
Farm butter made at any time, sixteen exhibits, C. P. Goodrich.....	15 00
Second best, J. B. Stone.....	10 00
Third best, Hiram Baker.....	5 00
Creamery, June-made butter, second best, G. P. Goodrich.....	10 00
Creamery-made butter at any time, four exhibits, C. P. Goodrich.....	15 00
Second best, Ed Whaling, Door Creek.....	10 00
Third best, A. Chipman, Sun Prairie.....	5 00
Two cheese made in June, seven exhibits, Charles Gibson, Linden..	15 00
Second best, A. C. Martin, Ashton.....	10 00
Third best, C. Hazen, Ladoga.....	5 00
Two cheese made in August, seven exhibits, A. F. Jones, Lake Mills,	15 00
Second best, C. Hazen.....	10 00
Third best, C. Gibson.....	5 00
Ten pounds of honey, nine exhibits, Sylvester Dunlap, Token Creek,	5 00
Second best, P. D. Bashford, Watertown.....	3 00
Practical bee-hive, three exhibits, P. D. Bashford.....	5 00
Honey extractor, four exhibits, P. D. Bashford.....	2 00
Extracted honey, five exhibits, G. W. Sanford, East Middleton.....	3 00
Handling bees, G. W. Sanford.....	10 00
Italian bees, four exhibits, G. W. Sanford.....	5 00
Ten pounds of maple sugar, J. B. Duncan, Baraboo.....	5 00
One gallon of maple syrup, J. B. Duncan.....	5 00
Higgins' Eureka salt, diploma.	

CLASS 27—*Household Products, Bread and Cake.*

Loaf of graham bread, five exhibits, Josie L. Peffer, Pewaukee.....	\$3 00
Loaf of white bread, ten exhibits, Josie L. Peffer.....	3 00

Loaf of white bread (milk raising), four exhibits, Josie L. Pepper.....	\$3 00
Loaf of Indian bread, four exhibits, Mary E. Chapman, Madison....	3 00
Sponge cake, eight exhibits, Mrs. J. R. Hiestand, Blooming Grove...	2 00
Pound cake, five exhibits, Mrs. J. R. Hiestand.....	2 00
Jelly cake, six exhibits, Jane Mires, Verona.....	2 00
Gold and silver cake, seven exhibits, Mrs. J. R. Hiestand.....	2 00
Fruit cake, eight exhibits, Mrs. L. F. Bigelow.....	2 00
Best exhibition of bread and cakes, Mrs. J. R. Hiestand. silver medal	10 00
Sealed and preserved fruits and pickles, canned peaches, three ex- hibits, Mrs. C. H. Root, Ripon, silver plate.....	2 00
Canned currants, Ann E. Butts, silver plate.....	2 00
Canned tomatoes, Ann E. Butts, silver plate.....	2 00
Canned gooseberries, Ann E. Butts, silver plate.....	2 00
Canned raspberries, Ann E. Butts, silver plate.....	2 00
Canned strawberries, C. H. Root, silver plate.....	2 00
Canned grapes, C. H. Root, silver plate.....	2 00
Canned blackberries, C. H. Root, silver plate.....	2 00
Canned peas, Ann E. Butts, silver plate.....	2 00
Preserved peaches, C. H. Root, silver plate.....	2 00
Preserved plums, C. H. Root, silver plate.....	2 00
Preserved apples, C. H. Root, silver plate.....	2 00
Preserved watermelon, C. H. Root, silver plate.....	2 00
Preserved grapes, C. H. Root, silver plate.....	2 00
Apple butter, C. H. Root, silver plate.....	2 00
Raspberry jam, C. H. Root, silver plate.....	2 00
Blackberry jam, C. H. Root, silver plate.....	2 00
Crab apple jam, C. H. Root, silver plate.....	2 00
Sour pickled cucumbers, Miss Nellie Root, Verona.....	2 00
Pickled mangoes, Nellie Root, silver plate.....	2 00
Pickled peaches, C. H. Root, silver plate.....	2 00
Pickled pears, Nellie Root, silver plate.....	2 00
Pickled watermelon, C. H. Root, silver plate.....	2 00
Pickled cucumbers, Nellie Root, silver plate.....	2 00
Pickled apples, C. H. Root, silver plate.....	2 00
Tomato catsup, C. H. Root, silver plate.....	2 00
Cucumber catsup, C. H. Root, silver plate.....	2 00
Exhibition preserves and pickles in glass jars, C. H. Root, silver plate	5 00

## DEPARTMENT G. — FRUITS AND FLOWERS.

CLASS 28 — *Fruits by Professional Cultivators.*

Best and greatest display of apples, thirty varieties, L. L. Kellogg, Janesville.....	\$10 00
Second best, Wm. Reid, North Prairie.....	7 50
Third best, N. N. Palmer, Brodhead.....	5 00
Best ten varieties apples adapted to northwest, four exhibits, G. P. Peffer, Pewaukee.....	7 00
Second best, L. L. Kellogg.....	5 00
Third best, Wm. Reed.....	3 00
Best five varieties apples, six exhibits, J. C. Plumb, Milton.....	3 00
Second best, L. L. Kellogg.....	2 00
Third best, N. N. Palmer.....	1 00
Best ten varieties winter apples, six exhibits, Geo. P. Peffer.....	5 00
Second best, L. L. Kellogg.....	3 00
Third best, Wm. Reed.....	2 00
Best five varieties winter apples, six exhibits, J. C. Plumb.....	3 00
Second best, G. P. Peffer.....	2 00

Third best, L. L. Kellogg .....	\$1 00
Best ten varieties apples, large and showy, four exhibits, L. L. Kellogg	5 00
Second best, Wm. Reed .....	3 00
Third best, N. N. Palmer .....	2 00
Best largest apple, five exhibits, J. C. Plumb, Milton .....	1 00
Best heaviest apple, five exhibits, J. C. Plumb .....	1 00
Best display varieties of pears, G. P. Peffer .....	3 00
Second best, Wm. Reed .....	2 00
Third best, N. N. Palmer .....	1 00
Best three varieties pears, G. P. Peffer .....	2 00
Second best, N. N. Palmer .....	1 00
Best Flemish Beauty, three exhibits, Wm. Reed .....	2 00
Best greatest variety plums, G. P. Peffer .....	3 00
Third best, Wm. Reed .....	1 00
Best Miner plums, G. P. Peffer .....	2 00
Best native, or wild plums, G. P. Peffer .....	1 00

CLASS 29 — *Grapes and Crabs by Professionals.*

Greatest display of varieties of grapes, C. H. Greenman, Wauwatosa ..	\$10 00
Second, Wm. Reed .....	7 50
Third, N. N. Palmer .....	5 00
Best ten varieties of grapes, six exhibits, C. H. Greenman .....	7 50
Second, Wm. Reed .....	5 00
Third, N. N. Palmer .....	3 00
Best five varieties of grapes, seven exhibits, J. C. Plumb .....	3 00
Second, C. H. Greenman .....	2 00
Third, N. N. Palmer .....	1 00
Best three varieties of grapes, seven exhibits, C. H. Greenman .....	3 00
Second, J. C. Plumb .....	2 00
Third, N. N. Palmer .....	1 00
Best two varieties of grapes, six exhibits, C. H. Greenman .....	2 00
Second, Wm. Reed .....	1 00
Best single variety of grapes, six exhibits, C. H. Greenman .....	2 00
Second, Wm. Reed .....	1 00
Best three bunches of Concord on one cane, six exhibits, Wm. Reed ..	2 00
Second, C. H. Greenman .....	1 00
Best three bunches of Delaware on one cane, Wm. Reed .....	2 00
Second, C. H. Greenman .....	1 00
Best single variety, quality to rule, six exhibits, C. H. Greenman ..	3 00
Second, Wm. Reed .....	2 00
Best show of foreign, G. P. Peffer .....	3 00
Greatest variety of crabs, four exhibits, N. N. Palmer .....	3 00
Second, Wm. Reed .....	2 00
Third, Geo. P. Peffer .....	1 00
Best plate Hyslop crabs, seven exhibits, H. Schuster .....	1 00
Best plate transcendant crabs, seven exhibits, N. N. Palmer .....	1 00
Best seedling crab, G. P. Peffer .....	2 00
Second, J. C. Plumb ..	1 00
Best collection of fruits of all kinds, Geo. P. Peffer .....	7 50
Second, L. L. Kellogg .....	5 00
Third, N. N. Palmer .....	3 00

CLASS 31 — *Fruits by Non-Professional Cultivators.*

Greatest display of varieties of apples, ten exhibits, A. J. Phillips, West Salem .....	\$10 00
Second, P. J. Foster, Rocky Springs .....	7 50
Third, Henry Taylor, Middleton .....	6 00
Ten varieties of apples adapted to the northwest, thirteen exhibits, A. J. Phillips .....	7 00

Second, A. A. Boyce, Lodi.....	\$5 00
Third, A. Sherman, Janesville.....	3 00
Ten varieties of large showy apples, thirteen exhibits, H. C. Wilson, Madison.....	5 00
Second, A. J. Phillips.....	3 00
Third, A. A. Boyce.....	2 00
Five varieties of apples adapted to the northwest, fifteen exhibits, A. J. Phillips.....	3 00
Second, E. D. Lewis.....	2 00
Third, A. Sherman.....	1 00
Largest varieties of winter apples, ten exhibits, A. J. Phillips.....	5 00
Second, L. Martin.....	3 00
Third, George Jeffrey.....	2 00
Five varieties of winter apples, thirteen exhibits, A. J. Phillips.....	3 00
Second, L. Martin.....	2 00
Third, E. D. Lewis.....	1 00
Largest apple, fourteen exhibits, H. A. Lewis, Madison.....	1 00
Heaviest apple, twelve exhibits, H. C. Wilson.....	1 00
Greatest display of varieties of pears, six exhibits, Geo. Jeffrey.....	3 00
Second, J. G. Ozanne.....	2 00
Third, L. Martin.....	1 00
Three varieties of pears, six exhibits, L. Martin.....	2 00
Second, Geo. Jeffrey.....	1 00
Flemish Beauty, eight exhibits, L. Martin.....	2 00
Greatest variety of plums, five exhibits, D. T. Pilgrim.....	3 00
Second, Geo. Jeffrey.....	2 00
Third, John Spalding, Janesville.....	1 00
Native or wild pear, D. T. Pilgrim.....	1 00

CLASS 31 — *Grapes and Crabs by Non-Professional Cultivators.*

Greatest display of varieties, V. Lowie, Palmyra.....	\$10 00
Second best, Isaac Adams, Door Creek.....	7 50
Third best, F. L. Law.....	5 00
Ten varieties, V. Lowie.....	7 50
Second best, F. L. Lawrence.....	5 00
Five varieties, V. Lowie.....	3 00
Three varieties, V. Lowie.....	3 00
Second, H. C. Wilson.....	2 00
Two varieties, H. C. Wilson.....	2 00
Second best, V. Lowie.....	1 00
Single variety, four exhibits, V. Lowie.....	2 00
Second best, H. C. Wilson.....	1 00
Three bunches of Concord, one cone, H. C. Wilson.....	2 00
Second best, V. Lowie.....	1 00
Three bunches Delaware, one cone, four exhibits, V. Lowie.....	2 00
Second best, Isaac Adams.....	1 00
Single variety, quality to rule, V. Lowie.....	3 00
Second best, Isaac Adams.....	2 00
Greatest variety of named crabs, five exhibits, A. J. Phillips, West Salem.....	3 00
Second best, H. C. Wilson, Madison.....	2 00
Third best, Geo. Jeffrey.....	1 00
Plate of Hyslop, thirteen exhibits, A. J. Phillips.....	1 00
Plate of Transcendents, fourteen exhibits, A. J. Phillips.....	1 00
Seedling, A. J. Phillips.....	...
Collection from all kinds, Geo. Jeffrey.....	7 50
Second best, D. T. Pilgrim.....	5 00

CLASS 32 — *Seedlings.*

Best show Seedlings, A. J. Phillips.  
Second best, A. J. Phillips.

CLASS 33 — *Collection of Deciduous, Nursery Grown Trees, quality to rule.*

J. C. Plumb, Milton.  
Collection of evergreens, J. C. Plumb.  
Collection of fruit trees, J. C. Plumb.  
Collection of hardy flowering trees, J. C. Plumb.  
Collection of apple trees, J. C. Plumb.

CLASS 34 — *Flowers by Professional Cultivators, Most Artistically Arranged.*

First, William Kitzerow, Milwaukee.....	\$5 00
Second, H. G. Roberts, Waukesha.....	3 00
Most tastefully arranged collection of cut flowers, William Kitzerow.....	4 00
Second best, H. G. Roberts.....	3 00
Pyramidal boquet, William Kitzerow.....	3 00
Second best, H. G. Roberts.....	2 00
Flat boquet, William Kitzerow.....	2 00
Boquet of everbeauty flowers, William Kitzerow.....	3 00
Second best, H. G. Roberts.....	2 00
Ten named dahlias, J. C. Plumb.....	2 00
Second best, William Kitzerow.....	1 00
Display of roses, William Kitzerow.....	4 00
Five named varieties of roses, William Kitzerow.....	3 00
Display of verbenas, William Kitzerow.....	2 00
Show of seedling verbenas, William Kitzerow.....	2 00
Show of double petunias, William Kitzerow.....	1 00
Show of gladiolas, four exhibits, William Kitzerow.....	1 00
Second best, J. C. Plumb.....	50
Show of green-house plants, not less than fifty, William Kitzerow....	7 50
Twenty varieties of green-house plants in bloom, William Kitzerow.....	3 00
Ten geraniums, William Kitzerow.....	3 00
Six fuschias, William Kitzerow.....	2 00
Display of flowers of all kinds, raised by exhibitor, William Kitzerow.....	5 00
Display of ornamental foliage plants, William Kitzerow.....	3 00
Second best, H. G. Roberts.....	2 00

CLASS 35 — *Flowers by Non-Professional Cultivators.*

Most artistically arranged floral design, six exhibits, Kate F. Pepper, Pewaukee.....	\$5 00
Second best, Wm. T. Lietch, Jr., Springfield.....	3 00
Most tastefully arranged collection of cut flowers, ten exhibits, Mrs. John Joy, Madison.....	4 00
Second best, Mrs. A. A. Boyce, Dane.....	3 00
Third best, Mrs. Wm. T. Lietch, Jr.....	2 00
Most tastefully arranged basket of flowers, Mrs. John Joy.....	3 00
Second best, Mrs. L. F. Mallory.....	2 00
Pyramidal boquet, Kate F. Pepper.....	3 00
Second best, Miss Abbie Deards.....	2 00
Pair hand boquets, seven exhibits, W. T. Lietch.....	3 00
Second best, Kate F. Pepper.....	2 00
Pair flat boquets, six exhibits, Mrs. Robert Boyd, Brodhead.....	3 00

Boquet of everlasting flowers, seven exhibits, Mrs. Robert Boyd .....	\$3 00
Second best, C. Hildebrand, Madison.....	2 00
Display of dahlias, four exhibits, Mrs. Robt. Boyd.....	3 00
Second best, Kate F. Pepper.....	2 00
Ten named dahlias, four exhibits, Kate F. Pepper.....	2 00
Second best, Mrs. John Joy .....	1 00
Display of roses, three exhibits, Mrs. George F. Brown, Blooming Grove.....	4 00
Five named varieties of roses, Mrs. J. R. Heistand.....	3 00
Display of verbenas, four exhibits, Mrs. G. F. Brown.....	2 00
Second best, Mrs. J. T. Marsden.....	1 00
Two named verbenas, Mrs. J. C. Squires, Madison.....	2 00
Second best, Kate F. Pepper.....	1 00
Show of seedling verbenas, eleven exhibits, Mrs. J. T. Marsden .....	2 00
Second best, C. Hildebrand.....	1 00
Show of asters, eight exhibits, Mrs. W. G. Pitman .....	2 00
Second best, C. Wildhagen .....	1 00
Show of perennial phlox, seven exhibits, Mrs. John Joy.....	1 00
Second best, Mrs. A. A. Boyce, Lodi.....	50
Show of pansies, seven exhibits, Miss Abbie Deards, Madison.....	1 00
Second best, Mrs. J. T. Marsden.....	50
Show of double petunias, Mrs. A. A. Boyce.....	1 00
Show of pink dianthus, C. Wildhagen.....	1 00
Second best, Z. L. Wellman.....	50
Show of gladiolas, four exhibits, Mrs. A. A. Boyce.....	1 00
Second best, Mrs. John Joy.....	50
Show of phlox drummondii, five exhibits, Mrs. J. F. Marten.....	1 00
Second best, P. W. Brown .....	50
Show of lilies, Mrs. B. F. Brown .....	1 00
Show of stocks, Mrs. A. A. Boyce.....	1 00
Show of balsams, six exhibits, Mrs. John Joy.....	1 00
Second best, Miss L. Campbell.....	50
Show of green-house plants, Mrs. John Joy.....	5 00
Ten varieties of green-house plants in blow, Mrs. W. G. Pitman.....	3 00
Ten geraniums, Mrs. John Joy.....	3 00
Second best, Mrs. W. G. Pitman .....	3 00
Six fuchsias, Mrs. J. R. Heistand.....	2 00
Display of flowers raised by exhibitor, five exhibits, Mrs. A. A. Boyce	5 00
Second best, Kate F. Pepper.....	3 00
Display of ornamental foliage plants, W. G. Pitman.....	3 00
Second best, L. F. Mallory .....	2 00

CLASS 36 — *Vick's Special.*

Collection of cut flowers, ten exhibits, W. G. Pitman.....	\$20 00
Second best, L. F. Mallory.....	10 00
Third best, R. Boyd .....	5 00
Fourth best, Mrs. J. R. Heistand .....	
Ornamental flower work, William T. Lietch, Jr.....	5 00
Most artistic arranged collection of wild flowers, eight exhibits, Mrs. Emma W. Sharp .....	
Second best, Kate Pepper.....	
Arranged collection of cut flowers by boy or girl, Jennie Lietch.....	

## DEPARTMENT I — MANUFACTURES.

## CLASS 38.

Sample brick, J. I. Brick .....	
Drain tile, Cook, Brown & Co., Oshkosh .....	\$3 00
Four window blinds, S. H. Severson & Co., Stoughton.....	5 00

## CLASS 40.

Cooking stove for wood, J. N. Jones, Madison.....	\$3 00
Cooking range, J. N. Jones.....	3 00
Ornamental parlor stove, J. N. Jones .....	3 00
Parlor stove, H. G. Kroncke.....	3 00
Display of stoves, J. N. Jones, grand silver medal.	

*Refrigerators.*

Smith Refrigerator Company, Michigan City, Indiana .....	\$3 00
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## CLASS 41.

Display of gold and silver plating, Racine Silver Plate Company, Racine, silver medal.	
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## CLASS 43.

Sample blacking, Sheldon, Daley & Sturm Brothers .....	\$2 00
Ink erasing fluid, Phil. Higgins, Madison, diploma.	

## CLASS 44.

Single top buggy, seven exhibits, C. Hansen, Madison .....	\$5 00
Pleasure wagon, Ephraim Kimble, Whitewater.....	5 00
Single sleigh, eight exhibits, C. Hansen, Madison.....	5 00
Common farm wagon, Wonewoc Wagon Company.....	5 00

## CLASS 45.

Chamber set, Christophers & Co., Madison, silver medal.	
Spring bed bottom, five exhibits, R. W. McIntyre, Oregon.....	\$5 00
Six dining chairs, H. Christophers.....	5 00

## CLASS 46.

Single harness, M. W. Lynch, Madison.....	\$5 00
Gent's saddle, M. W. Lynch.....	5 00
Lady's saddle, M. W. Lynch.....	5 00
Three trunks, M. W. Lynch .....	5 00
Carriage harness, M. W. Lynch.....	10 00
Wagon harness, M. W. Lynch .....	5 00
Exhibition pegged boots and shoes, Sheldon, Daley & Sturm Bros ...	10 00
Exhibition sewed boots and shoes, Sheldon, Daley & Sturm Bros ...	10 00

CLASS 47.

Exhibition of binding, Wm. J. Park & Co., Madison..... ..

CLASS 48.

Suit men's clothing, four exhibits, Klauber & Adler, Madison ..... \$10 00  
 Suit boys' clothing, four exhibits, Rowley & Co., Madison..... 5 00  
 Exhibition of hats and caps, Rowley & Co..... 5 00  
 Exhibition of furs, Rowley & Co..... 5 00

CLASS 49.

Kersey blanket, five exhibits, Wm. Rapp, Roxbury..... \$4 00  
 Second best, same..... 2 00  
 Ten yards home made flannel, E. D. Steele, Lodi..... 4 00  
 Second best, Wm. Rapp..... 2 00  
 Rug of any material, sixteen exhibits, Mrs. Wm. Mosle, Madison..... 4 00  
 Second best, Mrs. Scholoff..... 2 00  
 Fifteen yards rag carpet, six exhibits, A. Stebbins, Delafield..... 4 00  
 Second best, J. M. Patterson..... 2 00  
 Woolen stockings, twelve exhibits, Mrs. J. S. Newton..... 2 00  
 Second best, J. H. B. Matts..... 1 00  
 Woolen socks, nine exhibits, Mrs. A. C. Bates, Janesville..... 2 00  
 Second best, J. M. Patterson..... 1 00  
 Two pounds of woolen yarn, four exhibits, C. P. Goodrich..... 2 00  
 Second, J. H. R. Matts..... 1 00  
 Woolen mittens, eighteen exhibits, Mrs. A. C. Bates..... 2 00  
 Second, J. T. Palmer, Oregon..... 1 00  
 Fringed mittens, F. R. Martin..... 2 00  
 White quilt, D. F. Salisbury..... 4 00  
 Silk quilt, six exhibits, Miss Ellen Cheney, Madison..... 4 00  
 Second, Mrs. C. S. Mears..... 2 00  
 Log cabin quilt, fourteen exhibits, Mrs. J. C. Sanborn, Milton..... 4 00  
 Second, Mrs. Ellen Anderson, Milten..... 2 00  
 Patch work quilt, twenty-one exhibits, J. W. Stuart, Brodhead..... 4 00  
 Second, H. Waterman, Rutland..... 2 00  
 Kuit counterpane, five exhibits, Elizabeth Seston, Mazomanie..... 4 00  
 Second, Mattie Van Kleck, Sun Prairie..... 2 00  
 Wrought counterpane, Mrs. E. Newton..... 4 00  
 Second, Mrs. A. C. Martin, Ashton..... 2 00  
 Worsted scarf, seven exhibits, Mrs. L. F. Bigelow..... 4 00  
 Second, Mrs. J. C. Britt..... 2 00  
 Wrought shawl, eight exhibits, A. L. Mann..... 4 00  
 Exhibition of taste and skill in work in ladies' dresses, Miss H. A. Cramer, Madison..... 5 00  
 Specimen gent's suit, Mrs. James Rogers..... 2 00  
 Second, A. Flom..... 1 00  
 Specimen of drawing, four exhibits, Miss Nellie Root, Verona..... 2 00  
 Second, Mrs. A. C. Bates..... 1 00  
 Specimen of patched mending, Mrs. A. C. Bates, Janesville..... 2 00  
 Second, Mrs. C. N. Rice, Blooming Grove..... 1 00  
 Greatest variety of articles of millinery, Miss S. J. Livesey..... 5 00  
 Ladies' under clothing, variety, Miss H. A. Craven..... 4 00  
 Ladies' cloak, D. F. Salisbury..... 4 00  
 Display in class 49, J. W. Stewart..... 5 00

## DEPARTMENT J — FINE ARTS.

## CLASS 51.

Portrait in oil, from nature, W. J. Pughe, Madison.....	\$10 00
Second, W. J. Pughe, Madison.....	5 00
Animal painting in oil, Miss A. M. Colvin, Janesville.....	2 00
Portrait in crayon, from nature, W. J. Pughe.....	2 00
Portrait in crayon, from photograph, W. J. Pughe.....	2 00
India ink photograph, Mrs. H. A. Simmons.....	10 00
Water color (stipple) photograph, Mrs. Lyman A. Powers.....	10 00
Oil photograph, W. J. Pughe.....	10 00
Specimen of pencil-drawing, Fanny M. Vilas, Madison.....	5 00
Architectural plans, Mrs. A. Kutzbock, Madison.....	5 00
Exhibition of penmanship, Wilmot, Deming & Co., Madison.....	2 00
Specimen copy of writing by non-professionals, Joseph Ballenbeck, Cross Plains.....	50 00
Neatest set of books, Joseph Ballenbeck.....	15 00

## CLASS 52.

Samples of plain sewing, ten exhibits, Mrs. James Burgess.....	\$4 00
Miss Nellie Root.....	2 00
Crochet or fancy knitting, seventeen exhibits, Mrs. E. Glasgow, Mad- ison.....	4 00
Mrs. F. Kurz, Madison.....	2 00
Cotton tidy, thirty-two exhibits, J. M. Patterson, McFarland.....	2 00
Second best, Hannah Rice, Oregon.....	1 00
Worsted tidy, twenty-six exhibits, Mrs. J. C. Brett.....	2 00
Second best, Mrs. F. Kurz.....	1 00
Specimen of embroidered slippers, eight exhibits, Miss Kate O'Mal- ley.....	4 00
Second best, Emma W. Sharp.....	2 00
Specimen historical embroidery, four exhibits, Mrs. W. J. Sullivan, Madison.....	5 00
Second, Mrs. J. L. Brett.....	3 00
Specimen worsted embroidery, fifteen exhibits, Miss Lou A. Camp- bell.....	4 00
Second best, Mrs. C. H. Webster.....	2 00
Embroidered handkerchief, Mrs. L. A. Powers.....	2 00
Second best, J. W. Stewart.....	2 00
Embroidered chemise, seven exhibits, L. A. Powers.....	4 00
Second best, L. A. Powers.....	2 00
Crochet chemise, four exhibits, Mrs. A. Sherman, Janesville.....	4 00
Second best, Hannah Rice.....	2 00
Raised worsted embroidery, Miss S. J. Livesey, Madison.....	4 00
Second best, Ella Poure.....	2 00
Needle work on floss embroidery, twelve exhibits, Mrs. F. M. Vilas..	2 00
Second best, Mrs. R. F. Daubner.....	2 00
Silk embroidery, fifteen exhibits, A. Kutsbach.....	4 00
Second best, Kittie Fox.....	2 00
Chenille embroidery, four exhibits, Mrs. W. J. Sullivan.....	4 00
Second, A. C. Martin.....	2 00
Worsted embroidery chair cover, seven exhibits, R. M. Morrison....	4 00
Second, Laura Bunker.....	2 00
Ottoman cover, J. E. Brett.....	4 00
Second, A. Schuloff.....	2 00
Sofa cushion, eighteen exhibits, Mrs. W. J. Sullivan.....	4 00
Second, Ellen Cheney.....	2 00

Specimen machine braid work, five exhibits, Miss H. A. Craven.....	\$2 00
Specimen braid work by hand, Mrs. A. M. Colvin.....	2 00
Second, C. H. Root.....	1 00
Gent's dressing gown, L. Mann.....	3 00
Sample work in wax, six exhibits, Mrs. C. C. Pease, Belleville.....	2 00
Second, Mrs. G. Gewecke, Madison.....	1 00
Sample work in feathers, four exhibits, Miss Ellen Cheney.....	2 00
Second, Mrs. A. C. Martin.....	1 00
Sample shell work, H. G. Roberts.....	2 00
Sample leather work, John Roth, Madison.....	2 00
Specimen of bead work, eight exhibits, C. H. Webster.....	2 00
Second best, A. C. Bates.....	1 00
Farmers' wreath, four exhibits, Mrs. Col. Green, Middleton.....	2 00
Second best, A. Schuloff.....	1 00
Sample of spatter work, W. G. Pitman.....	2 00
Exhibition of hair work, five exhibits, C. C. Pease.....	4 00
Second best, A. Schuloff.....	2 00
Lamp mat, thirteen exhibits, J. M. Patterson.....	2 00
Second best, J. C. Brett.....	1 00
Toilet set, seven exhibits, C. A. Webster.....	4 00
Second best, J. M. Patterson.....	2 00
Work on perforated paper, sixteen exhibits, Laura Bunker.....	2 00
Second best, J. W. Stuart.....	1 00

The University Farm of the state of Wisconsin made a very large and showy exhibition, as well as practical and worthy, but declined to compete for premiums.

## REPORTS OF SUPERINTENDENTS.

## DEPARTMENT B—CATTLE.

By ASA BOYCE, SUPERINTENDENT.

In numbers, quality and variety, the show of neat cattle at your fair of 1878, all things considered, was as good and perhaps the best ever made in Wisconsin.

In numbers, the Short-horns took the lead. One hundred and seven choice animals were shown, an increase over the previous fair of twenty-nine head.

In the Devon class, eight herds, numbering forty fine animals, competed for the premiums. In point of excellence, the dairy breeds were fully up to any former exhibition. There were shown of Ayrshires and their grades fifty-two head. In the Jersey classes there were forty-four animals of marked excellence. Ten head of Holsteins were also on exhibition. This valuable dairy breed is attracting much attention, and the importation of this stock is increasing. Some very fine stock of the Holstein and Short-horn breeds from the University Experimental Farm were on exhibition, and attracted deserved attention.

The great and rapid improvement made by Wisconsin cattle breeders within the last few years, and the prizes their animals have won in other states, attest their ability to hold their own against all comers, and in this department I would recommend that competition be open to the world.

In retiring from the superintendency of this department, I desire to express my thanks to the gentlemen who have been exhibitors, and those who have assisted me as judges and assistants in this department.

DEPARTMENT C — SHEEP.

By CHESTER HAZEN, SUPERINTENDENT.

The superintendent of sheep would report as follows:

American merinoes.....	41
Longwools " .....	46
Downs " .....	33
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Total.....	120
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The exhibit, although not large, was very fine, showing improvement in the breeding of sheep that would be an honor to any state. This important branch of husbandry should be encouraged, and, as the premiums are very evenly distributed among the different breeds, I would recommend that an extra premium be offered on best pen of ten ewes in each class.

DEPARTMENT D — SWINE.

By CHESTER HAZEN, SUPERINTENDENT.

As superintendent of swine, I would respectfully report as follows:

*Entries for Premiums.*

Large breeds.....	141
Middle breeds.....	46
Small breeds.....	27
Special.....	69
Sweepstakes.....	19
Outside the state (not to compete for premium).....	12
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Total.....	314
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The exhibit was very fine, showing a great improvement in the breeding of swine in this state, which reflects much credit on the breeders. This stock is a very important industry in our state. The premiums are not very equally distributed, as the large breeds

with 141 entries have the same amount of premiums as the small breeds with 27 entries, which causes dissatisfaction with exhibitors. I would therefore recommend that the premiums on the large breeds be increased, and premiums on small breeds reduced, so as to make a fair distribution of the premiums. ]

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## REPORT OF THE SUPERINTENDENT OF FORAGE.

By ASA BOYCE, SUPERINTENDENT.

The superintendent of this department is charged with the duty of looking after the supply of grain, hay, straw and water, to see that there shall be no lack of the same.

The supply of forage of all kinds for the last fair was abundant, and except a few loads of hay was good. There was also a sufficient supply of good water. The amount of money paid for forage for the fair of 1878 was \$400.

Heretofore the superintendents of the cattle and sheep departments have had charge of the forage. The increase each year in the number of animals entered in the different classes calls for an increased amount of forage, and consequently greater labor and care in the management of the same, and for these reasons, I would suggest a separate superintendence for this department. For the last two years, the forage has been connected with the cattle department, of which I have had charge. To Mr. Isaac Adams, who had the principal charge of the forage, and who so ably assisted me, my thanks are due.

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## DEPARTMENT F — AGRICULTURE.

By C. LOFTUS MARTIN, SUPERINTENDENT.

It is exceedingly gratifying to me to be able to-day to report that within two or three years our farmers have made excellent progress in agriculture. In 1877 I gave no report — because where I could not praise I said nothing; but last year a spirit of rivalry was in-

duced and improved results the consequence, and I hope improvement will continue. I repeat, I was much pleased with the exhibition of 1878 — the products of the farm were brought in abundance and of good quality; the exhibition of cereals were numerous, and altogether the best ever shown in this state. We had a fine exhibition from the Northern Pacific Railroad, also from Kansas and Nebraska. Hope to see them again.

There was a very fine exhibition of products of the State Experimental Farm, the best features of which were the fine samples of winter wheat, both white and red varieties; and from the constant failure of spring wheat, it is evident to me that if Wisconsin is to retain its high position as a wheat producing state, it will be necessary to turn increased attention to the winter varieties; and this exhibition shows that, under proper conditions, fine winter wheat of both red and white may be produced. The samples of other grain and other things from this farm was equally good, and the whole collection was an instructive exhibition and highly creditable to the exhibitors. Had the wheat been allowed to compete, in my opinion, it would have obtained a premium.

I cannot close this report without thanking the exhibitors of cheese and butter for their splendid exhibition of the dairy. I would mention names if I dare. The making of cheese and butter in the state of Wisconsin, in my opinion, is a very important branch of agriculture. I remember selling all the cheese that came to the state fair at Janesville to Underhill, Carr & Co., of New York, for eleven cents. And they wrote me the only fault they could find with the cheese was, there was not enough of it.

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#### DEPARTMENT H — MACHINERY.

*To the Executive Board of the State Agricultural Society:*

The undersigned, appointed to examine the various articles and machinery on exhibition in division H, class 37, and to report such as in his judgment are deserving of honorable mention for special merits, respectfully submits the following list, with the names of exhibitors annexed. From the hasty manner in which the work

was necessarily done, and the immense number on exhibition, it is probable that many meritorious devices escaped attention. All that he presumes to say as the conclusion of the work assigned is, that he has earnestly desired to render a strict and impartial report upon a matter in which errors of judgment were almost unavoidable.

WORTHY OF SPECIAL NOTICE.

Fuller, Johnson & Co.—Wood's harvester and binder; sweep rake reaper; closed gear iron frame mower; Furst & Bradley sulky plow; Norwegian plows; Star Manufacturing Co. Monitor sulky cultivator; Wood frame mowing attachments.

Gale Manufacturing Company, Albion, Michigan — General display of plows.

Raymond Bros., Waupun — Rotary power and grinder combined.

G. S. Cole — Corn husker.

Turner & Shiller, Madison — Rock and stump extractor.

E. T. Conklin, Waterloo — Lyon horse rake, self dump.

J. H. Kells, Adrian, Mich.— Brick and tile machine.

E. J. W. Lindsey, Milwaukee — Combined clover huller and grain thresher; adjustable bag holder and truck.

John Lamont — St. Paul binder; Challenge feed mill; Deere & Co. plows.

C. Aultman, Canton, Ohio — Buckeye binder; Buckeye reaper.

Firman, Billings & Noe — All plows exhibited, each of which has special merits of its own, many of them entirely new devices. The patent plow pole and gauge wheel attachment are specially worthy of notice.

Geo. F. Ott — Combined hinge and roller for farm gate.

Minneapolis Paper Binder Co.— Binds grain with paper bands, in a manner highly satisfactory. Received too late for entry, but worthy of special notice.

S. L. Sheldon — McCormick harvester and binder; Meadow King mower; Seymour mower; Challenge corn planter; Tiger sulky hay rake; Faust's hay loader; Diamond harrow, reversable teeth; Stoughton farm wagon; Mandt's platform spring wagon; Morgan reaper; Osborn harvester and binder; Birdsell's clover huller. Indeed, the whole exhibit deserves special commendation, and it is difficult to discriminate where so much is deserving.

G. W. Syford, Mazomanie. — Bulldozer wood sawing machine.

W. G. & W. Barnes, Freeport, Ill. — Hay carrier fork and pulleys combined.

W. H. Rhodes, Chicago, Ill. — Post hole digger; combined log-holder and truck.

James Tegant & Co., Madison — Grain carrier and band cutter, etc.

Madison Manufacturing Co. — Cane mill; evaporating pan; steel bottom road scraper.

Guesscup & Kailey, Lena, Ill. — Rubber bucket chain pump; farmers' handy gate.

A. F. Clark, Paoli — Taylor's wire splicing and stretching tools for wire fence.

Kohler & Silbergahn, Sheboygan — Feed mill and feed cutter combined.

L. V. W. Noyes, Batavia, Ill. — Hay carrier, harpoon fork, grapples, etc.

C. D. Reed, Polo, Ill. — Automatic gate.

Batavia Manufacturing Co., Batavia, Ill. — Nichols' centennial wind mill; Moles' tire shrinker.

NUMBER AND KIND OF ARTICLES EXHIBITED.

The following is a list of exhibitors, and number and kind of articles exhibited:

A. B. Campbell, Albion — Centennial harrow.

P. K. Dederich & Co., Albany, N. Y. — Hay press, patent bale of hay.

Fuller, Johnson & Co., Madison, Wis. — Wood harvester and binder; sweep-rake reaper; chain reaper; iron frame mower; closed gear iron frame mower; Ajax lawn mower; Coates' sulky hay rake; Furst & Bradley, riding and walking cultivator; iron beam riding and walking cultivator; self-dump sulky rake; pull leaver sulky rake; sulky plow; breaking attachment and sulky plow; Friedman harrow; Scotch harrow; five tooth cultivator; Furst & Bradley, five shovel combined cultivator; eight walking plows; eight Thompson & Co. Norwegian plows; McSherry seed drill; McSherry broadcast seeder; Robins' sulky cultivator; Robins' sulky cultivator and seeder combined; Monitor sulky cultivator and seeder combined, Star Manufacturing Co., Carpenterville, Ill.; wheelbarrow, Doty Manu-

facturing Co.; revolving road scraper; Judkin's self-packing fanning mill; Racine farm fanning mill; warehouse fanning mill; Chicago sweepstake fanning mill; A. J. Ward's iron frame mowing attachment; wood frame mowing attachment; Junior sweep-rake reaper.

James F. Reed, Portland, Mich. — Farm gate.

C. Ostrander, Lodi — Farm gate, Ostrander patent.

A. W. Coates, Alliance, O. — Coates' spring-seat sulky rake.

Gale Manufacturing Company, Albion, Mich. — Display of plows for all kinds of use, to wit: sod plow, stubble plow, jointer attachment, wheel attachment, coulter attachment, adjustable iron beam attachment.

Truman R. Martin, Brooklyn, Wis. — Iron fence.

J. W. Stoddard & Co., Dayton, O. — Hay rake.

H. Waterman, Rutland — Empire reaper and mower combined; Empire mower.

S. G. Abbott, Oregon, Wis. — Massillon harvester.

C. W. Grasscut, Lena, Ill. — Farmers' handy farm gate.

Raymond Brothers, Waupun — Rotary power and grinder combined; grinder.

Van Brunt & Barber, Horicon — Broadcast seeder and cultivator combined.

G. S. Cole, Harney — Corn husker.

A. M. Gilbert & Company, Chicago, Illinois — Improved Howe's Scales.

F. Hillger & Son, Cedarburg — Straub's washing machine.

B. Goldenberger, Madison — Cider mill.

Turner & Shiller, Madison — Rock and stump extractor.

E. T. Conklin, Waterloo — Lyon horse rake, self dump.

H. D. Baker, Leeds Center — Challenge wind mill.

Fond du Lac Harrow Company — Harrow for general use.

Allen & Davis, Madison — Feather renovator.

Williams Harvester Company, Cedar Rapids — Williams mower; combined mower and self-rake.

N. W. Dean, Madison — Hall's sulky plow, adjustable beam.

M. L. Hawkes, Kinderhook, Mich. — The Michigan washer.

P. H. Kells, Adrian, Mich. — Brick and tile machine.

E. J. W. Lindsey, Milwaukee — Agricultural steam engine; clover huller and cleaner; combined clover huller and grain

thresher; sulky plow; three walking plows; adjustable log holder and truck; vibrating harrow; three sulky horse rakes.

C. Aultman, Canton, Ohio — Buckeye binder; Buckeye reaper; Buckeye mower (light); Sweepstake thresher; Canton Monitor engine.

John Lamont, Madison, Wis. — St. Paul binder; Elwood harvester; Dewey harvester; Meadow Lark reaper; Meadow Lark mower; John P. Manny mower; Beloit Self-rake reaper; Thomas sulkey-rake; Superior force-feed drill; Superior seeder; Van Brunt seeder; Challenge feed mill; Monroe wagon; Keystone corn planter; Keystone sulky rake; Keystone corn sheller; Pony corn sheller; Pet corn sheller; Keystone cider mill; Faust's hay loader; Perry's hay tedder; Brown's sulky plow; Gilpin sulky plow; N. C. Thompson's sulky plow; Gorham corn cultivator; Acme corn cultivator; Buford corn cultivator; Deere & Co. plows; Deere & Co. breaker; B. D. Buford & Co. plows; N. C. Thompson's plows.

Firmin, Billings & Noe — Capital City Plows, 16 inch extra prairie breaker; 12 inch sod; 14 inch Clipper; 13 inch sod; two 14 inch stubble; two 13 inch stubble; 15 inch steel beam (three horse); two 14 inch steel beam; two 12 inch steel beam; 8 inch corn and hop plow; patent plow pole and attachment; Van Gorder plow and harrow sulky, together with a large collection of plows, fixtures, etc.

Warder, Mitchell & Co., Chicago — Champion side No. 4 self-rake; wide single reaper; Champion light mower; new Champion mower, front cut.

Geo. F. Ott, Madison — Combined hinge and roller for farm gate.

S. L. Sheldon & Co. — Ames' portable steam engine; Minnesota Chief thresher; Buffalo Pitts thresher; Birdsell clover huller; McCormick harvester and binder; Marsh do.; Warrior mower; Meadow King mower; do. with tilting lever; Lawn King mower; Buckeye drill and grass seed mower; two do. broadcast seeder and cultivator with grass seed sower; do. Senior cider mill; do. Junior cider mill; do. plow sulky; Ellwood sulky cultivator; Briggs & Eurch sulky plow; do. two turf and stubble plows; do. breaker; five Norwegian plows; Faust hay loader; Watertown standard spring wagon; do. platform spring pleasure wagon; Mandt do. do.; Stoughton farm wagon. For Wait Manufacturing Co., Grand Haven, Mich. — Challenge horse corn planter, double "cheek;" do. two

drill combined; do. three single. For J. I. Case & Co.— Portable steam engine; Eclipse separator. For D. M. Osborn & Co., Albany, N. Y.— Orton's harvester and binder; Wheeler No. 6 reaper and mower; Kirby No. 3 do.; Wheeler No. 5 do. For D. S. Mcrgan & Co., Brockport, N. Y.— Triumph reaper; Morgan reaper; Seymour mower. For John Dodds, Dayton, O.— Hollingsworth hay rake; Reindeer do. For J. W. Stoddard & Co., Dayton, O.— Tiger hay rake; Favorite hay rake. For Harris Manufacturing Co.— Leader mower; reaper and mower do.; Prairie City seeder; adjustable lever to harrow.

E. W. Syford, Mazomanie — Bulldozer wood-sawing machine, hand.

G. S. Griswold, Lake Mills — Challenge seeder and cultivator, combined.

A. N. Dimock, Elmwood, Ill. — Washing machine.

J. Rowell & Sons, Oconomowoc — Sulky cultivator.

F. J. Miller, Prairie du Chien — Feed mill; E. W. Beebee, Evansville.

N. G. & N. Barnes, Freeport, Ill. — Two corn cultivators, hay rake, three corn planters, corn shellers, fanning mill, hay carrier, fork and pulleys combined.

George W. Esterly, Whitewater — Esterly harvester; Esterly reaper; Easterly seeder and cultivator.

W. H. Rhodes, Chicago — Post-hole digger; combined log-holder and truck; hand seed sower.

James Tegart & Co., Madison — Grain carrier and band cutter; straw carrier and stacker, to be attached to threshing machine.

N. S. Johnson, Ithaca Agricultural Works — Sulky rake.

O. H. Johnson — Swift self-raking reaper; Standard mower; Standard seeder and cultivator combined; Standard two-hoe corn planter; two Standard corn cultivator and seeder attached; Jones' hand corn planter, double or single; double shovel plow.

A. W. Miner & Co., Belmont, N. Y. — Clipper mower.

I. J. Spofford, Chicago — Howe scales, stock and farm.

J. I. Case Plow Company — Center draft sulky plow, breaker attachment; twelve and fourteen-inch Belle City breaker; two center-draft steel beam plows; center-draft combination; steel and wood beam; wood beam plow.

Madison Manufacturing Company — Four cane mills; evaporating

fan; improved furnace and farm boiler; one two or four-horse power; adjustable iron-horse hoe; road scraper (steel bottom); Gale sulky hay rake; five iron kettles of various sizes, for farm or other use.

E. L. Church, Harvard, Ill. — Hay elevator and carrier.

J. H. Kinney, Janesville — Combined reaper and mower.

A. P. Dickey, Racine — Farm fanning mill; three warehouse do; two grain seed separators; iron field roller; corn sheller.

Matt Boehmer, Madison — Farmer's land roller.

Wayne Agricultural Co. — Royce reaper.

Grosscup & Kailey, Lena, Ill. — Farmer's handy gate; rubber bucket chain pump.

Wm. A. Knowlton, Rockford, Ill. — Riding two horse corn plow; iron beam two horse walking plow; wooden beam two horse walking plow; sulky steel tooth hay rake; Knowlton self-rake reaper and mower combined.

A. F. Clark, Paoli — Taylor harrow; Taylor's wire splicing and stretching tools for wire fence.

Utter Manufacturing Co., Rockford, Ill. — Sulky corn cultivator; broadcast seeder and cultivator combined.

Fond du Lac Harrow Co. — Harrow.

C. Sexton, Janesville — Sulky corn cultivator with harrow attachment; horse rake.

Kohler & Silbergahn, Sheboygan — Feed mill and feed cutter combined.

H. F. Meacham, Belleville — Farm gate.

J. I. Knapp, for Wm. R. Wheeler & Co., Beloit — Combined brick and tile machine.

L. V. W. Noyes, Batavia, Ill. — Hay carrier; Noyes' harpoon fork; Noyes' fork; Noyes' grapple.

Wm. McEwan — Entrance gate.

Eureka Manufacturing Co. — Road grader.

C. D. Reed, Polo, Ill. — Automatic gate.

D. W. Scabie, Cambridge — Flexible harrows; registered setter.  
Batavia Manufacturing Co., Batavia, Ill. — Nichols Centennial wind mill; Mole's tire sprinkler.

A. N. Powers, Portage City — Fanning mill.

J. N. Temple, Knapp's Station — Wagon rack.

Blake & Beebe, Racine — Champion mill.

J. F. Johnson, Racine — Farm fanning mill; Racine warehouse mill.

Lane & Hitchcock, St. Paul — Sand band for vehicles.

#### GENERAL CONCLUSIONS.

Scientific discovery and improving labor-saving mechanical devices, are the truest test of modern progress. It is not in the learned professions, or in mere scholastic pursuits, however valuable in themselves, that the brain-power that moves the world is to be found. The impulse of invention and advancement is scarcely to be detected outside of the ranks of practical labor. It is among the shops and homes of the humble and undistinguished that we must seek for that active genius that has given to modern times its chief distinguishing features; and without which civilization would have been stationary. The real rulers of mankind are not they who govern, but that comparatively small body of men who add annually to the common stock of intelligence the golden grains of new discovery. It is that advance alone that measures the sum of the aggregate gain of the age in all that is most valuable and useful.

To such as intelligently note the changes each year produces in the improvement of machinery exhibited at our fairs, the advance is a source of perpetual surprise. The premium devices of one exhibition are almost always found to be eclipsed at the next, and as time advances, except for the use designed, almost lose their identity. The single automatic grain binder of a dozen years ago has undergone such modifications and changes as scarcely to be recognizable in the great variety of devices that have sprung from the parent thought. And the same is equally true of the combined mowers, reapers, threshers, and almost endless variety of machines of all kinds that have grown from the clumsy models of the past. Progress is manifest in nearly every thing presented for examination. Even the plow has become a thing of beauty that might almost become an ornament of the parlor. Its improvements are so marked as almost to rival all other classes, and to demonstrate that, after thousands of years of effort, the inventor still finds ample room for the display of genius.

The quantity and variety of machinery on exhibition this year was unusually large, and in every way deserving of special commendation. An attempt to note and specifically mention the im-

provements of the year, had to be abandoned, as it would swell this report far beyond the proper limits, and moreover be of no special interest to the society.

The grounds were admirably selected, and the management of machinery by the superintendent, R. D. Torry, all that could be desired. He deserves great credit for labors faithfully performed, and indefatigable efforts to render his department a success.

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## DEPARTMENT I — MANUFACTURES.

BY SAT. CLARK, SUPERINTENDENT.

In the department of manufactures, the people of the state do not seem to feel the same interest as formerly; and for several years last past the exhibition has not been what we have a right to expect. There are, however, some enterprising citizens who endeavor to make the fair as attractive as possible, several of whom are entitled with their exhibition to special mention in this report.

A. A. Pires, Milwaukee, exhibited a door spring which seemed to be the best one in use, and was awarded a diploma.

The exhibition of stoves of every variety was first-class, and was quite creditable to all the exhibitors. Smith's Refrigerator, of Michigan City, took the first premium in that line, and in my opinion it was properly awarded.

Geo. T. Smith, of Jackson, Michigan, exhibited a Middlings Purifier for which both he and his agent are entitled to great credit.

The most elegant and attractive display in this department always comes from the Racine Silver Plating Company, whose exhibitions are equal to any in the country. The society is under obligations to this company for their display, because it is always attended with much expense, and great risk. We hope always to see them at our fairs. The exhibition of carriages, while not so large as some years, was nevertheless creditable.

While there were some articles of furniture exhibited entitled to credit, the display in that line was small. The same may be said of musical implements.

Mr. M. S. Grey exhibited a Cooly creamer that was admirable. Every dairyman ought to have one.

J. W. Powers brought a cream extractor that gave especial satisfaction.

The display in hats, caps and ready-made clothing though not extensive was good.

In domestic manufactures there was an extensive exhibit in bed-quilts, but in other articles it was thin.

As the fair is again to be held in Madison, it may be proper to say to the citizens generally that they ought to desire the fair to be a success, and therefore ought to exert themselves to make it attractive. The premiums offered in many instances may not be an object, but for the credit of the city where the society has a home, the people who can make a showy display ought to do so.

STATE  
AGRICULTURAL AND HORTICULTURAL  
CONVENTIONS.

*Held at Madison, February 4th to 7th, 1879.*

[Under the auspices of the State Agricultural and State Horticultural Societies.]

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TUESDAY, 7: 30 P. M.

The convention met in the assembly chamber, and was called to order by Hon. N. D. Fratt, president of the Wisconsin State Agricultural Society, who addressed the convention as follows:

*Gentlemen of the State Agricultural and Horticultural Societies:* It gives me great pleasure to meet you once more in our councils, and join in plans for the welfare of the farmers of our great and growing state of Wisconsin.

The great mission and duty of our societies is to reach and benefit all within our field of labor. Like every other calling and profession the ranks of the agriculturists embrace in their numbers all grades of excellence, all degrees of efficiency, and every variety of standing and position.

Comparatively a few, scattered here and there all over the state, of whom each town and county has a small share, stand prominent among their fellow farmers, and rising above the mass simply by virtue of their success, that great American test of all excellence, seem to receive the first golden rays from all the suns of excellence and prosperity that rise to gild the farmer's calling and to gladden his prospects.

But away below these fortunate few, in grade after grade in continually varying excellence and ever diminishing successfulness, lies this whole substructure of our agricultural industry, spreading outward and downward until the vast base of the pyramid is reached, in that immense army of farmers whose greatest ef-

forts at excellencies never rise above mediocrity, and whose greatest ambition seems simply to consist in a continuous struggle for a bare subsistence amid circumstances of great discouragement. To them the doings and sayings of even the county agricultural societies are little known, and less felt; whilst the state fair stands afar off, a sealed book, unknowing and unknown. A problem of no mean magnitude is thus presented to us for solution. To them almost every avenue to successful competition is practically closed.

At the state fair their slow, sober and staid plow horses and cart-horses can pretend to no competition by the side of the flyers that gather from all parts of the state, to compete in the ring for the blue ribbon. Their common home-bred cattle would hide their diminished heads side of the high-bred Short-horns, Jerseys and Ayreshires, of fancy farming stock, and so on through the long list of premiums and competitive shows. And thus they plod on, year after year, with weary efforts for prosperity and discontented grumbings for better things, and with vain and unceasing regrets that they are farmers, and with a firm resolve that as for them and their house, if the time shall ever come when it can be done, they will shake the dust of the farm off their willing feet, and seek other and more congenial pursuits.

And what is the remedy for this? It is told in a single word—*success!* And what can bring this? Intelligent, painstaking industry and economy. In every other branch of industry, in every other development of productive pursuits, the absolute necessity of an intelligent and never tiring economy of time, labor and capital is ever present, and governs in all its operations until growing success produces pride of employment, and the prosperous proprietor lays his cheerful plans for the far future, and brings the intelligent care and skill, born of each year's increasing experience, to help him onward and upward. But is this the case on a large proportion of the farms in the land?

One vast drain upon the resources of many farmers is in the ruinous treatment of their farm implements.

Our cities are swarming with manufacturers of and dealers in agricultural implements. Every railroad train, at the proper season, hurries on its course loaded with the vast and varied products of the workshops of the world. By land and by water they are

carried to the uttermost parts of the earth, and to the far-off islands of the sea. These great armies of operatives, these immense masses of almost intelligent machinery, these railways and other means of public transportation, are maintained and paid for from the daily toil of the farmers; and to these are to be added the innumerable hosts of agents, sub-agents, general and local, collectors, attorneys and middlemen, who swarm about the farmer, profiting by his labor, until the only wonder is that the patient, long-suffering farmer does not lie down under his grievous burden. Now is this necessary? Must it ever be that the poor farmer (I use this term advisedly, meaning, perhaps, more properly, the unsuccessful farmer) must double up this one of his many burdens, and year after year, as he harvests his limited crops, count into the hands of this numerous array so many of his hard-earned and scanty dollars? On how many farms by which one passes, the causes of much of this great waste are so plain that the wayfaring man, though a fool, need not err therein. The farm wagon, a substantial and expensive structure, will stand under some friendly tree, if at hand, or in the fence corner, exposed to all the fierce storms of our rough weather, and to the almost equally destructive rays of a scorching sun, and soon hastens to premature decay, not worn out, but destroyed by abuse and the want of proper care.

Down in the meadow, or in the stubble field, you will find the mower or reaper, perhaps both, where last year's work was finished, fast becoming unfit for future use simply for the want of the most common care; and when called upon next season, it either gives out entirely or sends the farmer to town for repairs whilst his help fritter away their time on other not important labor. Near the barn, perhaps, stands the improved seeder of last season, a convenient rack from which the cattle and horses pick their daily fodder, whilst the faithful plow stands in the still unfinished furrow, waiting for the resurrection to come. Then with rheumatic joints and rust it is vainly expected to do good work; and so on through the almost endless catalogue of farm implements, valuable, economical and properly sought after when fairly used and carefully preserved, they become expensive, wasteful and short lived by exposure and neglect. And soon the smiling agent again puts in his appearance, treats with contempt the poor wrecks of last year's machinery, over whose grave the epitaph should be, "Died of Exposure," explains

to the thriftless owner the vast superiority of his new machine; it will do so much more and so much better work, will wear so much longer, and he will be so happy to furnish the still doubting farmer with it at a merely nominal price (only perhaps two or three times its actual cost), and will take his note therefor, payable in the dim and distant future — when all these magnificent crops that will spring up all over his farm, simply from the presence of his wonderful machine upon it, shall come rolling into his barns and granaries, filling them to overflowing, the mere drippings of which will pay the note, and in the meantime he will only charge him ten per cent. interest — a mere form, just to make it interesting, you know — and to remind the happy farmer of the great blessing bestowed upon him. And so that machine, wagon, or whatnot is added to the unhoused and decaying crowd, and that farmer will have a new party interested yearly in his welfare, and a new drain upon his limited income.

It would be an interesting and highly profitable table of statistics that would show how many wagons, reapers, mowers, seeders, and so on through the whole lot, are now owned in this state. What has been their entire cost? What is the extreme age when fairly used and housed? What the shortest time under the most wasteful usage, and thus show the tax in hard-earned money paid by the farmers of Wisconsin through their own carelessness and neglect?

But it is needless for me to enlarge on this subject. You have all seen, you all know, how much of melancholy is in this plain statement. Multiply agricultural colleges and schools, teach analysis of soils and composition of fertilizers, experiment deeply in sub-soil plowing, inculcate proper rotation of crops, encourage scientific stock-raising, and still the beneficent sunlight of successful farming will shine far above the heads of a vast mass of unskilled and unsuccessful farmers. To these our societies, "fostered by the people of the state," owe a thoughtful care, and for these it has been my desire to say something in laying out our programme for the work of the coming year. Their prosperity is the prosperity of the people, and their adversity must ever be a serious drawback upon the prosperity of the great body of our producing classes.

*Ladies and Gentlemen.* — I take great pleasure in introducing to you as the speaker of the evening, Hon. W. C. Whitford, the head of the Department of Public Instruction in Wisconsin.

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## EDUCATION OF WORK.

By HON. W. C. WHITFORD,

State Superintendent.

In this age, and in our county, the principal means for the intellectual culture of the whole people, are not their books and their schools, but the common work of their various pursuits.

To many persons this proposition may, at first, appear startling, or an overstatement of an acknowledged truth. Our interest in the establishment of schools for the education of our children, and our earnest struggles sometimes to maintain these schools, often blind us to the fact that we are using, or can use, more universal and more immediate appliances for the mental training of our boys and girls, and even of ourselves. In educational circles, the conviction is rapidly growing that there are means to be employed in our schools, more primary and more effective, than the chart and textbook, for the development of all the faculties of the young child's mind; and that these means consist in the skillful and systematic exercise of the intellect with the physical powers, in exciting plays and useful employments.

I should do violence to your sentiments, and be false to my own views, if I joined hands with the uninformed and ill-disposed in an attack upon our literature and our institutions of learning. I fully accord to them their legitimate and indispensable uses. But I wish to examine the fact — for such I regard it to be — that the mass of our citizens are trained, not by this literature and these institutions, but in a different way, to think, to form their opinions, to establish their habits, and to meet the demands and responsibilities of home, society, and business. I do not laud what are called self-made men, just as if it were true that the recipients of the best school privileges have the contents of other men's minds emptied into their own, and they gain intellectual strength and acuteness, without patient and arduous application on their part.

Men have two ideas of mental discipline: one is an acquisition, the other is a development. The former supposes that the mind is a vacuum at the beginning, and that all the vigor of our faculties and the differences in the abilities of men, are the sole results of culture. The latter is based upon the principle that we have inherent germs of thought, and native aptitudes for special callings; and that these are led out, educated, laid open, developed by the many helps for forming character, as school books and teachers, lectures and papers, public opinion and fire-side talk, appearance of nature and spiritual forces, delving in the soil and learning a profession. Our intellects have an inborn substance, and differ in their original capacities; and these both are unfolded, enlarged, and made stout by the processes of mental awakening and activity. This is the theory around which, as a central idea, I shall arrange a few thoughts.

1. It is a saying, on which school boys write essays, as true as proverbial, that labor is elevating. Health moralizes, and work promotes health. Give worthy employment to the rugged energies and the physical impulses of our nature, and we

“ Rest from sin promptings that ever entreat us,  
Rest from world sirens that lure us to ill.”

But it elevates by instructing. Webster regards this as its chief office. *It holds our thoughts in the closest contact to the common and healthful themes which our business, social experience, struggles of life, and aspirations of soul are continually furnishing.* In this condition, these themes infuse into our thoughts a new power, form their modes of action, and purify their tendencies.

While they thus supply wholesome food for the intellect, they create a positive disrelish for the vicious and enervating pleasures of idleness, luxury, and sloth. How far happier and nobler the industrious plowman who looks, at the close of the day, upon his hundred long furrows in the rich black soil, and recalls his calm reflections and satisfied spirit amidst his work, than is the flabby-faced, loose-jointed, and staring loungers at village saloons or country stores, exercising just thought enough to play checkers, to laugh at the last jokes retailed in the traveling circus, or to listen to the slang and petty news floating about the neighborhood. How better fitted to dare and be trusted in times of responsibility and

peril is the man who has communed face to face with the stern forces of nature, and taken lessons from his own brave earnings, than is he who, in the drowsy cloister, has been all his life receiving into his leaky brain the knowledge found in dusty books and on mouldered parchments. How much more becomingly are the honors of home and society awarded to the young man who has won his position by hard-fisted and brain-racking toil, than to him who, as haughty, cowardly, and idle, allows himself to be supported by inherited riches, or by the unrequited labor of other men's hands. In one of the largest and costliest libraries of the country, I have often seen its adispose keeper dozing away hours of each day, all unconscious of the wealth of his opportunity, like a rustic sentinel in the door-way of a marble temple, most interested in his humble fees; and in the midst of works which have immortalized their authors, and of the best written thoughts that breathe and burn in the human intellect, he is learning less and using his knowledge to less purpose than is the muscular drayman, who pets his horse, washes daily his cart, and spends his working hours in the streets, always ready to tote about your luggage.

We are, in a measure, surprised as we look at the amount and variety of the subjects of thought derived from our occupations. There are more than "sermons in stones." To the architect, there are lessons of solid strength and artistic beauty; to the tiller of the ground, of homely uses and rough skill; and to the explorer of ruined cities, of the serious changes of time, and of the great ideas and the illustrious deeds of ancient heroes. Bacon, in his *Natural History*, tells of a sluggard who, wishing to improve his health by breathing "the air of earth newly turned up," had a clean clod of it "brought to him every morning as he sat in his bed, and he would hold his head over it a pretty good while." But, truly, they who plow and sow and reap, inflate their thoughts with the lifesome truths of thrift, economy, foresight for coming wants, the generous rewards far patient care, the familiar uses of the mysterious agencies in matter, and the unstinted kindness of nature's moods and products — all as full breaths from the upturned sod of clover roots, the ground pulverized and enriched for nursing the infant blade of corn, the newly mown meadow, and the fields of ripe grain. The youth of Sparta were brought up in sight of the statues of their heroes and demi-gods, who became the models of their lives, and

whose achievements and honors were their incentives to action. The citizens and sturdy workers of our country have no less impressive symbols of their own peculiar ideas, customs, and pursuits. What views of human energy, great enterprises, and our nation's growth, can they see in the immense forests felled, in the broad prairies inclosed and cultivated, in cities rising by magic along the courses of rivers, and in the long nerves of railways through which we are feeling into the western borders, where our civilized life lock-stiches into the savage. The professions and the mechanical trades have their emblems and paragons—their *arma virumque*, “tools and a hero to use them”—to invite the study and the chase of the ambitious and the ingenious. Too busy and restless to look back of present examples and exploits, our artizans derive the best ideas of their business from observing the use of the perfect machinery in our workshops, from examining our numerous inventions, and from handling the improved implements of their own trades; and our aspirants for professional honors follow the complete ideals of action and success, which they obtain from an inspection of the course and character of the living masters of their callings. This close and vitalizing contact with the objects which engage most firmly the thoughts of the common toiler, is more valuable than bare knowledge, in cultivating the faculties of his intellect, and in forming the biases for his special employment. It acts like the law of exercise; so that the truths learned, or the information gained, become part and parcel of our mental power, and are assimilated into the sinews of thought, as the eye and the flowers, when opened to the sunlight, receive and blend into their own functional activities the life forces which that agent of nature contains.

But these themes, which exercise our thoughts, come from their original sources, fresh and refreshing, like first conceptions and discoveries. There are the best relish and the best quenching of thirst, in drinking the pure, cool water from the living springs, boiling up under the “shadow of a great rock in a weary land,” or in the grassy nooks of our fields. Men are better satisfied to have the first reading of their books and daily papers, because the information or the news seems to be presented more immediately from its fountains. This feeling in the working classes and the impatient mind to accept truth only at its primal source, led a French writer of acute observation to say, some years since, that “in the next century, all books would be merged into newspapers.”

Talk of farming, and enjoying it, from book knowledge of agriculture! It is absurd. You must hold the plow, pitch the hay, tend the flocks, and sell the produce — have all the experiences of the husbandman in performing the actual labors of his occupation, in order to understand and delight in it. You then have a photograph, not a mere sketch, of earth's first employment. Read anew, if you please, the *Anabasis* of Xenophon, the faithful account of the mustering and marching of the Grecian army under Cyrus the Younger, of their battles and their celebrated retreat; look over again the commentaries of Cæsar on the Gallic War; and you will then have clearer conceptions of their importance, and a deeper interest in their narrations than ever before; because all the events of those movements are examined in the light of our own recent efforts in raising, equipping, drilling, maneuvering on the battlefield, and bringing home the gallant troops of our former national army. The idea here presented is illustrated in the course pursued by many students. A large number of them go out from our academies and colleges to spend one or two terms a year in charge of public schools; and they have the same thoughts from the textbooks, and the same culture which were presented in the former, there ingrafted into their minds with a fresher, more natural, and more indelible effect, by the realized wants and the actual uses of learning, tested in their school-rooms. The Multiplication Table and the Lord's Prayer may have been learned by us in youth, when in school or at home, so that we could repeat them word by word; but their full and exact meaning was not comprehended by us, until it was impressed upon our minds by the needs and realities of an older and more practical life. The young physician turns away from his books and lectures, his course completed, with vague notions of the functions of the human system and its diseases, as well as of the properties of his medicines; and he enters upon his treatment of the sick and the application of his remedies; and his information is changed thereby into experience, and appears not to be grounded in his first acquisition, but in his recent practice.

To the man unused to the higher walks of learning, these original, inwrought, and always real views of the facts and forces about him, and this feeling their first influences upon the mind, go far toward compensating for his deficiencies. They give a dextrous use to the hands, and form a solid judgment. They establish a perfect

reliance upon the laws and substances of the visible world, as the quaffing

"From Siloam's fount,"  
That flows fast by the Oracles of God,"

nourishes a living faith in the invisible and divine. Such are some of the themes, and such their effects upon the intellect of the busy toiler, as supplied by his occupation and circumstances.

2. *Work stimulates our intellectual powers.* Whatever awakens and excites thought, educates us to a certain extent. In the system of instruction adopted in many schools, this is regarded as the main principle. The presence and authority of the teacher in the school-room, are deemed essential, because they arouse and keep active the minds of the pupils. Sir William Hamilton holds that our intellects are in such a state of depravity that external excitements are needed to induce us to think healthfully and efficiently. The mind's own innate promptings will not secure this result. That man is constitutionally indolent, or will not exert himself to the utmost of his intellectual capacities, unless compelled or stimulated by outward motives, is the idea at the basis of the methods of rewards and rivalries used so extensively in our schools. To say the least, many scholars will learn faster and more thoroughly under the incentives of competition, than in any other way.

In all our occupations and in nearly every day's performance, this sentiment is not an insignificant factor. The occasion is found in the rivalries of adjoining farms, of workshops in the same neighborhood, or of offices of professional men on the same street. How carefully the movements of others are scrutinized, how many plans devised to circumvent or outstrip, how steadily the labors are performed or the faculties drilled, and how strained at times, are the muscles of the mind to their utmost tension, to feel and to be acknowledged as the most successful or the leader.

But there is another stimulus quite as effective and more healthful to our intellectual energies, and that is the steady awakening influence of the labors of our hands and our brains. This does more than to moisten the brow with sweat; it causes the perspiration of thoughts, like great drops, to issue from the intellect.

The law of physical life which demands that an equivalent shall be paid in work for the bread we eat, brings other rewards when

obeyed, in the rigorous tone and elasticity of our systems. Whatever our hands find to do, we come to do with all our might, when our labors have aroused a deep interest in our minds for them. To mix colors, and to paint for immortality, as an artist once said, "with brains," is to kindle intense and continuous thought in those brains. The poet who wrote three hundred stanzas, while the master of Greek tragedy wrote only three lines, saw his unmeaning, slipshod, and conceited doggerels perish in the moment for which they were written; while the latter, working for all time, moulded his phrases in the fire of the hottest thoughts. An eastern sage declared that "the state of the unlearned is death;" but truly, that of the laggard is lower, it is a living death. Having all the powers for action, God-like and blissful, he exists breathing and sleeping, his life energies stagnating, and all desires for a higher condition buried in his driveling and besotted soul. Let Ajax roll the heavy stone to the hill-top; it will employ his mind, and excite and increase his love for stronger exertion.

As you consider the many callings, positions, and walks of men, and the multitudinous labors expended in them, the planning, inventing, and shaping to ends, you see what a constant warmth of intellect they must generate. The necessities of individuals, families, and society, which induce so much toil, compel and incite thought. To half starve a man will set him both to contriving and working. Some of the finest essays in the English language were written on the inspiration of an empty stomach, or at the recollection of yesterday's dinner. As a single example, we may quote what the biographer of Goldsmith says of him, that "the distresses of poverty returned upon him so frequently, that he was glad to undertake any literary employment to replenish his finances." But to the tens of thousands whose daily bread is wanting, and whose children suffer if they are deprived of daily wages; and to the wealthy, whose property must be used, and whose standing in the community must be maintained, the calls for personal activity are so urgent and so protracted that they keep the mind inspirited, like a difficult study in our schools. Stir the soul in which lie dormant the impulses of ambition, by the sight of the possible attainment of high honors, and it will often act with astonishing efficiency. The Athenian General Themistocles was cured of his youthful dissipation, and abandoned his fiddle, when he saw the trophies of Milti-

ades, the hero of Marathon; and feeling that he could not sleep nor be careless, and taking his sword, as did our own invincible Grant, he cleared and won his way to the highest military renown, astonishing his friends by the vigor of his mind and his power to command. To have a clear title to a hundred acres of land; to own a convenient shop for manufacturing purposes; to manage a large enterprise in one's own name; and to be regarded kindly and with esteem, are the common and wholesome rewards held out to the working men to incite activity and close calculation.

Work in all its departments, the callings, trades, professions of men, seizing hold of our constitutional preferences or habits of thought, draws out and concentrates our energies in some particular sphere of action, most agreeable, or promising the most enjoyment and success. The artist who conceived and chiseled the Zenobia, the matchless statue of the captive queen, was called to the labor, for which she is so well adapted, by feeling its stimulus and attractions, as she came to know the occupations of men, and the products of human skill, by her out-door exercises, and by meeting busy workmen. The self-made teacher at Newburyport, by twelve years of toil in his school, had his natural fondness for his calling developed and converted into the intense enthusiasm which appeared so conspicuously in his labors at the head of a normal school in New York, and contributes so many charms to his work on the Theory and Practice of Teaching. The stone mason in Cromarty, in Scotland, unassisted in his humble trade, conscious of his own strong abilities, and led by his native tendencies to study physical phenomena, employed his leisure hours in examining the fossil fishes of the Old Red Sandstone, and the ammonites of the Lias formation; and was moved as by inspiration to become the popular expounder of the principles of geological science, and slew, David-like, by his stone fish, the old infidel theory of development. In an obscure tailor shop in the state of North Carolina, was an apprentice, fast reaching his majority, unable to read, having a vigorous frame, with strong passions and undeveloped powers of intellect; and he listened, day after day, to the reading of selections from the most perfect speeches of British orators and statesmen, and felt his whole spirit impelled by an inmost force to qualify himself to control assemblies by the divine art of eloquence, and to understand the principles, and to administer the laws, of a popular government.

The same humble hand-craftsman, on the death of the immortal Lincoln, became our chief magistrate.

But the work of men creates in us the deepest interest in nature, human affairs, and the divine proceedings, by urging us into the closest connection with them, and by impressing on our minds, as I have already said, their original teachings. These are plucked as grapes from their vines. As truths, they have never been filtered through the thoughts of any one. Fashioned by a perfect hand, and fitted to the states of our intellect, as electric fluid is to steel, these teachings fill our thoughts with a healthy and lasting glow. The instinct for knowledge is increased, the need of other truths is felt, and our powers of mind, feeling the strength and the delight received, put themselves into a position both to acquire a larger culture and to question more searchingly nature, history, and the revelations of God. What the falling apple was, in Newton's mind, to the discovery of the laws of gravitation, these first and often rough lessons are, in the thoughts of the active laborer, to an accurate and exhaustive acquaintance with the highest concerns of life.

3. *Work strengthens our intellects.* This would follow from the instruction which it furnishes, by placing us in direct contact with healthful themes, and by stimulating our thinking powers. On this subject, Carlyle says: "To work what incalculable sources of cultivation lie in that process, in that attempt! How it lays hold on the whole man; not of a small, theoretical, calculating fraction of him, but of the whole practical, daring, doing, enduring man, thereby to awaken dormant energies, root out old errors at every step. He that has done nothing, has known nothing."

But work enlarges the brain power, both the capacity and the use of thought. If a strong physical frame is requisite to a strong mind, surely to make active and vigorous the former, is to strengthen really the latter. Pigmies are not alone insignificant in body. Dwarfs are fitly play things in shows and museums. The brawny arm, the bronzed face, the broad shoulders, and the heavy locks of hair, belong to nature's nobleman, just from the dirty fields, or the smutty workshops, and capable of the thoughts of heroes. Pamper a man in laziness, and his soft skin and tow-string muscles are exponents of his jelly brain and half annihilated intellect. Labor drops into the treasury of the mind, not the two pence merely, but all that it has—its solid earnings. It is transmitted into intellectual force.

The invigoration of the body is united at once with the activities of the mind. The boisterous liveliness, the quick light in the eyes, the elastic thought, and the prompt business habits of the common laborer, have been cultivated as much by the stimulating employment of his hands, as by the exercise of his intellect. This truth is recognized in the training of our gymnastic schools. The athlete in the Olympic games felt himself ready to compete for the prize by wrestling or in the foot-race, when he had matured by his physical training that lusty mental energy which controlled every function in his nature, and spurred, in an emergency, his whole being right onward to victory. Many men, in the ordinary and higher walks of life, are accounted leaders; because their thoughts, though few, are rounded out into solid ripeness and dashing courage, by the strength derived from a large frame and toughened sinews. Add fifty pounds weight of compact flesh to the convalescent patient, and you very often double his ability to think, as well as to work. We are often surprised to see individuals without any opportunities for extensive learning, exhibit, after several years of hard labor, a close observation, a sound judgment, and a ready ingenuity, which seem to have been but the outgrowths of their physical culture. Locke, a reasoner of broad views and acute powers of mind, was accustomed to gather much valuable information from the common workmen of his day, and tested often, by their opinions, the fallacy or correctness of some of his philosophical views. He found, as it is said in the Hudibras,

“They knew what’s what, and that’s as high  
As metaphysic wit can fly.”

Quite a portion of our mental culture consists in the ability to fix the attention steadily upon any object. In nothing does the uneducated differ more from the educated than in this respect. Some one has declared that it is half of our mental discipline. Our thoughts, like sinners, if they “scatter their ways among strangers,” become dissipated, unreliable, and weak. If held to the point, as at a focus, they illumine and heat each other; like sticks in a bundle, each possesses the strength of all, and all acquire the strength of each. In this process our thoughts are filled out and sharply defined; our knowledge of any object is exact, and our minds husband their reserved forces, as the accomplished driver

holds in by reins and bit the spirited and half-tamed horse. Interest in our work and application of our thoughts to our business, cultivate our attention to a remarkable degree. So absorbed is the mind at times that the laborer forgets his weariness, the diseased his pain, and the busy the passage of time. The arm will make quicker, surer, and heavier strokes with the hammer, after it has been exercised some time in shaping the hot iron on the anvil. The intellect, likewise, occupied for a season in performing any kind of labor, will act more freely and forcibly, and have a lively relish for that labor. Thus are formed the habits and tastes of our vocations, a second nature, often more robust than the first, and always an essential condition of efficient skill and success in our pursuits. Without this, there can be no self-reliance and independence in our work.

Men often gain a vigor in transacting their business which they carry into their reflections. The force which the arrow discharges into the target is the momentum it has acquired from the elastic bow. More intellectual toil is often performed before breakfast and after bed-time than would be in the whole day, if the mind was not warmed up and invigorated in the daily routine of hard work. Milton composed the *Paradise Lost* immediately after his zealous and gigantic efforts to defend and perpetuate the republican form of government under Cromwell. The activity and the impelling force of his thoughts, generated in his public career, must need be expended, in his quiet retirement, in the creation of that unparalleled poem. There prevails the conviction, based upon such facts as these, that the culture of work strengthening the mind, is required as the foundation of a literary and scientific education. It acts like the balance-wheel on the steam engine, curbing its eccentric motion and accelerating its feeble. It is the practical to be combined with the theoretical, always preceding and furnishing the latter with its best capital in a thriving business.

It must follow from these statements that the harder the manual toil performed, within the limits of our strength, the greater the difficulties overcome in our business, the more invigorated and energetic will our intellectual faculties become. The Irish orator, Sheridan, to a friend who was trying to dissuade him on account of his prominent defects of voice and style from becoming a public speaker, replied, "It is in me, and it shall come out." And his

exertion in surmounting these obstacles, joined to his native aptness, qualified him for his subsequently brilliant career. On the principle that the reward is proportionate to the outlay, one of our best thinkers remarked that if truth were offered him on the one hand, and search for truth on the other, he would, by all means, choose the latter. The earnest seeking develops far more than the passive receiving. A single idea wrought patiently into our daily thoughts, is worth more to us than a thousand facts stored in our memory, as in an encyclopedia, even labeled and packed away on their appropriate shelves. The noise, the bustle, and the straining of our nerves in the marts of business, are not inimical to mental growth and activity. Editors frequently have their sanctums in the busiest portion of their establishments. Large riches are a benefit, because they demand severe application to take proper charge of them. The very thought that Paul worked incessantly to subdue the thorn in his own flesh, and to disseminate the truths of the gospel, operates in christian believers to-day as the act did in him, to prepare the mind for greater exertion. A leading mechanic in the city of New York, with a very ordinary education, in the midst of poverty and strangers, passed from the position as foreman of an extensive foundry for casting stoves, to constructing engines for our ocean steamers and finally the steamers themselves; and he added to his mechanical training a fine literary taste and culture. It is often urged that a broad and substantial culture cannot be obtained in this country, where the people exhibit such untiring activity and restless spirit in their business. In European society, with abundant leisure and the readiest access to the storehouses of learning, the few in the select circles do acquire more knowledge, and discipline themselves for higher attainments in special intellectual pursuits. Their efforts are unique and striking. But they are wanting in that athletic and many sided education which belongs to the individual and the masses in our society, and fits them for managing large enterprises, controlling men, and stamping their deeds and their thoughts on the pages of history. Armies are composed of such men, new countries settled by them; the drudgery of all business, which, in reality, is the solid material in the framework, falls upon their shoulders; and the governing minds in churches, in business corporations, and in political parties, are selected from their class.

4. *Work interests us in, and gives us the ability to understand and use, the common and essential materials of human life.* — Since labor is the universal lot of mankind, it furnishes those general sources of suggestion and experience, which form the character and determine the conduct of so large a number. It is one of the plainest principles of political economy that labor, not wealth, is the capital of a country; for wealth depends on labor for its origin, increase, and preservation. It is no less clear that work, not the printed page, affords the instruction about those affairs which engage most the attention of men, and which relate to their best personal interests.

The thoughts of the human family are chiefly about their business, their religion, their government, and their social life. These thoughts comprise the substance of their intellectual culture. The unusual, the abstruse, and the philosophical are considered by the few, and control mankind to a limited degree. They are beyond the inclinations and the mental scope of the many. Then, our general pursuits supply both the knowledge and the discipline of thought, which are the most useful, as well as the most common.

“Not to know at large of things remote  
From use, obscure and subtle, but to know  
That which before us lies in daily life,  
Is the prime wisdom.”

No language can be composed entirely of abstract and technical terms, nor of unusual words, such as are often penned by sophomore students and florid writers, because they do not express our familiar thoughts. They are not the signs of the objects which address our senses, nor of their relations, qualities, and modes of action, as commonly perceived by the human mind. The simpler and the more ordinary words form the great bulk of the sentences used in conversation, and in writing. So, a very large portion of our knowledge is composed of the ideas of those substances and experiences which our labor makes so familiar and universal.

The means by which many of the people are qualified to know and use these most common and useful things, are furnished by their daily pursuits. How much the eye and the hand, as well as the thoughts, are cultivated by using the tools, the machinery, all the instruments of human industry. With how many arts of popular

success must a man become familiar to be influential in any large enterprise. How many severe labors must be learned and practiced to accumulate riches. How patiently must the most usual facts be observed, to form correct opinions in respect to the men with whom we associate, the necessary affairs of our own business, and the interests of our own being. Since work educates most men in this manner, all subjects to be appreciated must be brought within the scope of the common laborer's understanding. What they may lose in dignity, they gain in their wide use. One of the keenest observers of the customs of our country regards this demand as an American characteristic. He says: "In Europe, the ambition of a savant is satisfied when he is understood by a number of select individuals. In this country, the loftiest ideas have to wear the homely garb of popular language." Here scientific men, to be honored and compensated for their researches, must not imitate Archimedes, who held all inventions and arts which "tend to any useful end in practice, to be vile, low, and mercenary;" but he must adapt his teachings to the most familiar thoughts of his readers. But he will have the pleasure of seeing his labors ministering to the comfort and the education of thousands. Webster complied with this rule in composing his splendid orations, making them the American models. Every farmer or mechanic who heard him, would say: "That is just what I think and would say on that subject;" and still the best educated and the most profound thinkers would realize that the great orator had thoroughly studied and expounded his theme. In one of the chairs of an eastern college sat a teacher of independent thought and careful investigation. He elaborated in his quiet position the outlines of the principles and the policy which should control our nation in an anticipated emergency. These are impressed upon the convictions of a promising student, who goes out into the broad society, becomes acquainted with the passions, the prejudices, the sentiments, and the motives of men everywhere; and shapes by his own thoughts and words these principles and this policy to convince the judgment, and to govern the purposes of his own political party, so that in the "irrepressible conflict" they might guide and save the whole land. The provisions in the Constitution of our government, the most sublime of all uninspired documents, are neither conceived nor worded exclusively for the comprehension of learned jurists;

but for the instruction of the common people. The christian religion, with all its weighty themes, is so blended with our ordinary thoughts and feelings, by Christ's parables and sayings, and by our own experiences, that "he who runs may read," and appropriate its benefits. The proprieties and usages of society, its demands for refined culture and upright conduct, come within the range of the average understanding of its members, and our pattern of an old-fashioned gentleman is a generous, good-natured, and industrious owner of a moderate sized farm, with substantial buildings, a large orchard, plenty of shubbery and mellons in his garden, and in whose house are always good cheer and common sense. Will any one say that our ordinary pursuits and toils have not prepared the people generally to understand and use these essential affairs of human life?

The culture of work is requisite to the origin and growth of a republican form of government. Needful as intelligence and virtue are for its preservation, work advances these even more than our public schools; for it is a more universal and life-long instructor. The ideas which work cultivates in us, lie at the basis of the recognition of the general equality of the citizens, and the inviolable nature of their liberties; for they arise from the same source, the occupations of men everywhere and in all circumstances; and forbid the creation of castes or interference with essential rights. Work, also, qualifies men for the largest self-control, while it makes them self-reliant and independent; and this is a central active principle in a government by the whole people. The education of our common pursuits, giving us an acquaintance with the most necessary things, abundantly prepares us to manage such a government without the aid of privileged classes.

Much is now said about qualifications for voting, making a certain amount of learning or book-knowledge, indispensable. Some do not understand that the elective franchise is a right which inheres more in the person than in his conditions; and that all which a government can justly restrain, is the bad intention in its use. But if this question is not viewed in this light, and a state pupilage or a certain amount of attainments in culture be required, it seems to me that the best preparation is afforded by the habits of industry, which tend to form correct views of the personal rights and liberties of the citizen, the underlaying spirit of self-government,

an earnest love for all that makes manhood worthy, and a solid strength of the intellect.

5. *Work is substantially the invention and shaping of means to accomplish certain ends.* The physical strength exerted is only the instrument of the thoughts, exercised and cultivated by the effort. It is a law of our desires to reach forward to some object, as the harvest, the anniversary of the school, the acquittal of the prisoner at the bar, and the restoration of the patient to health. The intellect keeps these steadily in view; and it is not only awakened and invigorated thereby, the more so the nearer they approach our grasp, but it employs all the recourses it possesses to secure them. Conscious of its own deficiencies, and needing other outward appliances, it searches diligently for the requisite help; and thus is produced the spirit of study and careful thinking. Having found all the facilities required, the use of them illustrates the miracle of the widow's cruise of oil, the oil increased by pouring it out. With the end fully determined on, and the means firmly in our hands, in applying the latter to obtain the former, we often evince the determination and the skill shown on the emblem of an old-fashioned seal: A hand with a pick-ax, digging through a rock, with this motto: "Either I will *find* a way, or *make* it."

Two kinds of busy men always fail. One kind apprehend the end clearly, but are utterly incompetent to shape their means, or find those adapted to gain the end. They are like children in our infant classes, trying to spell a word, and not naming a single letter which the word contains. Unmindful of actual external results, they invent perpetual motions, and propel sail boats by wind manufactured by bellows on board; or, riding some hobby idea of reform, they expect to see all humanity shouting at its release from a great evil, when their nag wins the prize in the race course. The other kind possess certain means, but never select an end to which they can apply them. They are dreamy, build air-castles, and plan magnificent projects. They believe in patent medicines, and use the pain-killer for all fleshly ills, from the toe-ache to the head-ache. They speculate largely in city lots laid out on paper. They make a thousand dollars before breakfast, by raising the price of their goods unsold. Bewildered in finding some new remedy, they try to transform the world into moral or physical perfection by peddling everywhere their nostrums. They write treatises on the im-

palpable mists of metaphysical nonentities, bind the rainbow on their brows, and live in a garret on coarse gruel and black bread. A fellow student of many rare abilities, who was thoroughly engaged in the study of the mysteries of transcendental science, volunteered to do an errand for a friend, and drove home, late one afternoon, from a distant pasture, to be milked, a neighbor's lusty steer for his friend's heifer; and he has since ventured on teaching, preaching, a missionary life, and handling the quill for a newspaper; and he is still unsuccessful.

To put the means and the ends together, and to hold on to the results, constitute the practical man. He succeeds, because he plans and adjusts his facilities in accordance with the immediate and positive acquirements of the end. The latter, to him, is like light; it reveals itself most distinctly, and all the objects at hand which he desires to employ. A shepherd boy of Scotland, noticing the changes in the seasons, tried to discover the laws which produced them, in his nightly watchings, and by measuring with his simple string and beads strung on it, the apparent distances and movements of the heavenly bodies; and he became afterwards a distinguished royal astronomer of England. In a public hall at the capital of Indiana, a young minister, ardent, ambitious, and keensighted, after failing to awaken any general religious interest in his congregation, began to study thoroughly the leading feelings and modes of thought of his own people; and seeing precisely the mark to be aimed at, he preached the plain doctrines and precepts of the gospel, with all the riches of illustration and the force of sentiment borrowed from the well known and common affairs of life. His audience was moved, religion was embraced, and there the power of the gospel was changed from "a child's whisper to a trumpet's tone;" and he became afterwards the world-renowned pastor of Plymouth Church, in Brooklyn. President Lincoln had a mind of wonderful force for organizing and working. This was not produced alone by his toils at rail-splitting, on the flat-boat, in the grocery, before juries, and in the presence of political assemblies. To my mind the secret of his intellectual ability is found in his habit of defining most accurately his object, and then of thinking, hour after hour, sometimes walking the floor in his office late in the night, how to state his propositions and arguments in the best form, so as to reach most surely that object. By this method, he

qualified himself to encounter and defeat the greatest public speaker on political questions, taken all in all, that America ever produced; to write state papers in homely Saxon words, the equal of which in directness, good sense, and convincing argument, we have seldom seen; and to perform the most herculean labors in administering the perplexing, confused, and difficult affairs of a nation in the time of a civil war.

In conclusion, let me say that while the education of the intellect by work is general and practical in its nature, reaching the larger class of men, it has, nevertheless, its serious defects; and these are chiefly materialistic in their character. It does not by itself give the widest scope to the judgment and the broadest range to one's preferences. This is shown by the effects of the distinct sphere of each occupation, and in the choice of materials to gain immediate success, which very often embarrasses, if it does not defeat, the desired results of an enterprise. Large reading or extensive observation may remedy this defect. Work creates too great fondness for external power, as wealth, physical exertion, fine appearances, and social position. The soul must be directed to care more for its own conditions. Our intellectual tendencies under the influence of labor are confessedly toward the visible, the groveling, and the existing enjoyments. The culture of the sense of the beautiful and the noble, and the creations of refined thought — those which purify and adorn the mind — are needed to counteract these tendencies.

The common laborer, whose necessities and whose pursuit will not allow him the time to acquire a liberal training, nor the chance to gain a competence, should receive greater sympathy than is often awarded him by those more highly cultivated and those sent to our legislative halls. Capital is better protected than labor. The professions are held in higher honor than the trades. The self-conceit of learning, like the aristocracy of wealth, needs to be constantly rebuked. The retributions which neglected or despised labor inflict on society or the state, accumulate slowly; but they fall with sure and terrific effect upon the guilty. The murmurs and the angry threats which reach our ears in these times, coming from the fields, the workshops, the mines, and the railroads, have a fearful significance. If we cannot satisfy the demands of the workman for higher wages or for better fare, we can appreciate

the necessity and the worth of the actual culture which he receives in his calling, esteem the noble traits of character which he has formed, trust more readily his ability to fill situations of greater responsibility, invite him into closer social relations and daily fellowship, and proffer to him at the cheapest rates all the higher advantages of our best schools.

Hon. W. W. Field — I want to say a single word, and possibly others may desire to follow me. There have been many thoughts suggested by the address which our worthy president has given us, and also by the remarks which we have listened to upon "Education of Work." They are matters of vital interest to each and every member of this convention, and to every farmer and producer in the state, and, Mr. President, I could not help but think when you were reading your address, that your voice was not heard by the class of people who ought to hear it. The trouble is that this class of men you speak of, who leave their machinery all outdoors to rot, and who are getting poorer and poorer every year, never come to these conventions.

Hon. N. D. Fratt — There may be some of them present at this time.

Mr Field — It is possible some of them may be here. I hope they are. I wish they were all here. I have thought that possibly our State Society and County societies and the State Horticultural Society were not doing what they ought to do. I have thought — and the thought suggested itself to me as you were reading that paper — that a few hundred dollars might be expended in holding these executive board meetings, by a portion of the executive board of the State Agricultural and Horticultural societies, in the different counties of this state where you could get that class of people together. They would come to them and listen to these things, and they would say, "They are every one of them true; I am letting my machinery rot in the field, I am letting it rot under the old tree or by the side of the haystack," or something of that kind. They know it all when you speak to them about it, but they do not come here to listen to it. They do not realize it, and hence they are growing poorer and poorer every year. If you, Mr. President, engaged in banking or any other business that you may be engaged in—

Mr. Fratt — I am a farmer.

Mr. Field — I know you are a farmer and a business man besides, a *banker* perhaps, but that does not matter — in whatever business you are engaged, if you left your business in the slack, shiftless and slipshod condition that many of the farmers of this country do, you would not be able to come to this convention, and that is one reason why so few of that kind of farmers are here. They feel that the profits have not been sufficient to enable them to come here; and a great many of those people who do not feel able to come here, should have the results of this convention spread before them every year; and I want to impress upon those present, the importance of each and every one of you carrying home into your club meetings, and into your grange meetings, and into meetings of every kind of your neighbors, whether you meet in a social way or as an organization, these questions that are discussed here, and show them the importance of looking after their interests in a better way.

Hon. Hiram Smith — I think Mr. Field has struck the key-note to our improvement. The idea suggested by Mr. Field, that local meetings be held in different parts of the state, is a very good, one, and the only way feasible to reach that class of people which are more in need of the counsel and advice which has been given. I think it would be a paying business. Our State Agricultural Society is maintained chiefly by the receipts at the State Fair. If a general awakening throughout the state could be effected by these local meetings, it would increase the receipts at the State Fair *far* beyond the necessary expense of holding these local meetings. Therefore, it would be a wise measure for the financial interests of the State Society, to introduce this system of sending out competent persons to hold meetings in various localities, and get the farmers together and appeal to their self-interest, their manhood and their intelligence. It would be a good thing, in my opinion.

Prof. Daniells, of the State University — I think this is true. I suggested the idea a good many times while Mr. Field was secretary, and I remember of having done the same once to the present secretary, General Geo. E. Bryant. The first of this series of conventions that was held, Mr. George Morrow and I, for two winters, went about the state to a small extent, speaking to these conventions. Mr. Morrow was very active in getting them up through his paper and in correspondence, and I hoped at the time that a series

of conventions of this kind would be inaugurated, but they have not been. Certainly I think this society is more of a missionary society than it has ever made itself, and there is no way that I believe it can do the good I believe it could do, but to go among the people and spread its good seed. If I were to see either branch of the society's work put away, I would put the fair away, rather than put away this method of going among the people and helping them. We are just like a set of temperance speakers here. We have temperance meetings where we listen to my good friend Mr. Hastings, who is a good, earnest, zealous man in the work of temperance, but I doubt if he speaks very frequently to the men that need to practice the doctrines he inculcates; and so it is with this society. We need to go abroad and sow the seed where it can fall, I trust, not into stony ground, — where it will reach the people, and (I speak in the presence of our former Regent) I believe the university would be glad to assist in this matter. The Michigan Agricultural Society does this work during the winter time, not taking the responsibility of a series of meetings of this kind, but putting the responsibility of the meetings upon the community, and then coming and aiding them; and I think that is the very best way to work. I would ask the society not to take the responsibility of such meetings from the people, but put it upon the community where meetings are to be held, for then you will get them to work, and then go and work with them and help them.

P. M. Gideon, of Minnesota — The gentleman says this is a kind of a missionary movement; I think so myself; at least, it ought to be, but there is one remarkable fact, whenever we make a good cause successful, especially where the good of mankind is at stake, we need more than male help. If we would inaugurate a system of meetings something like a picnic party, calling in the women and children and interesting them in it, holding them at places of most interest, letting the women and children hear, we would enlist them in it. It is an old saying, "Just as the twig is bent the tree is inclined." If we want to have good farmers we must raise them. It is hard making them out of the material that now run the soil as a mass, but we may improve upon the little boys, and we may make a greater improvement if we will go a little further back and get the fair sex enlisted, so that we may have the twig bent before the future farmer is born. If we can inaugurate a system that the

whole society, men, women and children, can be made to take a part in, we can move forward as we do in temperance movements or anything else. Otherwise I think it is a rather hopeless undertaking.

J. W. Wood, of Baraboo — I wish to respond in reference to this idea of holding these local conventions within our own counties. At Baraboo, Sauk county, we have, for several years, had our annual winter convention under the auspices of our own local society, and have had a couple of days devoted to reading of papers and discussion of these subjects, and we have, at times, made efforts to secure speakers from a distance, who might come and give a little more prestige to our meetings. I think we have had ex-Secretary Field and Professor Dariells and Mr. Boyce, and I understand that a couple of the papers to be read at this convention are also secured for our local convention, to be held in a short time.

In reference to the president's paper, I think we ought to say one word in apology for those farmers who do allow things to go to waste. There is an old proverb that the misery of a poor man is his poverty, and the successful carrying on of a farm, and the successful care of all those implements that are indispensably necessary, requires an amount of capital that many farmers have not yet attained, and I know that on the part of those who allow their things to go to waste, it is not often a case of indifference or of wantonness or neglect. Most men, even when the thing is permitted, know better, and they try as soon as they can to make better arrangements, and I know that a single reaper left out in a community, will, perhaps, be noticed by every one that passes, and may give character to the community beyond what the community deserves or is entitled to.

There is everywhere, as far as I have observed, a growing disposition and consciousness of the fact that everything must be well husbanded about the farm. Our county has the poorest representation here at this meeting of any that has been held during the past few years, and when I urged upon my neighbors the propriety of coming, the reply was, "I would like to go, but you know times are very hard and we have as much as we can do to get along, and you must bring us a volume when you come back and we can read it all in the book;" so they calculate to profit by it because they know that it is published, and they say "we can sit down at home

and take our time for it, and learn these things at home without incurring this expense." So that the gentlemen that are here need not feel that they are entirely neglected because their audience is not all here, because as soon as this volume is published it reaches thousands of anxious readers who will profit by the labors of this convention.

I know that it is a fact, as every farmer knows who depends for his livelihood upon farming, that the times are peculiarly hard; that it is difficult to get along with the current expenses of the farm, this year. The most of those who are hopeful feel that, if they can get through this year successfully, that times are going to revive; that we are now at last on bed-rock, and that this depression which has been going on over the country will now pass away, and that there will be a gradual revival of prosperity. I know that there never was a time in the history of Wisconsin when there was so much keen, intelligent looking around on the part of the people, to see what they can do, eager to do something to revive and better their condition; and if you can satisfy them that anything would be remunerative, there are enough men ready to rush into it to ruin the business at once.

It is a time of peculiar watchfulness, and the more thoughtful among our farmers feel that they cannot hope for prosperity by any process of trickery or of pecuniary management, but that the man who prospers must dig deep and lay a good foundation; and that it will be a gradual process; and that he must have a good foundation to build upon, and then he can look forward for the years to come to increasing prosperity. We have had in our country the hop fever, and we have had a good many things by which men hoped to do but little and get a good deal; but that feeling is largely passing away, and men are looking eagerly at the various reports, and the industries and processes and methods of farm management, and I believe that in general they are prepared to dig deep and to lay a good foundation for future prosperity.

Hon. A. A. Boyce, of Lodi—I would like to know how any farmer, however poor he may be, excuses himself for leaving his costly reapers and mowers and other implements exposed in the fields to the inclemencies of the weather, when a few hours' work with simple materials would cover them. There is no excuse, in my opinion, for such neglect.

S. B. Loomis—I find this to be true, that every question has two sides; and a suggestion in the president's paper has opened an advantageous one to me. I have a plaster sower standing out in the field, and it has been a question with me, for some time, what I should do with it; and as he stated it would make a good rack to feed the cattle from, I am going home to roll it up and use it for that purpose.

President Pratt — It is well.

Mr. Loomis—I find this to be true, that a large number of these machines that are out doors are on trial. The object is to see just how quickly they can be destroyed, and the interest necessary on the money to preserve them would be far too much to give for their security. I absolutely know of one man that tried to put fire to it, to see if he could get rid of it in that way.

A. L. Hatch—I took in my plow last week. In view of the presence of so many gray hairs, being a young man, I rise from my chair with modesty. The idea suggested of holding local conventions meets my hearty approval. The state of Nebraska has adopted the idea, and it is carried out under the auspices of the State Board of Agriculture, assisted by an appropriation from the legislature. They have lately been holding a series of agricultural and horticultural conventions or institutes throughout the state. Now to me, the chief business of life has been to get a living, and that I know is the chief business of life of my neighbors who are farmers; and in order to get a living, we find it necessary to use all of our physical and intellectual energies.

I cannot agree with the gentleman who told us that great physical exertion assisted in great intellectual development. I find I am least adapted to intellectual effort when I am most exhausted physically, and you gentlemen who have been able to purchase leisure, who have good salaries, you can sit down in your offices and set up the theory of farming, brighten up your intellects and tell us the theory of what we ought to do, how we should house our implements; but with us it is a matter of toil, work and care, and we often find that what we would do we must neglect, simply because we have not the money. You may ask us to come up to your conventions, but when we come here and we are taxed two or three dollars a day for our board, taxed for our railroad fare, and so forth, to almost an exorbitant degree, we must remember that we

have got to work that out at home by degrees, in the face of the sharpest competition. We toil from day to day, and we do not feel like eating up in day or two what will take us a week or a month to earn at home.

I know this is the condition that you will find us in. Now, if you want to do missionary work, come down to Richland county. You may not like our humble fare; you may not feel as though you were dealt with as aristocrats; but, sir, we will give you right good cheer, and if you are posted on anything in agriculture, you will find us willing to listen. If you can tell us how to grow corn more cheaply, come down and tell us how to do it. If you can tell us how to grow fruit any better, we will be willing to learn. Our people are poor. Many of them are yet groveling in poverty, ground down by want; but perhaps our county will compare with any in the state in the matter of its products, in the amount of its exports. But now we have great difficulty in fruit growing. The insects, last season, stripped the leaves off of even forest trees; we found the phylloxera on our grape vines; we found the canker worm eating up our apples.

What shall we do with them? If you, Mr. President, or you, Professor Daniells, or you, Professor Smith, come down to Richland county, you will find many anxious enquirers there ready to ask you the history of the canker worm, or of the phylloxera, and to ask "what shall we do to be saved?" how we shall resurrect our fortunes; how we can enjoy wealth? Then, perhaps, we can come up here and meet you, with money in our pockets and cheerful faces, our leisure bought and paid for, and we shall feel as though we came up, not to bring up obituaries of what we have lost during the year, not to do funeral service, but came up here to tell of our success and enjoy it with you.

WEDNESDAY, 9 A. M.

The convention met in the rooms of the State Agricultural Society, in the capitol. President Fratt in the chair.

J. M. Smith, of Green Bay, president of the State Horticultural Society, read a paper on Strawberries: shall we continue to test new varieties? which brought out the following discussion:

Mr. Geo. Kellogg, of Janesville — I would like to ask Mr. Smith if he ever grew any Green Prolific by the quantity.

Mr. Smith—No, sir. I never did. I got disgusted with them before I tried them myself. A friend of mine tried them, and made so thorough a failure that I would not risk them. He had tried them under good circumstances; everything, as I thought, favorable.

Mr. Kellogg—Perhaps he set them by themselves. It is a pistillate, and, like any pistillate variety, entirely worthless when set by themselves. The Crescent Seedling may not be staminate enough to produce its best effect by itself, but it certainly is staminate enough to produce a good heavy crop. The Green Prolific is one of the old varieties, and has been tried generally and thoroughly, and with success, for a near market. It is not good for transportation two hundred miles. On one of the rows, three feet wide and eighteen rods long, my record was 56 quarts for the one picking.

Mr. Smith—I had one picking of Wilsons last summer over the whole ground, in which we averaged 28 quarts to the square rod.

Mr. Kellogg—How many pickings had you for the season?

Mr. Smith—I had five large pickings.

Mr. Kellogg—My average for the plantation was ten pickings.

Mr. Smith—I only count five; I only count the large pickings.

Mr. Kellogg—I averaged the full crop and it amounted to just the picking of this day, which would make five bushels to the square rod of Green Prolific. The Wilson did better with me. One row two feet wide and 16 rods long gave forty quarts to one picking, and averaged ten such pickings, which would make between six and seven bushels to the square rod. I admit that the Wilson is worth more than anything else we have ever had for general culture; yet the Crescent Seedling, with me, last year yielded, as I have stated, with plants that I moved half a mile; I picked berries  $4\frac{1}{2}$  inches, and the stems were loaded right down to the ground on plants I set the same spring. In the bed I left for fruiting, where I did not disturb the plants, there was a splendid show. I do not know what it is going to do. I can tell you by the first of July next.

Mr. Plumb, of Milton—I want to talk a little on President Smith's experience. There is something he did not tell us that we would like to know. The soil in which he grows these berries is a purely artificial soil. It is one of those Fox river sand banks that are supposed to be worthless, and yet it did grow big pine trees

originally; that is, before the sand came in and covered up stumps and all. But he composts his manures; he fills that land as completely full of decomposing manure as it is possible to fill it. The soil is simply a vehicle for certain purposes of his. He puts in everything. Now you see what the conditions are. It is hot-bed culture, essentially. He must have a variety, like the Wilson, that has tremendous native vigor to stand it, to begin with. Others will fail for various reasons. They have not the constitution to stand that kind of treatment. In the next place, if he produces some of these large growing, soft varieties, they are so large and so soft that they will fairly rot on his ground, and they are worthless there. Now change the conditions. Give him an ordinary farmer's soil, we will say a good stiff clay bank, a good potato or corn soil, such as farmers generally grow their berries on, and he will find the conditions vary exceedingly. He will find that the Wilson stands ahead; no doubt about that; but there are some of these other varieties, that with him are practically worthless, that occupy a very important position; the Green Prolific, for instance, yields more to the acre or square rod; it continues in fruit longer and will bring more in the market, provided you get it to market in good condition.

Mr. Smith — But you cannot do it.

Mr. Plumb — The growers at our place ship to Madison, 32 miles, without any trouble.

Mr. Smith — But I have got to ship 200 miles.

Mr. Plumb — That is another thing. There is a good deal about this strawberry question. I procured my first plants last spring from Louisiana. They came in fine shape. I planted them two feet apart in the row, the rows four feet apart. If I had put them, as he says, ten feet apart each way, they would have covered the ground, and done it handsomely, such is their native vigor. They are just about as bright and full leaved to-day, under the straw that covers them, as they were the first day of September. They promise to hold that foliage, which will almost insure them a crop next spring; and I must say that I never had plants bear as they did. I picked the fruit off most of them, but a few I left bore fully equal to Wilsons that had stood a year. The berries were not as large, but the few plants I let remain bore as much, in proportion to the size of the plant, as the Wilson, that had stood a year.

I might speak of other varieties, but I want to speak of the condition of the soil. The Arena, which we have almost discarded, on some kinds of soil is a good berry, but on a sandy soil it is a complete failure. These are conditions we cannot overlook.

Mr. A. G. Tuttle, of Baraboo — I have had some experience with the Crescent Seedling. I planted it a year ago, and for vigor and hardiness I have seen nothing on the list of strawberries which I think compares with it. Plants that were entirely uncovered last winter, were as bright and green in the spring as they were in the fall, while the Wilsons were worse destroyed last spring than I ever knew them. I fruited the Crescent last spring, and I could not see but what it bore as heavy a crop as the Wilson. Of course I had but few plants. The most of the plants I transplanted. They were standing only a short distance from the Wilson, and I noticed, after a frost had occurred, the blossoms that were open upon the Wilson, after a careful examination, seemed to be about nine-tenths of them destroyed; while upon these were only about one-tenth; the frost had an entirely different effect upon the blossoms. The plant is very vigorous, and I think my friend Smith has not had a very good chance to try the Crescent Seedling if he sowed his plants last spring. I have seen the original bed of Crescent Seedling; I saw it after it had been fruited three years. The man who originated the berry, Mr. Parmalee, is not in the fruit business. He propagated it for his own amusement and not for sale. He never has sent out a plant to my knowledge. The grower, Mr. Smith, who lives not far from Mr. Parmalee, took up the plant, I think he told me, in 1871 or 1872. When I was there, Mr. Parmalee told me that he had a new seedling strawberry that he thought very much of. He fruited it one season, and if it proved to be what it promised, he thought it was going to be ahead of anything in the strawberry line. He said Mr. Smith had taken it and fruited it also, and he, too, thought very much of it. He has been growing it and sending it out. I do not think Mr. Parmalee has ever sent out any plants at all.

The reason he called my attention to the bed was, that I was reading in his house the description that Mr. Smith gave of the plant; that it would keep down all the grass and weeds, so that after the first year there would be no care required, and that it would go on and fruit year after year. I told Mr. Parmalee I thought that was

a pretty large story; if we had the plants out west here I thought the weeds would get the advantage of it, but he said, "go into my garden and look at my bed." I went in and saw the bed which had been fruited three years. He had the Arena growing on the one side and the Wilson on the other. He said, "we treat those exactly alike. They have not had a bit of labor upon them since the first year." The Crescent Seedling was entirely free from weeds. I could not see one there, large or small. And it was a perfect mat of vines, and he said it bore as well that season as it did the first. He could see no real difference; and I am satisfied that it will take possession of the ground, and that no weeds and grass will grow if you keep them down the first year. I set a quantity of them last year, four feet apart each way; they have covered the ground so there will be a solid mass of vines in the spring; and for hardness and productiveness and for quality I have never seen a berry I thought was superior to it. Of course it takes years of trial to test these new things, and I think friend Smith should give it a further trial before he condemns it. I appreciate the Wilson. It is a valuable berry and has proved so. It has been the great berry, as the Concord has been the grape of the country. It has its faults, and I hope that we shall get something that will be equal in productiveness to the Wilson, better in quality, more uniform in size, and on the whole a better market berry. That is what we are looking after in new varieties, and though I would not give up the Wilson, I would still try varieties that are promising.

Mr. Smith— I did not run down the Crescent Seedling. I said distinctly that I had not tried it long enough to be certain of what it would prove to be. The idea I wanted to convey was simply this: for the amateur, those who are growing strawberries for their own table, not to try these until such men as Mr. Plumb and Mr. Kellogg and myself, whose business it is to test new varieties, and stand the loss if they prove to be failures, have tried them. It is no matter if we do lose, because it is a part of our business to test them. Let the amateur watch such experiments and see if the results are good, and not plunge into them, fooling away time and money. I do not know but the Crescent Seedling will prove to be all that its friends say for it, only I say to the amateur, "go slow," for I have certainly not as much faith in it as I had a year ago. I set my vines last spring and they did well. I got them from a Mr.

Galusha. As to keeping down the weeds, if the grower will manure the ground as he ought to, and the Crescent Seedling or any other strawberry will grow thick enough and strong enough and rank enough to keep down all the weeds, they will grow so rank that he will have no berries.

Mr. Tuttle — It seems from trial that they do produce large quantities of berries. That has been the case on Mr. Smith's grounds. His Crescent Seedlings have been fruited for five years. He says he has not spent a dollar on that ground since the first year, and he gets very large crops. These berries will not keep the weeds down the first year, but the second year they come up a foot high, the foliage perfectly covering the ground, and you might as well try to grow weeds under a board as under that thick foliage.

Mr. J. W. Stone, of Fort Atkinson — I have been engaged in growing strawberries for the last year, and I put Wilsons ahead. One time I had four acres of Wilsons; no others of any account. I tested several varieties, but relied on the Wilson for the main crop. I find I can do better with other varieties now. I stated here, a year or two ago, about the leaf-roller destroying Wilsons, mostly. I am entirely free from that now, but the leaf-roller drove me to test other varieties. I have had the Col. Cheney on my grounds, and I can grow more quarts to the acre of Col. Cheney for market, than I can of the Wilson. And I have tested them this year, by having them grow side by side. My Wilsons did not yield as many quarts, and the first Wilson berries that were picked were not as good an average size as the last of the Col. Cheneys. I am not particularly interested in the Col. Cheney any more than in any other. I have now about half and half of Wilson and Col. Cheney, and my main crop of Col. Cheney looked bright all through the year. My Wilsons, though no insects were on them, rusted and were not as thrifty. I think that the strawberry growers, those that are going to make a business of it, had better look for a hardier plant than the Wilson. I think we have them on trial.

Mr. Kellogg — In relation to the Col. Cheney, it is good for nothing unless grown with some other variety.

Mr. Stone — I have set every third row with Col. Cheney. The way I set them now, I set one row of Wilsons and three rows of Col. Cheney, and I have no trouble in fertilizing them thoroughly.

Mr. B. F. Adams, Madison — I grow, at the present time, four

acres of strawberries; three acres of Wilsons, and one acre of other sorts — Jocunda, Col. Cheney, Charles Downing, and Daniels' Prolific. Our main crop is, of course, Wilsons. We grow fruit for market. We sell it here in this local market, and ship it to many other points. We derive the most profit from the acre of mixed varieties; not that they yield a larger quantity than the Wilson, but the fruit averages so much larger and finer, and is so much more attractive in market, that it sells for a higher price; and last season, when fruit was very low, it sold for nearly double. I think there are many localities in this state, and all over the country, where these varieties which I have spoken of on this acre can be grown with success, and some of them be made to yield as high as our friend Smith desires, two hundred bushels to the acre. I do not know that the Jocunda can be made to yield that quantity on a clay soil, on these white oak ridges, but it certainly can be made to yield as high as one hundred. I have myself grown them at that rate in that locality, which is only a short distance from the city, on a white oak ridge half a mile from the lake, but it is a variety that is much better than the Wilson to ship; it is firmer, and it goes into the market bearing a much more attractive appearance.

Mr. Wood — My hopes are at present largely fixed on this Crescent Seedling. I have heard it recommended so highly, and I have so often failed in raising strawberries that I have planted, because I failed to give them the labor and attention that they required, that I have been looking for just this strawberry that would give something for nothing, and I am sorry to have anything said in this convention that shall dampen my hopes in the least, because I have procured some of friend Kellogg and planted them, and I am going to cultivate them next year; and if I ever have to touch them again, I am going back on friend Kellogg.

Mr. Q. J. Freemore — I have raised strawberries for the last ten years, and I must say I do not like to hear my old friend, the Green Prolific, abused. Until I heard of the Colonel Cheney, I thought that was the berry for a lazy man, but I guess I'll have to try the Crescent Seedling. The Green Prolific with us will not stand a particle of manure. In a virgin soil, a sandy soil, it will produce a large crop, and we do not think it necessary to set them with the Wilson, because we have set them without, and had good crops invariably.

## JERSEY COWS.

BY N. N. PALMER, BRODHEAD.

I very unexpectedly, a few weeks since, received an invitation from your secretary, Judge George E. Bryant, to read a paper on Jersey cattle at your convention. I at first hesitated to do so, knowing there are so many men in the state better qualified to do the subject justice than I am; but on thinking the matter over, and thinking you have had no papers written on Jerseys, for your conventions, since the one by your secretary in 1873, I concluded to do what I could, and wrote your secretary to that effect.

I believe all thinking farmers made up their minds several years since, that they had got to raise something besides grain to sell, or sell out and go west; in fact, some had sold the productiveness of their farms in the shape of grain till there was but little left of them but the foundation; and the productiveness must be replaced by manure, or stock raising. Then the question came up, what kind of stock shall be raised? The managers of our fairs, state and county, in their premium lists, in effect, tell us there is no stock worth raising except Short-horns; and long articles in newspapers, and papers in your conventions say, Short-horns are the stock for beef and for the dairy. For beef, it is all well enough for those that are willing to grow beef for small profit, and compete with beef-growing countries south and west of us, that grow beef for half the money we can. Should we not show more business tact, to go into a business that our state is well adapted to, and a business that the beef-growing country above alluded to cannot compete with us at all? Then the advantages would all be in our favor. As a dairy stock, Short-horns are a failure, as a majority of those that have tried them can testify. I at one time thought they were what I wanted, but soon found out my mistake. It is true that some of them will give large quantities of poor milk, and possibly some of them will give very good milk, and if a man can shut his eyes to the quantity of feed it takes to get the milk, he will feel very well satisfied with his cows.

For butter, cheese and a family cow, there is no cow known that will compare at all favorably with the Jersey. I am aware that there is a general impression that the Jersey is worthless as a cheese

cow; formed, I presume, on the grounds that a cow that is so superior for butter must, of necessity, be worthless for anything else. I should think the low price and slow sale of skimmed milk cheese, and the comparatively high price and quick sales of full milk cheese, would make thinking men think, whether the rich Jersey milk would not make a still further improvement in their cheese. The criticisms of the *Rural New Yorker* of December 21, 1878, and of the *American Agriculturist* of February, 1879, on our American cheese, and the lack of the delicately flavored cheese (except one lot made by a dairyman in New York, and exhibited as foreign cheese, and among the foreign cheese), would seem to indicate the need of improvement in our cheese, and undoubtedly, a little more Jersey cream is what is needed.]

My mother has made cheese more or less all her life, and in fact she made cheese years ago something on the factory plan; that is, several neighbors put their milk together, and she made the cheese, and she had the reputation of making very fine cheese. Two years ago last summer, mother made some cheese for us, for our own use. We had about one-third Jersey and grade Jersey milk. She said she never saw the same amount of milk make so much cheese; and it was very rich and of a good, yellow color, and she never uses any coloring for cheese or butter for her own use, for she is prejudiced against eating dye-stuffs. In conclusion, on the cheese question, I will read a short article from the *Davenport Iowa Democrat* of January 23, 1879:

“**JERSEY CHEESE.**—It has often been claimed, by those who are loath to admit the full superiority of Jersey cattle for dairy purposes, that, while the best of butter is made from their milk, it is a failure as a producer of cheese. A greater mistake could not be made. Accurate tests prove the reverse: that Jersey milk produces the very richest cheese, both in taste and color. In a recent letter from Moses Ellis, a distinguished New England Jersey cattle breeder, we find the following pertinent paragraph on this very question of Jersey cheese. He says: ‘I have made that test, and will say, without fear of contradiction, knowing of what I write by actual test made in my own house, that the Jersey milk *pure*, makes the very richest cheese ever produced in any country; and at a year old it beats any English cheese that I ever tasted, which cheese costs *more than the fancy butter.*’ Nothing could be more reasonable.

The best cheese in the English or any market is made of the choicest milk. That the Jersey cow is the producer of the richest milk, is no longer a debatable question. That such milk should and does produce the richest quality of cheese, there should be no longer any dispute."

Perhaps, before going further, it will be well to explain, for the benefit of those who have not given much attention to Jersey cattle or to their origin. Between England and France, in the English Channel, are the islands of Jersey, Alderney and Guernsey. Cattle are imported into this country from the three islands. The cattle on the Alderney and Jersey islands are so similar, and there are so few raised and shipped from Alderney and so many from Jersey (during the year ending November 16th, 1878, there were 2,077 pure-bred Jersey cattle shipped from the island of Jersey), that they are all called Jerseys. The Jersey is rather smaller and finer limbed than the Guernsey; there is no material difference in their milk and butter qualities. The Jersey island, the largest of the Channel islands, is eleven miles long, by seven and one-half wide; is very productive. It is cut up into farms of from five to twenty acres; but very few will go over that. So you will see that it is very necessary they shall keep the stock that will make the largest returns for the least amount of feed; and that will account for the superiority of their cows, that have been bred for hundreds of years for milk, cream and butter.

They became so well aware, 90 years ago, their cows were superior to all others, that they made stringent laws against importing cattle from any country to breed from. In Jersey, the women take almost the exclusive care of the cattle, and that, perhaps, will account for the docile, gentle, confiding disposition of their cows. When you come into a yard or pasture of Jersey cows, and they look at you with their large, expressive, intelligent eyes, they expect a kind, appreciative word, and there are but few men or women that will disappoint them. There are but few men, I don't care how prejudiced they may be, that can look a Jersey cow in the face and say she is homely.

There is no cow equal to a Jersey for a family cow, for town or country. She is attractive, gentle, orderly if turned out, contented if kept in a small inclosure, hardy and hearty. Some have said

they were tender; I find them as hardy as my native cows. They are easy kept. Perhaps they will not give as large a flow of milk in the flush of feed, as some large cows that go dry three to six months of the year, but for the whole year there are but few cows that will give more. A Jersey cow will give milk to within a month of calving, and then it is difficult to dry them. A large per cent. of cream is a very desirable point in a family cow, and then if there is more cream than is needed for culinary purposes, it is so easily made into choice butter. The cream rises quickly, it is churned quickly, and makes a firmer, better flavored butter than the cream from any other cow.

My wife said, after we had bought our first Jersey cow and she had set the milk by itself, and had churned some, so we could see and taste Jersey butter, "She should like to make butter when we had all Jersey cows;" and her good opinion of the Jerseys is no less now, when we have a herd, than it was then. Col. Waring, of Newport, R. I., says it is conceded that no other animal except a goat will get so much butter out of a ton of hay as a good Jersey cow, and that no other cow will give the butter such a good quality. If quantity of milk is the object, a good Dutch cow, and a good pump, will beat the Jersey out of sight. To show the superiority of Jerseys over other cows, I will make a few extracts from an article by Prof. L. B. Arnold, in the *New York Tribune*, and copied into Coleman's *Rural World* of January 8th (the whole article is very instructive, but is too long for this paper). He says: To illustrate the bearing of beef derived from a dairy cow, at the end of her period of usefulness as a milker, let us suppose two cows, one weighing 1,200 pounds, and another weighing 800 pounds, live weight, and that being fed on the same kind of food, each gives milk of the same quality and value. It is a common rule, and pretty near the truth, in estimating the cost of keeping animals, to reckon one pound of hay a day for each fifty pounds of live weight, as the amount necessary to sustain the animal in uniform condition, without gaining or losing. If we adopt this rule without taking into account . . . the extra food required for producing milk, which will be the same for both cows, it will cost for the simple support of the body of the large cow, twenty-four pounds of hay a day; for the small one sixteen pounds; difference, eight pounds a year; for a year this will be 2,920 pounds, and for ten years — the

average period of usefulness of dairy cows — it will be fourteen and six-tenths tons, which is the cost of maintaining for ten years four hundred pounds of live weight, not required for producing milk, and which is worth no more (I should say not as much) at the end of the term than it was at the beginning.

If we count the hay at \$7 a ton, the cost of sustaining 400 pounds of extra weight, ten years, will be \$102.20, or \$10.20 a year. If this valuation is not satisfactory, the reader may figure for himself, and see how long he can maintain extra live weight before it will eat up its value in the cost of maintenance, and bring itself into debt. The time, I apprehend, will not be extended much beyond one year. The dairy of Mr. Boies, of Illinois, is a good one for placing the use of large cows in its best light. In the first place, Mr. Boies is widely known as one of the best dairy managers. He buys and milks a great many cows, and his experience and close observation have made him one of the best judges of milking qualities. He never selects a poor cow. He buys large cows (I have understood he has been very much prejudiced against Jerseys, but I have read lately he has changed his opinion of the Jerseys, and is using a Jersey bull, and is very much pleased with some grade Jersey cows he is milking now), and feeds with a liberal hand. (He undoubtedly feeds much heavier than any breeder of Jerseys would want to feed a breeding herd.) His herd is heavy. Reviewed in June, the year following their yield of 314½ pounds of butter per cow, they were estimated to have an average live weight of 1,200 pounds per head. He takes such kind care of his animals, that it would be difficult to find a man who would get more, either for milk or beef, from a herd of cows than he. It would be very interesting to compare the products of his dairy with those of another having an equal number of Jerseys, or other small cows which were treated as well as he treats his. But no such herd can be named. Mr. O. C. Blodgett, of Fredonia, N. Y., has a herd of twenty-five Jerseys, and their grades, all small cows; viewed also in May last, they were estimated to have an average live weight of 780 pounds. Though very skillfully managed and fed, their yield last year was 234½ pounds of butter to the cow, a diminutive yield compared with that of Mr. Boies 80 pounds per cow less.

Judged by the usual standard of product per cow, this dairy would by most dairymen be at once set down as the least desirable

and the least profitable of the two. But in fact the reverse is true. Mr. Blodgett's dairy is the most profitable of the two, for he gets the most butter in proportion to the feed consumed. As 234 is just three-tenths of 780, each of his cows (omitting the odd half pound of butter per cow) produced annually three-tenths of her live weight in butter. Since the consumption of food is in proportion to live weight \* \* Mr. Boies' cows should produce 360 pounds in place of 314½ pounds, or else weigh only 1048 instead of 1200 pounds per head. In comparison with the Jerseys, Mr. Boies, with his Short-horns, is the loser by constantly sustaining 152 pounds per cow, not required in the production of milk. If Mr. Blodgett's cows had all been full-blood Jerseys, instead of part grades, undoubtedly the comparison would have been worse for Mr. Boies' cows, as I will show by giving the yield of some full-blood herds of Jerseys. The *National Live Stock Journal* for April, 1878, summed up the yield of 65 Jersey cows, showing an average of 295 pounds of butter per year. A Philadelphia herd of 17 cows averaged 255 pounds each for the year 1876. Mr. Mackie's herd of 15 cows gave an average of 281 pounds on ordinary feed, and in a breeding, rather than a butter-making herd. Motley's cow Flora gave 511 pounds and two ounces of butter in one year. Pansy, 572 pounds in twelve running months.

"In the annual report of the secretary of the Massachusetts State Board of Agriculture for 1876-7, is a portrait of the Jersey cow Bell, owned by Mr. Elms, of Seitate in that state, five years old, for which he has refused \$3,000. She made in March, 19½ pounds of butter per week; in June, 16 pounds per week; and in December, ten months from calving, she was making one pound per day, being due to calve in two months; five quarts of milk made a pound of butter, all through the summer, and in December, four quarts made a pound of butter." The Jerseys have continued to increase in value and demand, notwithstanding the gradual shrinkage of values, and the depreciation of all other stock. I never yet have heard of a case where a man purchased a Jersey and was dissatisfied with her. The smart, knowing men in my neighborhood, when I bought my first Jersey cow, said, "Palmer has bought a Jersey cow, but he will never want to buy another one;" but the most of these same smart men are beginning to raise grade Jerseys and think they will try them. If I can get more for butter than they do, it must be the Jersey cows.

"The butter of no other breed brings such prices. Mr. Sargent, of Brooklyn, Mass., sells at \$1.10; Col. Waring, of Newport, R. I., at 64 cents to \$1.00; Mr. Starr, of Litchfield, Conn., at 90 cents. The butter of the Burr Oaks Jersey herd of Illinois, sells in Chicago at 42 cents."

Now a few words about grade Jerseys, and I have done. I had thought to have said something about my own herd of Jerseys, but this paper is already too long. Any dairyman with a good herd of common cows, that does not care to raise blooded stock for sale, can secure at a comparatively small cost a large share of the good qualities of the Jerseys, for dairy purposes, by using a full-blood (not grade) bull, and saving his heifer calves. The testimony of the venerable breeder, Thos. Fitch, of Connecticut, is worth noticing in this connection. His experiments in the way of crossing thoroughbred Jerseys on other breeds, has probably been more extensive than those of any other breeder in this or the old country. He has coupled the Jersey bull with nearly all the known breeds of cows, Ayrshires, Short-horns, Devons, Dutch, the so-called sacred cow, and native, and has never yet found a half-blood Jersey cow that did not yield a richer quality of milk than her dam.

Prof. Daniells — While somebody is making up his mind to speak, I want to say one word in regard to Mr. Palmer's conclusions in relation to the amount of food being in proportion to the weight of the animal. I am sorry our Regent Smith is not here. He is our farmer regent, and is a believer in the Holsteins. During the past summer, a record was kept of the amount of milk given by a thoroughbred Holstein that the University possesses and a thoroughbred Short-horn. I cannot tell the amount of milk the Holstein gave, but the point I want to call your attention to is this: the Short-horn cow was the heaviest; the orders were to give the same amount of food to both of them, and it was found that the Holstein, while giving, I believe, somewhat less milk than the Short-horn, at any rate not giving much more, if any, had to have her rations doubled, while with the same rations the Short-horn kept her flesh, and the Holstein cow kept continually growing poorer.

Mr. Field — Allow me to ask about what time of calving.

Prof. Daniells — I cannot tell. I have not the record with me. It was concluded not to publish the figures this year, on account of some conditions of which we were not quite certain. The Short-

horns have been bred for a very long time into two characteristics: first, the complete conversion of their food into meat; and, second, their perfectly quiet habits. In regard to the economy of feeding, I think there is no breed of cattle that will so thoroughly assimilate its food and give so large a return for the amount of food consumed as the Short-horn. I have nothing to say in regard to the milk question, but this particular fact I confidently believe to be true.

Hon. A. A. Boyce, of Lodi — I believe this question of breeds of cattle will never be settled to the satisfaction of all persons. I attended the Dairymen's Association at Whitewater, last year, and Mr. Beech, of Whitewater, — a noted butter maker, who gets very high prices for his butter, sells it, I believe, on contract to the Sherman House, Chicago, — had on exhibition there two samples of butter. One he said was made from a full-blood Jersey cow. The other he said was made from a native cow, a Bark River Wood's cow, and old pioneers know that any thing that came from Bark Woods in our early day, was thought to be very poor. "Now," he says, "gentlemen, I want you to tell me which is the Jersey butter and which is the Bark River Woods cow's butter. They are uncolored there just as they were manufactured." There they were, and the testers just as often took the butter made from the milk of the Bark River Woods cow to be the Jersey butter, as otherwise. A few days ago I was at Kenosha to the Wisconsin Dairymen's Association. I visited the herds of Mr. R. S. Houston, who keeps Jersey cows. That is his specialty. He has, perhaps, one of the best bulls in the United States, "Victor Hugo," and his get are remarkable. He had the finest herd of grade Jerseys that I ever saw. A great many of his cows will weigh 1,300 pounds, but I observed one thing: he is a very high feeder; and if you feed and raise cattle for the development of their milk-producing qualities, they always approach what is called the Ayrshire type. Perhaps the best type of a cow is what is generally considered the best Ayrshire cow. I noticed that peculiarity. I went to his neighbor's, Mr. White, who is now breeding grade Ayrshires. He formerly bred Short-horns. He is a neighbor of Mr. Houston's, and I asked him if his cows produced as much butter and as good butter as Mr. Houston's. He said, "sometimes Mr. Houston get short and he comes to me, and I help him out in the winter." Of

course he has to furnish butter and fulfill his contracts. He sets his milk the same as Mr. Houston does, and churns it in the same way, and takes the butter to Mr. Houston before it is salted. I think that is the way he told me. Mr. Houston makes the butter over and salts it, and he says nobody can tell the difference, but he says he thinks his butter is a little better fitted to keep. There is a point there about the keeping qualities of butter. It is affirmed that Jersey butter, like a ripe pear, should be eaten when it is ripe; it should not be kept very long. I have heard that. I don't know how true it is. But when you come to the feeding of cattle for the dairy, it is a great deal as you feed and treat your stock. There are no better butter-producing cows than you will find among the natives, certainly none better than among the grade Short-horns, and many full-blood Short-horns are just as good to produce butter as any Jersey, if they are fed properly. I do not know but a man can keep a Jersey cow on a great deal less feed than he can keep a Short-horn; of course he can, but when you come to manufacture the products of your farm into butter, the question is which is the best machine, the Short-horn or the Jersey, to do it with.

Clinton Babbitt, of Beloit — I was particularly interested with the paper presented by Mr. Palmer. I was very much pleased with the graphic description that he drew of that beautiful, mild-eyed, lovely maiden from the isle of Jersey, and I was inclined to fall in love with her; but, after all said and done, the farmers of Wisconsin, take them as a class, will do better to stick to their old love, rather than take up new ones. This strawberry question has been brought out here very interestingly also, and we find that the old stand-by, Wilson, has to be set side by side with every other variety, or you do not get any berries on them of any account whatever. So, in my opinion, you will find that, if you have the Short-horn in your stables, they will atone a little for the expense of running a fancy machine which, in order to pay, must have its product sold at from 42 cents to \$1.10 a pound, in the market. Is that the kind of butter that we are to raise in Wisconsin — butter that must be sold from 42 cents to \$1.10, on what we all know to be a mere fancy? I tell you that these fancy farmers, these hard times, are playing out pretty fast. When Mr. Palmer drew such a lovely description of that beautiful maiden from the isle of Jersey, I wondered what kind of a spirit was imbued into the masculine

gender of that family; for we all know, taking the past history of that class of cattle, that they are more dangerous to the farmers of the state of Wisconsin than Bengal tigers would be. That is the fact. That stands right out, fair and clear. Now, I love all improvements in stock. I have taken particular pains, when I have been in Boston, to go out to Mr. Cheney's and to Mr. Adams' herds.

I have taken particular pains to view the beautiful herd of C. S. Dale, of Crystal Lake, and many of these gentlemen that breed this fancy class of cattle. They are really lovely to look upon, but taking the theory of Jersey men in this country, that they eat less than the Short-horn does, even then the Short-horn stands head and shoulders above them, like the character of such men as Abraham Lincoln above the most diminutive politician in the United States. Now, according to his theory, he says that as a dairy stock Short-horns are a failure, and that they eat more than the Jerseys, and still, on his basis, he assumes that the Short-horn only eats one ton of hay more per year than the Jersey does; and he assumes furthermore, that that Short-horn weighs four hundred pounds more than the Jersey. He is not exactly fair towards us Short-horn fellows when he assumes that the Short-horns, as a class, are not a milking stock. It is well understood by many gentlemen in this room, that I have challenged the Jersey men of this state to produce three of their best Jerseys to compete with three old-fashioned Short-horn cows in this particular, in the quantity of milk that they would give; in the amount of butter that they would produce per week; in the amount of flesh and weight that can be converted into dollars and cents. It is well understood, too, that the early importations of Short-horns in this country were made upon the ground of the amount of milk that they gave; and you may take the first record of Short-horns, as given by Mr. Allen in 1846, and there is a list given of various cattle that were brought into this country by celebrated men like Mr. George Vale, of Troy, N. Y., and General Van Rensselaer and others, and the list shows that some of those cows that were imported gave 42 quarts of milk per day. There is 38, 39, 36, and so on down. Now I have a cow at home, a pure bred Short-horn three years of age, that gave in butter 14 pounds and 14 ounces per week. Now that is doing very well on ordinary feed. I will admit, however, that there is one animal superior to the Jersey for milk and for butter,—inasmuch as Mr.

Palmer asserts it, it is no more than fair for us to agree with him, because the authority comes from the editor of the *Jersey Record*, Mr. Waring — that is, that diminutive article often passed by on one side by us fellows who have not arrived at that idea of fancy in our breeding, the *goat*.

Mr. Palmer — I used other men's say-so mostly in my paper comparing Short-horns and Jerseys, so as to keep out of the scrape myself. I could have made some observations on my own experience, which would have been much to the discredit of the Short-horn, but I did not do so. The gentleman's speaking of Bark River cows, reminds me that I have been for the last fifteen years picking up the best cows I could find anywhere. If I found a man that had an extra good cow, I would try to get the calf, if I could not get the cow; and I will say I had one cow that would give just as good milk, I guess, as any Jersey, and just as high-colored, and would give as much butter, but that was an exception. There is this disadvantage, that in breeding from any common cow you are not sure of getting them back as good; but with Jerseys if you get a heifer you are just as sure of getting another cow that will give just as good milk or just as much butter, as you are that you have the heifer. About this butter that they have to sell at these high prices, I think that is all a mistake. What we get over and above the cost of production is profit, and that is the reason I say Jerseys are profitable, because I can get so high a price; and I do not think there is a man here, if he will get butter from Jerseys in hot weather, that cannot see the difference; it will be so much firmer, and a better quality and color. Some three, or four or five years ago, one 4th of July, my boy and I had the milking to do alone. I was milking some twelve or fifteen cows then, and I took a notion I would see about my cream. I set the milk at that time in shallow pans. I strained the pans as nearly alike as I could. I could have weighed it, but I did not think of it until I had got about half done, and when my wife skimmed the milk I took pains to weigh the cream from the different cans. I had one great Short-horn that I paid a big price for, a noble looking cow, and she gave these large quantities that the gentleman tells about. On her milk there was three ounces of cream, and the Jersey gave eight and a half ounces.

Mr. Field — How much milk did you have from her?

Mr. Palmer — I had more milk from her, and seeing you have

drawn that out I will tell you another thing. That cow would eat twice the quantity of the native cows. I had some natives that were better cows than she. I had two Short-horns that would only give three ounces of cream to a pan, and that was thin, sloppy stuff, and this Jersey milk was almost as thick as butter. I had one cow that was just as good as a Jersey cow.

Mr. Field — How much milk did the Short-horn give?

Mr. Palmer — I don't know. She gave a good deal of milk, but I made up my mind she was not profitable and turned her into beef pretty soon.

Mr. Field — She was profitable for that.

Mr. Palmer — Yes, but that did not pay me. That is a point that is made a great handle of about keeping large cows; when you get through with them for dairy purposes they are worth so much as beef. My experience is, in beefing old cows, that the beef costs more than it is worth. I think Mr. Arnold's conclusions are correct on that. They are better than I could write, so I took his conclusions. I think they are very fair, and I think if you look them over thoroughly you will see that there is quite a point there.

W. C. Kiser, of Fitchburg — I did not wish to take any part in the discussion; when you engage in the discussion of long and short horns, you tread on my toes a little. I have had but little experience in Jerseys. I suppose they are a nice little cow where a man wants to keep one for his own use. I had a neighbor a few years ago — a very honest gentleman too — and he came to me one day and said: "Mr. Kiser, do you want to buy a cow?" I said, "I believe not." He said, "I have got four Jersey cows. I would like to sell them." I said, "I have heard a good deal about these Jerseys. Are they what they are represented to be for milk?" Said he, "I will tell you how they are. One of them is a pretty good milker; the others will give about as much milk as a sheep; that is the way they are."

In regard to Short-horns, I suppose by the way they are being managed there is a tendency to injure their milking qualities. I do not believe there is any question about that. I suppose from the way we have used ours there is danger of that: that is, we use them more for raising calves than for making butter. We are grading up, trying to raise grade steers and increase our herd, and we let our calves suck the cows. We have not, the last year or

two, let them run with them and suck as they wanted to, but have let them suck three times a day. My observation, a year or two ago, when we let them suck twice a day, was that there was a tendency to sour the calves. Some cows give a great deal of rich milk, more than a calf could take, and I found that when the calves got hungry and got too much milk, it was an injury to the calves, so last season we have let our calves suck three times a day and obviated that difficulty.

A short time after we had killed our calves, they came along in the fore part of the summer, we had two Short-horns, the poorest looking cows in the lot, and, I supposed, the poorest cows we had. The calves had sucked three times a day in the summer, and when I milked those cows I was very much astonished. I got a large pail of milk, and I was very much astonished because I let the calves run with them, and their udders did not look well, and I supposed we had injured the cows, but I found I was mistaken. They are good milkers. The main difficulty we have had with some of our Short-horn cows, was that we could not dry them up when we wanted to. We have gone straight along and milked and got a good quantity of milk, and fair milk. We used to frequently test the milk taken from different cows by keeping it in separate pans, to see which would give the largest amount of cream. I believe that our cows compare favorably with any other. We have only one Jersey in the lot, and it does not give any more milk than the grade Short-horns. I suppose, like every other breed, there are some that are good milkers and some that are not. I believe that Short-horns are as good for milking as any other, and when you get through milking them you have something to make beef of. I had, last fall, four head of grade Short-horns about three years old, and sold them for \$60 a head. One of my neighbors the next day sold four head of natives for \$70, which were raised on the adjoining farm.

Mr. Field — I think that all the people in this state who have had any experience in dairying will concede that there is a great deal in Mr. Palmer's paper that is just right and honest and fair. I believe it has been the experience of the dairymen of this state, that if they desire to make butter and do not desire to raise calves, that the cross of the Jersey is, perhaps, better than any other breed in this state. But there are other things to be taken into consideration. I am starting a dairy farm and have taken a little pains to

investigate this matter. I have talked with leading dairymen in this state and Iowa, and all parts of the country wherever I have met them. They have said to me, almost unanimously: "If you want to keep cows for butter-making, and for raising your calves, take the milking strain of Short-horns." The Jersey men have told me that, repeatedly. I could mention names of those in this state who have told me. They have told me: "If you simply want to make butter, get the best native stock you can find in your own state, or in this state." I call this my state, and yet I have a farm in the state of Iowa. "Get the best native stock you can find in this country, and cross with the best milking strain of Short-horns, and you have got about as good a milking strain of stock as you can find in the world, and you can raise calves from such a stock and sell them in the market for three or four times what you can the others." Besides, we are able now, after the experiments which have been made, to raise our cows at very trifling expense. I know of hundreds of them that have been produced this last year that never have tasted a drop of milk beyond four or five meals. They were then fed on skim milk, and skimmed so it was blue, and a little flaxseed meal, ground fine; perhaps it is better in that way. And this is a question we must all consider. If I am living near a large city and I do not desire to raise my calves, think that my farm does not warrant it, and that I had better turn everything into meat, then I cross with the Alderney or Jersey; otherwise, with the Short-horn; and I do not care what Mr. Palmer or any other man says to the contrary. I believe the experience of the world will bear me out in this statement.

Mr. Palmer — The viciousness of the Jersey bull has been spoken of. I think it was overstated very much. As far as my experience goes, I have heard of more accidents from Short-horns than from Jerseys. There was one man in our neighborhood killed not a year ago by a Short-horn. I have a Jersey that is seven years old, and is as quiet as an ordinary cow.

Mr. B. C. Dinsdale, of Fennimore — I would like to know about the viciousness of these animals. We only have one in our section of country, and we have a perfect dread of them. A gentleman was killed by one of them this last winter, and that is as far as we know about them, only as we read. I would like information from some one that is not prejudiced on either side, whether the male of the Jersey is vicious or not.

Secretary Geo. E. Bryant — I reckon that means me. I am not prejudiced for or against any kind of cattle. I have three times as many Short-horn bulls as I have Jerseys. I do not believe there is any bull of any kind, whether he be Short-horn, Jersey, Ayrshire or native, that is safe, after he is two years old, for any man to handle, unless he handles him at arm's length. I do not believe there is any difference in natural viciousness between Short-horns and Jerseys. Men are killed by bulls frequently, but it is generally through their own carelessness. They are killed by stallions. I do not believe there is a bit of difference between one breed and the other so far as viciousness is concerned.

While I am up I want to say one word in relation to what my friend Babbitt has said. Anybody who has visited his place and tasted his hospitality, knows what a nice place it is. He knows what nice butter he makes, and I had read about his challenge to anybody to make butter in comparison with his Short-horn cows, and I spoke to his neighbor Mr. Cobb, who keeps Jerseys, and lives just across the road, and has a farm adjoining Babbitt's farm, and I said, "Babbitt makes very good butter from Short-horn cows." "Yes," he said, "but my pasture is close by." I said, "Mr. Cobb, Babbitt would not go over and milk your cows?" "No," he says, "but the water runs down out of my pasture into his, and that probably has some effect on his cows. The trouble with my neighbor Kiser is, he has only had grade Jerseys, got by grade bulls. He never owned a thoroughbred Jersey, or a grade from a thoroughbred, either dam or sire.

Mr. A. A. Boyce — Just one word in regard to this question in regard to the viciousness of bulls. I want to indorse Judge Bryant's idea in full, that there is no bull of any breed whatever that it is safe to handle, after he is a year old, without a staff, and I never attempt to handle such animals without one. I do not know but what with age the Jersey bulls are as docile; in fact, when I saw that splendid herd of Mr. Houston's, it almost persuaded me to buy one, and I do not know but I shall, for I never saw a finer barn full of dairy cows than were on his place or in his barns, and they were all, or nearly all, grade Jerseys.

Mr. Babbitt — The Jersey men rather have the advantage of us in one particular. The Jersey heifer and Jersey cow is mild and gentle always. As a general thing, they are so fascinating they

put us in mind of the women that take care of them in their native island, but the masculine part are precisely like the men who have appeared in this debate.

Chester Hazen, Ladoga—I think this question has been discussed about long enough. As regards the viciousness of those animals, I have kept the Jersey bull for several years, as well as Ayrshires, and the viciousness of those animals depends a great deal on how they are treated. I have never had an ugly one on my place yet. If you abuse them they will resent it, and you can make them ugly in a little while; if not, I think you will have no trouble with them. It has been stated that the Jersey milk made a better quality of butter for the market than any other. It is a fact that we have some Jersey dairies established that have worked up a trade and get enormous prices for their butter. Their herds are Jerseys, or Jersey grades, principally, but in my opinion it is more in the way that butter is handled and put in the market than it is in the cows that give the milk.

The fact exhibits itself in our western dairies here, in regard to our premium butter. The butter that took the first premium at our international fair this winter was made from dairies that had no Jersey blood in them. The butter that took the largest prize, \$250, was from a dairy of cows in Sheboygan county, owned by our friend, Regent Hiram Smith. He has no Jersey blood in his herd, of any account. His cows are what we would call common stock. He has some Ayrshire grades and some Jersey grades. He exhibited with about eighty competitors. The butter that took the sweepstake premiums in the other classes were made in Iowa. Whether there was any Jersey stock in that, I am not able to say. Mr. Crosier, at Long Island, one of the most noted breeders of Ayrshire and Jersey stock, had both breeds on exhibition at a fair in New York. I took the pains to ask Mr. Crosier some questions in regard to the quality of the butter of the Jersey cows, and he said that Jersey butter, put into market immediately, perhaps, would be superior; but its keeping quality is nowhere near as good as that made from his Ayrshire stock. As far as the quality of the butter from the Jersey cow is concerned, I think it is more talk than anything else. I have a number of grade Jersey cows. I have kept them quite a number of years. They give no better cream than other cows. I keep a cheese factory, and have facilities for testing

it. My Ayrshires give a good deal heavier cream than my grade Jerseys.

Mr. Field — Was not that the case in New York, where a large number of cows were tested, and they said they did not give any better milk than other cows?

Mr. Hazen — I have seen in print tests of milk from different breeds of cows. There is no fair show in that. One cow from any breed may give richer milk than another of the same breed. There is a difference in cows of the same breed, and, as a rule, the one that gives a smaller quantity of milk will give a richer quality of cream. That is the case with the Jerseys. The pure-blooded Jerseys do not give a large quantity of milk, and of course it should be richer than that from a cow that gives two or three times as much. You cannot expect as rich cream from a cow that gives a larger quantity. My business is cheese dairying. I do not fancy the Jerseys for that particular use, though I am a breeder of grade Jerseys. I keep the Ayrshire also. Some of them give a richer quality of milk than others. However, as a class, they are large milkers for their size. They are a nice stock for our western farmers.

Secretary Bryant — Our friend Hazen comes here at every convention and always talks Ayrshire cattle, and he has good ones. I admire them as much as he does, but I have noticed one thing, for years Mr. Hazen has kept a Jersey bull; when one has passed its usefulness he buys another. I have always wondered why under the sun he wanted one if he did not care anything about that breed of cattle.

Mr. Hazen — I got a Jersey bull to try the grade Jersey cows. I am satisfied they are very good cows. I do not raise all the calves. I have a good many calves in the spring of the year that I have to sell. If I have a grade Jersey calf, I can get two or three dollars for it, while if it is of any other kind I get nothing for it. I get pay for keeping this stock in that way.

President Fratt — This matter has taken a pretty wide range, and has been ably discussed, and I must say I am unable to see which side is ahead. The next paper on our programme is by Mr. Kellogg.

## HUMBUGS.

By GEO. J. KELLOGG, JANESVILLE.

Let that man, woman or child who is not a humbug, stand up.

There are but two classes now living — the humbugged and the humbugger. I presume they are both here.

Go to Washington; the greater the position the greater the strife; the higher the prize, the more trickery; chicanery, deception, fraud, avarice, imposition and all the evils in high life, culminating in debauchery, bankruptcy and ruin.

What of humbug in the legal profession? There was a time when the laws were so simple there was no need of lawyers. Now, while congress is composed of more than three-fourths of this fraternity, what wonder that the laws are so ambiguous that even a Philadelphia lawyer cannot get beyond the amendment on the amendments.

Did you ever know a lawyer that was not a humbug, or who would not for money clear the very dirtiest, low-lived scamp?

Are there any clerical humbugs? The question seems to be fleece instead of sheep, and not much care of the lambs except that the fleece be kept good.

Are we getting so far advanced that we are losing all the old land-marks? Is there not humbug in our colleges, humbug in our city schools, and less common sense in our district school teachers than years ago? In the graduated school we find the scholars must march to music, step to time and go bare foot, and if by accident a pencil is dropped, it cannot be picked up until school is out, no matter if the child is idle the balance of the day. One of our city patrons told me that all the scholars learn in the high school is to walk up one aisle and down the other without kicking his fellow. Is this not humbug?

Did you ever know a doctor that was a humbug, or rather did you ever know one that was not? When called will he not shake his head and look wondrous wise; make the case a very critical one; he was not called any too soon; doubtful; he would need to see the patient again before he slept; and between the nostrums he left and the disease, no wonder the patient is worse, and will doubtless remain about so if the M. D. can control the case, especially if the

bill is good. Have you ever known his reputation, built upon a good deal of brass and two good horses, with a furious drive into the country twice a day, returning on a different road? Poor timber is now worked up into doctors at very short notice.

How about the agriculturist? I suppose this big word means the humbug farmer of now-a-days; humbug in his house, humbug in his barn; he doubtless had a humbug carpenter, there is hardly any other; humbug in its surroundings, humbug in his seed, humbug in his soil, humbug in his way of farming, humbug in his horses; he is the one who sent the boy for the doctor, and the boy took it afoot to gain time; humbug in his cows — who ever heard of a yearling heifer whose milk was so rich that a pint would make a pound of butter? — humbug in his hogs, — see that sandy pair that cost \$100.00; humbug in his sheep, wool pulled over his eyes at the last fair to the tune of several hundred dollars — will he pan out by humbugging some one else? \$50.00 for a trio of fowls — how is that for eggs at 10 cents a dozen? Did you get rich with the hullless oats and the beardless barley? Have you tried the new corn, one kernel in the hill; the potatoes that are bug proof, or the new kind just from Peru? Have you tried the Jerusalem artichoke, and did your pigs dig their own dinner and make pork at one per cent. per pound?

Did you ever give an order and note for an unlimited supply of lightning rods, and how did you get out? How about the new kind of reaper that stands out beside the fence yonder, or that patent churn that is up in the garret, or the new dash that brings butter in five minutes! Lastly, did you ever get acquainted with a patent right man and make your pile — over the left?

Turn to any calling, business or profession, and it is built of brass, sham and shoddy, the best side out; if any defects, it is puttied up, varnished and whitewashed, from the wafer to the wooden nutmeg; from the Bank of England to the sand bank; from the highest social circle to the honest dregs of humanity, humbug in everything, humbug in man, but oh! oh! what shall I say of woman? — worse and worse.

Where is humbug more often seen and more anxiously felt than in horticulture? You plant a tree with hope of eating choice fruit some five years hence; you nurse it to life, pet it, lo! these many years, and what? It blooms and blights, or worse, what it bears is

a humbug. It is easy to tell where you bought that tree. A smooth-tongued man called on you, familiarly addressing you by name, showed his pictures and glass jars with magnificent fruit, a certificate from some reliable firm either east or west, promised to be around next year and replace any failures; he won your good opinion, and although you had been caught before, and had firmly resolved you would never give another order, yet he talked so fair, and represented a firm that you knew, he had also sold to many of your neighbors, as he showed their orders, and lastly he had the recommendation of the president of your Horticultural Society, and you thought you had a sure thing, and as you wanted some of the new Russian apples, you ordered ten at \$1 each; and as you had poor luck with cherries and he persuaded you the "Utah Hybrid" was just the one to bear every year, loaded down with cherries in clusters like grapes, it seemed a wonder it had not been discovered before; you would try a few. As you had always failed in raising pears, and he had a new stock on the "French root," on which pears would not blight. Eureka! now you thought was the time to go in on pears. The Alaska crab he said was something wonderful, and so you thought as you saw it through glass, and although \$1 per tree was high if they were bearing size, you could soon make that up in fruit; a few winter crabs, so nice in the spring; a "Tree Rose," a "Strawberry tree," a half dozen "Blue Roses," and as grapes were your favorite fruit, and from extra cares or labor you had not given them the proper attention at the right time, you had failed, and as he had the grape that needed no protection, and would load down with fruit even if not pruned, and so many prominent nursery men of Wisconsin had recommended it, you took a dozen — they were to be bearing size and you was to pay a good price; and then there was that white grape you had heard so much about and had never been able to find it, as hardy as the Clinton, as great a bearer as the Concord, and the fruit would keep all winter; a dozen of them would be too many. Now a look at his jars convinced you that if such gooseberries, currants, plums and strawberries can be raised, and here is proof, why, you will take some of the gooseberries that will not mildew; currants that the currant worm will not eat; some of the plums the curculio will let alone, and if strawberries as big as apples can be grown like that, why, set me down for 100, not even asking the price; such a

chance you might not again have. Now you are through; but wife wants a few roses, shrubs, bulbs, shade trees and evergreens, and the order is finished and signed, too much in a hurry to carry out and add it up, and you have only ordered what you want; and as the trees are not to come till fall it does not matter.

Fall comes, one cold spell, no trees yet, but here comes a notice; you go to town, find a man delivering a lot of trees and bundles all about in the wind and sun — this is not the man you bought of, but he shows you your orders, all footed up now, and it scares you; the bundle is so small marked for you, that you refuse to take it; but you now take a memorandum of the order and talk it over with your wife; she thinks all those things were talked of, and after consulting a lawyer you conclude to take the bundle; it has not improved any by laying two days in the wind and sun. After you get home and compare the bill and bundle, you find the Russian trees all look alike, although ten names on them; the Alaska crabs are just little riding whips, "bearing size," truly, but they look like a kind that you have already; the "Utah Cherries" about one foot high; and the "French Pears," they too must be dwarfs, only two feet high; the Tree Rose and Strawberry tree, wonderful, just six inches high; the Blue Roses look as though they always would be blue, and the grapes, bearing size, about the size of a knitting needle, "need no protection." I guess they will not only need protection now but a good deal of nursing; and the plums, why the curculio could never find them; and here comes a little wad marked "Strawberries, 100," what a little bundle for \$25 — who ever heard of strawberries at \$25 per 100 — it must be the hen's egg kind; "Shade trees four feet high — what a shadow; "Evergreens," one foot — how they will break the wind next winter. Well, the bundle is sorted and the trees must be set out. As you cut the roots they look as if they had been frosted, but it is too late to cry over spilt milk; the trees are set, a portion of the bundle is put in the cellar to dry up, and the sequel will be; what few things ever live will bear anything but what they are marked; the strawberries are a little sour berry; the Russians are all some worthless apple; Alaska crab, alas! alas! the tree looks like briar's sweet.

This is but a faint outline of what is transacted every day through the country. The unknown responsible tree tramp will persuade you he is working for such firm, and will buy up worth-

less stock any where he can find it cheapest, fill the orders, the labels and orders will correspond, no matter what the trash filled in, and the most experienced cannot always tell what the stock is; and by the time you can prove anything, where is your tree tramp? Occasionally one gets locked up for forging orders — pity they all did not. Instances have come to my knowledge where June roses worth one shilling, have been sold in Madison for \$2.50 each; where 100 plum and cider apple trees were substituted with three kinds, and not a cider; where Alaska crabs were sold for \$1.00 and Brier's Sweet without label were substituted.

The last sell I have seen on new "early Russian" is a plate of Red Astrachan; not a bad sell if they would put in good trees at a shilling and have them marked true Red Astrachan. Four of our best stand-bys are Russian, viz.: Tetofski, Red Astrachan, Duchess of Oldenburg, and Alexander; but what about the 988 varieties from Russia disseminated by the department at Washington? Who is the man or men who will ever sift out the wheat from that pile of chaff; let a monument be raised to his memory. I have received just 32 kinds of that 988, and after ten years' careful investigation, even if they come to bearing, what will I know about their adaptation to different soils, hardiness, productiveness and quality, and where is our Russian school; take for instance two names of the 32 just received: No. 430, Arkad Krugli Woskowoi; No. 458, Scholti Naliu.

Who is going to be humbugged now? 988 chances on new Russians, and these are not yet in the hands of the itinerant tree peddlers. A few have already been so far tested in hardiness of tree that we have hope of success, but there is not a man in our state who can tell the quality of five of this list of 988 kinds. How often have we been deceived with our own new varieties after they have been tested for five years before receiving the prize; only proving valuable in a few locations.

What have we been able to accomplish in the last twenty years? Turn to Horticultural Report for 1876, page 30; eighteen reports from as many different men and portions of the state, giving lists of the most profitable ten varieties in the order of value, numbered from one to ten. They all have the Fameuse in their lists, eight of them as the first for profit. Fifteen have Duchess, but only five put it as No. 1 for profit. Twelve have Golden Russet; only

one puts it at the head of the list. Eleven have Talman Sweet; nine have Red Astrachan. Of the 41 varieties named to make the list of ten, sixteen get only one vote each.

The best resolution this society ever passed was that recommending every man to look about him and go for those varieties that were a success on soil and exposure like his own. I know of a practical horticulturist who, after years of trial, has settled down on Duchess, Fameuse and Early Rose potatoes for apples. No pears, no plums, no cherries—Hislop and Transcendent for crabs. He wisely trusts the potato to supply all failure on trees.

In reading up the report for Maine, I am much amused to learn that the tree peddler has been selling "Pewaukee, Haas and Wallbridge as new Russians," the scions directly imported. As they have had ten to twenty years experience with apple on crab roots, they unite in pronouncing them a humbug, "dwarfing the tree and dying at an early age." The leading swindlers claim that the reason these trees grown on crab roots cost so, they pay \$300 per bushel for the wild crab seed.

Perhaps some of you would like to invest in a new thing, the pie plant hybridized into the peach, giving the pie plant the peach flavor; roots \$1.50 and warranted; replaced at half price. One other sharp agent will find out where your best trees came from and then he is furnishing from that very place. There is no end to their ways, tricks, and new and wonderful fruits and plants they have just imported.

Take the pear humbug; in just one place in Wisconsin I believe pear trees have paid first cost; outside the influence of Lake Michigan, I know of but one tree as a success, and before that tree dies I want it to go on record; and if the poor thing dies, that its good works may stand a monument forever. That tree is a Flemish Beauty, planted in the town of Spring Valley, Rock county, Wisconsin, by Rev. D. Alcott, 1857; commenced bearing 1866; has born pears by the bushel for six years, and in less quantities for four years more; sold at \$2.25 to \$7.00 per bushel. Amount sold, \$50.30. In 1871 it furnished for market five bushels. This is besides what have been used and eaten by the family and admiring friends. It is needless to add that this is on clay, and not highly cultivated where the tree stands.

Take the plum humbug (I do not mean the Plumb\*); put your

\*J. C. Plumb, a prominent Wisconsin horticulturist.

finger on a kind that is reliable. Where are the friends of the Hinkley? and oh! where is the "Wild Goose?"

It is a good thing to plant cherries; for one year in three you will get enough to make the birds happy; if you sell any, or attempt to can any, you are liable to the law for "cruelty to birds."

While currants can be bought annually at \$1.00 per bushel, they will pay the consumer; but I had rather contract to furnish 50 bushels of raspberries or strawberries at the same price than currants.

In the small fruits you are liable to humbug yourself; you buy a choice kind and give it extra care; its success will lead you into error, for as soon as you put it along side of the old roots it fails.

Of the 10,000 new varieties that have originated in the last twenty years, what strawberry can equal the Wilson? There are many who are claiming the position, but take the fact that the Wilson has never been planted nor cared for, but it has paid on all soils and every position, and all kinds of treatment; and it has fruited at the rate of five bushels to the square rod, and twenty-five quarts to a single picking to the square rod. This was done last summer on a bad third crop after the severe frosts and without irrigation.

As I am a humbug (that is what my wife says), my foreman is ready to testify to these facts; and as you still think there is humbug, I will state that J. F. Morse and I. L. Jenks, years ago, on a strife, produced the first named five bushels on a square rod, and the last four bushels and one half. The new varieties that have come to the front in the last five years, promise to beat the Wilson some in quantity, many in size and quality; the Great American has produced the past season a strawberry measuring fourteen and one half inches, on the originator's ground; one picker picked 22 quarts in 20 minutes of this variety, but this is not doing anything like as well elsewhere; it needs high culture, clay soil, in hills. Of the comparative merits of thirty varieties, I can tell by the 4th of July next, as I have over half a million plants in nice condition for fruit. In raspberries there is about the same field for humbug as in strawberries; I would not advise anyone to invest over a hundred dollars a year in any of the new fruits.

If you want practical experience in any department of horticulture, go to the man who combines practice, theory, common sense

and honesty; be very cautious when you approach a nurseryman; believe one-half what you see, one-eighth what you hear, one-fourth that comes second handed, and nothing you cannot trace to an authentic source.

These nurserymen are a set of humbugs. One of the best ones I know of in the state acknowledges this, and wants me to write him up "aisy." If I should order anything of him I should examine and see if it was not black-hearted, root-frozen, blighted, stunted, grafted on crab stock, full of the eggs of the canker worm, bark busted, and froze to death. All things being right, I should probably set it out in a poor place, give it no mulch, never hoe it, and then lay all the blame on this poor nurseryman.

After all, there is a humbug bump in the Yankee make-up and he rather likes it; you offer him something risky, and the more the better he bites; he wants a chance to beat his neighbors, beat himself, beat the world and all the rest of mankind; if he don't beat, he likes everybody to believe he does, even if he is a humbug. Every man has his hobby, and carried too far it becomes a humbug, no matter whether it be crabs or cranberries, grapes or goslings, pigs or pickles, fairs or frizzles, men or monkeys, mules or donkeys.

I suggest that the joint convention before it adjourns, do appoint with full instructions, for each assembled district throughout the state, a "Fool Killer."

Mr. A. F. Hofer, of Iowa—The gentleman mentions one humbug in the high school of Janesville. He said they went so far as to make the children go barefoot. I do not consider that a humbug at all. I believe it would be a great deal better for many of them if their fathers would keep them at home and let them go barefoot on their farms, so they would study to earn a living in an honest way instead of studying humbug, and humbugging their neighbors afterwards. If he would go barefoot on the farm, he would develop the feet, so when any humbug came on the farm he could give him a good send-off.

Mr. Plumb—We would all like to talk on this, but our Horticultural Society had a brief talk on this subject and put it in the form of a resolution, which I will read as expressing the Horticultural Society's sentiments:

"*Resolved*, That all nurserymen who send out agents, should in

all cases expect to be fully and strictly responsible for all the representations, and to fully meet all the contracts made by such agents.

“Second, that tree planters should, as a means of self-protection, demand of all who may solicit their orders for trees, unquestionable proof that they are the authorized agents of some reliable nurseryman, and that such nurseryman will hold himself strictly responsible for all the representations of such agent.

“Third, that tree-planters may reasonably look for all things that are really valuable in this climate, in the leading nurseries of the country, rather than in the hands of irresponsible traveling canvassers, and that it may be taken as *prima facie* evidence of fraud when scarcity or extraordinary qualities or excellence is claimed for them, or when for the same cause exorbitant prices are asked for their products.

“Fourth, that newspapers throughout the west would protect their readers from swindlers, and advance the cause of horticulture, by publishing these resolutions.”

That is given as the sentiment of our society on this question. We adopted it at our last convention.

Mr. A. L. Hatch — The secretary of the Horticultural Society has prepared a paper to read before the convention, on the methods of making horticultural and agricultural conventions and meetings interesting. It is not on the programme, but if there is time I would ask that that paper be presented.

Mr. H. A. Phillips — I do not think we ought to pass this humbug paper without discussion. There has been a great deal of deception practiced throughout the country on farmers and others in regard to selling fancy stock at fancy prices. I think we ought to go slow in disputing what *he* says on *horticulture*, because he speaks whereof *he* knows. I have talked with a nurseryman recently who is spending a great deal of time, and I think in the end is going to work out a great thing for the west, in experimenting with Russian apples. Perhaps it will never pay him, but he is enthusiastic. Anything that has “Russian” to it, he is enthusiastic about. He is enthusiastic about Russian turnips, and if there were Russian potatoes he would buy them. He tells me, in Russia, where men go long distances, there are places put up where you can stop to warm; if you do not, your eyes will freeze up; and in places it is so cold that if you pour water on the ground it will

freeze before it gets there; and as to the apples and pears that are going to be introduced in this country, we have varieties resembling a hickory bud — very large and encased in a number of layers, and you must all look out for such things.

Speaking of substitution, I think there is a great deal of harm practiced in that way. I was speaking with a gentleman a short time ago. I guess it was in reference to selling the Alaska crab. It had a great run through the country. He said when they filled his order they substituted Astrachan and Brier Sweet. I told him I did not think there was any nurseryman that had the cheek to do that. "Yes," he said, "There is a man in Janesville by the name of Kellogg that done it."

Mr. Field — There have been a great many ideas suggested by this paper of Mr. Kellogg's, and he gives us a great deal on that subject every year, but I want to ask Mr. Kellogg and this convention if it does not do us good sometimes to be humbugged; if it does not sharpen us in business transactions. If a man can come on to my farm and humbug me, and do it handsomely, I like to have him do it. He cannot do it the second time. It makes me sharper. It makes me more suspicious of those very individuals. It sets me to thinking. I say to myself, "If another man comes along, as one did last summer, and says, 'Have you been troubled with these tree peddlers!' 'No, sir, I have not.' 'Has not one called on you?' 'Yes, there has been a dozen here, but I do not allow them to trouble me. I am glad to see you all; I am glad to talk with you, and I think I know what I want. If you have got what I want now, I will buy it of you; if you have not, I won't. I think I know what I want.'" But there is too much of this humbug in the world. Go into a store in Madison, or anywhere else, and ask for a certain thing, and if the keeper has not got it, it is ten chances to one if the clerk does not say to you, "My dear sir, we have not got that, but we have got something that will suit you better." I went into a store the other day where they said so to me. I said, "I know what I want a great deal better than you do; if you have got that, show it to me, and if you have not, say so." Of course he said he had not got it. Now we who live in the country, and have no opportunity of buying what we want except of these men you call tramps, ought to know what we want. If we do not, it is all right to get bit once in a while. It will make us sharper.

I do not blame Mr. Plumb or Mr. Kellogg, or anybody else, for going out and selling what they have got, if they do it fairly and honestly, and do not bring around their fruits in jars that magnify forty or fifty times, like the jar with Judge Bryant's gold-fish in, in the other room. If you go on one side you think it is a whale, but on this side it is a little fish about an inch long. Everybody ought to know, if they open the jars it would be impossible to be deceived. I knew one man who asked if he might open the jar. "Oh, no, it would spoil the fruit." "Well," he said, "by —, I will open it," and he took his jack-knife and knocked the top right off, and there it was, a common kind of fruit magnified two, or three, or four times.

We want to know what we want, and when it comes, buy it.

Mr. Kellogg — It is a good thing for brother nurserymen to pitch into each other, but this remark of Mr. Phillips, I do not know where he got it. I never had an order for an Alaska crab except from a man in Illinois, and I never saw one except in the tree journals; never sent out a tree labelled that, and never furnished another in its place, except to this man from Illinois, who took some Brier Sweet when he could not find the Alaska Crab, and *he* put it into the bill without any label. He took the trees from my nursery, but he only paid me about ten cents a tree, and *he* filled the bill without my knowing anything about the order.

Hon. B. F. Adams, at 2 P. M. on Wednesday, Feb. 5th, 1879, read a paper on "Blight," which elicited the following discussion:

J. C. Plumb, of Milton — I am glad that our friend Adams has had the courage independently to take up this question and ventilate it. I think it is well to keep it before the people. Some of you will remember that several years ago I read a paper here on this subject, which you will find in the volume of transactions for 1872. It was with me the result of many years' careful reading and correspondence on this subject, corresponding with nearly all the leading horticulturists in relation to it. I found at that time such an utter want of harmony of opinion here, in relation to this question, that I was utterly at a loss as to how I could compile those opinions, as our friend Adams has done. He has compiled the best thought he could get, perhaps. Well, I did not let up on that subject. If you remember my position, I took the ground then, after examination, that it was a disease of the circulation purely, and the prevailing theories were, first, insects.

Second, fungoid disease and the result of the impregnation of cryptogamia, and I made up my mind neither of these theories were tenable; the advocates of them acknowledged that they were not well founded. I saw a letter from Doctor Taylor, our national cryptogamist, which he wrote sometime last summer, bearing directly on this subject. His opinion was asked, if he could trace blight to a cryptogamous or a fungoid origin, and his reply was, that he had hoped to reach that point or something that was definite in that direction, but after all his examination of years he was unable to account for blight on that theory in a satisfactory manner.

Our former secretary, Mr. Smith, perhaps can state the words more definitely. Those of you who have read the last report from our Washington Agricultural Department will find that Dr. Taylor says nothing about it there; but the National Chemist has a short article bearing on that. He has investigated, and he stands in the same position, that the most careful examination does not show that it can or may have a fungoid origin. Those are not exactly his words, but that is his position; and he finally says that investigations are in progress which will be carried on, and hopes to bring on more another year. When I speak of blight, I speak of it in relation to fungoid diseases; not in relation to vegetables alone, but in reference to animals. I find that the advocates of a fungoid origin are losing ground; they are gradually giving it up. I feel very confident that, within five years, the very position which, I say without egotism, I assumed in 1872, will be demonstrated clearly to be the true one. A disease resulting from an unequal circulation, an improper diet of the tree and want of proper assimilation. You might call it a sort of vegetable dyspepsia, upsetting, destroying, disturbing the normal relation between the circulation and assimilation in the tree; and the result is, there is that injury, whatever it may be, disturbance of the circulation, resulting in diseased sap, dead wood, and whenever we see it we call it blight.

Mr. Gibson, of Minnesota—I have lost hundreds of fine trees with the blight. I find that the blight seldom strikes the same tree twice the same season, and not often strikes the same tree more than once during its time. Trees that are struck badly one year are seldom hurt the next, unless you cut off the blighted part. If you go and cut off the part immediately after it blights, I find that it is very apt to blight again; and when the blight strikes an

orchard once, however badly, it is not often found that it strikes any portion of that orchard again during the same year. That is the case at least with my orchard. I have had blight in it every year for some six or seven years to a greater or less extent.

The first season it struck about three-quarters of an acre of ground which was planted in trees and had been highly manured and well cultivated. The trees were growing very rapidly, and outside of that three-quarters of an acre, there was not a tree on the premises blighted, although there were thousands all around me. It sucked out the main portion of the trees from that three-quarters of an acre; that was the first blight that made its appearance. I went to work and washed away all the blight. It struck in again immediately and did greater damage than before. The next season I let it work its own way mostly, but it took another plat of ground that just cornered with that, about the same size. It too had been highly cultivated before planting, and the trees were tolerably small and all of one variety. The other contained probably fifty or more varieties, and scarcely a tree escaped the first, and very few the second season. In neither of those years did it return back to the same ground.

Adjoining was ground that had been in grass for several years; the two first years no blight showed on the grass part of the orchard; the third year the blight was there and not on the cultivated portion. Then I had another orchard where the ground had never been plowed; the trees were on raw land, and thus were surrounded by timber; the blight struck in there at a furious rate and hurt them badly. Finally I had another orchard, separated entirely from the other, where the wind blew from one lake to another; it lay just between the two largest lobes of the lake, in an open space there. On that the blight held away until the fourth or fifth year, but there it went finally. There had been no manure there at all; the ground was in cultivation until the trees began to blight, and some is in cultivation yet; there they blighted as badly as they did on any portion of the farm. Sometimes the blight would attack some of the trees and you would only see it on the leaves, or attack the fruit, and the trees and the leaves were sound. In other places the poisonous matter would strike on the body of the trees in places as large as my hand; then again it would girdle them evenly around, and after girdling some would run down into the ground and leave

the top of the tree growing yet; in others it would leave the bottom and run up to the top; in others it would run both up and down. A year ago last summer the mischief was done. The wind was coming from the west; it struck across this orchard that had the draught from one lobe of the lake to the other, and as it came it kind of quartered on the orchard, and that threw it into the dooryard. The space where it entered the dooryard was some thirty or forty feet wide, but the position of the trees was such that it threw it together, and it nearly burned up every tree it came in contact with. They looked as though a fire had been through there.

It attacked plum trees, apple trees, European mountain ash and native ash, and then struck for a space of about four feet where it had to pass through between thick roots of what some term service berry or June berry, and burned the leaves on each side. Some of the branches were about dead or entirely so; and then it had from six to eight hundred yards to go after it passed that, in order to go over to the orchard. It never touched a tree outside of a strip of about ten feet wide, as it went on; just went on, taking everything in its way, showing to my mind very conclusively that it was an air current. There were all the phenomena that are present in any orchard, anywhere; some trees were burned, some were blotched, and others girdled in all forms. Other orchards I have seen blighted in a similar way, and, as for varieties, I had four trees of one variety standing where the blight had been all around them, and not a leaf of them had I ever discovered hurt; and never, when the blight was on the premises, but this year, did those trees get hurt. They stood in the corner of an orchard, and there had been blight in it more than thirty or forty feet into the corner of another orchard, and back of them. Finally, an air current appeared to have run through; it was a road between the corners of two orchards, and it appeared as though there had been an air current that drove right through and struck the trees in the corner of each orchard, and pretty much entirely ruined those four trees that had stood so long unharmed. As to its being insect, I do not think it could have been possible, or, if it is, those insects float with certain air currents.

For my part, I believe it to be a disease near akin to cholera and as hard to fight. Certainly you can apply no remedy that you can count upon more than you can for the cholera. Here is a tree that

may be attacked one season and never touched again, with blight all around it. Another tree that has escaped may be blighted another season and the former one be left untouched. The blight is first known to have visited America about sixty years ago; at least it is just about sixty years ago that I saw the first signs of blight. It ran a few years, but did little damage to anything then but pear trees; showed a little on the apples. It was followed by the cholera, and the remarkable fact is, that the blight came from Asia, according to the history of it. It is a disease that travels out of Asia; so does the cholera. It passed away when the cholera passed away; at least very few symptoms of it were left. The second time the blight came out of Asia and over Europe and was followed by the cholera. We have the blight now upon us for the third time, and, in its passage over Europe, it attacked pear orchards in France, Germany and Switzerland, that were as high as a hundred and sixty years old, so much greater was its ruin than ever before; and when it reached America, we find that the same excessive ruin is attending it here. It is my opinion that it is nothing more than a sign of a bad time for the cholera, and that that disease will follow it. Cholera has started again in India, where it has started before, and will probably march over the world the same as it has previously done.

Mr. Kellogg — I want to call attention to the fact that our friend Peffer has been down among the blighted counties east, and he may have a word to say. I don't think it is worth while to spend much time on this question, for the more we hear the less we seem to know about it, and I think the time of this convention is not being well taken up to follow this subject much further.

Mr. G. P. Peffer — I attended the convention at Baltimore a year ago last fall, and most all of the discussion was on this subject of fire blight. It was voted twice to discontinue it, but every once in a while the same discussion would break out again, and finally it got so far that the officers went to fighting about it, and they decided to divide the house upon the question of the continuance of the discussion; and so it was settled that Mr. Taylor, I think it is (or some one who is in with Mr. Sanders), should make a final decision, if he can decide, which is right. Some contended that it was insects; some that it was fungoid, and some that it was atmospheric; and we could not come to any conclusion; so it was finally

left to him, but I have not seen anything of his report or decision. The pear trees were affected down there as badly or worse than they were with us, and in the botanical gardens I did not see one but that was affected with fire blight. As to the remedy of lime and sulphur, I did not see that it did a particle of good. They were affected the same where it was applied as where it was not applied.

Mr. Plumb — The chemist, William McMurphy, I see by the last report, accepts the proposition that mildew — fungoid growths — can injuriously affect plants of the higher order on which they exist, only when they are in a debilitated condition. That is the latest authenticated theory we have from headquarters, this decision of the United States chemist, and you will find it in the last report of 1877, and if you will read that it will perhaps settle the question.

Mr. Hofer, of Iowa — I have watched this disease on trees for years, and I do not know that I am any wiser now than I was ten or fifteen years ago; that it is no insect I am pretty sure. I was after that bug or worm, or whatever you call it, six years, and I never could find a hole of it. I have one tree in my garden that is never affected with the disease, while almost all the rest of the apple trees suffered nearly every year; and lately I found out that tree stands near a chimney where all the year round the smoke goes over it. I don't know whether having the tree smoked is of any consequence or not, still that tree is never affected while the other trees are. It has been my opinion for two years that the hot rays of the sun striking the tree produce a kind of a sunstroke in hot summer days. Blight generally comes after a very hot day; a little rain follows, and the next day the blight is there, and I believe it is the hot rays of the sun which scald the tree through the bark. That is my opinion. What to do for it I don't know.

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## FARM DRAINAGE.

By J. W. WOOD, BARABOO.

It was at rather a late date that I received a line from our secretary requesting me to present the subject of "Drainage" to this convention "in order," as he said, "to give an opportunity for a

discussion of the subject, should there be any here who desired it."

If there had been time for correspondence and a re-arrangement of subjects, I should have preferred to have consigned this one to some person, if he could have been found, who is an expert at the business of tile draining; for the bare mention of the subject of draining suggests at once this modern system, which has become so enormously developed in some of the older countries, and which has produced such wonderful results; but there was no opportunity, so I will present it as well as I can.

My own section of country is quite rolling, which secures in the main good surface drainage. The Baraboo bluffs, which are the most suggestive of a mountain range of anything in Wisconsin, traverse our county from east to west, and yet there is hardly a farm of any size in the county where drainage is not needed, and where it is not absolutely essential to the utilization of portions which are at present worthless, but which might, by a proper system, become very valuable land.

While water is indispensable to the growth of all vegetation, and a well regulated supply will make almost any land productive, yet an excess of moisture is as disastrous to our crops as a deficiency.

Rice marsh grass and cranberries will bear an occasional flooding, but none of our cereals can be flooded for even a few hours without injury. A permanent layer of water underground, is as effectual a barrier to roots as a layer of rock. I have seen where hurricanes have tipped over tamaracks growing in swamps, and the lower surface of the roots would be as smooth as a floor, simply because the sand, below a certain level, was saturated with water.

We had a great deal of rain during the fore part of last summer, and it was noticeable in the grain fields that wherever the surface drainage was not perfect, so that the water would stand in pools for a few hours after each successive rain, the grain soon became spindling and yellow, it refused to stool out, was soon struck with rust and blight, and later in the season these places, where the ground was the richest, became centers of dispersion for chinch bugs and blight, and added to the general disasters of the season. Without intending to give the subject special attention, the importance of good surface drainage has forced itself upon me, so that I have done considerable work to secure it, and have projected still more. I find that much can be secured by a proper attention

to dead furrows and by keeping open the lines of cultivation made in tending corn and other crops. There ought in reality to be no places in a field where water settles in pools after heavy rains; such places will remain wet too long, and hinder the cultivation which ought to follow as soon as possible after each thorough wetting which the ground receives.

The surface of land will often indicate at a glance both the need of drainage, and the proper locations and directions of drains.

A man who has this subject on his mind can often, after a heavy rain, or by noticing the course of the water from the melting snows in the spring, take valuable notes as to the direction of water-courses and the levels, to which it is necessary to cut, in order to change their course or increase their efficiency.

A man with a hoe and a rubber suit can often do an hour's work in the rain, which will greatly relieve the wet places on his farm, and pay him soundly for the labor so spent. In all undertakings of any magnitude in the work of draining, a preliminary survey is important, in order to secure an outlet for your drain on a lower level than its origin, for water is the most incorrigible stuff in the world, and will not run up hill in an open drain. Guess-work will never do in this matter, but accuracy must be secured, either by the previous observation of currents or by instrumental leveling. The scope of the present paper does not include any extensive system, which would call out a professional surveyor, but rather the local drainage which is mostly confined to the individual farm. A good stone mason's level is sufficiently accurate for this purpose, to determine the possibility of a drain, and an instrument which I will soon describe will be sufficient to determine the slope of the ditch, and give it its regular grade. A stand for using the level can be made by boring a hole in the centre of a piece of board, a foot or more square, and inserting a stake of convenient length with its foot sharpened, so as to drive it into the ground as near perpendicularly as possible. The level is placed pointing in the right direction, and is adjusted by wedges placed under it, raising or lowering ends as found necessary. In the absence of a regular leveling staff, any stake can be used. This must be stood upright on the point from which the ditch must start. The level being placed in the direction of its course, and at a distance not so great as to prevent accurate observation. An assistant, carrying a carpenter's square,

holds it horizontally across the stake and slides it up or down, as directed by the observer, until a point where the level strikes the stake is determined; a notch is cut at this point, or a mark made, so that it cannot be lost.

The stake is then carried past the level in the direction of the proposed ditch to a convenient spot, the level being undisturbed when a sight is taken, and the stake is marked as before. The distance between the two notches is the difference of level between the two points. If the last notch falls below the other the spot is of course higher, but if above, the ground descends. These observations are repeated by carrying the level past the stake in the proposed direction, and taking as before a back sight and a fore sight, and adding or subtracting the new difference to that found before, according as the new point is found higher or lower than the one previously determined.

When the facts of the difference of level between the head of the ditch and its outlet are ascertained, a new instrument, of which I exhibit a model, is found very useful in giving regularity to the slope of the ditch. It is made like a large letter **A**, with its branches touching the ground just a rod apart; its height is about six feet, and the length of the sides about ten feet. A plumb line is hung from the vertex, and the point at which it crosses the cross bar, when the feet are level, is carefully marked. It can be readily adjusted at any time by driving a couple of stakes into the ground a rod apart so as to receive the feet, and as nearly level as one can guess; place the instrument upon them and mark the position of the plumb line on the cross bar as accurately as possible, then reverse the position of the level and mark as before. If the two lines do not coincide, the point midway between them is the true place for the plumb line where the instrument is level. With a string five feet long the plumb is slow to settle, especially if there is any wind to disturb it. This can be obviated by letting the bob on the plumb line drop into a pail of water so placed as to receive it; this will restrain its vibrations and expedite the business.

With this instrument in order, we are ready for digging the ditch. We will suppose that its proposed length is sixty rods, and that in that distance it falls thirty inches; this gives half an inch fall to the rod. We now take a piece of wood half an inch thick and tack it under the foot of the forward end of our level; drive short stakes

on which the feet may rest; drive the forward one until the instrument indicates a level; remove it, and it will readily be seen that the forward stake is half an inch below the hind one. This can be repeated until the ditch is finished. Any other thickness can be placed under the foot of the level which circumstances may require, the only care necessary being to keep the proper end in advance.

It is found in practical ditching that one foot in two hundred feet is an abundant slope; and if the ground requires it, a slope of 1 in 500 will effectually carry off the water, but it moves slower. It would require a larger drain to discharge any given amount.

A few words in references to ditches. Of all unsightly or uncomfortable things on a farm, an open ditch through a field or along a fence, is one of the worst. It is generally hedged by a rank growth of weeds, and becomes a very great nuisance. In all practicable cases it ought to be dug with a plow and scraper, and the sides left so sloping as to admit of being seeded, and mowed with a machine. The scraper used should be a straight-edged plank, five or six feet long, rigged with tongue and handles, and shod with iron if necessary. This must be worked at right angles to the ditch, and it leaves the ground suitably graded for seeding. Grass seed sown early in the fall will form a turf which will be a great protection to the bottom in the following spring.

The subject of drainage, however, when spoken of now-a-days, suggests that thorough system of underground or tile drainage, which within the last thirty years has resulted in doubling the yield of grain in England, and greatly enhancing the value of land in our own country. This belongs to a higher plane of agriculture than has generally been reached in Wisconsin, but we shall come to it yet, and we already have instances where it has been adopted in our state with marked success. In Indiana there has lately been held a tile-makers' convention, in which the state geologist, Professor Cox, stated "that he remembered when there was not a single tile manufactory in the state; now there are about five hundred, which turn out an average of 240,000 pieces a year for each factory." I am not aware that there is but one manufactory of drain tile in Wisconsin at the present time. That is located at Oshkosh. The proprietors have sent us specimens of their manufacture which lie here on the table. They seem to be a very superior article. They are about thirteen inches in length, are of very porous ma-

terial, and yet seem sufficiently firm in their structure. If they could be procured readily, there would be a good many laid at once; and I believe that in every community where the work commences, it goes forward in a rapidly increasing ratio.

It effects a wonderful change in land, for it takes that which is naturally unproductive and unwholesome, and makes it the most valuable land in the vicinity where it is located. In the cultivation of heavy, retentive soils, drainage is the key to all improvement, and in all cases justifying intense culture, it does not do to leave in the ground a suspicion of undue wetness.

Lands naturally dry, when used for high pressure gardening purposes, are the better for being underdrained; and it is no doubt justly claimed for such land, that it warms up quicker in the spring, and to a greater depth, permitting crops to be planted earlier; it can be worked sooner after heavy rains; it withstands drouth better, for the growing plants derive more benefit from dews; the soil is more permeable to air as well as water, and Mr. Johnson, of Genesee, N. Y., who is reported to have laid more than fifty miles of drain on his farm, says that half the manure on tile drained land was better than the whole on land not so drained. Evaporation is a process which consumes an immense amount of sensible heat. Our modern ice-making machines depend for their efficiency upon compelling rapid evaporation. It can readily be seen that where an excess of water is evaporated from the surface of the soil, an immense amount of cold is generated. If the warm rain can percolate through the soil, it becomes a warming element instead of a cooling one, if allowed to evaporate.

Of the whole amount of rain fall in the season, about 25 per cent. will run off from the surface if proper provision is made for it, about 17 per cent. will percolate through the soil if the circumstances are favorable, and the rest will escape through the growing crops, and by evaporation. It is the excess of moisture which we want to get rid of by draining above and below.

There may be more of tile draining done in Wisconsin than I am aware of, but there has not been so much said about it here as there has been in other western states.

I have seen frequent notices of its beneficial effects in Illinois. Orchards and vineyards are sometimes planted with success, on land so prepared, where, without it, failure would be certain.

There was a suggestion made yesterday, in the horticultural convention, that the blight in grape vines might be caused by compact, wet soil, which injured the rootlets of the plant, and thorough culture was suggested as a remedy. If the suggestion as to the cause is a sound one, the perfect remedy would be a line of tile drain beneath the row of grape vines, for this would greatly facilitate thorough cultivation.

It would not be worth my while to enter into estimates or plans for laying tile before this convention, for they would not be the results of my own experience. I would have to gather them from the statements of others, and these statements are as accessible to all who may desire to engage in the work as they are to myself.

There is a thorough-going work, entitled "Draining for Health and for Profit," by George E. Waring, the man who so successfully drained both Ogden Farm and its owner, and there is quite an exhaustive treatise in the report of the Department of Agriculture for 1870. The general facts seem to be that land can be tile-drained at a cost of from \$30 to \$60 an acre; that ditches may be from 30 to 50 feet apart, according to the depth, and that they must be from 30 inches to 4 feet deep. The deeper they are, the wider the area which they will drain, and the cost of digging them increases rapidly with their depth. At the Indianapolis convention, it was decided that there was not, as yet, a successful machine invented for digging the ditches, the four kinds entered for competition at that time failing to give satisfaction. A good tile drain properly laid is supposed to last forever. In reference to the material to be used in making drains, while tiles are the simplest, and require less excavating than any other, yet, in their absence, there are many substitutes which will give good satisfaction. Slabs, boards and poles can be used, and will last a lifetime, and stones can be put in at reasonable cost, especially if they lie loose on the ground and must be removed. It would no doubt be cheaper to purchase tiles than to go to much trouble to quarry or gather stones with which to construct a drain.

The above estimates of cost per acre are based on the assumption that the whole area is to be drained by a system of parallel ditches.

The cost of a single line of tile following the course of a narrow

swale, is quite another matter. A pipe laid in such a place, at a suitable depth, will often collect the water which goes to make it a nuisance, and conduct it on in such a manner as to develop a good flow for stock purposes.

It does not matter how thoroughly we may underdrain, the work must be supplemental, or rather preceded, by good and ample arrangements for carrying off the surface water.

We are subject to freshets from heavy rains and melting snows which must be taken care of, and for which no arrangement of underground work can sufficiently provide.

Mr. Boyce — I would like to hear from Mr. James M. Smith, who, I believe, has had a great deal of experience in tile-draining and knows the benefit of it.

James M. Smith — My father was one of the earliest, and I don't know but the earliest tile or underground drainer in the United States, and commenced about fifty years ago when I was only a little boy, just big enough to stand on the edge of the ditches and see it done. He followed it up and I have followed it since; it was underground draining, not tile. There were no tiles in the country at the time. His draining was done with stones gathered on the farm. The ditches were dug about three feet deep and filled up half way, or perhaps two feet, owing to how plenty and how handy he had the stones, and generally put something over them, perhaps turned the sods upside down right over the stones and then filled up the balance of the ditch with earth. There is land there that was drained almost as long ago as I can remember. I have no idea that my brothers, now on the farm, know of their existence, even. The ditches were made before they were born. Swamps that were utterly worthless, that cannot be bought to-day for two hundred dollars an acre; and I do not suppose my brothers know the cause of the value of that land, simply because the draining was done before they were born. And the value was such a matter of course that there was nothing said about it. It was indisputable. In laying out drains I have always followed my father's plan. We select a location where we see a drain is needed, and where the ground is a little wet, so that we know there is a little water in it; we commence digging at the upper end of the drain, lay out the course and get our depth. If we want a drain three feet deep we dig down three feet and then commence dig-

ging toward the outlet, and then dig so that the water will follow us. That is a rule that I have always followed, and a rule that I have always seen followed on my father's farm, and we have never made a failure. It is very simple. Water will run down hill every time, and you cannot make it do anything else. As to the value of this mode of draining, no man who tries it will ever dispute its value.

Mr. Field—I would like to ask Mr. Smith if he does not meet with trouble from the water in the ditch, if there happens to be much there.

Mr. Smith—I would not dig it where there is much water. I will say in this connection, that I always drain all my land. I never have any water on the top of the ground. I presume there is no time in the last ten years when you could go twenty-four hours after a rain and get a barrel of water on my ground, except this last summer, when there were such heavy rains, and that was too much for us. My rule is, when there comes a hard rain, my boys are all out in the garden watching the surface drains to see that none of them get choked up, and the water runs off as fast as it falls, unless the rain is a perfect deluge; then the under-drains carry off all that soaks into the ground that is not needed there, and the result of both is that it is a very rare thing, indeed, that we lose a day or even a half a day on account of wet soils, after we commence in the spring until fall. I can generally go out in an hour after the rain is over and go right on with my work. I simply use boards; we have not been able to get tiles, and I have used fencing; three boards, two sides and a top, and put something over it, packed it down closely on the side and filled it up, and that has been the end of it. I took such fencing as we can get around Green Bay for about six dollars a thousand. I don't know how long it will last; I have had them in a dozen years since I have been there, and they are about as good as they ever were.

Mr. Boyce—I would like to ask whether you fill it full, or leave any space in the bottom.

Mr. Smith--The first drains that my father made he threw the stones in loose; afterward, he had an Irishman working for him who had made drains in Ireland, and he made a little bridge of them, and I think after that my father built what he called the bridge drains. They are a little safer. It is a little more work, but not much.

Mr. Wood—Have you ever tried these Oshkosh tiles? Do you know anything about them?

Mr. Smith—I have seen them but have not tried them. I presume they are good; I have no doubt they are. Some of my friends have used them.

Mr. Wood—I wanted to learn the cost of them.

Mr. Smith—I understand the ordinary drain can be bought at ten dollars a thousand, a cent a foot.

A Member—What kind of soil have you?

Mr. Smith—I have some soil that is so very sandy that draining would not help it any, but the most of my soil is light rather than otherwise; a little inclined to sand.

Mr. Wood—How closely did you lay your rows in tiling. Do you drain the whole patch or merely the low places?

Mr. Smith—My land I have only drained in places where it seemed to be a little wetter than in others, but the general rule is from thirty to fifty feet, as you mentioned in your paper.

Mr. C. Hazen—I have had a little to do with those tiles sold at Oshkosh; for the benefit of the gentleman, I would say they sell them at ten dollars a thousand, an inch and a half tile—a tubular tile an inch and a half in diameter inside. From that you can get up to any size you want. The smallest size is worth a cent a foot. They are about twelve and a half inches long. I have been putting in a few of them this last summer. I have put in over ten thousand pieces on some meadow land creek bottoms. They have not been in long enough yet to know what the result will be. I am in hopes they will be a benefit to it. Our land is springy and there is a good fall to it; a creek on each side. It has been very wet, bogs. There is water in the bottom of the ditches; they were dug so that the water would run out of them and then the tiles were put in. Where it was boggy in the fore part of the season it is getting dried off, and I think it is going to have a good effect on it.

Mr. Wood—How do the higher sizes come; in what ratio of increase?

Mr. Hazen—Two inch, I think about a cent and a half a foot.

Mr. E. W. Daniels—If the gentlemen would like to hear it, I have laid considerable of what are called timber drains on my farm. I know they have lasted some time. I had a good deal of lumber, and, as the gentleman said, I could not find tiles right

there when I first laid a drain. Over twenty-seven years ago, I laid a small drain from my cellar down to the creek. The way I made it is: I dug a ditch a little over a foot wide at the bottom, and as deep as I wanted it. I laid in first a board in the bottom, and put two by fours up on the side; then I put some lasting timber across these two by fours, and nailed it once in three or four feet; butternut is very good lasting timber in the ground — as good as any I know of except, perhaps, red cedar. I put those pieces across any width; it is not any matter if it is two or three or four inches, so they will be strong enough; then I lay a plank, if I have any old plank I don't care much about, or a bass slab, on the top of all. I find, when it is not exposed to the air, it would last almost indefinitely. I have taken them up after years, and found them apparently green. They would never rot and cave in, I think, before the sides. This board I put on would sometimes cave down, but they have lasted a long time in that way. Then I fill up with almost any rubbish I have. If there is any old drainage timber, I put that in, and then the balance of earth. I find that it makes a good drain, and lasts a great many years. I generally lay it in where there is a little sink in the land, apparently; where it is sagged, as we call it. I have had them last a good many years, and I think it is very beneficial. I have seen low places where we could raise hardly anything, especially trees, and I could raise good trees after a few years of draining.

Mr. Field — I put in on my farm this last season two hundred and fifty rods of drain tile. I bought it at Joliet, Ill.; they manufacture very extensively there. I presume I paid as much for it as would be paid for it in this state. I use the round tile. I dug my ditch largely as described by Mr. Wood — dug a part of it as described by Mr. Smith, where there was a very small amount of water in the land, so that it did not follow to do harm. I dug it at the depth of four feet. I think the depth is very important. I think the experience of some of our drain tilers has been that, if we do not lay it below frost, after the action of frost upon it for a few years, it is liable to crumble and be destroyed, while at the depth of four feet spring water almost always will run through it more or less in all of these ravines in the state of Iowa — and there are many of them in this state of a similar character. Where you dig to the depth of four feet, you will strike many little streams of run-

ning living water; while you cannot find a spring there in winter, there is water there nevertheless, though when coming to the surface, it may freeze in the very coldest of weather. I put down this drain tile to the depth of four feet; laid the joints together and threw over them a little hay or straw, and then put the dirt on. They have worked very nicely indeed. One piece of land was very wet, so that in early spring it was impossible for me to work it, and the moment I put this drain tile in, a two-inch tile, it filled it full, and it has run full nearly all summer. This autumn it has got so it is probably not over half full. We had a long dry spell, and there was perhaps a hundred and twenty rods in one ditch that did not run more than half full when I was there the first of the winter, but it has drained the land so perfectly that I can cultivate that as well as any other part of the farm. That is in western Iowa. It is prairie land, just like the prairies in this state, like the prairies in Rock county. Whenever there was wet weather in the summer I could not cross it. I desired to drain a portion of this for the purpose of putting in a hydraulic ram to force the water up to my house and barn, and I drained a distance of at least eighty rods there and put in a hydraulic ram. There I brought all this water together that had formerly percolated through the soil and sometimes formed a little stream when it was wet weather, and I have a stream there at least two inches and a half in diameter, that runs through a three-inch pipe, and it is flowing this winter and runs my hydraulic ram. I think this subject of drain tiling is a very important one. I believe there is hardly a quarter section of land in the northwest that does not need more or less draining to make it perfectly good tillable soil.

Mr. Wood — I would like to call attention to one point that has been developed by the discussion. It struck my mind too, and coincides with my experience, and that is, it is often the case on these low sinks or swales that a proper drain put in will develop a stream of water at the bottom, which will be good stock water, and furnish water for many months of the year, if not through the whole year; and that advantage would oftentimes pay for putting in the drain, aside from benefiting the land.

Mr. Hatch — In Richland county we don't go much on drainage; the great trouble there is to keep the land at all; the water washes it away, hills and all; but once in a while we do have a cellar

drain. Last summer, having occasion to dig a cellar drain, an old friend gave me some instructions in reference to laying the stone. I had built drains by laying two stones on the bottom of the ditch, and laying a flat one on top of them; but he told me to lay some cobble stone along on the edge, and then shingle the others on slanting, thus securing a larger space. I found that that was a very good idea. I could make at least five times the amount, and make it more surely, securely and cheaply. And in shingling on the stone in that way I felt very sure that the opening would continue permanently.

Mr. Porter, of Mazomanie—I have had some little experience in draining. While living in Orange county, New York, we carried it on to a large extent, and with the most beneficial result. Perhaps I might differ a little from some of the gentleman's views in regard to the tile draining. The way we did it there, I think, was better than any way I have heard described here. After digging the ditch about three feet, or whatever depth we wanted it, we took two stones, it made no difference what size, and set them up like this,  $\Delta$ ; then dropped a stone in across the two, the longest one that would go onto both of them; that would hold them to their place and also leave a space for the water; and then filled the ditch up to within a foot or fifteen or eighteen inches of the top with stone. I have found great benefit from it. In doing it on a large scale, put them in, say, fifty feet apart; but on the side hills put the ditch in so as to carry the water off. I worked on a farm where a man put in miles of them one year with the greatest benefit. But digging four feet and putting timber at the bottom, it strikes me, would not take off any portion of the surface water if it had to settle three feet and a half before coming to that ditch. It would not in the country where I live.

Mr. Smith—Take off the surface water with surface drains.

Mr. Porter—There is another drain that Mr. Wood spoke of, made by plowing and scraping out. I worked for several years in Orange county putting in these drains, and I have dug a ditch down about eighteen inches, and plowed and scraped it out each way; and I have made miles of them where the grass would grow as well in the bottom of these ditches as elsewhere; and if you ever wanted to plow the field again you could take a team and clean them out, a mile of them in half a day, at very little expense; and

for most places where there is a springy place, a drain of that kind is the cheapest and most durable, and, I think, far preferable to underground draining. It answers every purpose and it is no trouble unless you want to plow the field again; and there are thousands of acres now in Orange county worth four hundred dollars an acre which, forty years ago, were not worth a dime. On the Chester Flats there are hundreds upon hundred of acres that have been drained. It was a tamarack swamp, not fit for anything; a hundred acres of it was not worth a dollar; and they got a grant from the legislature and compelled the owners of the lands on these Chester meadows to open their ditches, and they made a main ditch; and you can go through there on the New York and Erie Road and see thousands of acres of that land that are worth four hundred dollars an acre, that forty years ago were not worth a dime. One man told me that he rented an acre and a half, two years ago, and there was sold off from it eighteen hundred bushels of onions at fifty cents a bushel; so you can see what the land is worth by drainage; and he sold some of this land to an Irishman and was to take half of the crop until it was paid for, and he said he did not care whether it was ever paid for or not.

Mr. Peffer — I have done a little of this draining for twenty or twenty-five years; and I find that, except in marshy land, or land that is springy underneath, or in tamarack swamps, the surface drains do just as much, and in fact more good, than the under-drains, because if they stand dry awhile, there are generally moles, small vermin insects that close up the tile, and the dirt that is accumulated dries up so hard that the water does not clear itself again. I have some that have been running now thirty or forty years that are all right yet; but where the water flows only some of the time, it gets less and less every year, and last summer I had to dig out a drain that was stopped up, but the tile were still good. I would not advocate tile draining where the water would not run the whole year round.

## HOW TO RAISE GRAPES.

BY A. F. HOFER, OF MCGREGOR, IOWA.

By the suggestion of Mr. Plumb, of Milton, I came here to tell you what I know about grape raising. First, I will have to tell you that I am no nurseryman. I do not raise grapes to sell them or drink them. I raise them and eat them. I have a little vineyard in Iowa, and last summer when I was editing a paper I published some articles on grape growing, and the articles took so well all over the state that I was induced to compile them into a book, and Mr. Plumb got hold of one of those little books, and he wrote to me to come over. I wrote back to him that I would come over and demonstrate to him and to all of you something that many of you never can and do not know about grape raising. I was born and raised in the vineyard in Germany. From my sixth to my twenty-sixth year I worked in it, twenty years, and I believe it is the only business that I understand from the bottom up. Here in this country they told me at first that our way in Germany would not work. I waited a good while until I tried it, and then I find it is the same way here as it is there. The grape vine is just like a man; you have got to educate it, train it and keep it in bounds, or you cannot do anything with it; so I did with the grape vines here as I did in Germany, and with good success. I raised my grapes on a single pole. They may be raised on trellises or in any shape. In this climate we have a great advantage; they grow wild, and many men in this country are raising wild grapes on tame vines, and call themselves grape raisers, and teach others, but they grow wild and they stay sour; but I am in favor of raising a quality of grapes which we can eat and enjoy and have them sweet and good, and I raise them on the single pole system. I have brought one along to demonstrate to you. This spur bore grapes last summer. I have two or three such on a pole. One goes this way (indicating), one is a little further up, and by that process it draws the grapes out in the sun and in the air. Then the same year I can raise on such a spur from twenty to thirty large bunches of any kind of grapes. A sprout like that (indicating) will generally have three bunches, but I take one off so that I may have two better bunches

than the three would be. Two bunches are enough. They grow more solid and condensed, and two bunches are as good or better than three; still sometimes I let the three remain. The first or second leaf beyond the last bunch of grapes I clinch off and allow nothing to grow but the two canes, which I will spur down next year again. The great secret in raising grapes is this: what you raise next year you must prepare for this year. If you follow that rule you can raise grapes anywhere. We have another advantage here. We know we have got to bury our grape vines, and they never freeze in the winter time if we bury them; lay them down and put some soil or rubbish or tomato vines or leaves or a little straw over them, and it will protect them against any cold in winter; but if you leave them out, ten degrees below zero will kill any grape vine, when they are in a wet condition. If they are real dry they may stand fifteen, but not any more; therefore we lay them down every year. When we lay out a vineyard we plant them about eight feet apart, but after the vineyard is done we have them about four feet apart. We plant eight feet apart because we want to make roots. We never have one vine standing on its own roots long; we just let it grow as long as it grows up large enough, and then we make two or three of it. In Germany my father and I had over three hundred poles on one root which went under the ground fourteen or sixteen inches, a regular net-work of roots; all one kind of grapes. If you have the roots right the fruit will never drop off; it will hang on and stand; while if you plant a grape vine just like a tree and let it stand on its own roots, in six, eight or ten years it will get old and have poor grapes, even if you prune it. I prefer the single pole system because they are more convenient and I can prune them all around, while on trellises they are all on one side; and if you want to go on the other side you have to walk clear around it, while on a pole you can work on the vine just as you could on a hill of corn. Another advantage of the spur system is that you bring your grapes down to the ground. The sweetest grape grows nearest the soil; if the grapes were raised high in the air it would make the pole top heavy, while if they are down within two feet of the ground the pole has not much to carry.

In multiplying grape vines I dig a hole fourteen inches deep and four feet square around the vine. I cut off the top roots with a knife, and lay the whole thing down into the bottom of the ditch

and bring it up in four places, so that I have four bearing vines; but you must be careful not to meddle with the main root; that is to be preserved; if you break it off you begin anew, but if you let it stand it will grow right on and bear grapes the same year. Then instead of one vine bearing grapes, you have four out of one which will bring you grapes the same year, and this is the main secret of the success of grape raising. You want young vines; the vines after three years are all right for a crop then, and you have to keep them young. When my vines get old, parched and thick here again, I just dig another hole fourteen inches deep and draw the whole thing down and make more roots and make a new vine. That making roots is the main secret, the main part of raising grapes with success. Now there is great diversity about pruning. They say I prune too much. If you let a lateral grow six or eight inches, the front bud will diminish and become impotent or bring very small fruit, while if you take the sucker away you raise a full-sized bud. I tried that for twenty years in Europe and do here the same way. Many raise grapes here — they grow for them — raise some sour things and think they can raise grapes, and will not be taught. They are just like musicians; every fiddler thinks his own fiddle is the best, and so with grape raisers; still I do as I did in Germany, and as long as I raise good grapes I don't care whether pruning hurts them or not. The testimony I have for my system is my vineyard; when people come there in the fall and see my grapes they are generally astonished. My vineyard is at McGregor. I only have about two hundred and fifty poles. It is on the bluff, on the southwest slope. I prefer that place because sometimes you have a frost in May or June when the grapes have sprouted some ways, and if you have them on the east side toward the rising sun they will surely die, because the sun's rays will kill them. If you have a southwest slope, the sun will come and warm them gradually and will not hurt them. I have had good grapes on my place, while others lost them all by the sudden outburst of the sun warming them too quick. It is just like a half-frozen man. If you put him in a warm room immediately he will die sure, while if you rub him with snow he may recover. It is the same thing with a grape vine. Last summer I raised about half a crop when others lost about all they had because they had them on the southeast slope. The sun killed them all; still about half of mine were killed also, but they

froze so hard it is a wonder that I saved any of them. In this climate we can raise grapes as well as in California, and it is a paying business. If I would sell mine, I can raise half a dollar's worth on every pole, selling them at four or five cents a pound; still I do not raise any more than I need myself, though sometimes I sell some. I always sell some on the first of September to show them all that I am ahead of them anyhow, and I keep ahead of them. Another thing we want to raise grapes here which ripen early, grapes which become ripe on the first, or not later than the tenth or the middle of September. As soon as grapes get soft or colored, frost will not hurt them, but as long as they are green, frost will shrink them up.

We have another great fault in this country. Many people think that as soon as grapes are black, or blue, or pink, they are ripe; but they are greatly mistaken in that. They are only changing color then to get ripe, and a Concord ought to hang four weeks before it is really good, and if you let it hang five it will be better. The Hartford is the only grape which is sweet as soon as it is colored; still it is not as powerful a grape as the Concord. Then I have a seedling grape which I believe will be the grape for this country. I have three poles bearing, and I have about twenty-one yearling roots and have about fifty more started. I intend to make them the grape for this country. They are about as big as an ordinary plum; they are ripe on the first of September, and splendid. I had them in our Horticultural Society at McGregor last fall, and everybody was astonished.

These were the second crop; the frost hurt them badly, but they sprouted again, and brought another crop a little later. There is another thing; a great many farmers in America lay great stress on cutting the vines in the fall because they bleed so much. If you hear a man talking about bleeding on grape vines, you set him down as a man that don't know much about it, because it won't hurt them a bit. I prune in the spring or fall whenever I have time, and I make spurs by tying them with willows. You can do it easier on a wet day. After a rain, I could make about fifteen hundred in a day. (Mr. Hofer here illustrated his manner of cutting and tying by means of a vine.) I put two spurs above and two below, and then raise one or two such canes again for the coming year. I raise as many canes as I have spurs, or one more to

use for making roots, and I have two or three spurs on one pole. I prune to about ten buds; when I come up there I let every thing grow about two or three feet above the grapes, and the middle of August take a sickle and cut them off on top; you have to cut them an outlet up there; it is not necessary to prune any further, and if you did it would spoil the fruit bud for that season. All suckers should be rubbed off as soon as they grow; that won't hurt at all, but if you let them on so that they form wood, then it hurts the cane; the bud is so small it will not be injured. I do not believe that bleeding is hurtful. You will not hear it from an established grape grower. If you hear a grape grower talk "bleeding," set him down as an ignoramus. I carry the canes up higher each year, until four or five years I get pretty near to the middle of the pole, three or four feet; then I dig a hole again, fourteen inches deep, and down goes the old wood and all, and there I make new roots again. When I lay this down I cover it immediately. I can make four new roots if I need them, or just renew the one by burying the old parched wood and bringing the vine right around in the old place, and raise it up with four or five buds, and raise a crop the same year. I do not take up the original root. I have twelve vines on one network of roots; it all works together and hangs together, and this is the main part of raising grapes; it prevents the fruit falling from the stems. The roots are fourteen inches under the ground; I never have any difficulty from their sprouting up.

Mr. Kellogg — After ten years will not these roots be in your way?

Mr. Hofer — No. After ten years if you dug down and cut one in two, it would not hurt it one bit. There is so much hanging together under the ground that you cannot hurt them any; besides it is the remedy for the dropping of grapes. Neither the Muscatine nor the Hartford drop grapes with me. I plant the vines eight feet apart at first, and in two years cover the ground with vines four feet apart; then if I want to extend I can go four feet further every year. Last summer I went to West Union to stop with a friend of mine, and he had four old Concord vines on trellises. Some of them were as thick as my arm, and they did not bear anything, and he asked me what to do with them. I showed him how to lay them down, and he laid one down and made seven young vines. He afterwards took the rest of them down and made twen-

ty-five new vines, and he raised more grapes last summer than he ever did in his whole life.

A great many are following my plan and are well satisfied.

The grape does not need much cultivation. I hoe in the spring and then keep the grass down; it can be plowed; all you want is the grass down; grass makes the grapes rot. I do not mulch the ground; I manure in August. You can keep the grass down with long straw as well as with a hoe. Grape raising is a business which ought to be learned and understood by our people, because it is the best fruit we can raise, and it is the best paying business we know how. It is not half as much work as they think it is if a man understands it; but it is a business, and a man must know how; you must know how to tie them down. I can make fifteen hundred in a day for pleasure. It is a pleasure to work in a vineyard. I never saw a man that would not like it. If I hoe I hire somebody; there is not much pleasure in that.

The grapes growing near the soil will ripen first. That is one advantage of the spur system, to bring them down. They keep warm on a southwest slope. The evening sun goes down on them, and it makes the ground hot there, and it will stay hot and warm them in the night. When the grape vines are blossoming, the old saying in Germany is that the vineyard man ought to sleep in the vineyard without a coat. It wants warm, hot weather, and ninety degrees is about right. With that temperature, three days from the first blossoming you will see little grapes.

Mr. Field — What time would you tie them down?

Mr. Hofer — Just as soon as a warm rain comes in March or April; tie them back to a foot from the ground, and they will hang around just like a wreath. The pole is to raise the prospective canes and tie them onto it, and protect them against the storm. If any of you come to McGregor next fall, come to my vineyard in August, or even in June, or any time next summer, when they begin to grow, and I can show you more than I can tell you here. People come ten and twenty miles, and just stop in the hotel, and walk up into my little vineyard and look at it.

Mr. Plumb — Would you cut your vines when they are in bloom?

Mr. Hofer — It is not good for them; they are so tender then, and you would disturb the bees. The honey bee is a great lover of the grape vine, and we Germans believe it is necessary that the bee

should fly from one vine to another. I don't know whether there is anything in it or not, but we do not work in it, and it is not well to do so; you shake the poles or disturb them, and in blossoming time we keep out, and we think it pays better. It is only three days. If they blossom longer than three days it is not well for them. There is one thing I did not speak of yet. We have only two causes why we should lose our crop, and those are, first, by the May or June frost after they have sprouted, and, second, by having wet, cold weather during blossoming time. If they begin to blossom, and a cold, sleeting rain comes and lasts two or three days, it is very apt to diminish the crop; still it does not do so here as much as it does in Germany.. They are really more easily raised here, and with less trouble, than in Germany.

Mr. Periam — I would like to say a few words in relation to this question, for the reason that I have been something of a grape grower myself. There is one special point of improvement that Mr. Hofer has mentioned here, and that is in the renewal of the cane. The renewal system is correct, but the difficulty under the old practice is that we cannot carry it out to suit us. Mr. Hofer's plan carries it out perfectly, and I must confess that, although I have read Mr. Hofer's book very carefully, I never understood anything about his system until I have heard him explain it here. There is another point in connection with Hofer's system, and that is this: it is very certain that under the pole system of cultivation, by having your vineyard so you can go through it both ways, you can keep it clean for about one-third of the cost you can with the trellis system; it is also easier to manage. It has been the plan I have followed all my life, with this modification, that I use but a single cane, and twist or twine it around the pole, and instead of renewing, I keep raising my crops on short spurs as long as I can, and then at last I have been obliged to pursue the same plan that Mr. Hofer here speaks of, laying down the vine and covering it up, and starting again. But my general plan has been, if I can get three crops of grapes and then get a crop killed by the frost, I am perfectly satisfied to lose that one for the sake of renewing my vines. I think Mr. Hofer is in error though, and I presume I will be borne out by the experience of grape growers, of whom there are plenty in the room. There is no doubt in my mind that cutting in the spring, before the new wood starts, is injurious to the grapes very

often, especially the Concord. It was particularly so with the old Isabella of thirty years ago, which has been now superseded by better sorts. My plan is to cover the vine in the fall, and then take the cover off as early in the spring as possible, and trim them off, and leave only just as much wood as is wanted. I then leave them on the ground until they show signs of sprouting. I see a great deal in this system that Mr. Hofer has so carefully elaborated, and for my part I shall pursue it because it recommends itself to me as being not only better, but much cheaper than the way that we have hitherto practiced. If we can do away with our trellises, that saves a great deal in grape culture, and if we can raise grapes by any simple system, every farmer in the country will sooner or later come to have a good-sized vineyard; and I never saw a farmer yet who began to plant a vineyard and took care of it well, and had success one or two years in raising grapes, but had vineyard enough about him to satisfy a good big family of children. They will eat tons of them if you let them alone. I never saw a person that could be cloyed with grapes that some of these high-caste agriculturists east say are not fit to be eaten. I never saw a man cloyed with the Concord grape.

Mr. Hofer — It is a good plan to let them lay on the ground as long as they don't sprout, and you can do that if you don't spur them; but if you want to spur them, you have to do it before the buds grow. I don't see much benefit in winding them around the pole; you bring them too high, so that the grapes grow too high in the air. I raise them all within two feet of the ground. It is not material if you believe that bleeding will hurt them. You believe it does. I do not. If you cut yours in the fall, you are just as well off as I am. I cut mine in the fall, too, because I do not need as much covering to protect them against the cold of winter. As soon as the new growth starts, they cease bleeding. It all goes into the new sprout. They only bleed until they sprout, but if you leave the cutting until the new growth commences, you hurt the new sprouts. After they begin to grow once, they must be protected on the pole and tied on.

Mr. Plumb — I have prepared a synopsis, at Mr. Hofer's suggestion, which will perhaps answer a good many questions, and condense the thing.

He prefers the southwest slope, because there is the most dew,

there is the warmest air, and the least frost. He prefers a red clay soil, with gravel or rocky soil mixed in.

Plant early sorts in fall or early spring.

Strong roots and canes are necessary to success.

Dropping is from want of root power.

He would have single poles and annual renewal; cutting or pruning the annual in fall or spring.

Bleeding does not injure them.

The first year let one or two canes grow from the ground, to be carried up the pole. Keep off all laterals and rub off all suckers, as they appear.

The second or third year, spur or bow the last year's canes for fruiting, and allow the first two buds to grow for renewal as before, carrying them up the pole without laterals. Allow no laterals, and but one leaf on the fruiting cane at each bud, until past the fruit; keep down all suckers, as before, and allow no shoot to grow that is not needed for present fruiting or renewal.

About the 15th of August, cut back ends of strong growth with the sickle.

Prune early and promptly, but do not touch the vines when in bloom.

Poles are not renewed until they become so weak that they will not be able to resist storms; white oak will stand three years.

Let one or two leaves stand beyond the last fruit bunch, before you clinch off the bearing cane.

Do not neglect to protect them during winter.

Mr. Hofer — I want to explain one thing more. In my system, I have not a leaf or a stick on the pole which does not belong to it. I do not raise any canes but those I shall need for another crop, and the one which bears the grapes; and in my system, if you understand it once, if there is a leaf or a sucker which does not belong to the vine, when you are walking past it, rub it off, and you can count every bunch of grapes. If somebody steals a bunch of grapes from my vineyard, I can see where it was.

Prof. Daniells — Would you not rub off the leaves from the other side of the cluster?

Mr. Hofer — No. That leaf on the other side of the cluster should stand; the grape needs that; if you broke that, it would be just as if somebody took half of your lung out. I let one or two

stand beyond the last bunch, but no suckers. Those leaves are necessary there. If you let that sucker stand here, and have nothing here but a blossom to grow, and take the leaf off on the other side, that grape never would amount to anything; you don't grow any brush—you just grow canes to grow grapes on, and the extension goes into the canes that are growing up for next year, and makes them strong.

Mr. Plumb—I have no doubt that some of us, if we had time, would like to pick Mr. Hofer pretty thoroughly. I know there are some that would just like to get at him. I invited him here because I thought he could do us some good. He is a gentleman I am wholly unacquainted with. I never saw him before, but I have had some correspondence with him; but there is a pattern of a trellis here, which our friend Greenman has worked up; I have no doubt but that when he presents his paper he will elaborate his own system, and perhaps ventilate this some, so I want you to withhold your judgment until you have heard the rest.

Mr. Hofer—I told you on the start, there are certain rules and principles which should be observed in raising grapes, whether you raise them on trellises or on bows. If you do not observe them, you can raise poor grapes, but you cannot raise as good a quality of fruit as I can on the single pole system. Grapes want the sun and the air.

Mr. Plumb—We shall dissent from you in regard to the temperature which buds will endure. Two years ago, our grapes on the trellis went through twenty-five to thirty degrees below zero, repeatedly, and I have shown a great many people grapes that stood on the trellis on the top of the hill, all through that low temperature, open to all the inclemencies of the weather.

Mr. Hofer—This (referring to vine used in illustrating) went through twenty-six degrees, and I will cut it; when they are winter-killed, there is a little black spot in the middle; if it is green, it is good (Mr. Hofer then cut the vine). It is green; it would have grown. That is a kind that would stand any degree of cold; if it were a Hartford or a Muscatine, you would find it black; it depends a good deal on how the wood is; a strong cane can stand more cold than a weak one. If any of you want my book on grape growing, you can write to me, and I will send it to you at any time.

## THE HORSE — INSTINCT OR REASON — WHICH ?

BY REV. H. STONE RICHARDSON.

The horse has, in all ages, occupied a high place among the objects that absorb the minds of men. Art has immortalized him in marble, poets have sung his praises in all time. He is the joy of the soldier, the pride of kings, the gladness and delight even of the maiden, radiant in youth and grace. He is and has been intimately associated with man in all the works of civilization, in the quiet of social life, and in the founding and overthrow of nations. By his faithful service, his intelligence, his affectionate companionship, his beauty, his marvelous adaption to all our wants, he has largely augmented the pleasure of life, greatly increased the sum of human happiness. This noble creature should receive from man in his position of servitude, that real and active sympathy, that kind and considerate treatment, that large-handed and lavish bounty for his every need and comfort, and that genuine respect and affection that his faithful toil, his great intelligence merits, that he is entitled to, as man's most brilliant ally in the work of the world.

In the preparation of this article, I am actuated by two considerations. First, that I may call the attention of the members of the Agricultural Society to the question whether the horse is endowed by the Creator with the faculty of reason, or whether he is endowed only with the instinct common to the lowest of the animal kingdom. My second object is to me, however, of the greater moment, and is this. That I may say a word, or offer a suggestion, that shall mitigate the sufferings of this noble animal; that I may secure for him a warmer place in the heart of his owner; that I may save him from one blow, from a master hitherto thoughtless or ignorant. There are men who would declare that to them it was not a matter of any interest whether a horse reasons or not; whether he has feelings, or derives a will, affection or memory. "If he is strong enough to do their work, has feeling enough to ache when they pound him, and sense enough to *obey*, this is all I want of a horse," say these men.

There are a great many men of this kind; but there are, on the other hand, as many, who if once made to believe that the horse is

endowed by his Creator with reason, or even with a faculty approximating it, would, like one of old, begin to be much afraid, "greatly and sorely troubled." Troubled in their dreams by visions of horses owned by them in the past; patient, kind, faithful animals, obedient to their slightest wish, ready at all times, night or day, in shine or storm, to do their will.

These horses are long since dead; they died early. Starved! Tormented! Tortured by cruel bits and checks, that cramped their necks to agony; their eyes put out by blinders, or burst out by cruel, long and repeated races, drawn out by heavy loads or knocked out with clubs and whips; their feet by digging out the inside and filing off the out; by cutting away the bar and gouging out the frog; by crooking a bar of iron, fitting it solid to the yielding wall and then fastening it with long spikes that clinched perhaps above the hair, soon became feverish, rotted; yet ever after, though in great misery, bearing their cruel owners to hall or church or market, or with tossing main and glistening eye and ringing step, swift as a bird to the waiting bride; these horses, that they murdered by inches, tortured through life and finally out of it, would disquiet their slumbers, would walk with swollen limbs, covered with wounds and scars, blind and crooked with pain, into their dreams, and with horrid neighing awake them from their guilty sleep.

Crooked back Richard suffered the torments of the lost in his dreams, if we may credit Shakespeare. I can think of no worse punishment that could be meted out to these tens of thousands of men, who, through a long life, have looked upon the horse as a mere dumb brute beast, without the least thought or reflection or sensibility, and have treated him with measureless cruelty, than to compel them to the belief that the horse was endowed with reason.

I can hear such a man cry out in anguish: "Can this be true? Behold this hand! 'Tis thicker than itself with brother's blood!" Or thus: "Oh, answer me, my murdered steeds! Why thy bruised bones have burst their cerements? Why hath the mouldy earth into which, to feed our hungry avarice, we starved thee, opened its dirty bosom and sent thee trooping forth to wake us with thy dreadful neighing, and shod with red-hot iron shoes of remorse to paw and stamp our guilty souls?" If by such horrid dreams or tormenting visions of the night, I can mete out even a

partial punishment to the men who have been in the habit of abusing shamefully and wickedly this noble animal, this valuable gift of God, the friend and ally of the race; by thus disturbing their guilty but hitherto quiet slumber, I shall be entitled in some little measure to the thanks of the intelligent and humane members of the State Agricultural Society.

My conviction is, that very much of the abuse to which the horse is subjected grows out of the ignorance of the men who abuse him. No man, it seems to me, will maltreat his horse, curse him, pound him on the head, kick him savagely in the breast, subject him to unreasonable draught, to long, severe races, to sudden heat and severe cold, to hunger and thirst and constant and unmitigated cruelty, when he has been made to know how sensitive this animal is to physical pain; how keenly he suffers from the curses and unkindness of his master, or how highly he is endowed to appreciate and reciprocate every act of kindness, every manifestation of friendship or respect from his owner. My hope is, that in the brief space allowed me, I may say a word that shall elevate the horse in the estimation of his master, and so secure for him more intelligent and humane treatment.

My statement is about this, viz: If the horse has not been endowed by the Creator with a faculty of the mind that enables him to reason, he certainly has been endowed with a faculty, that appears upon the most critical observation, not only to operate in the same way and to accomplish the same results as we find aimed at and reached by process of reason in man, but a faculty which at times, and in some horses accomplishes more and is of greater value, than even the highest or best reason in man.

You are doubtless acquainted with the definitions of the words "reason" and "instinct," and hence, with the distinction or difference between them. I have never been able to recognize the difference, if the definition as given by Webster, Bacon and scientific scholars generally is correct. A faculty in the mind of a horse that operates in the same way and accomplishes the same results that reason in man accomplishes, is called instinct; but a faculty in the mind of man, operating in the same way and accomplishing the same results that instinct in a horse accomplishes, is called reason. This is an argument in a vicious circle. It seems to me that certain results accomplished by certain operations of the

mind in man, should in all fairness be called instinct, or the same results by the same mental process in a horse should be called reason.

I give you Webster's definitions of the words reason and instinct, sufficiently at length to convey a correct idea of his meaning: "Reason, given as a noun, is that faculty of the mind by which it distinguishes good from evil and enables the possessor to deduce inferences from facts." Second definition given as a verb: "To persuade by reasoning, or to reason one out of his plan, or to reason one into a belief of the truth.

According to this definition, every reader who has for any great length of time owned a horse, knows the horse has reason. The power to distinguish good from evil and deduct inferences from facts. Let me give you an incident that demonstrates that my horse had this faculty. I was a Texas ranger, and while out with my battallion I became at one time separated from my comrades and lost among the hills and wide prairies and forests of Northwest Texas. I was on horseback, and in constant and imminent danger of falling into the hands of the roving bands of Indians, who at that time were murdering the settlers; committing all kinds of depredations on the frontier. My horse was a thoroughbred, of great beauty, intelligence and endurance, and had been taught to know Indians by his keen sense of smell, and to look upon him as the deadly foe of his master.

The incident I am about to relate occurred on the second day. At noon, having been in the saddle since before sunrise, I thought it best to camp, that my horse might rest and recuperate, while I, lying at length on the bank of the stream, was trying hard to find the points of compass and make up my mind which way to ride. I was utterly bewildered. My horse, after a few moments, came to me, and at a word of command lay down upon the grass near me. I knew I was in an Indian country, but I was tired. The drowsy air, the drowsy twittering of the little birds and hum of insects, the soft murmur of the stream, lulled me into the outer court of sleep, the palace of dreams and strange fancies were beginning to flit through my brain, when suddenly my horse sprang to his feet with a wild snort, scattering my visions and arousing me to intense wakefulness and stern living realities. He was not tied, but he did not run. He stood there perfectly still, his beautiful head high

in the air, his nostrils quivering, looking with flashing eye away down the stream, upon the bank of which we were lying. For thirty rods in that direction, there was neither rock nor bush nor hill, behind which an enemy could hide from sight. I had guarded all these points by selecting my camp at this very point.

I needed no second warning, nor other, to convince me that the crisis I had been expecting was upon us. My first thought was, that a band of warriors had discovered my trail, and that perhaps a dozen of them mounted upon their fleetest ponies had begun the pursuit, and while I was lounging had been able to come up with us; that having discovered me lying asleep, one or more of the party had undertaken to creep upon me within bow shot. They had at that time but few rifles and less ammunition. My first thought was doubtless right. Had I been alone, they would have succeeded; but "Flaco," my grand horse, detected their approach. I have not space to relate the whole incident. (The reader if he wishes will find the whole history and many other illustrations of the endowments of the horse in a series of letters, written by me for "Dunton's Spirit of the Turf," Chicago.) My horse was lying at full length; this was the good, and he recognized as good, and like myself with half closed eyes and mind at rest, we enjoyed it to the full; but now a single breath of air, burdened with the odor of an Indian, entered his nostrils and whispered to his dull sense and half closed consciousness, the approach of "evil," and, detecting in a moment the difference between the good and the evil—which Webster says is the presence of "reason"—he sprang to his feet, saying to me just as plainly as words could have expressed the same thoughts, "*Master, the Indian is upon us!*" "*Awake, Master, Awake!*"

He might have ran. He was not tied, and he was as conscious of the danger as myself. He trembled in every limb, but he came close up to me and waited until I had put on his saddle and mounted to his back, all the time keeping his eagle eye in the direction from whence the assault of the Indians was finally made. Is this not an illustration of Webster's *first* definition of reason—that faculty of the mind that enables one to distinguish between good and evil?

The second part of his definition, viz.: "It enables one to deduce inferences from facts," is illustrated by the following incident:

While on the march, we generally ride side by side, not only that we might converse with a comrade, but we discovered that this order of march was much more agreeable to our horses. Cavalry men will tell you that it is common to find horses forming in camp an attachment one for another, a real friendship, so close and real that it is with great difficulty they are made to march or stand in camp except side by side.

My beautiful horse Flaco formed such an attachment for Chestnut Kate; they were friends; they loved to travel side by side, and finally it became a matter of no little difficulty to keep them separate even for an hour, or leave one in camp when the other was wanted in the field.

One night Chestnut Kate sickened and died, and the next morning we took up the line of march. Imagine my surprise, when being mounted and the word given to ride forward, my obedient horse refused absolutely to go. He demanded the company of Kate his very dear friend. I urged him forward. He shook his head. In a moment the reason for this strange disobedience came into my mind; Kate was lying a quarter of a mile away, cold, stark dead. I rode my horse back to the side of his dead companion. He looked at her; looked long and earnestly. Finally he bent his head, touched her tenderly with his nose, and then without a word or motion from me, dashed on after the troops.

Webster says "reason is the faculty of mind that deduces inference from fact." The "fact" was, that his friend Kate was dead. He did not know it and hence refused to go without her. When he saw her, touched her with his nose, he knew she was dead. This was "the fact," and his inference from this fact was, "She cannot accompany me!" Or in this form, "I must go on without her." You will find some difficulty in accounting for the action of my horse in either of these scenes, upon any other supposition than that he is endowed with a faculty that in man is called reason.

We see this more clearly when we consider the word "instinct." Webster says that "instinct is a certain power or disposition of the mind by which, independent of all instruction and without any end in view, animals do what is necessary for the preservation of their lives."

Instinct, then, acts without having any end in view. When lost in northwestern Texas, of which incident I have spoken, my horse

knew that I was lost twelve hours before I fully realized the fact. When we were seventy miles from our camp, and I was endeavoring to ride still farther in the *wrong direction*, he *absolutely refused to obey my direction*. He would shake his head, flutter his lips, and by continually bearing upon one rein, endeavor to come about and change the direction I was going.

I finally dropped the reins upon his neck, and in utter despair of finding my way out of the great wilderness and the imminent danger that menaced me, gave myself into the hands of my horse for deliverance. As soon as he was convinced that I had given him his head, he began little by little to come about, and in less than ten minutes after the lines had fallen upon his neck, he had changed his course, as from due west to east, and was sweeping along at a swift, cheerful gallop toward our camp, full eighty miles away.

Did not my brave horse have any "end in view?" *He most certainly did*. The end he had in view was *my* camp, and the preservation of *my* life, and not once thinking or caring for his own. I have only space to say, that though I tried several times after this to take the direction we should go into my own hands, my horse just as frequently refused to change his course, and for twelve hours, all the time in opposition to my judgment, he bore me along, and at last triumphantly and safely into camp.

Incidents of this kind, showing, I think, unmistakably, that the horse is endowed with the faculty which in man is called reason, have come under the observation of every owner of this beautiful and valuable animal. How much the horse may be trained to know, how great his capacity for knowledge may become by wise breeding and training, is not at present known or appreciated. There is a greater difference, I think, in horses, in this direction, than in any other animal. I have seen horses that could not be educated to know the difference between a buffalo robe and a buffalo; between their own shadow and some deadly enemy; between a walk by word of mouth and trot. We find that these horses, so stupid, so absolutely untractable, so easily frightened, are in every case from a line of demoralized and degenerated sires or dams; the get of horses that for a score of years have been pounded and starved into idiocy. But by wise breeding, I have known a whole stock, every member of which could be taught as readily as a child, and almost as much.

These horses — I know one at this present time — he knows the word walk, trot or run, and will do either at the first word of command. He knows his own name and will answer to it at the first call, given in the most ordinary tone of voice. He knows his own harness and carriage, and will select them from any number of others; knows his master, his master's wife, and every member of the family. He will adapt himself, his bearing, his gait and speed to his driver and the occasion. When, for example, driven by the owner himself, he stands between the shafts with arched neck and expanded nostrils, and dashes away with a rate of speed and a spirit that calls for both hands and steady nerve of his driver. When driven by the wife or little boy, he manifests the same grace and nobility of bearing, but is evidently on his good behavior. On one occasion, the lady was driving this horse down hill, and for some reason at a very unusually rapid gait, when the hold-backs gave way and let the wagon on to him with a crash. And this wild, strong, high mettled horse ran away and dashed them to death? No! His answer to the lady's command was a gentle toss of his beautiful head, and a low assuring neigh, and a gradual decrease of speed until in the middle of the steep hill he came to a stand still. These horses are in demand, and the demand is every day increasing — for carriage horses, single and double, gentlemen's roadsters and ladies' riding horses — beautiful steeds with soft skin, decided color, and hair glossy as the plumage of a bird; horses of endurance and balanced powers, and all supplemented and rendered in the best sense valuable, by first class moral qualities, with good judgment and intellectual ability. The wise breeders, the first class stock-owners of the west, will not fail to see this demand, and be ready to supply it.

I may say, in concluding this article, that it is my observation that, as a rule, only ignorant men abuse their horses, and ignorant horses abuse their owners. When the horse is fully known, he will be treated with tender consideration, no man will be allowed to maltreat or in any way wrong him; and when the horse by breeding and culture reaches his highest possible excellence, physical and mental, he will in turn appreciate his master.

He will fully reciprocate every act of kindness by a faithful and cheerful service and an evident manifestation of friendship and care. "Dissemination," says the "Spirit of the

Turf," "of knowledge is the thing needed to give us wise horse-men and wise horses."

It is the opinion of many of the leading members and patrons of the State Agricultural Society, that large space and much earnest consideration should be given to that exceeding valuable and important interest represented by the horse. No state in the Union, not even Kentucky, is better adapted to his breeding and culture. This, however, is not my theme. I have only to add, the intelligent reader is not surprised that in the earlier ages the horse was deemed worthy of being carved in marble and honored in song by the first sculptors and poets of Greece and Rome.

William the Conqueror estimated his wealth by the number and value of his Norman steeds, and King John by his Flemish stallions. Our own Washington took greater pride and gave closer attention to the breeding and development of his horses than to any other branch of agriculture; Jefferson, too, devoted not only his leisure time but many months each year of hard study in the same direction. May I not bespeak for him, in the estimation and respect of this society, a higher place, a kindness and consideration his great intelligence and worth entitles him to.

It is true that "his neck is clothed with thunder!" "He smells the battle from afar." "His joy is in the command of the captains and their shoutings." But it is also true that his joy is equally great in all the peaceful avocations of the world, in the caresses of the children and the service of the maiden. He has, as before said, been man's chief ally in all the valuable achievements of the past centuries. He has endeared himself to the human race. He stands, in the scale of being downward, next to man; and he has won and is fully and justly entitled to his share of the blessings of civilization. Alas! he does not yet receive what the more intelligent acknowledge to be his due. His condition is, however, rapidly improving. In a few years we shall be amazed and ashamed of our present want of appreciation. In this time his nature will be better known, and his great possibility for *beauty, for nobility of bearing, for mental possibility*, will be everywhere acknowledged. I hope that the State Agriculture Society of Wisconsin may deem it wise to take the lead in an effort to breed and develop *a better stock of horses than was ever known to history* — a thing very easily to be accomplished. And *first* to bestow upon him that active sympathy in his

position of servitude; that kind and considerate usage, that liberal provision for his needs and his comfort, to which he is so justly entitled, as the friend of man and his most efficient helper in the work of life.

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PATRIOTISM IN AGRICULTURE.

An address delivered before the joint convention of the State Agricultural and Horticultural Societies, in the Assembly Chamber at Madison, Wednesday evening, Feb. 5th.

BY HON. CLINTON BABBITT, OF BELOIT.

The noblest passion of a good citizen is that of patriotism. It bespeaks a genuine courage and enthusiasm of faith in good government. By it self-interest is raised to the standard of public welfare, and the wisdom of its thoughts and grandeur of its conceptions in republics like this are spent in producing "the greatest good to the greatest number." Without it Republicanism and Democracy are empty names, and their representative leaders are indeed the meanest of all things — pretenders.

Patriotism is not the grand ruling quality alone of jurist, executive and party leader, but it is Heaven's priceless boon to men — "Men who their duties know and know their rights, and knowing dare maintain." Nowhere is it more easily discerned or more quickly summoned to the front than from the ranks of the American farmer and agriculturalist. It guided our fathers on their perilous mission, and made the ideal actual, as "the course of empire westward takes its way." It is incorporated into the organic law of the several states which their wisdom and enterprise founded, and is the essence of natural life and true impulse which must dictate if America is to fulfill the prediction of its birth and history. Awakened by its call, we as citizens, farmers of Wisconsin, may in this present moment forget our special troubles, review the past, endure the present and prepare for the future. I am aware it is regarded by some unbecoming, in speaking to an assembly of this character, where every shade of politics is represented, to allude to its theories, but you are here and may rebut mine if you please. We may, however, safely assume, at the present price of corn, oats and wheat, that our education has not been neglected in learning how to over-produce those articles, and amid the vexations that sur-

round us, invoke the presence of that influence which may strengthen our courage, inspire our hope and guide our judgment.

Patriotism requires but few laws, but demands they shall be of a character to produce universal good. To such she owes devoted acquiescence and unshrinking zeal in the enforcement. From the day when Putnam left his plow in the field to battle with those who are now no more, but whose works remain, " 'gainst which the surge in sullen thunder breaks in vain," to the first day of January, 1879, when resumption was made successful by a wholesome fear which the Clearing House of New York had for the boys in blue overalls, the hopes of mankind — thanks to "your sober second thought" — have been safely confided to your hands. There is a power behind the throne greater than the throne itself, and however designing or arbitrary oppression may be, it recognizes and obeys. Too often national welfare has been purchased by your self-sacrificing devotion. "I would not that other men be eased and ye burdened." "I would that the daily heroism of your lives and the sacrifices of your fathers had brought to you, as a class, its just reward. It has not come, and to-day there is not upon the face of the earth a class of men who do more, and receive less, than you.

Great monopolies, represented by billions of money, once your own, very dangerous rivals to the theory of popular sovereignty, are not burdened like yourselves with unjust taxation — not even compelled to be decently just or respectably honest. The money loaner smokes his Havana after four P. M. in quiet peace, and believes that his own tenth or twentieth investment in a first mortgage lien on your home and fields is worth more and entitled to far better compensation than you, your wife, children and your hired help. He fancies a thousand dollars ought to earn more than you all together with your ten or twenty thousand dollar outlay in Wisconsin lands, implements and stock, and he always will think so until you enact a law and enforce it, confiscating to the state both principal and interest which by any deviltry of legerdemain can be made to net over five per cent. per annum, the penalty of violation to be incarceration for both parties — borrower and lender.

It may occur to you that high-salaried officers are poor material with which to work beneficial reform, but your power lays in a sound public sentiment which must be made to demand that your fifty thousand dollar executive be compelled to take from the com-

mencement of the next administration fifteen or twenty thousand dollars for annual service, and that the numerous retinue who run the machinery of government be made to understand the value of the "dollars of the daddies."

"Lo! plenty ripens round us, yet awakes the cry for bread.  
 The millions still are toiling, crushed and clad in rags, unfed,  
 While sunny hills and valleys richly blush with fruit and grain;  
 But the paupers in the palace rob their toiling fellow men."

Patriotism has sustained and will sustain the honest money of January, 1879, and above the tampering influence of demagogue, corrupt broker, and syndic, maintain it to the end. But it will be well for all to understand that there is a point beyond which the agriculturists of this Union cannot be forced. Allow me to ask you a few questions to be answered these winter nights when your family and neighbors surround you at home; they will prepare you to testify in public of the faith that is in you:

What advantage can it be to your country to continue to subsidize giant monopolies—already firmly-rooted rivals—endowing them with more acres and power than you and your brother farmers will ultimately possess?

What advantage can it be to your country to protect by law and high tariff every interest which in its protection cripples and blasts your own?

What advantage can it be to your country to allow party leaders longer to hold you in antagonism to your brother; obliging you longer to pay his taxes in addition to your own, without benefit to either, but solely for the sake of the designer's political advancement, purchased by engendering strife and embittering hatred; destroying friendship and commercial reciprocity, and thereby undermining national wealth and wounding patriotic pride. Think for yourselves until in truth—

"The North and South together brought,  
 Shall own the same electric thought.  
 In peace a common flag salute,  
 And side by side in labor's free  
 And unresentful rivalry,  
 Harvest the fields wherein they fought."

What advantage can it be to your country to empower congress with the authority to issue an irredeemable paper currency, the

volume of which is to be determined only by majority votes of representatives of constantly changing parties, whose highest recommendation in too many cases, of late, appears to be dishonest use of money and patronage?

What advantage can it be to your country to offer a premium to treason by recognizing Rebellion's claim upon our national treasury, on what appears to be no better ground than that it did *not* succeed in overthrowing the government, and must therefore, necessarily, have been loyal.

What advantage can it be to your country to continue longer to stultify your intelligence by allowing caucus edicts to be finalities in the face of conceded facts, that individual promotion, justice, right and even national interest are usually exchanged for expediency and rare policy?

What advantage can it be to your country to continue a vacillating frontier policy, when it is apparent that the Great Founder of nations has established our limits untrammelled between ocean and ocean, with a destined population of two hundred millions, through whose united hearts shall pulsate in due time the Divine sentiment of

"Peace on earth to men of good will."

Fellow citizens of Wisconsin, a few days since I read in a great commercial paper a glowing prediction of royalty in America. Royalty in America; as if our soil, saturated by the blood of revolutionary patriots, and still later by the life drops of our sires and sons, was congenial to its growth. Imagination spread before my eyes the past tenets of American life, destructively bold as are her rugged peaks. New England's proud history passed its pamoramic splendor, her records of illustrious deeds and mighty triumphs unsurpassed.

I follow her hardy sons in their mission of colonization from Maine to California, from the inland seas of the great northwest to the gulf streams of the south. Our prairie gardens of arable expanse, our measureless valleys made fertile by running waters in their journey to the sea. Our trackless forests, guaranteeing to future centuries materials for homes of refined civilization, vied with range of mountain peak, bountiful in supply of gold and silver in the inspiration of devotion. The sarcophagus at the base of that white shaft at Lexington bathed in cloud, unchanged in storm and ever

looking toward the south, once more gave up its dead. The orator of Ashland, the sage of Marshfield, and their compeers, stood again within the walls of our national capitol, and the history of the past was radiant in the records of illustrious lives. "In union there is strength." With this inscription upon the hearts of our democratic-republican yeomanry: Royalty will never come in America, or so long as there shall be true Patriotism in Agriculture.

Hon. E. Searing, of Milton College, then read a paper on "A Winter Month in Northern Georgia."

Mr. Field — I desire to ask Mr. Searing about the society. He speaks of nearly everything else in northern Georgia, but he says nothing of the society, while intimating that he would recommend people to go there instead of going west. I would like to ask him how he thinks the society of that country compares.

Hon. Mr. Searing — You do not intend to draw me into politics at all?

Mr. Field — Not at all.

Mr. Searing — I will answer that by saying that society in the larger towns and villages appears to be just about as good as it is north. In the country, I imagine it is not as good. In the village of Marietta the society appeared to be about as good as in Madison. There were a large number of highly intelligent and highly educated people. I do not think I would like to live in the country unless I went in company with some northern friends or families. I did not see anything very desirable miles away from the city or village limits. There are good schools in most of the cities — excellent schools in Atlanta, the capital, fully equal, according to my judgment and observation, to those in Milwaukee in general management and character. There were, I believe, no public schools in Marietta itself, and educational advantages in general in that state are not what they ought to be, and not what they will be, I trust, at some future day. They have a public school system very much like our own, and well managed, but it is ahead of the people as yet.

Mr. Field — I would like to ask whether the farmers in Georgia are using the improved machinery that you find through the northern states.

Mr. Searing — They are, to a considerable extent, in the vicinity of the larger towns and villages. I saw some excellent

agricultural machinery for sale in Marietta, and I think it was purchased to some extent by the surrounding farmers. And the use of fertilizers, as I have already intimated, is very extensive and is rapidly increasing.

Mr. Field— It is necessary in consequence of the rather poor quality of the soil.

Mr. Searing— To some extent. The soil is not as good as it is here. It is somewhat sandy, although the soil varies much in the same farm, very good and then, within a few feet, very poor.

Mr. Field— More like New York.

Mr. Searing— Yes, more like the soil in New York or in some of the New England States.

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### POETRY OF THE FARM.

BY HON. A. ARNOLD, OF GALESVILLE.

"*The poetry of farm,*" I write.  
 The poetry of farm, quoth ye,  
 No poetry in farm I see.  
 But list awhile, and I'll relate  
 Some things that happen every day;  
 Besides some things that should take place.

There's poetry in all we do,  
 If done with zest and a good cheer;  
 For poetry bespeaks of things  
 As well the common as the rare;  
 And poetry always doth mean,  
 The cream of life where pleasure is.

Then, if pleasure is poetry,  
 We'll try and show in farm the same.  
 Now pleasure is what we enjoy;  
 And this, enjoy without the pain  
 That comes from consciousness of wrong.  
 Then if, in farm, we this can find,  
 My task is done; and I'm content.

At early dawn the farmer rise,  
 His cows to milk, his stock to feed;  
 And when this done, to breakfast goes;  
 This justice done, forth to the field,

And round, and round the land he goes  
 Till dinner time; then to the house  
 His team to feed — himself to fill —  
 When to the field he wends his way,  
 And round, and round again, till night.  
 His work is done, save chores to do;  
 This done, once more a hearty meal,  
 Then spends his eve, with chicks and wife,  
 To teach the little ones and give  
 Good counsel to them for this life.  
 The wishes of his wife respects,  
 To read his papers, books and sich,  
 When to his bed to rest, to sleep,  
 He yields; and thus the day is done.  
 This is a day of work, you say;  
 So says the man, and so say all.  
 'Tis true; but sure its God's command  
 By sweat of brow, your bread shall eat.

If else, himself, or others cheat,  
 A consciousness of right he feels.  
 His bread he earns; his lands he tills;  
 He fills his lungs with wholesome air;  
 He feasts his eyes on nature rare.  
 The blood goes coursing through his veins,  
 Healthy's his body and his brain.  
 In Spring, in Summer, and in Fall,  
 A daily round like this maintains;  
 Except a day of fun, sometimes,  
 When wife and children like to roam,  
 When work don't crowd or harvest's done.

In winter time, his stock to care,  
 His wood to get, his tools repair;  
 His winter eves he spends at home  
 To read of legislative acts;  
 Or if, perchance, his kind doth give  
 Him place, when he instead in hall  
 Doth pass the acts, while others read.  
 He suits himself, if he doth right;  
 And he who suits himself suits best  
 The whole. The judgment of the whole  
 Of some one, the best judgment is.

Then all the right, the right maintain;  
 His dog, his stock, his wife, his sons,

Look up to him, and always feel  
That he'll to them protection give.

So feels his farmer friends, when he  
The laws himself doth help to make.  
What is the interest of himself,  
Is also for the good of his,  
Be it his wife, his child, his kine.  
So is the interest of his peers  
Best served if he's their peer.

On some such honors sit quite light,  
While others feel that all the world  
Must bow; I'm the right-honorable.  
To such, the last, I would advise,  
Keep close the mouth and wondrous wise  
You are. Silence, a substitute  
For wisdom is; the best that's found.  
But this is little of a kin  
To poetry of farm, but then  
It now and then may enter in.

“Weary's the brow that wears the crown,”  
Was said by sage in olden time;  
Yet still the crown, if worn for good,  
Will good yield him, by whom 'tis worn.

There's many called, few are chosen —  
Of life eternal, this is said;  
Of happiness on earth, alloyed  
By naught; no work, no care, no strife,  
The inspirations true, the same;  
For many call, and call, for bread;  
No bread, no farm, not e'en a home,  
Would they have, if of labor born;  
And still they call, and call, for bread.

If such are called, they are to chose,  
In this, which will ye have in life —  
Good bread, good homes, good health, good cheer.  
By labor borne, these all do come.  
If this they chose, they are chosen.

But all are called for happiness,  
And yet some think that this must be  
By Heaven obtained, without a thought

Or care. If such they trust in God,  
 In God their trust will surely fail;  
 For where does God to man proclaim  
 That He by His devise could make  
 A paradise, without man's help?  
 Yet help he won't, and still complains.

How many such we daily find,  
 In all the common walks of life;  
 This is the common farmer man,  
 This verse at first did strive to draw.  
 Is he not happy in this life?  
 Is he not healthy, chicks and wife?

You say there's little poetry  
 In this; I grant, and still could he  
 Much more expect at other work,  
 To which, perchance, he finds himself  
 No better trained, and less inclined.

Unless his other, better half,  
 Can plan some way by which to live,  
 And they together by their wits  
 May thrive. But then you sure must know  
 Such other halves less wits do have  
 Than their liege lords, of whom they say  
 Such bitter things, when they oft times  
 Do try, and daily strive to make  
 Their wives their queens, and yield to them  
 And give more blessings than good God  
 Would give, if he the same was served.

Our God forgives, is always kind,  
 And still of wrath of God we read;  
 What else expect than wrath of man,  
 When man by Eve much worse is served  
 Than she served God, in Edenland.

Such pranks as these of wives on farms,  
 Doth much the poetry of farm  
 Take off. Well, could they, would they be  
 Much better wives if not on farm.

When we a picture draw, and think  
 That other picture don't compare  
 With this; these pictures should, of course,

Be drawn by the same hand, same kind,  
To judge by the comparison.

So, in this wise, let's weigh our gold,  
Let's estimate our talents given,  
Let's put our education in,  
And then invest in farm the same.

We'll take the same, and put them in  
An average of other biz,  
And then put each the opposite  
In scales to try and see and prove  
Which yields the most of poetry.

Sure, poetry was ne'er begot  
Save by dame Nature, not in shop.  
By the blue bag, or the the blue pill.  
The whole of every other work  
Haint made such poets as the farm.

'Tis said! 'tis wise! and I maintain  
That if a man, to fat a hog  
No other aspiration has,  
Then of the hog the hog partakes,  
And with the hogs he makes his mates.  
Lives for the hog and plays the hog;  
A hog he is, and poetry  
With him would be like a jewel  
In a Berkshire, or swinet's snout.

So of the farmers we must take  
An average, and see if these  
Would see more poetry of life,  
If else were placed themselves and wife.

A farmer! I mean a *farmer!*  
Well to do, that leisure has,  
And takes the time his brains to work;  
That books doth read, and understands;  
That works machines, and farms with skill,  
That works himself with hands, or brains,  
In turn, and times, as best it pays.

Sure *he's* the man, that poetry  
In farm may see, if not in debt,  
Or not too taken up with gain.

He life enjoys, and always takes  
 Much comfort, if he sticks to this,  
 And don't go chasing other Gods.

For the delusion's vain that life  
 More health or poetry contains  
 If lived with grandeur and surplus,  
 Except what yields the refined taste  
 A pleasure; tastes by nature given,  
 Tastes begotten by nature's dame;  
 Not the delusive hope, to hoe  
 An even row with Mr. A.,  
 Or Mrs. B. Such apes in life  
 Are thick, and this we feel and know  
 That such no poetry in all  
 The world could find; then why on farm?

Of objects best we judge, when by  
 Comparison with other things,  
 That are of the same woof and kind.  
 So we as farmers best may know,  
 How best we thrive, of length of life,  
 Of happiness in hand, in store,  
 By us with other men compared.

Mechanics work, and best do thrive  
 By work, and thought; and still they know  
 That work and thought alone will prove  
 But a poor compensation, if  
 With their customers they do not  
 Good work, and not the man they like.

The same is said of all that by  
 Their work their daily bread doth earn;  
 And so it goes. The merchant can  
 Alone succeed, when he doth please.

The doctor is a man that all  
 That's sick doth wish to see, and ask  
 His presence; if for weal or woe,  
 God only knows; for in that biz  
 The quacks are thick, and yet the quacks  
 First learn that they must try to please,  
 Else bread and butter, God only knows,  
 Where that alone, no more will come.

And there's the lawyer, he's of use;  
 Tw'er' not for him, our farms we'd lose,  
 And were he not, our farms we'd keep.  
 I'd not a lawyer hire, unless  
 In law most wise he proved himself.  
 To this his time, his life, he gives,  
 And yet retain him I would not,  
 Unless a jury he could please.  
 And here's the good man and the sage,  
 The man of God, that shows the road,  
 The broad, the wide, that most do tread;  
 The other road, few walk therein.

God made us all, for weal or woe.  
 If weal, the narrow path we tread;  
 If woe, we take the broad and wide;  
 We think, if we were God, we'd make  
 The path for woe, the wide for weal.

Now of this man of God; can he  
 Good meat partake unless he finds  
 Good friends, and he those friends doth please?  
 For if these friends he fails to please,  
 In church or out, he'd find himself  
 No need, not used, no pay, no bread.

And thus we see the way this world  
 Is gotten up: to please is man's  
 Great aim; and if he aims, without,  
 He aims in vain; for he may shoot,  
 And shoot, and if the mark don't hit,  
 The end is naught but vanity.

We're forced to this conclusion last:  
 The man that from the earth doth take  
 His bread, the earth its sure must please.  
 If he please else, it's his good luck,  
 But still the earth doth yield the same.

Of all the things on earth, in heaven,  
 In hell, not e'en the gods' so hard  
 To please as man to please himself;  
 No more than this alone is hard;  
 If all the world w've got to please,  
 No time to please ourselves we've got.

To please the world (yourself or not),  
 It is the way the world's begot.  
 To please! without, you can't expect  
 An aspiration realized,  
 Except on farm; and there you may  
 Do as you please; keep off the town,  
 It's no man's biz. You buy, you pay,  
 And what you don't, you let alone.  
 To please is well, if it can do,  
 But when to live alone its *please*,  
 Man's independence he doth lose,  
 Of this last bane we're most exempt.  
 And here's *the* poetry of farm.

A paper was then read on Varieties of Apples, by A. J. Phillips.

Mr. Phillips — My paper is brief for two reasons: One is that it is a very limited subject, and the other is I saw by the programme that Mr. Gideon is to follow me, and he has had large experience in the business, so I thought I would make my paper brief and give him a chance to teach us something. I suggest that Mr. Gideon read his paper, and then we have a discussion on both. I think it will bring the subject matter better before the meeting.

Mr. Tuttle — I set twenty-five acres of the Fameuse twenty-five years ago. I think they have paid me better than any twenty-five acres of land I have on my place. In Wisconsin it is probably a better apple than it is anywhere else where it has been tried. It wants a warm, dry atmosphere; even on the lake shore or in Michigan it mildews, and in Canada it is considerably smaller than it is here, and so in New England. It reaches its greatest perfection in Wisconsin; you do not need anything better. On all good fair locations it will do well.

Mr. Kellogg — It depends a little on where a man lives what he recommends. Now we were very much amused with about six lists made up here by different fruit growers in the state, to recommend the varieties of which to set out an orchard. One man recommends ninety-nine Duchess of Oldenburg out of a hundred, and the other a Duchess. Another in the same list recommends fifty.

Mr. Phillips then read the lists of varieties suggested by the several fruit growers.

Mr. Stickney — I wish to say in explanation of my recommendation that the question was put to me on the wing, as it were, to

answer off-hand. Although by mature deliberation I might find something else I could add to that list, I still have two arguments to present in favor of the list as it is. One is that it is simple; the other is that I have taken my own medicine, having very recently planted four hundred and fifty trees — four hundred and forty-nine Duchess of Oldenburg and one Duchess. This, however, was for the market of Milwaukee. They were planted for dollars and cents. I think I had rather plant them than four hundred and fifty trees of any other variety.

Mr. Plumb — In furnishing a list of trees, the location is a very important consideration. When a gentleman orders a bill of trees, he should state candidly what the local conditions are. It is one of those things which should never be omitted.

Mr. Dore — It seems to me that at each annual gathering of the nurserymen and horticulturists of this state, they can do no better favor to the people who wish to plant trees than to agree upon some list that they shall all say is the best; then it is a plain, simple matter for ordinary people to follow it.

President Pratt — Do you think they could agree?

Mr. Dore — I do, on the same principle the jury agree — shut them up somewhere until they do; not buy any trees of them until they agree. I know that the recommendations of prominent fruit-growers in this state, who have a reputation for fair dealing and honesty, would count for more than any itinerant tree peddler's recommendation. There is no nursery near to us, and none very near that ought to be patronized because they are not on the same kind of soil; there are none except on the land that lies between prairie region and that timber region. The nurseries nearest to us I think we ought not to patronize. I think their trees are not adapted to our wants, and if we go to the northern or southern portion of the state, the work there is done by these tree tramps. A man will come there, and if Mr. Gould's nursery, at Beaver Dam, has a good reputation, he is selling trees from Gould's Nursery, and they will come from all over creation except there. It is a matter well known to some of us that such has been the practice. Now if you nurserymen can do something to protect those men who want to plant trees and do not know how, you will find that it will greatly advance your own interests at the same time that it will secure them from impositions of this kind. I have sometimes thought that

there ought to be a penalty, but perhaps the general laws would reach the case. It seems to me it is worse with this matter of trees than with agricultural implements, if possible. The only guaranty a farmer has that he is going to receive the variety of trees he desires, is the reliability or responsibility of the nurseryman, that is, the ordinary farmer who is not capable of judging varieties from the appearance of the trees; and there ought to be something tangible to this state society that we can rely upon, and get trees that we know are just what they are recommended to be, and if we find any nurseryman who does not deal honorably and squarely in that direction, he should be exposed and the people should know it.

Mr. Gideon — I was just going to remark that in sending out a list of trees that would succeed, or are succeeding in Wisconsin, in order to guard tree planters against imposition it would be well to attach the price to them, because those tree planters would sell nothing but those trees recommended; but to attach the usual nursery price to them would kill the peddlers, because they sell them at from two to ten times the usual prices.

P. M. Gideon, of Minnesota, then read a paper on the propagation of new and hardy varieties of apples.

Mr. Smith — Are there many new apples coming out in Minnesota that promise to be of any value?

Mr. Gideon — Not many as yet. There are some in the southern portion of the state that have got some little note, and are not known to have any crab in them, but whether they will succeed when taken out of that immediate vicinity, is a question. There is a certain portion of Minnesota, around Winona, where they appear to be able to grow anything that they plant, and those new seedlings are mostly in that neighborhood, not yet tested outside.

Mr. Smith — The Wealthy is the best of anything you have.

Mr. Gideon — The Wealthy is the best in size and appearance of anything that I have grown. I have some others as good in quality as the Wealthy, and fully as good and perhaps a little better in training.

Mr. Phillips — I have understood that the state of Minnesota has an experimental farm, and they have taken this matter in hand, to have these seedlings cultivated for the benefit of the people in the state, and see if they can produce an apple that is adapted to the climate. I think Mr. Gideon has been appointed fruit commis-

sioner of the state, and they have appropriated a thousand dollars for the purpose of making these experiments. I think it would be well for him to explain just what course the state has taken. Perhaps it may induce our people to help horticulturists a little.

Mr. Gideon — The state has purchased one hundred and sixteen acres adjoining my farm, and on that the experimental orchard is situated. I have charge of it. They pay me one thousand dollars a year to run the concern. I furnish all the stock and all of the labor out of that amount. The expectation is for me to run it until the results are fully ascertained. I footing all bills and furnishing all stock, and putting in whatever I deem best. That is what has taken me out this winter, to look around through Wisconsin and Iowa to find if there was anything better than I had on hand, anything really desirable in the orchard. I think from the condition of things, and the climate, that anything that will succeed there will succeed anywhere in the northwest. I suppose there is not a more severe portion of Minnesota for tree culture than right through the center. The orchard is situated on a high point at the lake shore, seventy feet, probably, above the water, and at a point where there can be no neighboring orchard set that can possibly influence it. It is the only point, probably, in the state that would be really suitable for the purpose and exempt from all danger of being interfered with by other orchards. It is a matter that the whole northwest is really interested in, and it is my opinion that other states would do well to take part in it, because seed can be grown there in sufficient quantities to furnish the whole northwest without any enhanced cost over and above the thousand dollars per year.

Mr. Kellogg — I would like to ask if there is anything besides apples connected with the experiment.

Mr. Gideon — We will have a pear orchard set there in the spring, but so far as the growing of seed is concerned, the apple orchard is the only thing. I will state that I am setting several acres of other truck, pears, grapes and other things, but there will be no apple trees of any kind set except in that orchard.

## BUTTER.

By F. C. CURTIS, ROCKY RUN.

I notice that it was stated at the late International Dairy Fair at New York, that the value of the land and cows in the United States employed in furnishing milk, butter and cheese, was not less than \$1,300,000,000, and the combined value of butter and cheese produced annually was \$350,000,000, or \$50,000,000 more than the wheat crop of the country. The amount of butter made annually, was estimated at 1,500,000,000 pounds, and cheese at 350,000,000 pounds.

The question for us to consider is, what part Wisconsin is taking in this great industry. Are we doing all we are capable of doing, or are we, from ignorance or other causes, failing to produce the best results with the soil and climate we are occupying? Eastern market reports quote our best dairy products as high as that of any other make. This is ample proof that our facilities are equal to any portion of the United States, but it does not prove that all our dairy products are as good as they should be. Our secretary has set apart the butter question for me to discuss, and to which I beg leave to call your careful attention and study.

I take the ground that our Wisconsin-made butter is, much of it, very bad, while only a small portion of it is as good as it might be made with the means at our command; or, if not really at command or in hand, these additional means can be obtained with reasonable effort. I grant that with our mixed population there is great ignorance that must be enlightened before the happy result of perfect butter making can be accomplished. I think it is but little more labor to make good butter than it is to make it bad; but it requires skill and reasonable conveniences. The greatest difficulty seems to be to reach the ignorant and unskilled with the needful instructions. Many believe they know all that is necessary to know on the subject; that they make as good butter as anyone can make, and if they do not get as good prices as some of their neighbors, they think they are unjustly treated. I am often asked how I make butter, and get satisfactory prices; and if I do not answer it all in one sentence, my inquirer is likely to get impatient and change to another subject. The principles and requirements of butter-making

are few and simple, but they are as immutable as the laws of the Medes and Persians; everything must be done just right — and that just right, I claim, is just as easy, or at least as little labor, as it is to neglect duty and do it wrong. I should, perhaps, have stated that I estimate the quality of Wisconsin butter upon the following basis: About one-third of it is consumed at home, or in the neighboring home markets; the other two-thirds finds its way to the large markets, where about one-half of it is sold for food and the other half fails to find sale for butter and is sold for grease, at prices of from three to eight cents per pound. I might pass some sarcastic criticisms upon this grease butter, but it would probably do no good, as my words would fail to reach those who make it.

I am quoted by the *Chicago Times* as saying in the last dairy-men's convention at Kenosha, in reply to "What ails the butter," that "*there was something dead in it.*" I did not state it exactly in that manner, but if I had I should not have been far from the truth, taking into consideration all that is said to be sold for butter. Dairy-men direct their attention, and usually speak of butter as being the product of the live cow. They do not seem to think or comprehend the report that they are now making or are able to make daily, in New York, thirty-five thousand pounds of what they call butter, from the dead cow or her progeny. Accepting this as a fact, am I not pardonable in assuming that there is something dead in the butter? We are told that this counterfeit butter can be made at a cost of ten cents per pound, and that it is preferred by many to the low grades of genuine butter. If this is true, and I see no good reason to doubt it, this low grade of butter, unless greatly improved in quality, will be compelled to accept a permanent change of position with its tallowy kine.

We notice in the market reports that the highest priced butter is called creamery butter; this is supposed to be made where a desirable quantity of good milk can be collected at one place sufficient to make it an object to supply all the wants required to make as good an article of butter as the nature of the case will admit.

I shall not attempt to instruct those having the management of manufactories of this kind. It is claimed by them that a first-class article of butter can only be made by the so-called creameries — that in the small farm dairies it cannot be done, and this is where the great bulk of the butter comes from; particularly the bad butter

I have referred to. I concede there are many difficulties in the way, but there are also some advantages the creameries do not possess. The greatest difficulty is to get the attention of the dairymen and make them sensible of their wrongful practices; when this is accomplished, it is very easy to show them how to supply their needful wants at a small expense, and that their butter product will be much improved.

I have no doubt that as good an article of butter can be made from the setting of milk in the common tin pan as any other method—deep or shallow water over, under, or all around the milk—but it requires a strictly pure atmosphere, strictly clean pan, and a temperature of 60 degrees, as near as possible, for the setting of the milk, the removal of the cream in about thirty-six hours, or when the cream has somewhat thickened by acidity. At this point, or a little later, it should be churned at a temperature of 62 degrees, in a good sweet churn; not one that grinds out the butter in five minutes, destroying the grain of the butter, but one that properly agitates the cream, producing butter in a reasonable time, which will generally be in thirty to sixty minutes, according to the amount of cream; a small amount of cream churning quicker than a large amount.

There is a class of churns now made that revolves, depending upon the falling of the cream for the necessary agitation; prominent among these is the Rectangular churn. When this churn is used, or one of a similar construction, the operator soon learns by the sound of the falling cream, when it has assumed grains of butter about the size of wheat kernels; then there should be added a quantity of weak brine in proportion to the amount of butter; then a little more agitation; draw off the buttermilk; wash thoroughly twice with pure water, drawing off into a clean vessel, so if any particles of butter has escaped it can be returned to the churn. The butter will now be found in just the right state—small particles—to receive the salt; this should be pure, one ounce to the pound, and sifted before used; the churn may now be closed, and enough revolutions be made to work the butter into various sized balls; now remove it into a clean vessel, not that old sour butter bowl that has been in use for years, and would contaminate the best butter ever made, but a good clean vessel, a tray made of hard wood with three sides, one end open, and a spacious flat bottom,

one that you can set upon a table and use without exerting all your strength to hold it; now cover with a cloth, set it away where it will be out of the influence of bad odors for twelve hours, keeping it in a temperature from 60 to 65 degrees, then work over the butter with the common ladle, pressing it out into a sheet as though you were going to make it into biscuit; now roll up the butter and reflatten it by a pressing motion of the ladle, avoiding all drawing motions of the ladle; be careful and do not repeat this flattening or working process too much, or the grain of the butter will be destroyed; but this is not likely to occur if my directions have been followed. Pack at once, by pressing it solid into pail, tub or crock, and excluding it as soon as possible from the air. It is desirable to fill a vessel from one churning; this is one of the troubles of the small dairy, but if my rules are followed, the butter will be so near alike as to be no serious objection, and you will be proud of the result.

I will now go back and look over the troubles in the way of this plan and see if we cannot remove them, or substitute some other mode in their place. First, the open milk pan in the small dairy, subject to the odors of cooking, etc., and the certain changes of temperature, cannot be tolerated for a moment; remove it to the cellar, no; that has had vegetables stored in it, perhaps some are now decaying there; you could not cleanse it sufficiently if you would, and the chances are that if it was undertaken it would not be as well done as it might be.

The air must be uncontaminated or shut out from the milk altogether, and the temperature must be in proportion to the amount of milk shut up in one body and the temperature of the milk when so excluded from the air. If the milk is shut up at animal heat or about 98 degrees, a certain degree of cold must be brought to bear upon the the outside to cool off this heat in three or four hours, or the milk will ferment and spoil. It will be noticed that the larger and more compact the vessel holding the milk, the longer it will hold heat; and it is desirable that the vessel shall be so shaped and of such capacity that the amount of cooling we can bring to bear upon the outside will bring it as low as 60 degrees within four hours. When this is properly done, we find that the action of the cold upon the outside of the milk creates a rising current of milk in the middle and a falling one on the outside portion of milk; hence

the rising current brings up the lighter part cream and leaves it at the surface, and the result is the cream all, or nearly all, rises within four hours, leaving the milk sweet.

So much for the principles relating to our subject. Now the question is, can we apply these principles to the small farm dairies? I answer, it can be done, for I have done it to my satisfaction without any teacher. I tried a great many experiments and finally settled upon the following plan, which I used from the middle of last May until the first of October, packing some three hundred pounds of butter, some of which we are using at present, and I consider it as good as any summer packed butter I ever examined. I procured six tin cans, each about 8x20 inches, and holding about thirty-eight pounds of milk-fifty feet of rope and two pullies. The cans had covers like a common tin pail, only the flange going inside was about two inches wide and a tube about one-third of an inch in diameter was soldered in the center of the cover. Two were filled at each milking at the well, the covers pressed down to their places, the flanges going into the milk; then the tube hole was filled with a close fitting cork. Thus you see we had to all intents and purposes an air tight can. These were lowered into the well about twenty feet (the well being thirty-two feet to rock and then drilled to water), where they remained until the next milking, when they were withdrawn to make place for others, and placed in any convenient shelter until the cream thickened from the proper degree of acidity, when it was easily dipped off with a skimer or saucer. We noticed no premature souring of the milk by thunder storms or otherwise, as is often the case in peculiar states of the atmosphere. I claim that milk enclosed in this manner shuts out those influences. The cream, when taken off, was stirred when added to that previously taken off; this is necessary to produce a regular degree of acidity to the whole mass of cream. When necessary the cream was lowered into the well to cool it to 60 degrees before churning — that is the summer temperature for churning; in winter 62 degrees.

It will be noticed that this was an actual test of the plan, of some four to five months duration, and was satisfactory. At the late Dairyman's Association at Kencsha, I noticed a patent can of similar construction, for which great advantages were claimed, which required to be submerged in water of a temperature of from 40 to

50 degrees. I tried this plan in connection with the one I have just given, and found that the cream rises quicker in the can submerged in water. I also tried a can partially submerged in water; that is, submerged or lowered into water of the same depth as the milk in the can, and I found no difference or advantage in the patent can, which required to be wholly submerged to make it air-tight, while the plan I have used makes itself air-tight from the connection of the cover and milk in the can, and required to be set in well water, as deep as the milk in the can, which is a temperature of 49 degrees when drawn from the well. It is doubtless important that the temperature of the water should not be warmer than 50 degrees, and if ice can be had, perhaps a lower temperature would be better. More cream can be raised from the milk by this plan in from four to twelve hours, than from any other plan I have seen used; in fact, I think all the cream or butter-making properties rise, and some more; *i. e.*, I suspect that the part of the cream last raised is of little value. The cream and milk will be found sweet, and the cream so thin that it cannot be removed by any ordinary process.

I have found the syphon principle just the thing to remove the milk from under the cream, leaving the cream in the can. The depth of the cream can soon be learned, and the end of the syphon lowered into the milk must be as much longer than the outer end as the cream is deep. In other words, the inner end of the syphon must go to the bottom of the milk, or at least be kept in the milk, or you will draw off your cream. Cream will be found much thicker when cows are fed upon dry, rich feed, than when fed upon green grass. The plans I have given can be tried by anyone, with common glass fruit cans.

This disposes of the temperature and odor question of the small dairy, and the most important ones of the whole. The temperature of 60 degrees for the common milk pan we must have, or adopt some other method. The odor of cooking, smoke — tobacco or other smoke — cannot be tolerated, or even toned down by the occasional demise of an unfortunate skunk in the vicinity of the milk room.

The plan is cheaper than the common milk pan; it saves labor, and that from those least able to bear it. I have never heard but one objection to it, and that was that it shut in the animal odors — that some other plan would take out animal odors. I consider the

idea of taking odors out of milk a myth. The way to take out animal odors is not to get them in; and I hold that animal heat is no different from other heat; and the degree of animal heat contained in the milk at milking is just what we want to produce the currents that raise the cream. There may be another objection — no patent upon it, no royalty to pay, no agent to bore you, until from sheer exhaustion you purchase at an exorbitant price to get rid of him. All that is needful can be made or purchased at some near village. The cans should not cost over \$1.25 each, and other fixtures can be made mainly upon the farm. Where the temperature of the water can be kept at 49 degrees, by spring water or water from the well, three or four hours, ice will not be needed. When this cannot be done, it will cost but little to sink a shaft five feet in diameter and about twelve feet deep, and well covered for four or five feet with plank and earth, after the plan of the common cistern, and cement the same. The entrance or curb should be on one side of the top, and have two trap doors to exclude air. The necessary water could be pumped into it, and I have no doubt that it would give the required temperature for some days. Should the water become stagnant, it could be easily removed and other water added. A convenient ladder or stairs would be necessary, and perhaps a windlass would be desirable to raise and lower the cans. I have already disposed of churning the butter and extracting the buttermilk.

The next question of importance is salt. The salt should be good. I can not tell you which is the best kind, but I can tell you that the common barrel salt should not be used. Much butter, otherwise good, is condemned to rank with inferior grease because it is exclusively salted with common barrel salt.

Reworking should not be done when it is too hard, or after so long a time that the butter has become set. But little working will be found necessary if my instructions have been heeded. The nice point to make is to get out all the buttermilk with as little working as possible, so as not to injure the grain, but it must be all got out and packed at once. The common dairies of the country cannot be too careful to exclude the air at all times from the milk, cream or butter, as they take in impurities when not suspected. It is not possible to keep and handle butter in rolls or prints without rapid deterioration. Solid packing, and done at once after working, should be the rule strictly adhered to.

In the foregoing paper I have given you my experience and careful study for many years. I have tried to give it in a manner that could be understood, and I hope it may be the means of correcting many of the faulty ways that has been the cause of a great loss to our state and country.

Mr. Case — Can you make as good butter in July and August as you can in June and September by your system?

Mr. Curtis — That I do not know. I did not try it in comparison.

Mr. Field — I would suggest the propriety of having the other paper on a similar subject read, and then take up the discussion on the two papers at the same time.

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## DAIRYING IN WISCONSIN.

BY HON. HIRAM SMITH, SHEBOYGAN FALLS.

For many thousand years, down through the dark ages in the world's history, the ruling influences that have governed most portions of the world — the kings, the priests and despots — have taught the false and pernicious doctrine, that labor was a curse inflicted on the race as a penalty for some supposed offense. But the more enlightened rulers of modern times have discovered, what the experience of the world has repeatedly demonstrated, that productive labor is the procuring cause of nearly all the wealth, knowledge, enterprise and happiness hitherto and at present existing; that labor applied to draining swamps and stagnant pools, is more efficacious to health than the necromancy of the "medicine man;" that we are indebted to the discovery and the labor of constructing a telescope to our present knowledge of astronomy and the movement of the heavenly bodies; that the discovery and labor of constructing a steamboat, to run against wind and tide, is more important to mankind than the subjugation of the "Hittites," the "Perizzites," and the "Jabusites;" that the discovery and labor of constructing a locomotive, to run on iron rails, has trebled the wealth, and quadrupled the happiness, of man; that the discovery and labor of constructing telegraph lines, that run over the mountains and under the sea. Its advantages to mankind is far beyond any human computation. These three discoveries — the steamboat, the locomotive and the telegraph — a trinity of blessings that will stand as monuments in honor of labor so long as

men have wants. The false notion that education, refinement and intelligence is incompatible with labor has done much to keep alive a race of *boors* and idiots, that is a disgrace to humanity, a hindrance to the progress of the race, and a dangerous element in the body politic. There is no good reason why the farmers of the present time should not be as well posted on the news of the day and the affairs of state, as the merchant, the banker, the lawyer, the doctor, the preacher or the politician. Newspapers are cheap and easily obtainable by almost every farmer in Wisconsin. I have no admiration or respect for a grasping, miserly farmer, that requires unremitting toil and oppressive economy from wife and children for the purpose of adding acre to acre, or to accumulate money to loan at interest, while himself, wife and children are deprived of the means of obtaining knowledge, clothed in coarse and cheap apparel, that make sensitive women and spirited children shrink from entering society, where they may reap the sure rewards of a higher civilization, making them inwardly and openly curse the farm and its surroundings, ready and anxious to leave it at the first opportunity, too often to become the easy prey of sharpers, or led to the commission of some crime, to end their days in the penitentiary, or worse.

Productive labor is honorable, profitable, and a positive necessity. Unproductive labor benefits no one, is demoralizing in its tendency, and is the result of a want of a correct comprehension of the situation. At the risk of saying what I may have said on some other occasion, permit me to state that nearly all Wisconsin farmers feel the necessity of engaging in the production of some staple article that will bring ready money. These staple articles consist mainly of grain, beef, pork, wool, and dairy products. Around the production of these articles there are natural advantages that cannot be ignored. The locality for the profitable production of wheat, is manifestly in Minnesota, Dakota, and along the line of the Northern Pacific Railroad, on cheap lands, where soil and climate are naturally adapted to its cultivation. It is said that more good wheat land exists in the locality named than the entire amount between the Mississippi river and the Atlantic Ocean. The productions of beef has been transplanted into Texas, the Indian Territory, and Kansas, where but little winter feed is required, and large herds roam at will. The raising of wool in Wyoming, Nebraska and Colorado, is attended with but little cost, above shearing the

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sheep and the freight on the wool. Pork can be produced much cheaper in southern Illinois, Missouri and Iowa, where corn can be raised to much better advantage than anywhere in Wisconsin. To engage in the production in either of the above mentioned staples, brings Wisconsin farmers into competition with a class of farmers that have but little capital invested in lands, but small taxes to pay, living economically, and their surplus products seeking the same markets as our own. It practically reduces the price of land and labor in Wisconsin, to engage mainly in the production of wheat, beef or wool. In the long run, it is only the annual receipts of surplus products that can be divided between investments and labor. And this brings me to the consideration of dairy farming in Wisconsin, around which gather so many natural advantages of soil, climate, cheap feed and cheap freight. In the first place, we are working in competition with the high priced dairy land in the eastern states, and also in competition with the enormously high priced lands of England, France and Holland, all of which buy their corn for dairy stock from the Northwestern states, and all sell their surplus products in the same market with ourselves, viz: London and Liverpool. If dairy farmers in Holland can keep their land, valued at \$400 and \$500 per acre, and pay freight on most of the coarse grain used for milch cows, and have no decided advantage in the market, then Wisconsin dairy farmers should be the last ones to complain of the situation.

¶ If we compare wheat raising in Wisconsin with dairy farming, it will give us some reliable information. It appears from the report of the secretary of state that the number of acres of wheat in the state for 1878. was 1,798,647, and the number of bushels raised was 20,596,744, or about  $11\frac{1}{2}$  bushels per acre; if we deduct  $1\frac{1}{2}$  bushels per acre for seed it will leave an average of ten bushels per acre to sell; a farm of 100 acres, if mainly devoted to raising wheat, might be able to spare 50 acres for wheat annually, the balance would be required to supply the wants of the farm; fifty acres of wheat at ten bushels per acre, as surplus above seed, would sell at present prices for a little over \$400. A dairy farm of 100 acres can easily maintain 25 cows, besides raising what grain and vegetables are required for use on the farm; the receipts from 25 cows at present prices is about \$30 per cow, or a total of \$750. I am aware that the better class of dairymen will smile at the low

estimate of \$30 per cow, and could easily bring forward their experience to show \$45 or \$50 per cow net receipts; but general averages are always below possibilities. Another important consideration in this comparison should not be overlooked, that continual cropping with wheat is slowly and surely exhausting the fertility of the soil, while dairy farming is as surely enriching it. Increased receipts means increased comforts for the family, increased education for the children, increased culture, refinement and knowledge; increased taxable property means wealth, power and prestige, at home and abroad. We should never lose sight of the real meaning and significance of dairy farming, which consist primarily of the production of milk, the larger part of which is consumed in its natural condition by the inhabitants of cities and villages, and the balance manufactured into butter and cheese. The art of making butter and cheese is to preserve in its greatest perfection the good qualities already existing in the milk. There have been valuable improvements and discoveries recently made in the manufacture of butter and cheese that dairymen in Wisconsin cannot afford to disregard. The English cheddar cheese that is now quoted at 84 shillings per 100 lbs, while the best American cheese is selling at 47 shillings per 100 lbs; this is a standing disgrace to our manufacture, and no dairyman should slack his efforts until he can equal the best in market.

Dairy farming in Wisconsin is now being investigated by a larger variety of inquiring men than ever before; the unthinking and the timid believe, that the long expected situation of over-production, that "croakers" have predicted for the last forty years, has now arrived; but the more intelligent observers see a demonstration, that dairy farming bears the strain of the commercial depression that has been felt over many portions of the world, much better than any other branch of agriculture. There is no evidence anywhere of a decrease, and steps are being taken in many portions of the state for a liberal increase. It is altogether probable, that there will be some changes made from the manufacture of cheese, to that of butter; for the reputation of Wisconsin butter has been materially advanced during the past year. In the great International Dairy Fair held in the city of New York, in December last, of the four sweepstakes premiums offered on butter, open to the competition of the United States, Wisconsin secured two of them,

and one of these the largest premium ever offered for dairy products in this country; as there were 81 tubs entered for this prize, and the committee of judges consisted of the best experts in the country, the test was as rigid as was possible to make it; settling the question as to the possibilities of Wisconsin to become a first class butter state, as she has hitherto been a first class cheese producing state. Notwithstanding the hard earned reputation that Wisconsin has for the best butter and cheese, yet it is lamentably true, that a large portion of the cheese made in the state is of second and third grade, and a very large portion of the butter, but little better than grease. The usual useless loss on this poor butter and cheese to the producer, is much in excess of the entire state tax; the largest portion of this unnecessary loss falls on that shiftless class of farmers that complain the most about heavy taxes. The live question of to-day is, how to avoid this loss. Dairy men have known of, and preached about it for years with but little success, for the reason that dairy products have been in brisk demand, and poor butter and poor cheese, although not selling as high as a good article, nevertheless (previous to the past year) has sold at a profit to the producer. But the experience of 1878 has convinced the most obdurate, that the making of three cent cheese and ten cent butter is neither honorable or profitable. It is not my mission to preach against the sins of the people, neither is it my desire to be a crusader, and meddle with other people's business; but I shall content myself with stating an open secret, that where 4,000 or 5,000 pounds of milk can be collected at one place, a competent cheese maker can be procured that can make cheese that will sell at a profit to the producer of the milk; where such amounts cannot be procured, less amounts can be utilized, by each farmer setting his milk in deep or submerged cans, and a uniform quality of cream can be obtained, that can be gathered from a larger district than is practicable to gather the milk, and such cream can be worked into butter that will sell at a profit to the producer of milk

The new method of raising cream, called the "Cooley system," in deep cans submerged in ice water, at a temperature of 45 degrees is meeting with marked success wherever tried. By this method all the cream can be separated from the milk in from 8 to 10 hours, in its greatest perfection, only requiring can room for one milking. It is secure from all odors, dust and flies, being water

sealed, a saving of more than one-half the work, as there is no skimming, no washing pans and no fire to attend to, and the result always positively good. (The most advanced dairymen would no more go back to setting milk in open milk pans, than they would to reaping grain with the old crooked sickle, lighting a modern drawing room with a tallow dip. It is of the utmost importance that Wisconsin dairymen should keep up with the most advanced knowledge on dairy subjects, so as to be prepared to satisfy the fastidious taste of those that pay the highest price for best articles, and Wisconsin maintain her prestige of being one of the best dairy states in the Union.)

I might add that these cans, in order to save skimming, have a faucet at the bottom, and a little rubber hose that runs on an attachment to a slide. If you have four inches of cream, which can be seen from the panel of glass inserted in the can, you can slide this up four inches and turn this faucet, and four pans of milk are skimmed. It holds four pans of milk. The milk runs out through this tube up to four inches, the amount of cream that is in the can. The cream gently settles down, and can be turned out into the reservoir for keeping cream. You avoid all skimming. The specific gravity of cream is so nearly that of milk, that by any process of skimming you necessarily push a large part of the cream out of sight that you cannot see with the naked eye, and that is hardly discoverable with a pretty good glass; but if it gently settles down, undisturbed, you get all there is. It saves washing, because these are submerged in ice water at forty-five degrees, and everything in the can is as sweet and clean as you could wash it. It would be no cleaner to wash it.) It can be immediately refilled with the next milking, and submerged. Instead of lowering it with a windlass, you merely pick it up by the handle and it submerges itself. The weight of the tin, added to the milk, sinks it down about the height of this table. When you want to empty it, all you have to do is to set it up on the table, where the milk will run off into the vats. There is a great saving of labor, and the result is uniformly and always the same, as good as can be. The cream is more liquid than when exposed to the open air, but that is no objection; it churns all the better. You are less likely to have salvey butter, by having plenty of milk in the cream when it is churned.

Mr. Palmer—How long time would the non-washing plan last?

Mr. Smith—I see no reason why the can should be washed so long as it is used every day. Of course, if it should stand over twelve hours, not having milk to fill it, it would be necessary to wash it, as milk dries on; but so long as it is used every twelve hours, and submerged in ice-water, there is nothing as unclean in the can as you would put in to wash it. Therefore you would gain nothing by washing it. There would, of course, be a very thin coating of milk, but that milk is as sweet, and as pure, and as clean as that which you are going to put in again, and much cleaner than almost any dish-cloth you could bring up. Therefore, I see nothing to gain by washing, and, in constant practice, we find no necessity for it.

Mr. Boyce—I also have a Cooley creamery in operation on my farm. I will briefly describe its operation. I have a dairy of between forty and fifty cows. I manufactured cheese last year at a loss, and concluded I would try something else this season. I wrote to the manufacturer to send me a creamery and can sufficient to manufacture the milk from the cows. He sent me what he termed a “No. 6” creamery; the tank will hold twelve cans, as described by Mr. Smith. I was not very well prepared to use the creamery at that time because I had no suitable building, but he wrote that anything would do, a shed, or any place where you could put it. I got this creamery last October, and commenced making butter from the milk while the cheese factory was not receiving. They would only receive on certain days, the quantity of milk was so small. I set it right out doors. I immersed the cans in the tank and let them stand. Used as cold water as I could, raised the cream, and, as Mr. Smith describes, run it off from the cans very quickly, and we found that the butter we made was better butter than we had ever made before, although my wife makes very good butter. I presume every man thinks *his wife* makes good butter, also, but we made decidedly better butter. At the approach of winter I merely went to my cow barn, which contained sixty head of cattle altogether, a large building, sixty feet long in the longest direction, and right at the end of that, on the north side, to be convenient to the water, I attached a small building like a box. It was 8 by 10, cheaply made—made in a day—and I took this tank, which I think is seven feet long, and set it on the side of the building so that I could come out of my cow barn and turn around and step

right into the room where my tank was. I arranged some shelves around for convenience of setting the cans, and the thing was done. I have run that creamery all winter, when the thermometer has been twenty degrees below zero; and all the protection that tank has had has been some blankets thrown over it when the lid was turned down; it is a rough board building. There has never been any fire in it, and I have found when the mercury was the lowest, that, notwithstanding the protection of the blankets, ice an inch thick would form on the top of the water in which the cans were submerged three inches below the surface; with a little hatchet I have broken the ice and lifted the cans out and set them on the shelf; and I tell you that you can skim the milk of forty cows in those cans just as easily as you can carry that milk five rods and mount a platform and strain it into a common carrying can that you take your milk to the cheese factory in. All that is taken into the house is merely the cream. We get cream pails that will hold about forty pounds, with a cover and a good handle, and as the covers of the cans are removed after the milk is drawn off, the cover of the cream pail is also removed, and they are just turned in, one after another, and just as rapidly as the man can reverse the valves. He commences with a peculiar strainer, a strainer that prevents the slopping over of the milk, the same as you would take the milk can and use the bottom of it instead of the top; he commences and puts that strainer onto his milk can; they stand along in a row; he takes his pail of milk and turns it into the strainer; it does not slop over, as ordinarily; when that can is full he can see readily through the glass panel and stop. He removes the strainer to another can setting by his side, turns the balance of his milk in, reaches onto the shelf and takes the cover and puts it onto the can. This cover is an improvement. It has from its outer rim a section cut out, corresponding in length with the width of the handle. He merely takes this cover and slides it down under the other handle, with this piece that is cut out opposite the other handle, and gives it a half turn and the thing is done. He takes [it up by the handle and sets it down into the tank. It is done in a moment, and it is my opinion that Mr. Smith has not overstated the amount of labor that that creamery saves. The cost of my creamery, with the strainer, was seventy-six dollars. The cost of a creamery with twelve cans is seventy-five dollars. The

tank is a very convenient one; it is fixed with an inlet and an outlet and with a pipe, and it is completely lined with galvanized iron. It has also in its side an aperture where a thermometer is placed that will indicate the temperature of the water very readily. I know that during the winter it has gone down to thirty-four degrees, and worked right along just as well. You can take all the cream out of your milk from one setting to another, and it makes better butter, I think, than any open setting can, simply for the reason that all the atmosphere and odors and dust and flies and everything else is excluded from the cream. Everything is covered up, and all you take into the house is just the cream and the pail.

The cost of a small creamery would be in proportion.

Mr. Curtis — Mr. Smith alluded to my plan as requiring a vault. I spoke of a vault, but it does not necessarily follow that it should be used. I said a certain temperature was necessary, at least as low as forty-nine degrees. Mr. Boyce was saying that it would work just as well at thirty-four; my object was simply to show how it would work, and that a low temperature was necessary. I also stated that I had tried the submerged can, and the plan that I stated, which was, instead of total submersion, a partial submersion was just as good; that is, that I had made the trial, and one was just as the other. I claim that the plan I stated was just as good as his, and that these cans can be obtained for a dollar and a quarter apiece. All I want, in addition to my cans, is that they should be kept cool. I merely suggested a vault, as it might be brought into use by the common farmer. I want everything to his hand, that he need not go out and pay these larger prices. The gentleman tells how easily they draw off the milk from the cream. There they seem to have an advantage over the plan that I have given, but I will ask Mr. Smith if the plan that I give with the syphon would not ordinarily be as good as the drawing off, in the manner stated — a similar syphon to what they use in drawing off the whey from cream in cheese-making. Cans can be made with glasses, the same as they have stated; there is no royalty to pay on the glasses; we can put them into our cans. We can see by looking through the glass that the cream is three inches; consequently, if our syphon is made with the outer end three inches shorter than the inner end, place the thumb on the outer end, and put it right down into the bottom; if it is filled with milk or water

before it is put in, all that it is necessary to do is to keep it closed until it is put in; then the milk will all run out just as easily, and with as little agitation of the cream, and leave the cream as completely in the can as it would if drawn off below, and more so, because the draught of milk by running out would be more likely to agitate the sweet, thin cream than it would by the syphon. I believe the plan I have suggested has all the advantages.

Mr. Smith — I wish to reply to Mr. Curtis' question. While his theory is correct, and the experiments taken any time this last winter might prove very satisfactory, the thermometer has been below forty-five degrees usually in the open air; while that condition of things exists, his setting in a deep pool being brought to the same conditions as submerging in ice water, would show the same results, but in July and August (and I have frequently tried this deep setting in pools), it is a great waste of ice to preserve water at a temperature of forty-five degrees, if it is in contact with the air; and this submerging system requires a tank doubly lined, that is, a wooden tank with an air space and a galvanized iron lining inside, which prevents the atmosphere from having much effect on the water inside; therefore a very little ice put into cold well water of forty-eight or fifty degrees is required; but in July this deep setting cannot be effected and secure the cream in less than twenty-four or frequently thirty-six hours; and if it is done in twenty-four hours it requires a double set of cans, and consequently double space to secure the same results. It is possible that this system of skimming, of which he has told you, may be effective, but I see no gain except to avoid the royalty on the other attachment, which is much better. Can we afford to disregard a real improvement for the small sum which is charged for it, and cumber ourselves to use a syphon, and wash it out every day as long as we live, merely to save the small sum demanded for the other attachment? Now it looks like a large price to pay seventy-five dollars for a twelve can tank; it takes up less room than this table for forty cans; it is an entire dairy outfit except the churn and butterworker, it is the dairy room, it is the fuel for life — you will have to pay nothing for fuel, — it is shelf-room and pan room, and rack room, and everything combined. It can stand in the wood-house, in a corner of the barn, in the kitchen, or any convenient place; it is away from all odors; the butter is uniformly perfect;

but if cream is exposed to the air, as in deep pools even, it is exposed to the air, and the floating corruptions contained therein in warm weather, you have the defects which must necessarily attach to any open setting. No man would risk his money to gather cream from any system of open setting to run a butter factory; but with this system the result is always precisely the same, and he can safely invest in it, and have a large or a small butter factory without any possibility of having any loss on poor products. It is therefore a gain to the farmer; he could afford to invest because one year's making thirty cent. butter which is readily sold, pays him the difference between his milk pans and this new improved system of raising cream. It is much easier to sell butter made in this way at thirty cents than it is ordinary butter at fourteen cents, and take it in store goods. They have to go from store to store; a good many merchants refuse to take it, they have suffered too much loss; but under this plan there is no difficulty in selling at the highest price; the butter is uniformly perfect.

Mr. Curtis — I would enquire if there is any patent on the tank or receptacle for holding the cans that you represent.

Mr. Smith — Yes, there is a patent on the tank and on the cans and on the skimming arrangement; however, where they use any large quantities, they do not demand that a person should buy the tank, and will sell the cans at two dollars apiece, and these secure the right. This seventy-five dollars includes the cans and all the improvements of skimming, and the cover and tank and everything, and the right to use it, and that is sufficient for forty cows. All the outfit, dairy room, stove and all the fuel you will ever use, pans and everything combined, are included in one expense of seventy five-dollars for forty cows. It is a dollar and a half a cow for everything you require. There are all sizes from one to twelve.

I have kept fifty cows for the last twelve years, and during the time of making butter after the cheese factory stopped, the 1st of November, it took myself and wife nearly all day. We had two hundred pans of milk standing around on racks in the room; the fire must be kept up so as to keep the temperature at sixty-two degrees, and there being so many pans, those setting near the stove would be ready to skim sooner than others, and it was difficult to decide which was just right to skim and which should go over another day or another twelve hours; and it was nearly all day's

work to skim up in the morning, wash the pans and get ready for another day's milking at night. Now, a boy working for ten dollars a month can submerge these cans as well as any of us, and there is nothing more to do until four o'clock, and he can take them out and empty them as well as anybody else, and fill them up again, and it relieves the man and his wife from this close attention which it is positively necessary to devote in order to make passable butter.

I have tried a good many years to secure premiums, and we had the name of making good butter; but we never knew how to make it; we did not know how to churn until within eighteen months. I would not put upon you anything that I thought was unjust, but I have no doubt that I should be save in saying that not a dozen persons in this room know how to churn cream and wash the butter. We have been taught to believe that we should work out butter-milk, but it is all wrong; you never should work out any butter-milk, for the simple reason that you should never allow any buttermilk to get into butter; butter may get into buttermilk, but there is no reason in the world why buttermilk should ever get into butter. If you stop churning when cream is of the size of wheat kernels, or, perhaps, as large as peas, from Jersey cows—for the globules of cream from that breed are larger—it is simply rolled up in little pellets of solid butter; there is no buttermilk inside of those pellets. If you draw off the buttermilk through a strainer in the churn and put on cold brine, the buttermilk is all gone, and there is not an atom of it in fifty pounds of butter if you rinse it off with a little cold brine, and there is no buttermilk to work out. The butter is left in these little pellets. You simply take it out and put it on the table, and salt it a little as it should be; work it together a little; you need not bring it together at all for this working; you simply put the salt on for it to dissolve and incorporate itself into the butter; then you work it gently after four or five hours, and then it is much better than when exposed to the atmosphere twelve or fourteen hours. Then you merely put that butter together as you would mortar to put on the walls, and pack it in a tub or pail; that is all the packing it wants. Its grain is perfect and its keeping qualities are perfect, and you preserve the aroma, because you pack it away from the air, which is constantly sapping away the aroma of butter. It is like strawberries; butter has an aroma like strawberries when they are first picked

from the vines; if they are exposed to the air twenty-four or thirty-six hours, they become stale, and butter will do precisely the same thing; and therefore the quicker you can get it packed after the salt is properly worked through it the better for the butter.

Mr. Palmer.—You do not gather butter into balls?

Mr. Smith.—Not by any means. It is a mistake to work the butter, or attempt to do it any good after it is churned and gets into a mass. I have seen butter since I have been in Madison that was churned until it was gathered, and it is a mass of butter and buttermilk together, and it never can be eradicated. It will be out of flavor and unfit for use in three weeks.

Mr. Brown.—Where do you keep your cream in warm weather?

Mr. Smith.—In any dry place. I do not usually keep it in a cellar, but we have a sort of work room; the keeping is simply to have an amount of acid developed to make solid butter.

Mr. Brown.—Do you keep it in a cold room?

Mr. Smith.—In a warm room.

Mr. Brown.—I see in a New York paper there is a sour cream creamery and a sweet cream creamery. In which class would you put this?

Mr. Smith.—You can do either. The cream is sweet when it is taken off, and the only question is whether you will churn it and make sweet cream butter, or let it remain over in a warm room twenty-four or thirty-six hours, and let a little acid develop to make sour butter. All the best butter is made from cream with a little acid developed; it makes better butter, and it churns easier. These little globules have a membrane, and while they are sweet the membranes are harder to break, but when a little acid develops in the cream, these globules become more tender and run together better; the flavor is better, the keeping qualities are much better; it is more firm and solid when it is packed and tried with the trier.

Mr. Dore.—How often must the water in the tank be changed, and what quantity of ice would be required for a season for twenty or forty cows, and what would be the expense of this arrangement for a dairy of twenty cows?

Mr. Smith.—A dairy of twenty cows would require about six cans. That is, I think, forty-five dollars. The amount of ice is about ten pounds to the can for twenty-four hours. If you have

good cold well water in winter, of course you need not change the water at all, unless you should, by some carelessness, slop a little milk in, when it would be necessary to run it off; but in winter it is scarcely necessary to change the water at all, as long as the weather is suitable. If it should be warm weather, and you thought it advisable, it could be run off; but it is not often necessary. In the summer we usually change the water; it stands over a drain, and all there is to do is to turn a faucet, and the water runs off. If you have a windmill, and everybody that has twenty cows ought to have one, all you have to do is to turn a faucet and let the water on. It costs but little to arrange all these things. Probably two cords of ice would be sufficient for fifty cows all summer. There is no trouble keeping ice — almost as cheap as wind.

Mr. Dore — I would like to hear Prof. Daniells explain the philosophy of keeping ice.

Prof. Daniells — Ventilate it upwards and drain it downwards; keep it dry and cool. I have seen this creamery used this past summer by men that had no ice, but had a windmill, and it was very easily and cheaply done, to change the water once or twice a day — I do not know as they did change it as often as that — and they had a Cooley creamer under the shade of a tree. Now, in regard to the cost of this, no man wants to be penny wise and pound foolish. I engaged my butter, a year ago, by the year, for twenty cents a pound, of a person who had spent two hundred dollars in building a stone milk-house. In the middle of the summer we had to change; the butter that was brought us, and it was made by a good butter maker in the ordinary sense of the word, was not such as we could eat. We changed, and, fortunately, to another good butter maker, who had invested in a Cooley creamer, and we have no desire to change again. The Cooley creamer that this gentleman has, I think, cost about twenty-five dollars. It has three or four cans. The woman who had spent two hundred dollars in building a stone milk-house, thought it had been more than two hundred dollars damage to her already. I think she lost nearly all her customers in town, and the only reason was, that during such a summer as last summer she could not make good butter by that method. We paid twenty cents a pound in both cases. That, probably, is not as much as the butter might be sold at, but while I can get it

for that I shall not pay any more, but I had rather pay more than take such butter as came from the other house.

Mr. Curtis — I am ready to concede all the advantages claimed for the Cooley, but I do insist that there are men that will feel that they are not able to invest in that, and while they will not do that, let them try my plan and they can satisfy themselves betwixt the two. Let them take two common glass fruit jars and fill each with warm milk, put one entirely under water and let the other stand as high as the milk in similar water, and let them test the thing; it will cost them nothing for the trial.

Mr. Smith — It would test while the mercury stands at forty or fifty; it is practical in winter.

Mr. Curtis — It is also practical in summer; you can make a refrigerator of your own as cheap or as expensive as you please, and as good or as poor as you please, and in either case you want the temperature right.

Mr. Boyce — The labor alone, I think, of skimming the milk would pay for the Cooley creamery, if nothing else. You take the milk can; it has an outlet valve at the bottom which you turn with a motion of the thumb, and a boy can strain the milk from forty cows in two minutes. Now if you take another can, say it is twenty inches tall, and submerge it, you have got to take the cream out of that with a syphon, and it is a very difficult thing to get the syphon to start, and it would take a boy a good deal of time to do it. This patent can costs something, there is a royalty on it, but think of the convenience of it, the labor saved; if you have a dairy you cannot afford to waste labor to take a skimmer with a straight handle formed like a funnel, point downwards, and immerse that every time into your deep set cans, and bring it up with the cream and milk and every thing and turn it out into the pail. The difference in the price of the butter is almost enough to cover the cost of a creamery. I get a price that is satisfactory to me now, and before I could not.

Judge Bryant — I would like to ask you if you think it would pay a man who milks six or eight cows to go into this?

Mr. Smith — I think such a man is less able to suffer a loss than a man with a larger farm.

Judge Bryant — If a man milks six cows, and is sure and has been sure for a good many years, of getting thirty cents for his butter,

made in the common way, would he make anything by going into this business?

Mr. Smith — I would not undertake to say, because he may come up here next July or August and say his customers have left him, as in the case mentioned by Professor Daniells; while if he runs a creamery which is simple and easy to learn, he will lose nothing, but constantly be improving after saving half his labor. He would gain in labor, and be positive of his results. I know of nothing that can be said against it.

Mr. Field — The agent for these creameries, whose card I happen to have, is John Boyd, manufacturer of the Cooley Patent Creamery and other dairy articles, 175 and 177 Lake street, Chicago. I think he has the entire control of that interest in the Northwestern states.

Mr. Boyce (after giving a description of the strainer, which cannot be understood without diagrams) — We take two thicknesses of the bandage cloth they use in cheese factories, or thin muslin, and put it over the bottom of the strainer; we then take the hoop and crowd it down over, which confines the two cloths tightly to the strainer. We then put the strainer back on the can, turn the milk in, and it passes first through the wire strainer and then through two thicknesses of cloth, which should always be done. Of course we wash these cloths; keep a whole set of them, as we do of towels or table linen; everything about this has to be cared for with the utmost cleanliness and caution to keep out all impurities from the milk, and prevent its contact with the atmosphere, from the time it is drawn from the cow until it gets into the churn. We do not wash the cans from one week's end to another, except when a little acidity may possibly form at the top. There is no necessity for it, for no change can take place, as these cans are constantly submerged and kept from the air. I should think a washing of twice a week in the summer would be all that was necessary. I will tell you further, if you intend to make skim cheese out of that milk, it will be as hard and indigestible as a grindstone; there is not a particle of cream in it.

Hon. A. A. Arnold — I do not desire to criticise the paper of Mr. Smith, for I could not well do it. It was an excellent paper and excellently read. It interested me, I must say, more than anything I have heard at this convention, because I think it is something

practical, and that is just what we want. But is it not a little discouraging to the breeders of Short-horns, if it be a fact that they are not butter and cheese cattle? Now I am something of a Short-horn breeder, and there are many others here, and I do not like to have that class of people go home feeling as though we must make a change in making butter and cheese, because, if his paper is true, we have got to compete with a class of men that the climate and soil of the country will not admit of. It will not do for us to raise wheat, and it will not do for us to do anything except make butter and cheese, according to that paper. I have that objection to his paper, and I have this objection to this manner of making butter. It seems to me that we want to make this something of practical use to the ordinary farmer, and they will not adopt this method. I suppose many of you have read this new book entitled "The way they do it," an illustrated work showing how the patent right men swindle us farmers, and how they sell us their maps and state atlases, and get us to have our pictures taken in it, and all those things. We all know how it is done, and no man can better appreciate it than one that has been taken in; and I presume there is not a farmer who has not been swindled, more or less, in some of these things. Let any of us go among the farmers and attempt to introduce anything of that kind and they will say there is nothing in it. If we send a man with an honest face, like Mr. Boyce, among the farmers, he could do it; but let them go there without anybody to recognize their honesty, and they would not adopt it. I feel the necessity of making this institution of value to the common farmers. Almost every man here is a representative farmer of the place he represents, but almost all the farmers throughout the country do not read our agricultural and horticultural reports, and they do not attend our conventions. It is all confined to the few. Now it seems to me that if there was some way by which we could get them to believe in these things that we think are good, we ought to do it; and I think the best way we can do that is to encourage our Legislature to issue a large number of these books and put them right in the hands of the people — a certain number in every township or in every school district, and have the people spend their money in that way instead of spending it in some other direction. I think that it is your duty to insist that the Legislature furnish the people with a large number of these books, if we have anything in them

worth reading, and if not, we might as well not have any association.

Mr. Dore — The gentleman complains that the Short-horn breeders are likely to lose their profession if this paper is followed. It seems to me there is an easy way out of it. Small farmers all adopt this system of making butter, and raise dairy stock, still, perhaps, for a time there is a demand for cheap butter, and it has been remarked here that this new-fangled arrangement makes that kind, and the Jersey cattle would be especially adapted to make that kind, work them up to good advantage and supply this cheap market so long as it is necessary.

Mr. Field — I rather object to the gentleman's method of bringing information before the people. He represents that we are mostly representative men, and we are just the men to receive those books, and those that are outside will get none. I find among our legislators it is the influential men in the town that read the same things in the papers that get the periodicals from the legislators. They do not reach the common class of people, and if it is to be done at all, I would be in favor of this convention asking every paper in the state to publish our proceedings. I think it would be a benefit to their papers to do so, as well as to the citizens.

Professor Daniells — I do not think where knowledge is as free as it is in Wisconsin, you can force a great deal into the people. Over in the insane asylum, when patients will not eat, they sometimes take a stomach pump and force it into them. But you cannot do that with these proceedings, and the people who will not read the newspapers, and who will not secure from the secretary a report of the proceedings, will, if you carry the book to them and put it into their house, lay it away somewhere, and it will never be read. You cannot force it into them.

Mr. Field — I would say for the edification of the convention that this Agricultural Report is circulated very largely throughout this state, and also in adjoining states; and a great many have been and are being exchanged every year with other states. There are a thousand copies placed in the hands of the legislature every winter, and they are supposed to distribute them in their several localities among farmers exclusively. That has been the request of the secretary as long as I was secretary, and I know it has been of the present secretary, that they should be distributed among that class

of men who appreciate what is therein, and who can receive some instructions therefrom. I know a thousand copies have been distributed this winter to members of the legislature, and a great many of the members who have a large farming constituency, have come down to the office and obtained a great many other copies. I have no doubt that a great many of those present who desire copies could get them of the secretary now. The number of copies printed is limited, I think, to five thousand. One thousand is to be distributed to members of the legislature, one copy to each member of the society, and a certain number distributed to other state societies, and twenty-five copies to each county agricultural society. Now, I presume, if you should apply to the officers of your county society you would find that a large portion of the twenty-five copies are distributed among professional men who do not care a straw for them; and it is all wrong. They should be distributed, not to these professional men who, perhaps, are running your county affairs, for many of them are, instead of to that portion of the community who are engaged in agriculture. I am sorry to say that is so, but whose fault is it, yours or theirs? I think it is yours. I think if professional men take up the interest of the county in relation to running county fairs, and you as farmers, and men engaged in the various industries of the state, will allow them to do it, you are the men to blame. And that brings me to say one word upon Mr. Smith's paper, where he speaks of the agriculturalists of the state, and the honorable position they occupy in society, and it certainly is a very honorable one, but they can make it a very great deal more so if they will. Not only that, but they can exert vastly more influence in society, and extend the benefits which they ought to receive, by simply, instead of sending lawyers, and doctors, and ministers, and bankers to occupy high positions, and cleaning out such a man as my friend Smith by a lawyer, in his district, send such men to congress and to the state legislatures, to represent you and demand that your interests through them shall be represented.

A Member — I understand that Mr. Boyce visited Mr. Houston's establishment while in Kenosha. I would like to inquire about his butter.

Mr. Boyce — I attended, as other farmers and dairymen should, the meetings of three state associations. I went to Kenosha more especially to visit Mr. Houston's celebrated creamery, and Mr.

White's celebrated dairy, and the dairy of Mr. Simmons. I went out six miles from Kenosha and stopped with Mr. Houston. I was royally entertained and delighted with what I saw on his farm. He uses open setting pans, and, for his business, it is as good as any, if he wants to pay for additional labor. In his barns are fifty cows, Jerseys and Jersey grades. I think I never saw a finer dairy of cows. His Jersey grades will, a great many of them, weigh over thirteen hundred pounds live weight. Of course he is a high feeder, as all successful dairymen are. He gave me some of his figures. He has fifty cows; he runs a dairy the year round. He calculates to have just about such an amount of milk each month. He says, from fifty cows, Jerseys and grades, he got last year 14,670 pounds of butter from 305,760 pounds of milk; that is, I think, about twenty-two pounds on the average. The butter netted him about twenty-six cents a pound the year round. He sold from his herd something over twenty-two hundred dollars worth of stock, including six cows that he turned off. That is an item, for he keeps good stock and they are sought after.

Mr. Phillips — This matter that has been brought up here by Senator Arnold and others, in reference to placing before the farmer these horticultural and agricultural reports, containing such addresses and such valuable experience as Mr. Smith has laid before us to-day, is very important. As Mr. Arnold said, the representative men come here, and, as Mr. Field says, there is a class of men that half of our reports go to that do not care anything for them—politicians and professional men; whereas, they should go to the farmers. Now, I have been thinking this matter over considerably, and I have thought of a plan. If there are enough copies printed that they could be placed in a town library, perhaps some provision could be made to have the town clerk take charge of them, and let him let them out to farmers if they wish to take them. There are a great many farmers in all towns that would read the books if they were available. I have had half a dozen tell me before I came away to get them a copy of the agricultural report if I could; and it seems to me they could be placed in an office where many men that do not now have access to them would be able to get them.

Mr. Arnold — I think they are pretty well distributed by giving them to men who will read, or representative men; but I think there

are not enough published if they are valuable. Many of us say things that everybody has heard before and not very interesting to read, but there is no doubt there are a great many valuable things in them. I think we should have a larger publication.

Mr. Anderson — I did not think it was a doubtful question that these reports were valuable. I never heard any person that was acquainted with our reports for the last few years that denied that they were valuable. They are certainly valuable and certainly appreciated by the intelligent farmer. I think that all I have distributed I have given to farmers who I thought would read them. I have come here and listened to these addresses, and I would read them at home. I have heard Mr. Hiram Smith's address that was delivered here some time ago. I loaned the book to a man that was going to start a dairy in my place, and he promised me to read Mr. Smith's address that was delivered to-day. I would place one with the lecturer of every grange I could meet, and in every farmers' club I would place one, to be left there to be used. That is a good way to disseminate information. When a lecturer is not capable or has not time to get up an address of his own, he can take that book and read any evening when he has time, a valuable paper which will be appreciated by those present. If we who meet from year to year in this convention will make an effort, we can distribute those books in the right direction. I think that nearly every farmer goes from this convention supplied with a book. I think the secretary should make a special effort, that the farmers should have these books. I have heard of a box of those books that were left at Mineral Point that were not distributed.

Judge Bryant — Those were sent by virtue of the statute; we were obliged to send them.

Mr. Anderson — Well, it would have been better if they had been sent to some farmer. Senator Andrews was my authority.

Judge Bryant — Twenty-five are sent every year to every agricultural society in the state.

Mr. Anderson — If I had been there, I should have taken them and paid the charges on them myself, and placed them in a library there. I think these books are well distributed and well read. Of course, some men will not read anything. I do not know any man who takes more newspapers than I do, and still I have time to look over the agricultural reports.

Mr. J. M. Smith—I want to say a word in relation to indorsing my friend Hiram Smith. He is not a relative of mine. My wife and I had the pleasure of visiting him, not long after he took the highest premium in New York—the \$250 premium—and we were of course anxious to have some good butter, and I must say I think his butter was equal to anything I ever tasted. We had some knowledge of the Cooley system. My wife was not very enthusiastic until she had been up there. The first thing after she got home she began to tell one of the boys how he must make her a butter worker, such as Mr. Smith had. Since that she has occasionally asked me how soon I was going to have money to spare to get her one of those Cooley butter workers.

Here is a resolution I want to bring before the convention before it adjourns, and while there is a good attendance. It is well known that a year ago, while we were in convention, it was found out that on our board of regents at the university there was not a single farmer; nearly the whole board was made up of lawyers. The convention then in session passed a resolution asking the governor to appoint some farmers upon that board, and it bore fruit very quickly. Our friend Hiram Smith was the next man appointed, and, as I believe, is a very satisfactory man, not only to farmers but to everyone else. I had some conversation with him with regard to some means they have on hand, which I will call upon him to explain, after reading the resolution.

“WHEREAS, It is understood that the board of regents of the State University have under their control a sum of money that may be disposed of at their discretion for the benefit of the agricultural and horticultural interests of the state; therefore,

“Resolved, That the joint convention do request the board of regents to procure some suitable person or persons to hold meetings or conventions in different portions of the state, for the purpose of instructing the farmers in the different branches of agriculture and horticulture, and to appropriate such sum of money as is at their disposal, or as may be necessary, for the purpose of advancing the interests of agriculture in our state.”

I will call upon Mr. Smith to explain the situation and condition of matters.

Mr. Hiram Smith—I would merely state that the question has been discussed before the board of regents, as we have a portion of

the agricultural college fund at the disposal of the regents; notwithstanding it has been said they are lawyers, they are gentlemen, and men disposed to do everything that is possible for the benefit of the country, and they are disposed to do what is feasible towards spreading agricultural knowledge. It has been suggested before their board that, if a competent person was employed to go into different localities, a local influence would be exercised equal, perhaps not in talent, but in numbers, to that present here, and perhaps more would be benefited by the truths and principles promulgated, because we take it for granted that all who attend these meetings are pretty well posted; but in localities where they are lacking in much of the knowledge necessary to progress rapidly, they may be, and, I have no doubt would be, willing to bear a certain share of the expense that would be incurred. The State Agricultural Society and the State Horticultural Society, perhaps, would also furnish means and suitable persons to go at certain times, and in certain localities. The expense would not necessarily be much. The home meeting could be got up at home expense altogether, and the traveling expenses of the professor or lecturer would be the main expense; and I think the board of regents would be perfectly willing to co-operate with the State Agricultural Society, or the State Horticultural Society, or the State Dairymen's Association. It is being done in Michigan and in Pennsylvania, and, unless some such steps are taken, a very few years will find the majority of our farming population behind those of other states in intelligence, which would be mortifying and unnecessary. We have ample means and opportunities to become as intelligent an agricultural class as any people in the Union, and by merely putting in motion the dormant means now at our command, we may inaugurate a system that will lead to very beneficial results in all the different branches of agriculture.

Mr. Field — I must say that I am very glad indeed to see such a resolution presented to this convention. It certainly meets my views most cordially. I think, however, it might be so amended as to include the Agricultural and Horticultural Society within its scope, that the board of regents might confer with them, and that it should be taken as a united work. It is possible, however, that it is well enough as it is. I fully agree with Mr. Smith that a little work and money devoted to this purpose may be made vastly bene-

ficial to the agricultural interests of this state; and so far as the expense is concerned it need be but trifling. Notice could be given in advance through the representative agricultural papers of the different places where these meetings would be held, so that due notice could be given the masses of the people with very little expense; perhaps a few circulars distributed, thrown into their wagons, stating that there would be a meeting at a certain place at a certain time, and that certain topics would be discussed; the expense would be trifling aside from those of traveling, and I have no doubt that if this board and the societies should desire that free transportation should be furnished them, that it would be furnished by all our leading lines of railroad to any reasonable number of parties who desired to attend those conventions, or at greatly reduced fare, at least. In order that that matter may be talked over, I move that the resolution be referred to a committee of three, of which the mover, of course, shall be chairman, to make a report to be submitted to this meeting this afternoon.

Motion carried.

Mr. Babbitt — There was an implied suggestion in the talk that Senator Anderson gave us, that I hope, although it was brought out very delicately, will be regarded favorably by this convention. The time has come when all jealousy among the farmers has got to done away with, and although I am not a granger myself, I believe in granger's brains; and I would suggest that it be the sense of this convention that the secretaries of the different granges throughout this state be provided with a good liberal share of the proceedings of this convention. You can all understand that in unity there is strength, and we must have unity as farmers, and do away with all of this jealousy that will not allow a farmer to vote for a brother farmer for a position that will represent him favorably before the country.

Judge Bryant — One word about these books. The gentleman must remember that these books are not very numerous. There are only five thousand printed, and less than two thousand go to the secretary. Of those, there are some eight hundred life members who are entitled to them. So you see there are very few left to distribute. During Mr. Field's administration, and since I have been secretary, no man has asked for a book but what he got it if there was one in the office. No grange has ever asked for a book

but what they have got it, and they have got several. Men sometimes come here and ask for eight or ten, and we cannot let them have them. A senator came to me last winter and said he would take all I had if he could get them, and he could distribute them in his own county to the best advantage. Senators all talk that way. If we gave them all to one man none of the rest would get any. Whenever a man comes for one, he gets it. I know Mr. Field tried and I have tried to send them into the northern part of the state even more than into the southern part. There are a great many life members in Milwaukee to whom we have said, "You don't care anything about these books. Let us have them and distribute them where they will do good." And many of them do so.

Mr. Babbitt—If there is a man in this part of the state that really deserves the sympathy and the hearty co-operation and good will of every member of this convention, it is the secretary. My idea is that we have not half books enough. We certainly ought to have a thousand copies more at his disposal. None of us feel like finding fault with either the past or the present secretary. I know he has the warmest feeling of every member of the convention.

Mr. Robbins—I ask for information. There was a resolution passed last year to appoint a committee of five to report upon its being the sense of the convention that the state was divided into five sections in regard to climate, as stated by Prof. Chamberlin. I guess I am the only one here from the southwestern part of the state, and I never got a book from here unless I came here and got it, or wrote for it. I do not believe there are three in the town of Platteville that came from this office, not because the secretary is to blame, or anybody else. I have always got one when I have asked for it.

Mr. Field—Are not twenty-five copies sent to your county agricultural society every year?

Mr. Robbins—I do not know.

Mr. Field—I know there are.

Mr. Robbins—I know we have two lawyers in the assembly, and I do not believe they would ask for a book or read one if they got it, and I know they would not put a postage stamp on one to send it to a farmer. The reason I asked about the resolution is this: If you send out lecturers over the state I think it is very important

that they should be practical farmers, and acquainted with different localities. Now what is good at Green Bay is not good in Grant county, where I live. I have been trying experiments in regard to apples since I first came here to these conventions, and have not raised an apple. What apples I have I selected from Downing's Book thirty years ago. What apples I got were from the old stock and not from the new. That is nothing against this convention, but the fact is I am not experimental enough myself — do not pay attention enough to it to know what trees I have and the name of them. I know I have the Fameuse, and they bear all the time, and the Greasy Skin; and if I was going to recommend a list I would only put those two on it, because they have been successful with me.

I should hate to tell the farmers that they pay thirty or forty thousand dollars a year to run the University. They would say, "Where is the benefit to me?" They do not know anything about it; they do not even know that they are taxed. So if you send a lecturer around you must tell them they get some benefit from this forty-three thousand dollars. They understand there has been only one graduate in the agricultural college since it started, and he cost one hundred thousand dollars. They say, would it not be better to have five farms in the state at twenty thousand dollars a farm, and pay a man a thousand dollars a year and put him on those five different farms, and let him experiment? That is the question; if it is not better, instead of having all the experiments in one locality, to have them in different localities. What is good in Madison is not good in Platteville. Wheat that you can raise here I cannot raise there, because I have not only a different soil, but actually a different climate; and just so on the lake shore.

One thing we farmers know. Year before last twenty hogs paid my taxes; last year it took thirty hogs, and this year it has taken forty. Shall I go out of the hog business and go into the creamery? I believe I shall buy one of these Cooley creameries and not keep so many hogs. I have got the cows, and I have got the Short-horns. I buy about a thousand bushels of corn a year. Last spring I paid forty-five cents a bushel for the corn to feed cattle and hogs; now I am topping them off with twenty cent corn, and I have got to get twenty cent prices. Now the question is, where am I coming out? I am going to lose; and what is true of me is true of every other farmer farming as I am. I have sold seventy thousand pounds

of pork and cattle this year, and got only two and a half cents for my hogs and two cents for my cattle. To be sure, I picked out such as I did not want to winter. I picked out those that were winter-killed, and sold them for two cents, but I have some now that weigh 1,600 pounds. I have good two-year-olds that weigh 1,500, and I could not get over forty dollars apiece for them, and they cost me that. Now I believe I shall buy one of those creameries and go into butter.

I want that committee of three, which is to report this afternoon, to see if they can find any report of the committee that was appointed last year; and if there was not any appointed, I want them to report why that committee was not appointed. I consider it one of the most important committees, and one of the most important subjects to come before this convention, because we found then that there was a difference in soil. We found that an apple that was grown at Green Bay would winter kill at Platteville, and one that would grow on the lake shore was not worth a cent with us. We found that where we could not raise any wheat, you could raise it in some other part of the state. That is what we want to know. Where I am living, your information to me is not worth a cent, because I have tried your experiments and failed. I have tried most of those apples, and they have failed. Now I do not think this creamery business will pay. We sold butter this year for ten cents a pound; it was not fit for us to eat at home, and we make good butter, too. My wife makes as good butter as any other woman in this state, having the same conveniences. When anybody else can make good butter, we can make it ourselves.

Now we have had two papers on grape culture. I bought a book and I am going into that. I raised more this year than we could eat. I never sell any, but give away all I can. Now I am going to get one of those creameries for probably twenty cows. I have about thirty. The way I do, I let the calves suck half of them and milk the other half. When two cows calve, I let one cow raise the two calves, and I milk the other one. Now I am going to get a creamery and make butter, and raise my calves on skim milk, and I will report to you next meeting how I do that.

Mr. Babbitt — As I am not a candidate for office, I think I will run the risk of introducing this resolution:

“*Resolved*, That it is the sense of this convention that a larger

number of agricultural reports should be printed for distribution among the farmers of this state, and we respectfully ask the legislature now in session to increase the number of said volumes two thousand, making seven thousand for annual distribution."

This resolution was adopted.

The chair appointed on the resolution offered by Mr. Smith, Messrs. James M. Smith, W. W. Field and A. A. Arnold.

President Fratt—I will state, for the benefit of Mr. Robbins, in regard to this committee that we appointed last year, that I have not heard anything from it since that time. I think the committee was to be appointed by the president of the Agricultural Society and the president of the Horticultural Society, and it was not appointed.

Prof. Daniells—It rather strikes me that the committee was appointed.

Mr. Hiram Smith—There are two sides to every question. My friend Mr. Robbins told how many hogs it took to pay his taxes. We are very apt to fall into despondency thinking how much more it costs to live. Six years ago I built a new barn. That was in the flush times, as we call them. Summer cheese was selling at eleven and eleven and a half cents a pound. Later it was twelve and a half and thirteen. Everything else was correspondingly high. Nails were five dollars a keg. I got two kegs of nails for a hundred pounds of cheese. During the past year I have been building again; been selling cheese, as we think, at ruinous prices almost, eight cents a pound for summer cheese, and nails have been bought so that one hundred pounds of cheese bought three kegs of nails this year in these hard times. Now it is not all on one side. It takes more property to pay taxes, but when we even up the thing we are not so very bad off, taking it all around, as we might at first think we were. The money we get for the products we raise goes much further than it ever did before. Wagons and farm machinery and almost everything that a farmer uses can be bought with less products than ever before; therefore we should take courage and think that everything is not against us, and that there is something on the other side to reimburse in part; undoubtedly the farmers are in as good a condition as any other class of people; much more than the manufacturers; moneyed men, have lost heavily as well as farmers, and we are not the only sufferers in this commercial de-

pression which has spread so widely, and if we husband our knowledge and lay it out to the best advantage we shall be remunerated.

In regard to distributing these books among professional men. To my certain knowledge much good has been derived from their being distributed among professional men. Some of the lawyers of our country, and the merchants and the bankers, are deeply interested in the affairs of Wisconsin; they take these books away, and you think, perhaps, they do not read them, but they hand them to their friends. They have a friend in Mississippi, or in Kansas, and he writes to him about the prospects of dairying in the east, and he sends him these reports and accounts of it. I have letters every week from different parts of the country, inquiring about information they had obtained from the reports of your society, from the reports of the Oshkosh Fair, and Dairymen's Reports of such a year. Letters are coming in constantly from every direction, saying that such a friend, a banker in Sheboygan, or his friend, a lawyer in Sheboygan, had sent him a report, and he had got so much information, and he wanted more on the same subject. Although it may look at first as if these reports were thrown away by being distributed to these men, yet most of them are live men, and have as much interest in the welfare of Wisconsin as any men in the state, and therefore I should not want to cast any reflection or curtail their distribution among professional men, if they desire them and can use them well.

Mr. Robbins — I mean by this that the producer pays more than his share of the taxes. I am a farmer, and I have paid, on an average, for the last fifteen years, eighty cents an acre on every acre of ground I have cultivated; some years as high as a dollar. Half of my land is inside the corporation, and when I see the wealth of others, and see the amount of labor they do, and the amount of taxes they pay, I am led to exclaim that the producer is not properly represented upon the boards of the state; the farmers are not represented on the Educational Board, and the reason is because they have not political influence. They cannot leave home these hard times. They are obliged to stay there and work from twelve to sixteen hours a day. I say you gentlemen here do not represent the farmers of the state of Wisconsin. There is not one farmer in twenty that is represented here. I can get here because I hire a man and pay him eighteen dollars a month.

Mr. Field — Do you not pretend, when you are here, to represent the farmers of your section of the state?

Mr. Robbins — No sir, I do not. I come on my own hook and pay my own expenses.

Mr. Field — Then I desire to say to my friend Robbins that he ought to come here with that end in view; not to represent his own interests only, but theirs also, and to go home and say what he has learned here.

Mr. Robbins — Did you see any party here from Platteville but me?

Mr. Field — So much the more reason why you should represent the people of your county.

Mr. Robbins — I said two years ago twenty hogs paid my taxes; last year it took thirty, and this year it takes forty. What I say is true. I am in the hog business, and I get the best hog I can get. It takes four years to raise and get the money from a Short-horn steer. Now, in the rise and fall of property, I would like to know where you are going to buy if you want to buy anything. I sold some natives for two cents a pound. They were two years old and averaged seven hundred. I had nine two-year-olds. I bought them at two cents and kept them through my cornfield, and was glad to sell them at two cents. I just about got my pay on my best feed, and it robbed my other cattle. I had better not have had them. I have sold calves for two cents a pound that had sucked the cows for nine months. They weighed about four hundred and fifty pounds; and I did as well as my neighbors can do. In fact, I guess some of them work a little harder than I do. After a man gets to be sixty-three years old he is pretty near played out, and he would be entirely if he had not got the will and the determination to live as long as he can see anybody alive. I am going to fight it out on this line, and I expect to live to see farming pay in some shape or form. I have got over sixty head of cattle that I am feeding this winter. I feed over a hundred and fifty tons of hay this winter, but I am not going to get five dollars a ton for it. I could have sold it in the fall for five dollars a ton, and I had better have done it than to feed it out to stock the way prices are. That is the way I am farming. I should not be up, but I know Mr. Smith thinks it is an advantage because I can buy nails, etc., at certain prices; but suppose it takes everything I can get to pay my taxes?

Mr. Hiram Smith — Change your business.

Mr. Robbins — I am going to change it and go into your business.

Professor Daniells — I want to ask the sympathy of this community for Mr. Robbins. He has an immense farm; half of it lies in the village of Platteville. Poor man! Now I would like to know how he is going to get his bread with a farm that is worth twenty-five or thirty or forty thousand dollars. He was asked last year why he did not sell his farm if it did not bring him any income. He said he would not do it. Now a man that has so much property, that pays so much taxes, and is as poor as Mr. Robbins is, I ask that this convention give him their sincere and heartfelt sympathy.

Mr. Robbins — That will not help me a bit. If anybody would send me that creamery for nothing I would introduce it into that section.

Mr. Hiram Smith — They cannot be made for nothing.

Mr. Robbins — But that would help the business.

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## SYSTEM IN FARM MANAGEMENT.

BY HON. A. A. BOYCE.

Farming is a business in which riches are not easily and quickly accumulated. The farmer may not count his yearly gains by the thousands, like the merchant, manufacturer or banker; his accumulations are slow but sure. Panics and commercial revulsions affect him less; he owns the land he cultivates; his is the most solid, sure and safe investment; his occupation is really the most honorable; certainly the most useful. People can live without the merchant, manufacturer, lawyer or doctor; but they cannot live without the farmer. His calling being most honorable, he should honor his calling.

With all the advantages of soil, climate and productions, Wisconsin farmers should stand equal to any. Here nearly all the valuable grasses find a congenial soil; all the cereal grains are grown in the greatest perfection. Nowhere can a greater number of cattle be maintained on a given number of acres. Few states have better

transportation facilities for the carrying of the farmer's products to home and distant markets.

Here and there all over the state are found well kept and well managed farms, that give evidence of thrift; that the owners have adopted a system of farm management that has yielded them a competence. They have surrounded themselves with that which makes home the dearest place on earth. If their children leave them to go out into the world, they leave home regretfully; and whenever they return to the old homestead it is with feelings of gladness.

While these farms and homes are found in many neighborhoods, there are many more in which they are not found, but might be if the owners were induced to adopt a better system of farm management; and when once a start is made in the right direction, and persisted in, success is certain.

The farm buildings will be such as are suited to his means and wants. He will study economy in his expenditures. He will find it economy to plant fruit and shade trees; to have at least a small orchard and garden of the different kinds of hardy fruits, to furnish his family a succession of ripe, health-giving fruits in their season. He can easily plant a few of the hardy, quick-growing, nut-bearing trees like the black walnut and butternut, to delight the juveniles.

He will be more than paid in the pleasure it will give by providing for a flower garden; he will give the good wife and daughters a little help in arranging and planting the ground, and in furnishing a little money to purchase plants and seeds. He will keep the best kinds of stock adapted to his means and wants, and to his system of farming; remembering that it costs no more to keep a good animal than it does a scrub. He will keep as much stock as he can keep well. To provide warm, comfortable stables for his stock, will be a very economical way of saving feed, besides the satisfaction of knowing that he is merciful to his dumb animals.

Kindness and gentleness in the care and management of all farm stock should be enforced on every farm. I am sorry to know that practices the opposite of this prevail on many farms. I believe that to the many great and lasting benefits that farmers' clubs and granges have conferred on the people, they should add one more—by appointing a person in every grange and club who would make

it his duty to prosecute all offenders in his neighborhood who violated the law for the prevention of cruelty to animals.

Mr. Henry Bergh, of New York, known as the friend of dumb animals, and who has done so much to prevent cruelty to them, is fond of relating the following anecdote:

The gentleman and humorist known by his writings as "Josh Billings," on being introduced to Mr. Bergh, said: "Bergh, I have long desired to meet you and take you by the hand. I am in full sympathy with you, and as an illustration of that fact I will relate to you an incident. I met a clergyman the other day, and our conversation turned on the work you were doing; to my amazement he pooch-pooched the whole thing, and said 'there was too much fuss made about these senseless dumb animals; that they were made to labor and to suffer, and that was all that there was in it.' 'Look here, parson,' said I, 'it's my opinion that however religious you may think yourself, even though you were as pious as that entire godly city of New York together, nevertheless it is my belief that you can't get into Heaven on a sore-back horse; you may make a dash and try to get through the gate, but you will be sure to find some of Bergh's men there who will drive you back. They may let the horse in, but there isn't a ghost of a chance for you.'"

The farmer, like all good business men, should keep an account of his daily transactions; leave nothing to guess or conjecture; that he may tell at the end of the season or year how his business matters stands. He gives his business his personal attention. A neglect to repair or properly shelter his machinery and farm implements, he knows will prove a heavier tax than any farmer can afford to bear. Costly reapers and mowers in the hands of careless or neglectful owners, that run them out of repair or leave them exposed to the weather, only last three or four years, while the same machines, in the hands of careful persons, might be made to last ten or twelve years or more.

The cost of building and maintaining good fences on the farm, particularly on a farm where a three or four years' course of rotation in crops is practiced. I think the cost in fences in many instances might be much lessened, were good portable fences used in the place of those called permanent fences. Nearly all inside fences might be movable, and the ground usually occupied by permanent fences where weeds are apt to grow and mature their

seeds to be scattered over the land, be brought into profitable cultivation. The object of building fences should be to keep stock in, not to keep stock out.

One of the great means in successful farming is to keep land rich and clean — free from weeds. Good farming means “eternal vigilance” in the destruction of weeds.

It is a true saying that “one year’s seeding makes seven years’ weeding.” What farmer does not know that a neglect of a few days to destroy the young weeds in his corn will make all the difference between a good crop and a poor crop. Perhaps the expenditure of ten dollars for additional help to kill the weeds in the right time would have saved him ten times that amount.

Saving and making manure will receive careful attention. It is a well known fact that the profits from farm crops are in proportion to the amount of manure made and applied.

About the only fertilizer it will be necessary to purchase for the farm is gypsum, and wherever that fertilizer will act it should be applied. Plaster is one of the cheapest and best commercial fertilizers, because of its wonderful and speedy effect on certain crops and on certain soils. There is an anomaly in this plaster question that we farmers do not understand, which we want you gentlemen scientists “to rise and explain.” What we want to know is this: Why will the sowing of fifty or one hundred pounds of gypsum on an acre of clover double the crop; while the sowing of an equal amount of the same fertilizer on another acre of clover will have no appreciable effect, all the conditions being apparently equal?

Gypsum or land plaster as a fertilizer has maintained this anomalous character ever since the time that Franklin first introduced it to American agriculture. He having seen its wonderful effects on vegetation in France, in the vicinity of Paris, procured some, and on his return to America sowed it in a field near Philadelphia, and where he sowed it on the young grass in the spring-time there afterwards appeared in huge green letters, as though starting from the sod, in bold relief, the name of Benjamin Franklin, attracting the attention of all persons passing by.

There are a great many theories about the action of gypsum, why it acts and how it acts; why it acts in one case and does not act in another. One fact is worth many theories, and perhaps some day science will solve the problem and give us that fact.

This question of fertilizers is paramount to all others; *it lies at the foundation of all successful farming.* Hitherto it has occupied the attention of Wisconsin farmers a great deal less than it ought to have done, and we see the consequences of this neglect in the great number of run-down farms, that to use a homely but apt expression, have been skinned. These farms have been subjected to the most exhaustive process of cropping — raising wheat after wheat for a score or more of years, and the owners say “farming don’t pay.” Well, such farming *don’t* pay in the long run — they have been robbing the soil — they have been trying to get something for nothing. Nature does not do business in that way; she requires something for what she gives.

Now I think the easiest way and the best way to restore those run-down farms, will be by a system of management that will make the farm itself produce nearly all the fertilizers needed on the farm to restore its fertility; this I think can be done by a system of rotation of crops, in which clover shall be the principal or “pivotal crop,” as the Hon. George Geddes terms it. It will make little difference whether it be a three or a four years’ course. In the one case, one-third of the time the land would be in clover; one-third of the time in corn, which follows clover, and one-third of the time in small grain, which follows corn, and the land again seeded with clover.

In a four years’ course, which is generally preferred, the land will all have grown clover once in four years. Now if stock enough be kept on the land to consume all the stalks, nearly all the coarse grains and hay — all the straw used for litter, feed, and to absorb the liquid manure and to mix with the solids — the stock being cared for in warm stables and yards, and if the manure be well cared for and mixed, the liquids and the solids together, we shall have an amount of rich fertilizers that will astonish any farmer who has not tried it. The manure will be rich in plant food, for nearly all the coarse grains and clover-hay made and grown on, we will say, a quarter section farm, have been fed to the stock on the farm, and has made an amount of rich manure enough to give a fair top-dressing to thirty or forty acres of corn ground; and any farmer who thoroughly pursues such a course or system of rotation of crops for a few years will find it to pay.

We see how easily and cheaply rich fertilizers can be made on

the average Wisconsin farm, and how little value so many Wisconsin farmers seem to place upon it. Now let us compare this with New England farming. There farmers make all the manure they can on their farms, and use large quantities of commercial or chemical fertilizers. They cannot get enough barn-yard manure, but they can get chemical fertilizers in unlimited quantities. What would a Wisconsin farmer say if he had to pay twenty dollars for manure to put on an acre of corn ground before he could raise a good crop of corn? He would say he would quit growing corn, just as he will be forced to quit growing wheat, unless he pays more attention to saving and applying manure.

Massachusetts farmers pay twenty, and sometimes forty dollars, for chemical fertilizers to raise one acre of corn, and they say it pays a profit at that.

I will give a summary of a statement made to the Massachusetts Board of Agriculture for 1876-77.

Statement of Sturtevant Brothers, of South Farmingham, Massachusetts: A field of eight acres was planted May 15, with eight-rowed yellow corn; we call it flint corn — in drills three feet apart; plants six inches apart in the drills; soil, gravelly loam; previous crop corn; natural yield was 21 8-10 bushels per acre. On this field was sown broadcast, after plowing, 10,618 pounds of chemical fertilizers, composed of sulphate of ammonia, dried blood, muriate of potash, nitrate of soda, rectified guano, sulphate of potash and ammoniated superphosphate — compounded after the formula of Prof. Stockbridge.

The cost of these fertilizers was \$336.86, or \$42.10 per acre. The yield of corn was 1,904 bushels, or 120½ bushels of shelled corn per acre, allowing 85 pounds of ears for a bushel of shelled corn. It was a premium crop of corn; everything about it was weighed and measured; nothing was left to guess at, and the name of Dr. E. L. Sturtevant attached to the statement is a sufficient guaranty that it is true in every particular.

There were 4.82 tons of corn fodder per acre, which he calls worth eight dollars per ton, or \$38.50 per acre. Dr. Sturtevant says the corn was produced at a cost of twenty-one cents and eight mills per bushel. Now I wish to show that the fertilizers used to raise that large crop of corn are no richer, in the elements of plant food, than the best barn-yard manure, made from clover hay, with grain.

A Massachusetts farmer will pay twenty dollars or more for chemical fertilizers for plant food, that a Wisconsin farmer can easily and cheaply put into his soil by growing an acre of clover, as we can see by comparing the elements of plant food contained in the clover, and in the soil after growing the clover, with the elements of plant food found in those commercial or chemical fertilizers.

Hon. C. L. Flint, for more than twenty-five years secretary of the Massachusetts Board of Agriculture, author of the valuable works, *Milch Cows and Dairy Farming*, *Flint on Grasses*, etc., in his report of 1877-78, and quoting also from Professor Voelker, "one of the highest authorities in the world on agricultural chemistry," says: "There is fully three times as much nitrogen in a crop of clover as in the average produce of the grain and straw of wheat per acre. Notwithstanding the large amount of nitrogenous matter and of the ash constituents of plants in the produce of an acre, clover is an excellent preparatory crop for wheat.

During the growth of clover a large amount of nitrogenous matter accumulates in the soil. This accumulation, which is greatest in the surface soil, is due to decaying leaves dropped during the growth of clover, and to an abundance of roots containing, when dry, from one and three-quarters to two per cent. of nitrogen.

The clover roots are stronger and more numerous, and more leaves fall on the ground when clover is grown for seed, than when it is mown for hay. In consequence, more nitrogen is left after clover-seed than after hay, which accounts for wheat yielding a better crop after clover-seed than after hay.

You see that is a most important consideration, for if you can get a good crop of clover, and have your ground left in a better condition, than before for wheat or any other grain crop, that is so much clear gain, is it not?

The development of roots being checked when the produce in a green state is fed off by sheep, in all probability, leaves still less nitrogenous matter in the soil than when clover is allowed to get ripe and is mown for hay.

Notwithstanding the return of the produce in the sheep excrements, wheat is generally stronger and yields better after clover mown for hay, than when the clover is fed off by sheep.

Notwithstanding all the excrements which are left by feeding

clover green by sheep, the soil is decidedly better for a wheat crop if the clover is allowed to go to seed, than it would be if the clover were fed off green by any number of sheep. That is an important fact. The nitrogenous matter in the clover remains on their gradual decay, and are finally transformed into nitrates, thus affording a continuous source of food, on which cereal crops specially delight to grow.

There is another important consideration. That is, you apply the Stockbridge fertilizer (the same as used by the Sturtevant brothers to raise that premium crop of corn mentioned), nitrate of soda, or any other form of nitrate, in the spring, as most farmers would apply a special fertilizer; and all that you may apply is not so valuable for a grain crop as the nitrogen which is left after a crop of clover, either cut for hay or ripened for seed. The amount of nitrogen left in the soil by a crop of clover was carefully investigated by Professor Voelker, and he found that it was from two and a half to three tons per acre. He found that on soils where clover had been grown, not only is all that nitrogen collected and stored up in the soil by the clover, but it is left when spring arrives, in a vastly better condition to take and carry on a grain crop than any fertilizer which can be applied in the spring—a most important consideration.

These investigations were made at different depths of soil; in the first place an upper layer of six inches, then the next six inches below that, then six inches below that. Eighteen inches of soil were carefully collected and analyzed by Professor Voelker with great care.

It seems to me important that farmers should realize that clover is not only a very important crop of itself to raise, but that it vastly improves their land. Bear in mind that this nitrogen, when it is left by your crop one season, is changed into nitrates—nitrate of ammonia, nitrate of potash, and other forms of nitrate, which are available immediately when spring opens for the use of your crops. The nitrogen left in the soil by a clover crop is changed, as stated, during the decay of the clover and the organic matter of the decaying leaves, into the forms of nitrate, which is just the form available for the use of your plants.”

I think the conditions under which the experiments were made by Professor Voelker in England, produced better results than like

experiments would here, the difference being in the climate; there the process of decomposition in the clover roots and clover remains would go on almost uninterruptedly; besides the period of growth of their wheat is almost a month longer than ours. Here the process of decomposition in the clover would be interrupted by our longer winters, consequently the plant food in the clover could not all be made available for the wheat plants during their shorter period of growth. I have, however, seen a spring wheat crop increased from eight to twenty-four bushels per acre, by plowing under a crop of clover in August. Thus we have seen that nitrogen forms one of the principal elements of plant food, as it is also the principal ingredient in the air we breathe, and that it is as necessary to plant nutrition as it is to animal life. We have also seen that by the most carefully constructed experiments, made by the best scientists of this age, that red clover leaves in the soil a greater amount of nitrogenous matter than any other crop we can grow; that it will leave three times as much as can be taken by an average crop of wheat.

Let us look at the influence clover would exert on the wheat crop that would follow it. Hard spring wheat, so much sought after by the millers, and which brings in the markets a much higher price than soft wheat, owes its superiority to the fact that it is stronger in nitrogenous substances, which are more glutinous, and consequently more nutritive. Now you cannot profitably grow hard wheat, like the Fife wheat, on soil that is deficient in nitrogen; but as clover supplies that in large quantities, hard wheat can profitably follow clover. Soft wheats contain less gluten or nitrogenous matter, and therefore are less nutritious. Soft wheats, therefore, can be more profitably grown than hard wheats, on soil that is deficient in nitrogen.

The great value of clover as a fertilizer is not appreciated by our farmers as it should be, and like a great many other truths needful for us to learn, we need "line upon line and precept upon precept." I believe it should be "kept constantly before the people." Let us grow more clover, that we may keep more stock; that we may make more manure; that we make our lands richer and cleaner so that we raise more grain and make farming pay.

## FARMING AS AN OCCUPATION.

BY HON. I. C. SLOAN.

The occupation of farming in this country is now and has always been in an unsettled and anomalous condition. This has resulted largely from the circumstances which must always attend the settlement and development of a country new to the labors of the husbandman. While agriculture has been in this as it must be in all countries, the basis of all the various branches of industry in which a people may engage, here men have been bestowing their attention and efforts in a great degree to overcoming the obstacles which nature places in the way of subduing and bringing into cultivation wide tracts of virgin soil. They have been engaged in felling forests, breaking up the tough native sod, erecting farm buildings, making roads, constructing bridges and water ways, establishing schools and churches, and creating all the concomitants necessary to the comfortable, intelligent and successful pursuit of agricultural labors. While their attention has been called off to these accessories of farming, they have naturally neglected the study of the principles upon which agricultural labors should be conducted, and have not directed their thoughts and energies to the development of the best system to be adopted in carrying on farming in the most successful and profitable manner. As a consequence, agricultural labor has been applied in an unsystematic, helter-skelter way. One reason which has largely induced these careless methods has been the vast amount of cheap and fertile land awaiting and inviting the labors of the tillers of the soil, wholly disproportioned to the population of the country. This has generally caused agricultural products to rule so low in price as not to pay for more careful and expensive methods of cultivation. I believe I am justified in saying that as a general rule, under the methods of cultivation practiced in this country, the lands which have been under cultivation for a considerable period of time, have been growing poorer, and their products decreasing in amount and quality. It is very obvious that if such a course is continued for any long period, disaster and ruin to the country must inevitably follow. But there are many signs and circumstances which lead to the belief that the careless

slipshod manner of farming which has heretofore prevailed in this country, is destined at no very distant time to give way to more careful, wise and systematic methods; owing to the wonderful progress in building railroads and steamships, and the rapidity and cheapness with which the products of the soil are carried to distant parts of our own country and to foreign countries, the American farmer no longer occupies an isolated position, looking mainly to the markets of his own country, and to competition with the methods and products of his own countrymen in his farming operations. The markets of the world are now open to him, and he is brought into competition with the producers of all countries; the prices which he receives for many products is governed by the prices they bear in foreign countries; the rise or fall in the prices of wheat, flour, pork, cotton, etc., in Liverpool, is felt almost instantly to the remotest inland places in this country. American wheat competes in the markets of England with Russian wheat and that of other countries. We are no longer dependent upon home demand; if we mean to compete successfully in the markets of the world, we must adopt the wisest and best methods of farming. It is the mission of such societies as this to aid in reaching this result. If its efforts are wisely directed to this end, it may render important and valuable aid to the people of the state.

In Europe we find two prominent systems of agriculture established which are almost diametrically opposed to each other, of which England and France are the leading examples. In France, under the operation of the laws of descent, by which lands descend to all the children equally, and which greatly restrict the right of parents to devise their property away from their children, the lands have become divided into a vast number of small farms or holdings. If parents have two children, they can only devise away from them one-third of their property. If they have three children, they can only withhold from them one-fourth part of their property; from the strong attachment of the people to the land upon which they were born, and the feelings of pride and independence which ownership of the soil creates in countries of limited area and overcrowded population, those who own land seldom part with it except in case the direst necessity compels them to do so. In France, by the latest returns I have been able to examine, there are the large number of 9,097,750 proprietary farmers; that is, farmers who

own and live upon the land they cultivate. There is also another external system of land cultivation in France called the *metairie* system, which is a mode of tenant farming by which rent is paid in kind, practically a working of the land upon shares, but where this method of cultivation prevails, the land is also divided into small parcels. The table of statistics to which I have referred, shows that this class of tenant farmers numbers 4,000,348, and it is estimated that the size of the farms, including both proprietary farms and those worked upon the *metairie* system, do not average more than twelve acres each. It has been said that if the attachment of the French people to the soil upon which they were born, and the present laws of descent continue for a few generations more, there is danger of France being cut up into farms not much larger than a good sized bed blanket.

This attachment to the place of birth and home, and pride in the ownership of the soil, are feelings almost unknown to the American people; a wide extent of fertile country in which lands are held so cheap that in the newer parts the government offers without money and without price, upon the simple condition that it shall be settled upon and cultivated, a tract so large that it would constitute in most of the older countries of Europe a fortune, and would place the owner in a condition of independence and affluence, and even in the older settled states large tracts of the most fertile lands may be purchased for a sum not much exceeding the yearly rental of the best lands in Europe. These conditions have made our people under-estimate and become indifferent to the feelings of independence and the general advantages which the ownership of lands confers in other countries, and which it will also confer in the comparatively near future in this country.

The American people may almost be said to be nomadic in their habits, and figuratively to live like the Arabs in tents. Few take root in the soil on which they were born. They are restless, speculative and migratory in their feelings and habits, constantly moving from "pillar to post," changing their business almost as often as they change their places of residence. The fact that an American has become the owner of a homestead and fitted it up to suit his needs and tastes, gives no assurance that he will continue and occupy it for any considerable length of time; if somebody comes along and offers him a few dollars more than it has cost him, the chances are

largely in favor of his accepting the offer, and he will start out with his family, "bag and baggage," from under the shelter of his roof tree to drift whithersoever the currents of chance, and fortune may carry him to begin again the work of creating a home for himself and those who are dependent upon him for subsistence and protection. A good system of farming can scarcely be expected until this restless desire for change is exterminated and men are content to settle down and remain for life upon the farms they select, with the hope that their children may enjoy the fruits of their labors, and increase the comforts and conveniences which they labor to create, for many generations after them.

The French system of small farms prevails in the channel islands of Jersey and Guernsey, and to a considerable extent in some other countries of Europe. In England the reverse of the system of land tenure, which prevails in France, obtains; the country is divided into large estates; this results largely from the laws which regulate the descent and tenure of real property in England. The law of primogeniture prevails there, by which all the real property of the parents descends to the oldest son, and also the law of entail, by which estates may be tied up in a particular class or line of heirs in perpetuity. The total area of farming lands in England and Wales, rejecting cities, parks, lakes, waste lands, etc., is 33,013,515 acres. Of this, according to the returns of 1871, 847 persons owned 9,367,031 acres, or more than one-fourth of the farming lands in the whole country. Each of the 847 persons owning more than 5,000 acres; and 5,408 persons owned 18,695,528 acres, considerably more than one-half of all the agricultural lands; and the 5,408 persons owned more than 1,000 acres each. Those who owned 500 acres and upwards each numbered 10,207, and owned in the aggregate 22,013,206 acres, about two-thirds of all the agricultural lands in the country. By the census of 1871 the population of England and Wales was 22,712,266; of these there were only 269,547 persons who owned one acre and upwards of land. The disparity between these figures and the nine millions and upwards of land owners in France is enormous. There is practically a land monopoly in England, but the land is very seldom cultivated by those who own it; nor do they, as a general thing, superintend or direct its cultivation, and it is almost to an equal extent true that the tenants who rent the land from those

who own it do not labor with their own hands in its cultivation. The general system that prevails in England is that of leasing lands to tenants, either for a long term, as 7, 14 or 21 years, frequently with the right of renewal, or a tenancy from year to year is created, which either party is at liberty to terminate at the end of any year by giving at least six months previous notice of his intention to do so. But such tenancies are created with the expectation on both sides that they will be of long duration, so that the tenant may safely invest his capital in the improvements of the lands; and custom has established the law that when the landlord terminates the lease, he or the succeeding tenant shall pay to the outgoing tenant the value of the permanent improvements, both in buildings and manures which are of continuing value to the land after his term has ended. In the most fertile tracts, near large towns and in dairy districts, the farms thus leased average about 200 acres each, but where ordinary mixed husbandry is practiced, the average ranges from 300 to 400 acres, and in the districts more largely devoted to grazing, from 800 to 1,000 acres. Tenant farming in England is entirely different from what it is in this country; here, as a general rule, only those who are too poor to purchase farms for themselves, work land owned by others, as tenants, while in England no man could obtain the lease of a farm to work as tenant unless he had enough capital to purchase a first class farm in this country, of equal extent to that he desires to lease. In the case of a farm of fair quality on which mixed husbandry is practiced, £10 or \$50 capital per acre is considered necessary to prosecute the business of farming successfully. This capital is invested by the tenant in stock, purchasing manures, erecting necessary buildings when they do not exist, and employing labor to cultivate the land. The tenant farmer himself plans the operations, buys and sells the stock, purchases the fertilizers, sells the products, superintends the business, and lives generally in a condition of comfort and ease much above that of the average farmer in this country. The average rent paid for a fair class of agricultural lands in England is about \$7.50 per acre, many of the most fertile lands greatly exceeding this amount, and some of those in the grazing districts falling below it; the tenants, in addition to paying rent, pay taxes and tithes, incomes from the rental of lands being considered amongst the safest, most certain and reliable sources of income in

England where lands are valued, and when sold their market prices are fixed upon the basis of the annual rental, a measure of the value of farming lands which is wholly unknown and impracticable in this country.

It will be seen that there is a very wide difference in the two systems of land tenure which exist and of farming, which are carried on in France on the one hand, where small farms prevail, and in England on the other, where large farming is practiced. There has been much discussion as to which system is most efficient in swelling the aggregate agricultural products of a country, and each system has its advocates. In England the present century has witnessed great improvements in agriculture, which have been attended with largely increased products of the soil. The average yield of wheat in 1837 was estimated at 21 bushels per acre; this has been raised to an average yield of 28 bushels per acre, and some estimates place the average yield at a still higher figure. English farmers have proven beyond all doubt that land that has been long in cultivation may be improved in fertility and productiveness with a continually increasing profit to the cultivators.

In large farming (or *grande* cultivation as it is called), there is necessarily a large aggregation of capital, and its expenditure may be attended with superior skill and ability, for it is much easier to find a few men with the skill and executive ability necessary to direct wisely and efficiently agricultural operations than it is to find many who are thus qualified. An economical division of labor can also be made, that is, the laborers need not be shifted frequently from one kind of work to another, which involves considerable loss of time in making the changes and also a decreased amount of skill and facility in performing each kind of work, as it is impossible that men should be as skillful and rapid in performing many kinds of work as they become if their time is devoted to one or a few kinds. But in large farming, hired labor is almost exclusively relied on, and it is not in human nature for men to be as diligent and efficient in performing labor for others as where they themselves are to enjoy the whole fruits of their toil. Again it sometimes occurs that the capital is inadequate to carry on large farming in the most successful and profitable manner. It also involves the condition that few persons own the soil, while the many are landless and lack the comforts and independence which everywhere attend the

ownership of the land; as a result of this, intelligence is likely to decrease and poverty, discontent and pauperism to increase. This system of large farming is not practicable except in countries where there is an abundance of cheap agricultural labor and where the prices of farm products rule high.

In the system of small farming (or *petite* culture as it is called), the work is generally done by the proprietor and the members of his family; as they enjoy the whole fruits of their labor, they naturally do their utmost to make its products as large as possible. Their industry is not restricted within a limited time as in the case of hired labor; they work a much larger number of hours and days than hired laborers. The increased care and attention which men bestow upon what they own themselves, and the frugality which they must necessarily practice to produce from small parcels of land enough to support themselves and their family, tend to encourage diligence and economy in the management of small farms; but as they work within small limits and with small capital their efforts and enterprise are greatly circumscribed. In regard to the relative aggregate production under the two systems, it is stated that in the Province of Flanders, where the soil is naturally poor and sandy, and the average size of the farms in the western district is seven and a half acres and in the eastern district but five acres each, the average yield of wheat ranges from 32 to 36 bushels per acre, and in the whole of France in good years, it averages about 4.25 quarters or about 34 bushels per acre.

In the Island of Jersey, where the average size of the farms is sixteen acres, the average yield of wheat for five years was forty bushels per acre. In Flanders, the average yield of barley is forty-one bushels per acre. In England, it is but thirty-three bushels per acre; from these figures the greatest aggregate production seems to be on the side of small farms.

In this country, if it can be properly said that we have any system of agriculture, it is intermediate between the two systems of large and small farming to which I have referred. With few if any exceptions, the attempts at large farming have been temporary experiments, or if long continued have resulted in failure; by large farming, I mean large production and results; there are many farms in this country of 160 and 200 acres, which may be called relatively large farms, and those of two to three hundred acres are not un-

common, those of 400 or 500 acres are more rare, but they are generally skimmed over, and produce little more than enough to support the owners and their families, and pay taxes. There is not one-tenth the amount of capital used in carrying them on, or one-twentieth the amount of labor employed in working them which are needed for these successful and profitable cultivators; this can in no proper sense be called large farming.

Farming lands in this country, as a general rule, are owned by those who cultivate them, and are divided into what may be called medium sized farms. The average size of farms in Wisconsin is about 114 acres. In Massachusetts, about 76. It is probable that the average size in the newer states and territories is somewhat larger than in Wisconsin, and probably throughout the northern and western states, 100 acres is about the average size; they are usually cultivated by the labor of the owners and members of their families with the addition of such hired help, in [the more busy seasons of the year, as may be necessary in the inadequate mode of cultivation pursued; but that there is a great deficiency in the methods of cultivation, and great need for improvement is at once apparent, when we compare the agricultural products of this country with those of the countries of Europe referred to. Instead of raising from twenty-eight to thirty-six bushels of wheat per acre, as under a proper system of cultivation our lands are capable of producing, I find that the average production of wheat per acre in this country for eight years, from 1870 to 1877, inclusive, has been but twelve bushels per acre, and while the aggregate amount of wheat produced since 1870 has increased from 245,865,045 bushels raised in that year, to 395,155,375 bushels produced in 1877, the increase has resulted wholly from the increased acreage devoted to that crop; there has been no increase in the average amount raised per acre; in 1870, there were 18,990,591 acres sown with wheat, and in 1877, 26,193,407 acres. It is undoubtedly true that the average yield per acre, is reduced to a considerable extent by including in the computation several southern states, where the soil and climate are less adapted to the production of wheat. Thus, there were included North Carolina, which produced eight and three-tenths, South Carolina, nine and nine-tenths, Georgia, nine and five-tenths, and Alabama, seven bushels per acre; but excluding these states from the computation, still the average yield would

be very low, not I think over thirteen or fourteen bushels per acre. It is worthy of notice that the New England States, which are not generally regarded as well adapted to wheat growing, are above the average of the whole country, ranging from fourteen bushels in Maine to twenty-two bushels in Massachusetts; while what are regarded as the wheat growing states of the Mississippi Valley, are very little above the average, as Illinois, sixteen and five-tenths, Wisconsin, fifteen, Minnesota, eighteen and five-tenths, Iowa, fourteen and five-tenths, Missouri, fourteen, Kansas, thirteen and five-tenths bushels per acre, and California, which eastern people have considered as possessing a climate and soil specially adapted to the growth of wheat, produced in 1877 but nine and five-tenths bushels per acre.

The produce of barley for the eight years from 1870, to 1877 inclusive, averaged but twenty-one and five-tenths bushels per acre. In England, the average is thirty-three bushels; in Flanders, forty-one bushels per acre.

In 1877, a fair corn year, the average yield of corn per acre in Wisconsin was but twenty-eight bushels per acre. I suppose that a crop of corn grown in a fair season upon a proper soil with proper cultivation, ought to yield at least fifty bushels per acre, and in a good season with a proper soil and cultivation, the crop may be easily made to yield from sixty to seventy-five bushels per acre, and perhaps more.

I have presented these figures for the purpose of asking the farmers of Wisconsin here assembled, whether they think the showing is a creditable one to the farmers of this country, and whether a crop of wheat of twelve to fourteen bushels per acre; of barley of twenty-one bushels per acre, and of corn of twenty-eight or thirty bushels per acre, is all that good farming can be expected to produce in this country, and to invite them to investigate and discuss the causes which underlie these meagre and unsatisfactory results. Are these causes to be found in the climate and soils of this country, or in the methods of cultivation which farmers pursue? Will not practices similar to those applied in Europe, be attended with similar results here? It is estimated by the Department of Agriculture, that in 1878 the aggregate crop of wheat produced in this country amounted to 425,000,000 bushels; but the acreage upon which it was grown, had increased from 26,193,407 acres in 1877, to 32,500,000 acres in 1878, showing a decreased yield per acre.

It is very evident from these figures that if it were not for the vast extent of virgin soil in the newer states and territories which is being annually brought under cultivation, this country, instead of adding to its wealth by the exportation of vast quantities of agricultural produce, would soon cease to raise enough to feed its own rapidly increasing population. Growing wheat at the rate of twelve to fourteen bushels per acre; barley at the rate of twenty-one bushels per acre, and corn at the rate of twenty-eight or thirty bushels per acre, cannot be a very profitable business. The average price of wheat in 1877 was \$1.08 per bushel; and in the months of September, October, November and December, 1878, it averaged in Chicago, eighty-three and one-third cents per bushel. The price of barley averaged in 1877, sixty-five and seven-eighth cents, and in 1878, fifty-five and one-half cents per bushel. Corn averaged in 1877, forty-four and three-fourths cents, and in 1878, thirty-seven and two-third cents per bushel. These prices are received after the products have been carried to market, and are lessened to the farmer by the cost of transportation, storage and commissions, charged for transporting, handling and selling them. It is very obvious that the return to the grower of these products for the last two years has been very meagre and unremunerative.

The practical questions before us are, can these products be increased per acre, one-third, one-half or doubled by some improved system of cultivation? And can this be done, without increasing the cost of production in as great or greater proportion than the products are increased? It does not require any special knowledge or skill in agriculture, to answer the first branch of this question in the affirmative. That the average produce per acre of wheat, barley, corn and other agricultural products in this country can be doubled, there can be no reasonable doubt; we have had enough of good farming to demonstrate that, and the methods by which that result is to be accomplished is also so plain and certain that no man of ordinary intelligence can mistake it. It is by more thorough preparation of the soil by a system of cultivation, which will keep the crops free from weeds, and by the liberal use of fertilizers. The soil is like a bank account, if constantly drawn upon without deposits being made, it is only a question of time as to its being exhausted, and cease to return any income, no matter how great it may originally have been. The constant cropping of the

soil without returning an adequate amount of fertilizers to repair the waste of the elements which enter into the growth of crops, must in the end exhaust the most fertile land, so that it will cease to produce remunerative crops; it is only a question of time, which will be longer or shorter, in proportion to the amount of fertility which the soil originally possessed. The exhausting process has been going on largely in this country, since its first settlement; the lands under our mode of farming have been in a constant process of exhaustion, by drawing from them the elements of fertility without any adequate return, and the process has been carried so far, that farming has almost ceased to be a remunerative occupation.

The second branch of the question is a more difficult one to answer. Can the agricultural products per acre in this country be doubled or largely increased without incurring an expenditure to an amount equal to or greater than the value of the increased products?

This is the great practical problem presented to American farmers for solution at this time.

I have formed some opinions upon this question, but I have already occupied so much time that I shall not state them now at any length, but may, at some future time, discuss this question more at large.

It is also proper to state that I shall put forth any opinions or theories I may entertain on this subject with great diffidence, for I cannot claim to be a farmer; I am only an agriculturist. The difference between these two classes, as stated by a gentleman who read a paper before this society last year, consists in this: An agriculturist is one who works hard in some other business in the vain attempt to earn money enough to support a farm; while a farmer is one who works a farm to make it support him, and if he is a good farmer, succeeds in the attempt.

In the first place this important question is not to be answered by theories, the truth of which has never been practically tested. There is this peculiarity about the business of farming, that none of its problems can be worked out successfully by any theoretical reasoning or by any series of experiments in the laboratory of the chemist. Nature seems to have ordained that nothing short of a man's going upon the land itself, receiving the dust of the fields upon his garments, and working in accord with her laws, can give

him an insight into the mysterious processes by which the seed is developed into a plant and conducted through the wonderful stages of growth and ripening, until it is returned to the hands of the husbandman in kind, increased many fold. It may be set down at the outset that all theories which have not been practically tested, are a delusion and a snare and are worthless.

It is not many years since it was confidently believed that the problems of successful farming could be fully solved by the chemist. That all he need to do was to analyse any particular kind of grain or plant, ascertain the constituents of the plant and grain, then analyse the soil upon which it was to be grown, to enable him to tell the farmer what kind of fertilizers and in what quantity he must add to the soil to produce the largest crop, and that success would be almost certain. But it was found, on actual trial, that this theory would not work, as for instance, if the plant showed a large amount of nitrogen present, and a small amount of potash, and the soil an amply supply of potash but a lack of nitrogen, and the chemist directed that a large amount of nitrogenous fertilizers should be applied, but that those containing potash would be useless. It was found on trial that the application of nitrogen produced but little if any effect upon the growing crop, while the application of potash, which seemed to be present in such abundance, would largely increase it. The chemist had wholly overlooked the processes by which nature assimilates plant food, whether drawn from the air or the soil, to the growth of the plant, and he was compelled to retire from the agricultural field completely baffled. He only knew that fertilizers are necessary to the growth of crops, but what kinds to apply to any particular soil, or in what proportions, he was utterly unable to explain.

The following account of an experiment in Massachusetts to test the value of certain artificial chemically prepared fertilizers as compared with guano, is both interesting and valuable; the test was perhaps the fairer, that the land was so poor as probably not to be capable of manuring a crop without the aid of fertilizers.

EXPERIMENT WITH FERTILIZERS. — The following is a report of an experiment in growing spring wheat with phosphates and fertilizers on the grounds of the Berkshire Agricultural Society at Pittsfield, Mass., 1878. Soil, gravelly loam, very nearly level and very poor; in fact, so poor that it would not grass over. Quantity

of land experimented with, two and one-half acres. Ploughed by the Ploughing Match in October, 1877, and left in the rough over winter. Re-ploughed April 24, 1878, and thoroughly harrowed. Rain and wet weather prevented further working of the land until the 2d of May, when the whole lot was divided into five half-acre plots, and the fertilizers sown broadcast and harrowed in. May 3d, the land was sown with "Lost Nation" wheat, at the rate of two bushels per acre, broadcast and harrowed in. The crop grew clean and free from weeds, and was cradled August 13. After drying until the 16th, wheat was drawn to the barn, weighed and threshed. Each plot was cut, bound, weighed and threshed by itself, and below are the results:

Plot.	Dressing.	Cost.
No. 1 —	286 pounds Preston's Phosphates.....	\$5 00
2 —	213 pounds Manhattan Blood Guano.....	5 00
3 —	213 pounds Matfield Wheat Fertilizer.....	5 00
4 —	188 pounds Stockbridge Fertilizer.....	5 00
5 —	167 pounds Peruvian Guano.....	5 00

YIELD.

Straw and Grain.	Bus. Wheat.	lbs. Wheat.	Straw and Chaff.	
Plot No. 1 —	680	4½	247	438 pounds.
2 —	870	5½	308	562 pounds.
3 —	1460	10	600	860 pounds.
4 —	1200	8	480	720 pounds.
5 —	1289	9	540	749 pounds.

D. G. ROBERTS, *Manager.*

*Maplehurst, Pittsfield, Mass., Sept. 21, 1878.*

It is evident that no western farmer could afford to purchase any of these fertilizers; the largest returns was produced by Matfield fertilizer, at the rate of twenty bushels per acre, the next largest by Guano, at the rate of eighteen bushels of wheat per acre, but the cost of the fertilizers was at the rate of \$10 per acre; if the cost of the seed, two bushels at \$1.25 per bushel, were added to this, it is pretty plain that with similar results at the present price of wheat, a Wisconsin farmer would have wholly lost his labor, and the use of his land in raising such a crop, besides a portion of the money paid for fertilizers, except in case of Matfield fertilizer he could have received \$4.16 per acre over the cost of the fertilizer, and in case of Guano \$2.50, sums wholly insufficient to pay for labor in raising and expense of threshing and marketing. It is

probable the use of the land was not worth anything, for any purpose, but with wheat at a fair price, the last two named fertilizers would have produced some profit.

The problem we are considering can only be solved by actual experiments made in growing crops, and nothing in my judgment but the intelligent, patient trials of practical farmers themselves will ever solve it. The problem is an exceedingly complicated and difficult one; the main chemical agents with which nature works in growing crops, are heat and moisture, but these are extremely variable in quantity, time and duration; there is great difference in the quantity of rainfall and sunshine, not only as between different seasons, but also as between different portions of the same season; their effects upon the crops depend upon so many circumstances of preparation and condition of the soil, and the ingredients which it contains, that it will require a great number of experiments repeated through long periods of time, to deduce any general rules which can be relied on to direct the labors of the husbandman. But that such general rules will be ultimately established I have no doubt; every kind of industry which men pursue intelligently, gradually settles down, and hardens into a system which must be approximately adhered to, in order to insure the best results in that branch of industry, and so it will finally be with farming in this country.

In the meantime every good farmer should be operating an experimental farm. The important office of such societies as this is to collect and publish such experiments in cultivating the various crops produced in this state, as our farmers are constantly making in the ordinary cultivation of their farms.

Farmers should be induced by some means to report their methods of cultivation and the results which they obtain. A few facts as to the way in which their farming operations are carried on, the kind and condition of the soils upon which they sow the different kinds of grain, the amount of manure, if any, applied, the kind of season, the produce per acre, would not require much time and would be of great value to the agricultural interests of the state if farmers could be persuaded to make such reports. Reports of failures or partial failures of crops, although there is more reluctance to make them, are quite as important and valuable as those of success.

The cost of raising the different kinds of crops, the profits, if

any, made, the rotation that is practised would all be very valuable, and if these facts could be annually gathered from large portions of the state I should expect great improvement in the methods pursued and great increase in the profits of farming to speedily follow. Men are too much inclined to adopt theories and to ride particular hobbies to the neglect of facts. In the business of farming a few facts are worth a large amount of theory.

One great defect in our farming is the small amount of capital used in working the land. Our farmers think they may take the money made on the farm and loan it out at interest or invest it in other business instead of using it to increase the fertility and productiveness of their farms, and still carry on the business of farming successfully. I believe this is a great mistake. As well might a merchant or manufacturer expect to extend his business and increase its profits by withdrawing from it every dollar he makes over what is necessary to support himself and family. Every business man knows that this would be folly. Every farmer ought to apply his surplus income in improving his land until he has brought it up to the maximum amount of profitable production.

I do not believe much in experimental farms except as they are carried on by practical farmers in the ordinary prosecution of their business. With plenty of capital expended without regard to profits, it is easy enough to grow large crops. That is apparent from the reports of experiments made on the University farm where from twelve to twenty loads of well rotted manure are applied annually to each acre cultivated. What we want to know is how much of this manure was produced on the farm and by what methods it was made, or if it was purchased how much it cost, and how far the increase of crops resulting from its application has repaid the outlay. The liberal use of capital which is drawn from outside funds and not from the earnings of the farm, tend very little to aid the practical farmer in managing his farm in a profitable manner. He is generally limited to the money he can make from his farm; and what he wants to know is how he can use this to the best advantage in increasing his crops and his profits.

At the rate at which settlement in the newer states and territories has been going on for the last few years, it is pretty certain the time is not far distant when our new and cheap lands will all be occupied, and the only resources of the farmer will be the old fields

which he has cultivated so long. It is estimated that over twenty-two millions of acres of land have been brought into cultivation during the last four years. This is a vast quantity and that rate of settlement must soon exhaust the public domain. It is the cultivation of these new lands which has sustained and increased so largely the aggregate agricultural products of this country. When they are exhausted the farmers will be thrown upon their own resources and be compelled to adopt a better system of cultivation.

Although times are hard and the prices of farm produce rule very low there is no reason for farmers to be discouraged. They will doubtless have to practice more economy, look closer after the wastes, and curtail unnecessary expenditures, but this is only a necessary and wholesome discipline for all classes of men which sets them forward in the path of duty and virtue. The prices of all articles which they are obliged to purchase have fallen in like proportion and there is no doubt that by the practice of the enforced economy which the hard times have made necessary to all sorts and conditions of men, the country as a whole is growing richer more rapidly than it has ever done before. For many years prior to 1874 we were buying far more than we were selling, and were consequently running in debt to foreign countries. In that year the tide turned, and the balance of trade in our favor has been rapidly increasing ever since, until for the year ending Dec. 31, 1878, it was over \$300,000,000. In that year our imports were \$430,661,016 and our exports \$739,971,739. It is with a nation as with an individual, if his expenditure exceeds his income, he is growing poorer. If his income exceeds his expenditure, he is growing richer. Our agricultural products are pushing their way into the markets of many countries in which a few years ago they were unknown, and our manufactured goods are competing successfully with those of foreign make in most of the markets of the world. Our bonds which were held largely in Europe a few years since have been returned to us in very large amounts, and the interest on them paid to our own people instead of being sent abroad. It will not be long before our whole national debt will be owned at home; the rate of interest on money is falling, and if we resolutely maintain our present standard of honest money on a coin basis, as I believe the great majority of our people are determined to do, so that it will continue to be a certain and stable measure of value, our farmers

and other producers cannot become a prey to the greed of the brokers and money changers which is always the case when an irredeemable currency is constantly changing and fluctuating in value. By the practice of the virtues of economy and industry, I believe the American people will now enter upon a career of prosperity unexampled in the history of any country.

Mr. R. P. Main, of Oregon, Wis.— It seems to be quite encouraging to be told that we are lessening the rate of our interest, but there seems to be another thing that is not so very encouraging. When we look at the fact that we this year have paid two millions and a half more interest than we did two years ago, and that we paid five millions and better this year than we paid last year, this reduction of interest does not seem so encouraging. This I have from Mr. Sherman's own reports, that the interest is increasing. I cannot tell how it is done, but it is a fact.

There are two great things against the farmer in this country; the first is the price of labor. Now if there is any system by which we can force the laboring man to work cheaper than he does work, we can farm better; but I know of none. I can see no way that we can make the laboring man work for any less wages than he works for now. It seems that our country is so situated that we cannot control our laborers as they control them in many countries. The laborer here seems to have an independence — and he is aware of it — that he has not in many countries where he is driven up by the lash. Now I must say, and I believe that the statistics will bear me out, that the farmers of this portion of the United States pay more taxes than any class of men under the sun; still they live at it. It is very easy for a man to establish a theory, and say that a man should do so and so, and that he can do it; but the question is, can they do it. Let us see the man go forward and accomplish the thing. I believe, myself, that the drawback to all special improvements in farming is this continual changing in prices; this continual going up and coming down in our prices. Ever since I have any knowledge we could never produce with any certainty as to what the price would be — what we should get for it. We never could raise a calf and have any certainty as to what it would be worth when it was raised.

Now, while our currency is continually fluctuating, our prices are continually changing. Now, let us have something that will be fixed, something that we can rely on, and I think we will do better.

The idea which was advanced here this forenoon, that all parties were suffering the same from this present depression, is an idea that I cannot take at all. I see that there is one class among us that are getting double pay to-day, while another class only gets half pay. The laboring man only receives half what he formerly did, while the office holder, the man who has his money loaned out, and the scamp generally, get twice what they formerly got. [Applause.] Now, I say, let us all have a fair chance. Let there be something that is permanent and fixed; I do not care what it is. The farmer can conform to anything, give him a chance for it, but the idea is, he is watching his operations, he is watching his farm; he is not continually watching who is going to come up on the blind side to rob him; he expects that there is going to be a fair show. Now give him a fair show and in a short time he will see it, and he will show the world that he can come up and can compete with farmers in any part of the earth. [Applause.]

Mr. Robbins — That just suits me exactly, and an honest dollar. The papers that have been read are excellent, particularly the paper on clover. I must say that my farm is worth twenty per cent. more to-day than it was before I commenced to clover. I have no more money but my farm is worth more. I always put the poor side out when I am up here; but I have some strawberries to eat, and blackberries and raspberries; I have things now to eat that are luxuries, and that I did not have ten years ago; but as to working, I have to work just about as hard now as I ever did, and I have to work a little harder. I have a hired man on my farm who will take a little interest in it; if I should have to go and watch my hired man through the week I would have to work harder, because he would not do it as well as I would. Now in regard to salaries. We have increased our employees in every department of this capitol; there are more of them by one-third than there were when we had a great deal better times than we have now. Mr. Price introduced a resolution in the senate to inquire how many supernumeraries there were in the treasurer's and secretary's and the various other departments. I do not believe it will pass the senate. They cannot pass any such thing in the senate. Why can't they do it? They do not want the people to know how many are employed in the offices now as compared with those who were employed in better times. I know a young man who gets five or six hundred dollars a

year; he gets fifty dollars a month. I know he works four hours more every day than any man around this capitol. I know that he is qualified to fill any of the clerk's offices here, and he gets six hundred dollars a year and boards himself. We have more than one such young man in the state, and they cannot get any better employment than that — and that is better than working on a farm. It is better to get into one of these offices, if they will board you, and work for a hundred dollars a year, than work on a farm. When you come right down to it, I tell you that men have frozen their noses this winter at eighteen dollars a month and board themselves, driving cows to water. What have you done here, you men around this capitol who are getting fifteen or sixteen hundred dollars a year? Why, you have got somebody to wait on you. Every such man requires a waiter. Why? Because you have so many superfluities. You do not live as we live on our farms; you want a horse to be taken care of; if you do not want that, you want somebody to make your fires and sweep your room, and must have a man to do it. At what price? At a thousand dollars a year. Tell us farmers we are not robbed? We know we are. You cannot make us believe otherwise. We know that taxes are increasing and products lowering. I do not pay any government tax except on the matches we use; what do I care about your interest on government bonds. Just run our government on whisky, as you do the general government, raise the revenue on tobacco and whisky in Wisconsin, and you may put it on as steep as you please; neither myself nor my family will pay one dollar; we never did and never will.

If you want to know why our taxes are increasing, we had three hundred and forty-six millions of dollars in the best paper that ever was circulated, that was not paying any interest. The farmer loved it because it had carried him through the hard times during the war; but they issued four per cent. bonds to buy gold and put it in the treasury, and let it lay there to be ready if anybody wanted to have the gold instead of that money. What is the result? Nobody wants it. The secret of these hard times is that men who do no work are running this government. There is nobody to blame; it is all right. I am not complaining; I am only telling facts. It is nobody's business if I have a mind to keep my farm when I could sell it and get money enough to live ten years, and let my children

beg the balance of their days. I was asked the other day why I did not sell my land. Said I, "I will not sell it until I am compelled to sell it. I paid a dollar and a quarter an acre for a good deal of it, and I have paid in taxes about a dollar an acre for the last forty years; so you can see what it has cost me. Now you want to sell it for about twenty dollars an acre. I will keep my land until the sheriff sells it — a portion of it, at any rate, if I should have to work on it myself. I wish some farmer in my neighborhood that never was in Madison would come to our legislature once. There they pay, I think, six dollars for every spittoon that is cleaned out."

A Member — Do they furnish them with the tobacco to make the juice?

Mr. Robbins — They always send men here that use enough whisky and tobacco, if they can find that class of men. I never had a spittoon in my house in my life, and I have kept house for over thirty years. If a man comes and wants to spit he may go out doors; but here it is worth six dollars to clean them out. I would not clean one out for six dollars. It is worth it, and you men that want to use them may pay for it; but I want you to carry on the government here in the same way that you do the general government — by the license on whisky and tobacco. I am going to come up here as long as I live and attend these meetings, and I will tell you why. I have three books in my library I think a great deal of. My bible is the first thing; the encyclopaedia is the next. I can get all I want to know about this world and the next in those two books; but if I want to find some humbug or somebody that has swindled another, I come up here and get these "transactions." I get them every year, and I wish every farmer in the state could get one of them, because there is enough good in it to do every farmer good. I have got more than a hundred per cent. out of every dollar I have spent coming up here to attend these associations. Now I find President Bascom here. He can tell me things that I never thought of before — things that are as wonderful as they are true, and as true as they are wonderful. Just so with Professor Daniells. But they cannot tell me whether I can feed corn at twenty cents a bushel this year, and sell my hogs next year and get pay for the corn that I have fed this. They do not try those kind of experiments. I was all over the University grounds and saw

their beautiful wheat field grounds. There is an acre here and an acre here, and another piece there of an acre, and a man stood there just to see if he could see the sun strike it. Just about that time my wheat was sunstruck. I paid a dollar and a half or two dollars a bushel for Jefferson wheat. They said it would never blight; bugs would never touch it. I invested in it and sowed about ten acres, and thought I was going to have the best wheat in the world, and it all died at once. It was all right in the morning and before night it became sunstruck, and it is hardly fit for bread. I had not sowed any wheat for two years, but when I saw that wonderful wheat advertised I thought I would sow some of it, and now it is not fit for chickens. It was not the fault of the wheat but it was the atmosphere. My land was all right; everything was all right, and I attended to it properly, but it was something that no one can prevent. It was an atmosphere that was filled full of death, and it came along and killed my wheat. I believe I can make an honest living farming, provided they will not steal more than half. I would be willing to hire men to work my farm if I knew I could get fifty per cent. of the actual labor of that man; if I knew I would not have to have more than fifty per cent. go for taxes. I want that resolution to pass the senate because I believe they have four times as many employees around the state capital as they have any business to have; then I believe they pay them just twice as much wages.

Recollect, now, a dollar is a dollar, and it is not a silver dollar; it is a gold dollar. Now I say let us come right down to bed-rock; we farmers will go home and go to work and be content, and work just a faithfully as we can; but while I do not know that I want your salary cut down because you have got in the habit of living that way, I want these boys that are just commencing, to commence on low wages, so that they will not have any more money to spend than my boys on the farm. Two dollars a year would be all they would need to spend. I had a boy up here once and he only spent during the whole session a dollar and a half besides his board. If you will send such boys up here you will not need to get a resolution through to give them postage stamps and stationery, and everything else. That is all wrong. We farmers have got to foot the bill, not we agriculturists; I am not an agriculturist, I am a farmer. If I was an agriculturist I do not know but I could

support my farm out of something else, but I cannot tell. Now I have said what I wanted to on this subject. I have not told half the truth. This paper of Mr. Sloan's is a first rate paper for an agriculturist, but it will not do for a farmer. He went up in a stream of glory because our general government is in such a good condition. What do I care about the general government. The government of Wisconsin is what I help support, and that is what I care about. We are assessed about nine million dollars in Grant county, and you men here at the capital have raised it two millions. Our local assessment is nine million dollars, and they have raised it two millions; why? Because, I suppose, they thought we were richer than we are; and then we have to pay the local taxes; we farmers pay them; I don't say that the merchants do it, because they charge it right onto us. All we ask is a fair chance.

Mr. Anderson — As my friend Robbins referred to this resolution which was offered by Senator Price, I will state to him that it was by the request of the chairman on state institutions they offered that resolution, and it passed the senate unanimously to investigate, and the committee on state affairs will investigate it. I have the honor of being on that committee. One of the committee is from Grant county; I think he is an honest man and wants to cut down expenses. One of the committees on which I am, has under consideration a bill that was introduced by a farmer, to cut down the salaries of our state officers. We find there are a great many clerks in the different departments we think are unnecessary. We have it from pretty good authority that there were at least four clerks in one office, receiving from twelve to eighteen hundred dollars, when not more than one was needed; and in every department perhaps one-half clerks more than were necessary. Now if the committee report that there are too many clerks, how shall we dismiss them? They are not appointed by any act of the legislature that know I of; they are appointed by the different state officers. I think some of them are appointed by the constitution. For instance, the constitution of the state fixes the salary of the superintendent of public instruction. Some years ago, when everything was inflated and prices were high, it was supposed that the salary for that office was too low, and I think so; it was twelve hundred dollars; and to make it up they gave him fifteen hundred dollars' traveling expenses, which is pretty large, especially if he has a

free pass to travel on railways. They gave him also a thousand dollars to hire a clerk with, and then eighteen hundred dollars to hire a man to do the business in place of his doing it. These acts could be repealed by the legislature if you could get it through, but when you elect a member you ought to make economy the issue on his election. They will promise you almost anything when they run for office, but when they come here they will not fulfill many of their promises, you will find. If you make a bargain with a man the best way is to pay him and dismiss him. It does not do to dismiss them and not pay them. In regard to the expenses of the legislature, I think there are more door-keepers than doors in the establishment. I think there are about three times as many boys in the senate as we need; but it appears to me that the party in power think their friends must all be rewarded for some service or other, and they reward them by giving them some appointments. Now, I claim that the farmers are as much to blame for this state of affairs as any other class of men; they could make their own nominations if they would attend their caucuses. The farmer thinks it is a lost day's time for him to attend a caucus. That is where your officers are made. That is where your governors and senators and assemblymen are elected. You allow a few men around the saloons to attend the caucuses and send their delegates to the district convention; but the farmers will not. It is difficult in my town to get a farmer to go to a caucus, and from half the towns in Dane county, I believe the delegates go without having any caucus at all. Some man interested in the city of Madison will write to a friend to come in and help him, and that is the way the nominations are made.

You are all to blame for this; it is one of the most important duties you have to perform, to select the right men for the various offices that are to be filled, not only in this state but in the national government. The committee on state affairs have reported a bill to cut down salaries on many state officers that are not fixed by the constitution; some are not cut down; some we think are perhaps not too high. I do not think we can pass it. I know one office which was formerly six hundred dollars; the present incumbent accepted the office under that. Last session I believe he got the salary raised to two thousand dollars. The committee tried to cut it down to fifteen hundred dollars, and he was willing to resign

rather than accept the office under two thousand dollars. I think when he accepted it at six hundred he ought to be satisfied now at fifteen hundred. I will state further that a few years ago all the offices of the military and civil departments of the nation were raised largely in the army and in the navy and in all civil positions. Now there was a bill passed congress recently to cut down all our foreign representatives — the first class from seventeen thousand five hundred to fifteen thousand dollars a year; that passed the house of representatives by a big majority; the United States senate refused to pass it. They are a body that you cannot reach very easily, but when you come to elect a United States senator, as you did this winter, was there any issue made that the man should represent the state of Wisconsin? That was not made an issue. Those things ought to be made such. When you elected a congressman last fall, were there any resolutions in any of the conventions nominating them, that they should represent your interests in any certain way in economizing? I think not. Whenever the farmers of this country will make these issues they will accomplish something. I wish to say here in regard to this interest, that a lower rate is perhaps one of the most desirable things that a farmer could have. I think if you can lower the interest on money from ten per cent. to five per cent., you can increase the value of your property nearly one-half. For instance, if you have a farm that brings an income of two hundred dollars a year over and above all expenses to-day, it is only worth two thousand dollars of money loaned out at ten per cent.; but if money were loaned out at five per cent., it is just as good as four thousand. In a series of years money loaned out at ten per cent. comes to ten times as much as money loaned out at five per cent. I have a nice little calculation in my pocket which I would like to read, but it would take too long. I cut it from the "Railroad Journal." It gives the weights of American coin in gold, etc., and it goes on to say it would take about four hundred and twenty-six railroad cars, twenty tons to the car, avoirdupois weight, of gold to pay the national debt of two billions and fifty millions; or it would take between twelve and thirteen thousand railroad cars loaded with silver, ten tons to the car, which would make a compact train of over thirty-seven miles long. If it was run into solid silver, it would be equivalent to over twelve hundred cords of  $4 \times 4 \times 8$  feet; yet one dollar put at interest, ten per cent., compounded

annually, will pay the whole of that national debt in two hundred and twenty-five years. This shows the accumulation of interest; this shows why the smart men of the country all want to be loaning money at high rates of interest; this is one of the best arguments why we should attend to that interest affair. All men know there is no business so good as loaning out money at high rates of interest.

In regard to the paper that Mr. Sloan read it was a very good paper, but, as friend Robbins said, not practical. The idea of spending ten dollars an acre for fertilizers has not proved profitable in Massachusetts, or else there would be more of the land fertilized in Massachusetts and Connecticut and other of the New England States. I picked up a paper awhile ago that said they were acquainted with one agent in Connecticut that had over two hundred farms for sale. Those farms are offered for sale for less than the actual cost of the improvements on them. Now if it was profitable to buy these fertilizers and put them on, there would perhaps be more of those lands under cultivation; but it is not. We in the west must depend on manure made on our farms.

As to these statistics about wheat, I have very little confidence in them. I see our agricultural department reported early in the season that Illinois was going to have a crop of sixty millions of bushels. I venture to say it was nearer thirty than sixty. I know how those reports are got up; they are not reported by farmers; they are generally reported by railroad agents and board of trade agents, who are interested in the fall of the year in making crops appear immense, so as to crush down the price of produce when they are about to buy. Our crops we are compelled to sell in the fall of the year, and they buy those crops at the very lowest figures. They will act the "bear" all the while until they get the bulk of our crop. This year you will find a large amount of wheat stowed in Milwaukee and Chicago; they are not pushing it on the market, they are holding it until next spring. Now I want to say to you that wheat will go up next spring; that is the probability; and those men will make from twenty to twenty-five cents clear on a bushel. Another thing struck me very forcibly. It is this: should we all raise such immense crops of wheat as Mr. Sloan supposed we could raise, would they be salable at any price? If we could only increase consumption as well as production, it would be well to pro-

duce largely, but if we cannot, I have an idea we would not be profited much by raising fifty bushels of corn to the acre and getting ten cents a bushel for it. A man informed me to-day in the capitol that he bought four hundred bushels of corn at seventeen cents a bushel, and told me that was cheaper than he could raise it. I lost heavily by feeding corn last year; I am not feeding so heavily this year. I did not expect to get more than a shilling a bushel.

Mr. Arnold, Trempealeau Co. — It has been said here by several individuals, that the paper read by Mr. Sloan was not a practical paper. I do not think that is just to the paper nor to the gentleman that read it. I consider it just as practical a paper as any farmer here could have written on the subject; wherein did it differ from a paper any of us might have written on the same thing, unless, perhaps, it contained more facts? Professor Daniells read a paper of like character, in which he detailed certain experiments made in Massachusetts, and went on to show what the experiments proved. Now if we cannot have any confidence in those experiments made by agricultural societies and colleges organized for that purpose, we might as well dispense with them entirely. I understand we get together to discuss these things, and to compare notes, and examine these experiments; and when a gentleman like Mr. Sloan prepares a paper wherein he presents these experiments, and shows what the results are, and at the same time states that he does not know that they would be profitable; he may not have offered any suggestions that we are prepared to accept, still does he not offer as many suggestions as any one of us would be able to offer on the same subject? Would any of us be able to tell where we could invest a certain amount of money in order to obtain a certain profit? If he has not done it and we cannot do it, why should we condemn the paper and say it is not practical. It is utter nonsense. I do not believe we get together here to find fault with the state of things, but to devise some means to better our condition. The question of taxation and the question of production are very pertinent subjects for us to consider. I like the remarks of Mr. Robbins very much; if we can get down to this theory in the state of Wisconsin, of paying our taxes upon superfluous articles, then we would have struck the key-note; then such men as brother Robbins would not be taxed, because he does not chew or

smoke, and I believe he does not drink. He would be exempt, and he should be. A man like me that smokes would have to pay some tax, and another gentleman, that drinks, would have to pay his proportion. State taxes and the national taxes are only an infinitesimal portion of our taxes. The great burdens are the school and town taxes. I know the county officers, and some of our town officers, have larger compensation in proportion to the value of money now than they should have, but it is all demagogism to be continually crying about what they receive, while we, when we get in the legislature, are not any better than the balance of them. We are either bull-dozed so that we do not know what we are doing, or are led into the same channel, or want to get somebody a place; so there is not a great deal of difference in mankind after all. The farmers and the merchants and the lawyers are all parts of the same human family, and liable to the same temptations, and with the same temptations we come to about the same end; and instead of grumbling and growling let us go to work and devise some means of getting out of our troubles. We need it; I do not believe there is a farmer who does not feel the pressure of the times. Now it seems to me that we might, if we are as smart as we think we are. Farmers have a notion that they are pretty wise, and we might suggest some means to these representatives whereby they could change the rule of taxation, or change the amount or the place where it would go. If we had done that we would have done a good thing at this convention — one of the best things in the world. I know in Trempealeau county where I live, we have men worth a hundred thousand dollars, who pay taxes on eight thousand dollars, while I am taxed on my farm every cent it is worth in cash, and on all the stock on it at its cash value. Now if the tax could go into the state treasury the same as it goes into the national treasury, and the taxation be on superfluous articles; if we could have the taxation come upon all property alike; devise some means whereby men who are in debt could be exempt from taxation of a certain amount, I will not say the entire amount, but gauge the thing in some way so as to strike all parties equally, it would be a good thing.

Mr. R. P. Main — I wish to give the gentleman the advice he suggested, to give to those who live on salary the same advice he gives these farmers. Be a little more economical; remember that

the dollar you receive to-day is worth what two dollars was ten years ago; consequently you can take one-half the salary you had then and it is worth just as much.

Mr. Arnold — I believe in economy, and that if a man has a salary of two or three thousand dollars from the state it is his duty to economize, and save out of that salary all he can, and be a white man; but you would not be so foolish, if you were receiving a salary of two or three thousand dollars from the state, as to remit any portion of that so long as that is the law.

The committee appointed in the forenoon reported the following resolution, which was adopted by the convention:

“ WHEREAS, It is understood that the Board of Regents of the University of Wisconsin have under their control a certain sum of money, a part of which may be used in their discretion for the advancement of the various industries of this state; therefore,

“ *Resolved*, That this joint convention requests the said Board of Regents to procure suitable persons to hold conventions in different parts of the state, for the purpose of disseminating information of value to those engaged in the different branches of agriculture and horticulture and other useful industries.

“ *Resolved further*, That we request the presidents of the Agricultural Society, the State Horticultural Society, and the State Dairy-men’s Association, to confer with said Board of Regents, and aid, so far as possible, the advancement of the objects sought to be attained.”

Mr. Field — A resolution has been handed me with a request that I should present it to the convention, and I will read it. It is as follows:

“ *Resolved* by the Agricultural and Horticultural Convention, That, in view of the importance of the agricultural interest in the state of Wisconsin, the assembly is hereby requested to pass the bill that recently passed the senate appropriating the usual sum of money, two thousand dollars, to the State Agricultural Society.”

I would state that this or a larger sum has been appropriated to the society nearly every year for many years. As a member of the executive board of that society I can state that, had we been as successful year before last as this year, we might have been in condition so that we need not have asked for it to have cleared ourselves from debt; but two years ago we were unfortunate in our state fair

as the weather was bad. Of course the legislature kindly gave us that amount that year, and I think they are disposed to give it to us this year. We are in debt about that amount beyond what we have on hand. I trust that this convention will pass the resolution without any dissenting voice, that we may present it to the legislature that it may have its proper influence with that body.

The resolution was unanimously adopted.

Professor Daniells—I regret exceedingly that the report of the regents for the past year is not published, so that it might be put before the convention. It has been in the hands of the state printer for a little more than two months, and is not yet ready. I had supposed it would be ready so that each of you might have a copy in order that you might look it over in connection with what I have to say. I wish to say what I am going to say, largely on account of what Mr. Robbins said last year, that is, that he does not get any benefit from the University farm. I believe he finally concluded he might, if he had tried; however, whether that is true or not, without believing that the University farm is doing everything in the world, I believe it is doing much by which the farmers of the state may be benefited, and I want to call your attention to two or three points very briefly.

In the first place we have been cultivating Fultz wheat on the University farm for seven years. That wheat failed entirely in 1876, winter killed; yet the average of the yield for seven years, including the year in which it failed, is 29 3-10 bushels. The largest average yield of any variety of spring wheat which has had previously the same cultivation in the eight years beginning with 1871, is the Red Mammoth spring wheat, which has averaged 19 5-10 bushels per acre. There is an average difference between the winter wheat which we have raised seven years, and the spring wheat we have raised eight years, of almost ten bushels per acre. It is probable that winter wheat could not have been raised as successfully all over the state as it could be upon the University farm; but supposing we take one-tenth of the area which is put into wheat over the state, and suppose that one-tenth of this area will raise winter wheat as well as the University farm, which I think may be true, it would have made one million seven hundred and fifty thousand bushels of difference in the yield of wheat the past year. The University farm has shown that the Fultz wheat may be grown upon land

which is situated as the University farm is (it is, by the way, a rather poor farm), more profitably than spring wheat. The Fultz winter wheat seems to be an unusually hardy variety.

The Red Mammoth Spring wheat is the variety of spring wheat I have compared it with, because it is a variety we have raised steadily, and it has yielded more than any other variety. That is a fact which I think farmers could well pay some attention to.

The Clawson winter wheat has grown into popularity very rapidly within the last three years, and has replaced, in some of the greater winter wheat growing states, more especially in Michigan, I think, almost entirely, the old Diehl wheat. That wheat we have raised for three years, and during those years it yielded per acre as follows: 1876, 17.60; 1877, 42.60; 1878, 55. It has yielded well for three years. I do not think that is a sufficient length of time to test a variety, before we may know the relative degree of safety with which it may be raised here; but I do think, in regard to the Fultz wheat, which was originally sent out by the Department of Agriculture from Washington, that it is an excellent variety in those vicinities where it may be grown; that in the long run upon timbered land, it will be more profitable than spring wheat. This has been grown to some extent in this vicinity. Mr. N. W. Dean, who is present, has raised it to some extent. It was raised for a time upon the Hospital farm. I do not know whether it has been for the last few years. One year on the Hospital farm it yielded something over thirty-three bushels per acre.

In 1876, when the Fultz wheat was killed out, the Clawson wheat yielded 17 6-10 bushels per acre. They were grown side by side. This year the Clawson wheat yielded fifty-five bushels and the Fultz wheat fifty-two and a half. The Clawson wheat was a little under weight, and the Fultz wheat a little over weight. The Clawson weighed fifty-eight pounds to the bushel, and the Fultz wheat sixty-one.

Mr. Dean — You have explained to us that the Fultz wheat pays the best. Now can you show us whether the cost of manure and cultivation does not more than make the difference.

Prof. Daniels — As I said before, the winter wheat and the spring wheat have had precisely the same cultivation. The experiment shows that under the same conditions of cultivation, the winter wheat has been very much the most profitable. The Uni-

versity farm is rather poor land. It is under a pretty good state of cultivation, that is, it has been pretty well manured, but it is not any where nearly as rich as Mr. Anderson's farm. But the point I desire to emphasize is this: the winter wheat with the same conditions under which the spring wheat was grown, has yielded about fifty per cent. more for seven years.

Mr. Arnold — I think that would be the result of every farmer's experience everywhere; if winter wheat did not kill, it would produce from one-third to one-quarter more.

Prof. Daniells — That is the very point I wanted to bring out. It seems to me that a large portion of the land upon which wheat is grown in this state is as well adapted to the growth of winter wheat as is our land. And if one-tenth of the area which was grown to wheat last year had given the difference in yield obtained upon our land, it would have made an increase in the yield of more than one million seven hundred and fifty thousand bushels.

A Member — Have you any means of knowing how much your wheat cost per bushel to raise it?

Prof. Daniells — I don't know anything about that. I do not suppose there is any means of knowing. I can tell you this: the University farm does not pay directly. I know that a farm that is given to careful experiments cannot be made to pay directly. But I thoroughly believe that, on quite a large area of this state, by careful selection of varieties, we may raise winter wheat more profitably than spring wheat. It seems to me that during the last seven years we have had a fair variety of winters, both severe and those which were not severe, and that this has proven true. Another experiment: We have grown for six years a variety of barley obtained of some one in Iowa county, which is called Manshury barley. That variety of barley has yielded 48 9-10 bushels on an average through six years. The lowest average was in 1874, when it yielded 20 3-10 bushels. Those were bushels by weight, forty-eight pounds to the bushel. It is just as valuable as any barley in the market. The other varieties of barley that we have raised, are Chevalier, Common Scotch, Saxonian, and Probstier. The yield of the Saxonian barley for the seven years is 35 2-10; the Probstier has yielded 43 4-10; but we have raised the Probstier only four years. Whatever may be said in regard to the method of cultivation which we have upon University farm, these different vari-

eties of barley having had the same cultivation, we can get here a comparison of them under as exact conditions as we may be able to obtain: That is, each variety is carefully threshed by itself and weighed; the land is carefully measured, and everything is done in a manner to make the experiment as accurate as possible. Now under these conditions, all of which are similar for each variety, you may be able to tell to some extent which is the most valuable variety, and possibly may be able to help yourselves by this means in selecting the variety which is the most profitable. The Saxonian barley is an excellent variety. It was sent out by the Department of Agriculture. We raised it first in 1871.

I have seen very frequently in the papers, the Bohemian Hulless oats referred to. I received a letter last spring in regard to them. We raised the Bohemian Hulless oats from 1872 to 1876. The average yield during that time was 24 43-100 bushels per acre by weight. We never got them to weigh very heavy. I suppose a good many dollars have been wasted upon the Bohemian Hulless oats by farmers throughout the state. The variety we raised when compared with ordinary varieties, I have no hesitation in saying, is nearly worthless.

We have raised several varieties of oats, but the White Schonen is the only variety we have raised continuously since 1871. That variety has averaged 58 8-10 bushels per acre. The Black Norway we have raised during the same years except 1875 and 1876. The White Schonen gave 95 bushels per acre in 1875, and 46½ bushels per acre in 1876. The average of the Black Norway for the years we have cultivated it is 47 3-10 bushels. It has been fairly proven to my mind that of all the varieties of oats that we have raised, the White Schonen has been the best. I think such an experiment as that is of great value to the farmers of the state.

We have raised the Yellow Dent corn for six years, the Cherokee and White Australian corn for eight years and Lysaght's for two years. Of these varieties, the White Australian has averaged 71 bushels of ears of 75 pounds each, during the whole time; the Yellow Dent has averaged 70 bushels; the Cherokee has averaged 65 9-10 bushels. These are cultivated side by side, with the same cultivation. The White Australian is a white corn, very much like the Flint. It ripens a little earlier than the other varieties of corn; it ripened this year September 14th; Cherokee, September 20th;

and Yellow Dent, September 20th. We compared these varieties the past two years with the large variety raised by Mr. Lysaght, of Belleville, in the southwestern part of this county or the northern part of Green county. Mr. Lysaght's corn yielded last year 67 2-10 bushels, while the White Australian yielded 80 5-10. The White Australian this year yielded 107 6-10 bushels, and Lysaght's corn 85 9-10 bushels. This, I think, is a fair comparison, showing a man that he had better plant the Yellow Dent, the Cherokee, or the White Australian, rather than the variety of Mr. Lysaght.

Mr. Field — I would like to ask you if you planted that corn the same distance.

Professor Daniells — No, the large varieties four feet apart each way; the White Australian, which is a small variety, three and a half by four feet, but at this distance it can be grown as readily as the other when planted 4x4 feet. I should raise the Yellow Dent or the Cherokee rather than any other, I think, because the White Australian has not so large a kernel and it is a little hard. While these experiments only show the relative value of one variety as compared with another, it seems to me that the thing is fairly placed before the farmers in a way that they may, if they choose, gain profit from these experiments.

I want to call the attention of the convention a moment to an experiment we have begun with fertilizers, to show the difficulty of experimenting, and how hard it is to draw any conclusions from one or two experiments. I shall not call your attention to the experiments as a whole, but only to one or two facts. We have taken two acres of land for the purpose of establishing the variety of fertilizers which our land requires. No fertilizer had ever been put upon this land when the experiment was begun. The ground was divided into seventeen plats of a tenth of an acre each, sixteen square rods, with three feet vacant space between each plat, in order that the fertilizer put upon one plat should not in any way influence the adjoining plat. We have left three of these plats unfertilized. The plats are to be treated through a series of five or six years precisely in the same way. On some of them we put a single fertilizer, on some of them we put a complete system of fertilizers; that is, one which would furnish not only potash but nitrogen and phosphoric acid as well; on some of them we put simply a nitrate, on others a phosphate, and on others a complete

manure, which furnishes the three ingredients, the phosphates, the potash salts, and the nitrate or ammonia salts, which are most necessary for plants. In 1877 all the plats were cultivated without any manure, in order that we might see the increase which was produced by the manure, and also to see the relative fertility of the different plats, because we find that the fertility of adjoining plats varies very greatly. In a plat which was to have no manure through the series of experiments, in 1877 we raised four hundred and twenty pounds of ears of corn; the same plat raised this year, with no fertilizer, cultivated precisely as it was last year, six hundred and ninety pounds. I want to call your attention to that to show you the worth of one experiment. Now if we had taken one plat and tried it last year with no fertilizer, and got 420 pounds, and this year, with a fertilizer, 690 pounds, we should have said we had produced a pretty large increase by the use of the fertilizer. On the plat which had no fertilizer either year, planted with the same variety of corn and cultivated in exactly the same way, we had that difference. The yield in pounds of stalks was 392 and 414, being only a slight difference. Another plat which had nothing on either year, raised last year 460 pounds of ears of corn, and this year 694 pounds; about fifty per cent. more. The third plat, which had no fertilizer on either year, raised last year 480 pounds, and this year 642 pounds. That only indicates, as I have said a great many times before in this convention, that a series of experiments for one year is good for very little. In some cases we have not had as large an increase where we used manure as where we did not. Upon the whole series of experiments, the difference per acre between the plats which were manured and those which were not is only 668 pounds. There is, without doubt, something abnormal with regard to the yield of this particular year. What it is we do not know. It is hardly worth while at this time to call your attention to the action of the different manures.

We have thrown away a large number of varieties of potatoes, and if a farmer has not already thrown away the poorer ones, he had better look over the list, and see which we do not consider worthy of cultivation. Of all the varieties which we cultivate, the Snowflake, for a series of years, has given the best yield. The Early Rose continues to yield exceedingly well. It yielded last year, 167 bushels per acre; the Snowflake ripened last year August 10, the

Early Rose August 2. There is no better potato than the Snowflake in quality. I do not know that it is better than the Early Rose. The Peachblow we have entirely discarded. We never, since the farm has been in operation, have had a fair yield of Peachblows. The Improved Peachblow, a variety which we have only experimented with one year, yielded last year 218 bushels per acre. That is the Improved Peachblow sent out by Bliss & Sons. Of all the varieties, the largest yield last year was obtained from the Ruby, a new variety which has been in cultivation about two years. It is not yet in general cultivation, but has been cultivated somewhat largely for two or three years. Last year is the first that we have raised a crop of it. We raised 280 bushels to the acre. It seems to be an excellent variety; ripened August 19.

Mr. Field — It has been queried whether this experimental farm pays. Professor Daniells, of course, very properly said that it did not pay. There is no experimental farm in the country that is expected to pay except indirectly. If this farm, by the experiments which they make, can show increase of the crops from certain methods of cultivation, or varieties of seeds, or fertilizers used, and can show this to the farmer so that he can produce the crops after the experiments have been made for him, it can be made very profitable; and I really hope there is sufficient means at the disposal of the regents of the University to make still further experiments with crops and with soils and with stock, and with everything of that kind, because the state can afford to do it. It is but a drop in the bucket for us to pay, to have the experiments all made at one point. I do not believe that the soil about the city is quite as good for these experiments as it is in other portions of the state, and yet, perhaps, the conditions are about as favorable; but I think the soil is very different from the soil in almost any other part of the state. Hence I do not think the experiments made here can be applied with the same certainty of success as they can in many other localities. I should be very glad if there is any gentleman present who has experimented with winter wheat upon the prairie soils of our state. We know very well that it will succeed ordinarily well in ordinary seasons, upon our timber or opening lands. If there is any gentleman present who has experimented upon prairie soils, I should be very glad to hear from him, as it is a matter of considerable interest to a large number of the farmers of the west.

Mr. Robbins — I am not going to make a speech. I am going to make a statement. Mr. Daniells says I was here a year ago. I see the proof of a few remarks I made here a year ago.

Prof. Daniells — I did not intend to find any fault with what you said.

Mr. Robbins — I admit all that, but I said then they had not even a farmer to put on as chairman of the committee on the Agricultural College Lands. Now I see they have one. If I did no more good before than to bring the attention of the convention to that one point, we have got that at any rate. I have vanity enough to say that I do not believe that the Agricultural College would ever have been established here if it had not been for me. We had most tremendous opposition all over the state before we could get the Agricultural College, but I reasoned that you could make the experiments cheaper connected with the University than anywhere else in the state, although the soil might not be as good; and Dane county said they would give forty thousand dollars to buy the farm if we would establish it here. We gave them two hundred acres of land, and Dane county gave forty thousand dollars in bonds; and we passed a law that they should have seven thousand dollars of taxes from the state in order to carry it on. Now I am called a poor farmer if I cannot pay my taxes, which are about a dollar an acre, and support my family. We now pay forty-three thousand dollars by direct taxes to support the college, instead of seven thousand dollars as we did then. I am not sorry that I voted to locate it here. I should do so again under the circumstances; but I cannot see any benefit to my section of the state. I told you I had lost my wheat; it was the air. If I had had your wheat I would have lost the same thing. I dare not sow any wheat there. I have wheat now that is three years old. I took some that I raised last June, to the mill, and our folks could not eat it at all, and I had to get a grist of my old wheat that I raised three years ago. Now I am not going to raise any more wheat at all. I am called a grumbler; anybody that tells the truth is a confounded grumbler all the time, but any man that has an oily tongue and has something that will suit you all the time, is called very pleasant, and never grumbles any. I do not believe we farmers have met our expectations in that Agricultural College, but I hope we can get about there more such men as Mr. Smith upon that board of regents,

distributed over the state in different localities. I think they will teach them something. I admit they are all teachers, but they are not practical farmers. Now you have got the college, do the best you can. I do not want to take it from you, neither would I take the forty-three thousand dollars from you; but I tell you, if you do not do better, if that farm has got to be an expense of twenty or thirty thousand dollars for the next ten years to come, upon the University, if it cannot support itself and help the University any, I say let us give it to somebody that will run it and try all these experiments, and have what they can make off from it.

Prof. Daniells — That is not a fair statement.

Mr. Robbins — Then I will go a little further. If you can try a single experiment this year, if you can do anything by next year when I come up here, or even if the governor will go up in the northwest part of the state, as he has in the northeast part, and put a farmer on up there — we have got a man on the board in our section and his time is not out, and he is a lawyer, a splendid lawyer, too, knows all about farming, but I never see him in here — I think that would be an improvement; I do believe it would be better for you. The day of reckoning is to come; you have got to settle honestly whether you ever pay your debts or not, and you may as well commence talking it up now, because I expect to live ten years longer; I think I am good for seventy-three years. Now I say unless you talk this matter over, so we can come here next summer and see experiments you have tried that will benefit the whole state, I will pitch into you again.

Prof. Daniells — I wish to reply very briefly to Mr. Robbins, because it seems to me that his remarks will tend to produce a wrong impression in relation to the University. There is paid for instructors' salaries there, something over forty thousand dollars. Now the University is not an experimental farm, nor simply an agricultural college; it is a place where all the common branches of learning shall be taught, and the agricultural is but one of its many subordinate departments. You desire and expect that your State University shall be the peer in all respects of those of the states about us, as that of Michigan for instance, whose annual income is forty thousand dollars more — about fifty per cent. greater — than ours. The University has accepted the congressional grant known as the agricultural land-grant — which is entirely a misnomer, as it

is no more an agricultural grant than it is a civil engineering or a mechanical engineering land-grant—and is striving to do something in direct aid to agriculture. It is not doing as much, in my opinion, as it ought to. It is not doing as much, I am sure, as those whose business it is to direct its course would be glad that it should do, were the circumstances different. But while you, as farmers, look mainly to the agricultural department, it is the duty of those having charge of the University to keep in mind all its various departments, and foster each with equal care. Every one present, I am sure, desires and expects them to do so. There are many interests to look after in such an institution as the University; the classical courses in their various departments must be equal to those of the best colleges in the country, and men must be kept in each of the departments of science who are abreast with the science of the times. You expect the University shall have the very best facilities for giving instruction, in the way of laboratories and scientific apparatus, and new buildings are being erected. Now all these things cost money, and the income of the University is comparatively limited. Yet those who are put in charge of it, and who are responsible for its welfare, have to look to its interest in all these various directions, not simply in the one way in which the financial interests of farmers lie. But further than this, the University is a school, a place for giving instruction. If we are going to have a place where instruction shall be given, where the highest scholarship of the state shall be represented, we have got to keep every educational department up to a high grade. The department of agriculture is not getting nearly the money, represented in instructors, that it would get from the income of the University if there had been students seeking agricultural instruction. I came here eleven years ago this month, especially as a professor of agriculture. There was no agricultural teaching to do, and they gave me at once other teaching to do. They have gradually worked me over until I have now the entire department of chemistry. If we should run the University as an agricultural college, we should by and by be compared with Ann Arbor as to scholarship, and we would be far below it, and you would be very much in favor of having a change up there.

Mr. Robbins — Are you the only professor of agriculture, the only one that fills a chair?

Prof. Daniells — The agricultural department proper, that is, from this land grant?

Mr. Robbins — I mean the forty-three thousand dollars tax we give you.

Prof. Daniells — You do not give that to the agricultural department at all, and if you look over the fund I think that you will not find that any of it is misspent.

Mr. Robbins — We do not think it is.

Mr. Dean — Then if the men that have been put there have managed this matter economically do not be pitching into them all the time.

Mr. Robbins — I claim your course is not right.

Prof. Daniells — We have half a dozen courses there.

Mr. Robbins — I mean your agricultural course.

Prof. Daniells — That is a point upon which men can honestly disagree; but if you will look over the agricultural courses of the country, courses which have been established by men who are interested in the matter, and have spent their time in honestly trying to find what is best, you will find they have adopted a course very similar to ours.

Mr. Babbitt — I am a farmer myself. That is the only way I live, and the only way I expect to live, and of course I am talking for myself. It is not exactly fair for us, when we, every single one of us, admit that we cannot possibly make farming pay, that we can hardly live, that we are robbed from one end of creation to the other, and allow ourselves to be robbed right straight along, when we admit our own inefficiency in farming, to throw blame upon the State University; now is it? Let us take pleasure and have a deep interest in everything in the line of education, in everything that shall elevate and adorn our homes and society and give credit to the state. There has been a paper introduced here to-day of such a character that, as one of the farmers of the state of Wisconsin, I must say I felt almost humbled to think that we should be treated to such a grand paper, and apparently treat it so unkindly to its face. That paper has been introduced here by the Hon. I. C. Sloan. I will ask every intelligent farmer that is within the hearing of my voice if that is not a paper that is calculated to make you think, not only here but when you are at home. I claim it is a paper calculated to inspire thought. I do not agree with Mr. Sloan in many particu-

lars, but I tell you we must take pride in a paper of that kind coming from a citizen of Wisconsin, one of our own agriculturalists. Mr. Sloan says in his closing remarks that the farmers must show more economy. In that I disagree with him *in toto*. From a lawyer of his eminence I consider that very unsound advice, for I do not believe there is a farmer here who has not practiced it to the greatest extent for the last two years, and such kind of advice I must say is unworthy of the source from whence it came. He asks us another question. He asks us what is the cause of this great discrepancy between the productions of the state and of the union in comparison with the productions of monarchical governments. It seems to me it is perfectly easy to understand. It seems to me one of the easiest things in the world for us to comprehend. We understand that we are poor, and that we have got to work very hard indeed in order to educate our families respectably and to clothe them decently. We understand that we have all we can possibly do to pay our taxes and our little interest money, and for a pew in the church, and occasionally a few cents to the sewing circle; and we have all we can possibly do to farm our lands as we already farm them. No one can say that we farmers of this state have not worked very hard for the last few years, the last two years particularly; and whether or no it would be a benefit to us or not to increase largely the yield of our oats, wheat and corn, is a great question. I claim that relief will not come from over-production. I claim that we have all produced too much, and the only way out of this thing is for us to live tremendously cheap at home, have a good supply of a year or two's stock on hand, keep it, stop producing for a year or two, go into some other business, and give these gentlemen to understand distinctly that outsiders must come to the farmer by and by or go hungry. You understand perfectly well that every dollar of the wealth of this country comes out of the soil. There is no doubt of that, and unfortunately there is no doubt that every dollar of the debt of this country is paid by us.

Prof. Daniells — I just want to say that these remarks that I have made have been made without a particle of hard feeling toward any one. It seemed to me, under the circumstances, that it was due to the University that they should be made. I believe I have the kindly sympathy of the farmers whom I have met in these conventions. I certainly feel perfectly kindly towards every one of them, and yet I wanted to make these remarks plainly.

Judge Bryant — I want to say one word about this University, living, as I have, under the shadow of it for a good many years. I think Mr. Robbins is mistaken when he says they do not receive any benefit from the University, and never have in Grant county. I certainly have known farmers from Grant county come here to the capital and go to the University, and from what they had read in agricultural books of experiments made at the University, go there and get wheat and corn and other seeds of the kind Professor Daniells had said had lived through several years and was the best, and carried them home to Grant county, and planted them. That certainly has done some good. That is one thing surely. Another thing: crops on that experimental farm are weighed and measured and the account written down and an account of it published every year in our volume of transactions; and any of you can find in the book you take home every year, that you talk so much about, just exactly what experiments have been made on that farm, and what have failed, and what have not. I know one little incident this year. Hon. N. W. Dean and another neighbor of his had great crops in winter wheat. Dean had red winter wheat, his neighbor had a tremendous crop of white winter wheat. All our people lost our spring wheat, and the question came up, should they sow some winter wheat. The farmers went to the University farm and found that the Fultz wheat had lived six out of seven winters, and the result was they all went and bought Dean's kind of wheat, when, if they had not done that, they probably would have bought this white winter wheat, and it would probably all have been killed this winter.

Mr. Findleson — I have attended this convention all through, and I have not been more interested in anything than in Professor Daniells' statement of the growth on that farm. I think if a farmer or a tiller of the soil would put a little brain work in operation while he was making that statement, and think a little about it, and see the benefit to be derived, he would feel well satisfied. To be sure it may be said that they might have given the cost for the different years, yet farmers know what this is, and here we find a great deal of information about the different varieties worthy of our consideration, and, as the secretary has said, it will be printed in the transactions, and if we read them when they come out, and many of the farmers in their haste do not read them, to my knowledge, it would be better for us. I do not feel so much like grum-

bling as I do like working. I think Professor Daniells has done a great work on that farm, a work that will be of lasting benefit to Wisconsin; a work that, if we take advantage of it, will be beneficial to us. I think there is not a thinking man here but can go away and select the corn that is best. There has been something said about the farm not being in as good a location as some other would be. If so, that does not affect the result; the result throughout the state will be equal in proportion to the localities that are operated upon. We have heard something said about the regency. I know nothing about that, but I heard a man finding fault with the regency, claiming that there was but one honest man in it, and that was a farmer, Mr. Hiram Smith. I venerated his grey hairs as I saw him standing up in this convention, and he said that that regency wanted to do right, and they would consult together, and wished that the people would let them know what they wanted, and they would be willing to comply with it as far as consistent with the circumstances. It seems to me that we can ask no more. If they are doctors or lawyers or ministers, if they are willing to do what is right, as that venerable gentleman said to-day, and we certainly ought to take his word for it; at least on the ground of what he said, there has been a resolution passed in this convention asking that individuals be sent forth into our state to enlighten the people. I wish, as they come up next year to this convention, those individuals who go out canvassing our state would report every meeting that they have, and tell us how many of our farmers take an active part and an interest in those conventions. I think it would be worthy of note. Perhaps it might be beneficial if the superintendent of that farm could have been here and told us the outlay on each acre or on each rod of ground, because the farmer has to count the cost as well as the production.

Mr. Hiram Smith— I wish to say a few words in regard to criticisms passed upon the paper of Mr. Sloan. I was deeply interested in that paper. I think it contains much food for reflection, and that we might gain valuable information from it; that he merely stated facts when he drew the conclusion from the rapid increase in the population of this country and the decrease in the crops, that in the near future we should go to the wall in pursuing this course. Is it an insult to us to tell us these plain facts, and are we to be told that because he advocated a system of farming copied after

those who have produced better crops than we have, that it was an injury to the country, that it was over-production and a burden upon us to produce such large crops, and we had better stop producing? Is that what we came up to Madison to learn — how not to produce good crops? If so, we had much better have stayed at home. I think it was a very good paper. I was deeply interested in it, and am satisfied that it will do lasting good.

In regard to the ranting that has been uttered here concerning the expenses of the University farm, it is a new institution; it took long years to concoct any plan on which to commence operations. It is in its infancy now, and it will take long years to perfect it. It was not adopted to enable the farmers in Platteville to raise hogs and sheep, which ought to be abandoned all over Wisconsin. It is too late in the day to raise wool in Wisconsin. Our farmers ought to be engaged in raising dairy products, where they can come in competition with higher priced products. The production of wool and beef and sheep was formerly profitable in this country, but the times have changed and we should change with them, and step on a higher plane, and let men of lower degree and cheaper lands pursue this business of raising heavy articles, and pay these heavy freights. We should engage in fruit culture and in products upon which less freight and less taxes are paid. Now if I was giving forty fat hogs for my taxes, I should think somebody would think I was green if I was doing that kind of farming. Mr. Robbins says he pays a dollar an acre for taxes. That is pretty heavy — more than double what we pay in Sheboygan county. I would advise him to sell his land and move into Sheboygan county, where taxes are not over seventy cents an acre, and the productions are, according to his and my statement, largely in favor of Sheboygan. I think the secretary made a wise selection when he selected the Hon. Mr. Sloan to read a paper. He has given us valuable information, and we will wake up some day and find it out.

Mr. Olds, of Clinton, Rock county — I have been watching the reports ever since I have come up to these annual conventions. At the time Mr. McKinney had charge of the farm as superintendent — I cannot tell how many years ago — I went there to learn concerning the trial of oats. He showed me conclusively that the White Schonen oats were taking the lead of everything else. I bought a bag full and took them home and sowed them, and spread them among

my neighbors, and now they are the leading oats in that part of the state. They came into knowledge through that means; we should have known nothing of them, probably, unless we had watched these reports and got the benefit of them. I have been watching them ever since. Three years ago I found the same report concerning the Manshury barley. I procured that and have been growing it since, and this year reports came from seeds that I have sent out, as high as seventy bushels an acre yield. And we may profit on every kind of grain that they experiment with without any expense of our own.

Mr. Anderson — There are a great many people that do not know anything about this University farm. I would like to say a few words about it. It contains about two hundred acres, but there are only about thirty-three acres under the plow. It is a mistake to suppose that thirty-three acres are going to produce enough to pay a great deal of expense.

Prof. Daniells — There is not so much in the farm. There is only about sixty acres in the University grounds.

Mr. Anderson — I will state that the farm cost the state nothing. The county of Dane paid for it. There is only six hundred dollars a year paid to the superintendent of the farm. That is perhaps as low as a reliable man can be got. The [expenses are not heavy at all, and if we do not receive benefit from the farm it is our own fault. You can go to-day and select one of the very best Durham bulls you can find anywhere at a very low price; and you can go there and see the improved stock. Their experiments in grain are a vast benefit to the people of this state. You may have noticed these Bohemian oats. Tens of thousands of dollars could have been saved the farmers of this country if they had read these reports. I experimented with them twelve or thirteen years ago, and knew they were worthless. I let my neighbors take them and try them, and let them have them as low as common oats, and they were not worth as much as common oats. They wanted to buy of me this year, but I would not have my name mixed up with them. Now in regard to this farm and the management of it, there is a wrong impression. There is not much money expended, and it is going to do good. It is in its infancy. People in the country, many of them, do not know what it is. They do not know that there is an experimental farm there. They ought to encourage it,

visit it when they come here, go there and see the stock, and their mode and manner of culture.

There has been something said about Mr. Sloan's paper. I say it is a good paper. Is it practical for Wisconsin? I claim it is not practical for us to use ten dollar an acre fertilizers on our wheat crop. I only claim we must use manure. Some forty years ago when I lived in Lancaster county, Pennsylvania, they had the best method of plowing manures, and I saw the experiment made for three years in Bucks county, Pennsylvania, and they recommended the same plan, after trying it three years, that was done forty years ago. Their plan was to plough the wheat, perhaps right away after harvest, nine or ten inches deep; then they would haul out the manure and spread that over this ground; they would then replot it as shallow as possible and turn it under, say three inches or three and a half, harrow it thoroughly, drill it, perhaps, and then put in their wheat and never touch it afterwards. That is the best way for winter wheat. I claim all clay lands are better adapted to winter wheat than to spring wheat. Prairie lands, perhaps, are not as well adapted. The great trouble I have had in raising wheat is the chintz bug. Last year it was the blight. Seven acres was not worth cutting; I did cut it, but it was not worth threshing. It was spring wheat. My land is not well adapted to winter wheat. It is prairie land, and better adapted to corn and oats or grass. I had ninety bushels of oats to the acre by weight, and I got my impression in regard to those oats by what I read of the University farm.

Mr. Dore — I am unacquainted with the practical workings of the University farm, but, as a farmer of Wisconsin, I cannot remain silent and hear it criticised as it has been this afternoon. Living in the northern part of the state, a hundred and fifty or two hundred miles from the University, I have watched the work as published through the reports, and those reports have been useful to our people. The reference that Senator Anderson makes to the hullless oats, I will illustrate. A year ago this winter there was sold in Clark county 1000 bushels of hullless oats for \$10,000; I did not buy any but some of my neighbors did. I said, if the statements in the University farm reports are worth anything, these oats are a humbug. Last year when I was at the fair, I inquired of the superintendent of the University farm about the hullless oats; told

him that some people were trying to sell them through the country at an exorbitant price. He said they were of no account. I asked him if he had some, and he said yes. I wanted to buy a few; he said I could have them at thirty-five cents a bushel. I bought a bag and took them up there and said: "Gentlemen, here are the hulless oats. The superintendent of the University farm, at the fair in Madison, told me they did not amount to anything. He sold them to me at thirty-five cents a bushel. If any of you want them at that price you can have them. I simply bring them to you to show you what the experience of those gentlemen who have tried them has decided." Clark county is well adapted to winter wheat. We have raised some nice crops there. Some years have proved a partial failure. Different varieties of seed have been procured by some farmers from different sections of the country. Several of us have watched these reports for several years and compared them. We got some seed from the University farm and sowed it. We have not harvested it, but we are watching it, and we are watching these experiments. Farmers who do not know anything of the University farm by actual observation are watching these reports. They are worth more to us than the statements of these apple men and nursery men, because they are given to us with accuracy and nicety, and we can rely on them. I know that farmers throughout the state watch the reports and derive useful information from them, and when I hear that the University farm is an extravagant humbug or anything of the kind, I, as one of the farmers who have been and expect to be benefited by it, cannot remain silent.

Mr. Periam — I do not think Prof. Daniells went far enough in stating, so far as your University is concerned, what the scope of it was. As a resident of another state, who has followed this question of University education, and been conversant with it since its inception, I think we have made such progress, that, if we had been told fifteen years ago that we were coming to this, we should not have believed it. The organic law states explicitly that these colleges are not for specific education in one direction, but they are for instruction in all branches of learning. In my state we have what we call an agricultural college, that is, it is a college endowed under a law of congress, and is not a university in the proper sense of the word. It seems to me, while you are trying to carry your university back to an agricultural college, some of our

people in Illinois are trying to carry our agricultural college forward into a great university. The question is a broad one, and I am glad to see that the people of Wisconsin, as the people of our state, are so thoroughly alive to the good that is going to be done by these agricultural colleges, and, at the same time, ready to find fault where fault may be found! but, go slow.

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### FARMERS' TRIBUTES.

BY CAPT. WILSON HOPKINS, LECTURER OF STATE GRANGE.

(Read before Agricultural Convention, Feb. 6, 1879, in Assembly Chamber.)

“ Ill fares the land, to hastening ills a prey,  
 Where wealth accumulates and men decay;  
 Princes and lords may flourish or may fade,  
 A breath can make them, as a breath has made.  
 But a bold peasantry, a country's pride,  
 When once destroyed can never be supplied.”

The truth of the above quotation and its startling application to the present time, not only in this country, but in all parts of the civilized world, should require of peoples and nations that they pause and consider; yet I doubt if wealth can ever be created beyond the necessities of mankind, for utilization in their just demand for progressive civilization, when properly distributed throughout the community that creates or produces it. Space will not permit of a detailed definition of what is wealth, nor do I deem it necessary, other than that I do not accept the theory that money constitutes real wealth, but claim it to be simply that product of labor which may be utilized in giving comfort, convenience and happiness to its possessor.

Money, then, from whatever source obtained, whether from mines which yield the precious metals, or by debasing the currency by paper issues or otherwise; whether from the rocky fastnesses of the mountains, or the fertile brain of man, adds no wealth to its possessor, other than that through the dictates of artificial laws it enables its owner, whether nation, community or individual, to draw to itself real wealth, or the products of others' labor. When purchased by labor, it performs that function for which it was intended; sim-

ply a medium to facilitate exchange. When acquired by any other means it becomes arbitrary and gives an unjust power to its possessor; which is to exact tribute from labor. The railroad company which waters its stock creates only fictitious wealth, which, instead of benefiting communities, is intended to give power to the company, by which it may be enabled to enlarge its tributary exactions; the result, if effectual, is to promote the concentration of wealth by the power of fictitious wealth. Then as labor alone is the producer of wealth, the only giver of sustenance and comfort to mankind, it follows that it is the hope of acquiring this boon that stimulates labor, and that it is only valuable for the happiness or benefits which it confers, which may be classed under two heads, necessities and luxuries. Necessities may be defined as those articles which to want becomes a hardship. Luxuries are those articles which may be dispensed with without inconvenience, and which rarely add to the happiness of the person. With luxuries in this article I have little to do, other than to state that man's necessities increase with his intelligence. As nations, communities or individuals become better informed and more intellectual, so do their wants and necessities increase; hence, what were luxuries yesterday become necessities to-day; and as education becomes more general, the inventive genius of mankind is brought in play, and labor-saving machinery is made to assist man in his labor, thus increasing the products to fill the increased demand; hence the style of living, which a century ago would justly have been accounted luxurious, may to-day even lack some of the necessities of the age, and be a hardship. Therefore our advancing intellectual state of society must be accompanied by an increasing capacity to create wealth, which is sure to follow in the natural course of events, together with an enhancing ability to properly utilize without luxuriant indulgences; hence I have no sympathy with those theories which demand that economy of the farming classes, which enforces upon them the deprivations of our ancestors engaged in the same occupation; yet woe betide that community where wealth increases so far beyond intelligence and ability to properly utilize, as to lead to excessive and luxuriant indulgences. But the creation of wealth is one thing, and its distribution another; and the latter is really the problem of to-day. Farmers have devoted too much time and forethought to its creation and too

little to its just distribution; and are now compelled to witness that humiliating spectacle called over-production, on the one hand, and under-consumption on the other, shouted back and forth from the two sides of the political arena, but which, in reality, is nothing but the accumulated products of their own labor, of which they have been deprived by tributary exactions upon them, whose source may be traced to their own folly and negligence.

I am not here to propose a remedy for existing troubles, as the effects of past follies cannot be wholly eradicated, and those who indulge in them must pay the penalty. But it does behoove us as men and citizens of a free and enlightened nation, to take wisdom from experience, and devise means to guard against and protect ourselves from the future recurrence of similar difficulties. We are told on the one hand by our political doctors, that the contraction of the currency is the cause of the hard times and the existing evils; but however influential it may have been in its immediate effect, it is not the source, and we must therefore look back of that for the primal cause. We are told again that it arises from extravagance. However true this may be in its application to society, as applied to agriculturalists I pointedly deny it. The farmers, as a class, have been frugal and industrious. Negligent and wasteful sometimes, it may be, but not extravagant. They have bought little that could be dispensed with and keep even with the times, but in buying they have "paid too dear for the whistle;" an ignorance of the cost of the article, coupled with the difficulty to secure it at reasonable terms, has been the bane.

Manufacturers have sought the farmers through costly channels, and the agent was employed to teach the farmer his necessities and to advertise the manufacturer's wares, for both of which the farmer was compelled to pay. The teacher was an expensive luxury, the advertisement as often a swindle as otherwise.

Agents and commercial drummers, during the past decade, have cost this country enough to have cancelled the entire national debt, principal and interest, and have produced not one dollar of wealth, which, by the exercise of common intelligence, might as readily have been produced without them. Yet this, as bad as it may be, would have resulted in no serious or lasting wrong, had not the credit system been the system of their employment; that system which makes money king and labor its subject. As debts are not

fixedly measured and paid by labor, but by money, the fluctuating and arbitrary measure of wealth, making credit the master and debt the servant, while usury is the tribute that bids fair to impoverish the farmer and support the creditor in idle, luxuriant or riotous living. But agents and commercial drummers are slowly but surely disappearing, and their course will soon be run, for the simple reason, if no other, that there will be no more fools to pluck, for those that do remain, if any, will be without feathers. But let prosperity return to the farmer; unless he has bought wisdom by experience or secured it through a wider scope of intelligence, and sought and secured cheaper means of communication, he will be compelled to submit to the same system of traffic, for when the feathers grow again there will be plenty who will seek to pluck them.

But there are other tributes upon our labor, equally oppressive. Standing between the producer and the consumer has been in the past extortion, and still is distance which can only be measured by cost. Social organization has taught us something of the nature of the extortion in the way of traffic and exchange. Organized efforts must remedy other evils before we can extricate ourselves from the slough in which we are floundering. Recognizing the advantage to be gained by extensive manufactories, yet it by no means compensates for the immense freight bills which we are compelled to pay on machinery and other products of labor.

Timber that is cut in our forests is transported to market at an immense expense, manufactured into articles of commerce and returned for our use at another freight expense and a percentage for handling attached. The same may be said of iron from our mines, and many other things of home production, all of which is bad enough. But when we consider that the materials for food and clothing which the laborer requires, who works up this raw material into articles for our use, is mainly produced upon our farms, and must be transported over the same road at an immense expense to reach the consumer, it is safe to estimate that double the labor is exacted from the farmer to bring to himself in condition for use many articles of commerce absolutely necessary for his comfort and prosperity.

It has been supposed in the past, and is largely claimed in the present, that capital was the thing needful to introduce home manufactories, and that individual enterprise would in due time

regulate the matter. But capital comes to us hampered by usury; enterprise has not been lacking, but its nature is individual, not general, and prices on home manufactured articles are fixed in accordance with established market rates, freight included, while the market price of our productions of which we have a surplus, will remain that at which buyers can afford to pay and ship. The result would be large profits to the manufacturer when the business was properly conducted, and with large profits came large expenses, fast living and extravagance, while the advantages to the farmer were so slight as to imperceptible. But it was the means of establishing high rates of interest which the manufacturer could at the time afford to pay, which must accompany all articles manufactured and sold, and be doubly attached to those sold on credit. All business must pay high interest, which in the end must come out of the farmer's productions, and become a tribute upon his labor until the interest has consumed the capital and is fast gnawing its way into our farms, and the tribute of freight remains unaffected.

How much of this is due to the fluctuating of the currency, I do not propose to consider. How much to exorbitant freight, is a matter outside of the object of this paper. A blow at either is not striking at the root. Ability to buy in the future beyond the indispensables, must come to the farmer through hard labor and careful thought. Extreme frugality is enforced upon him in some instances too late to save his home from the clutches of the law, and years of patient toil from going to enrich his creditors.

We have met the encroachments by fault finding, when the fault was our own. The dealer, the manufacturer or the money loaner, would not be worthy of his business if he did not handle it to his own best advantage. If we leave the gate open and unguarded, wandering herds will enter the fields and destroy the crop; then, "What will the harvest be." He who does this one year, lacks judgment. He who repeats it the next year, deserves no harvest. But now is the time to cease our grumbling, and through organized and united effort, to labor for the general good, for the benefit of the farming classes; and should hard times be the means of rousing us from our apathy and direct us to the building up for ourselves a heightened and more lasting prosperity, we can well afford to pass through the ordeal that awaits us.

Our country is in a deplorable state, the cause of which can be

traced through farmers' tributes to farmers' patient servitude, or if you do not like the term, to farmers' folly. Spurn from you those political demagogues who tell you we have touched bottom, for the end is not yet. Our country is filled with tramps, yet millions of European laborers who are suffering worse hardships than we are, are only awaiting some means of transportation to swell the ranks of our army of vagrants.

Every person not engaged in labor, or in some manner rendering an equivalent to society, whether he rides in his chariot or begs from door to door, is a burden upon labor and a detriment to the community. The one may be a recognized pet, but is practically a costly pauper; the other is no less a pauper because he is not in the poor house.

Prosperity can only come to the agriculturalists by stopping their tributes and paying their debts. Debts can only be paid by patient labor, and then only when the products of industry shall yield a surplus margin exceeding those tributes, such as they may be, that prey upon labor's products. How may the debts be paid is a problem. One class demands cheaper money, admitting that labor is the source to draw from; they claim that money is the tester that measures labor. We are told on the other hand that this is dishonesty and repudiation. Let political discussion and the will of the majority decide. It is our business as farmers to guard against the future recurrence of similar difficulties. Then let us beware of debt as a consuming fire.

Productive industry will not pay our tributes and support our families. Farming tools we must have or the labor of the farm must cease. How are we to obtain them? By credit, still? Then we are but adding fuel to the flame that consumes us, and bids fair to deprive us of ownership in the soil and turn us into tenant farmers.

Times of emergency bear with them their opportunities. Let Wisconsin's legislature be empowered to make an appropriation for the purpose, and select a site upon some of the undeveloped water powers of our northern rivers, in close proximity to our boundless forests and Lake Superior mineral resources, make it a home for the destitute and the needy; the idle and unemployed; where petty criminals may pay the penalty of the law, and wandering tramps may find a home. Then under proper superintendence

let the work go on, till the water power is developed and buildings are erected and machinery put in to enable them to manufacture, if need be, each and every farming tool required to work Wisconsin's farms, from a pitchfork to a threshing machine. Let the farming tools thus manufactured by Wisconsin's resources be distributed to Wisconsin's farmers through Wisconsin's commercial channels at the cost of manufacturing and handling, and in exchange for Wisconsin's farm productions, to be consumed by Wisconsin's laborers upon Wisconsin's soil. Thus might the tramp question be solved and one-half our court expenses stopped; a costly farmers' tribute. Agents in farm machinery could no longer ply their vocation; another farmers' tribute. Foreign freights would be lessened without detriment to home freights, another farmer's tribute; and by assuming manufacturers' losses their profits would become our own.

It may be urged that this would exceed our legislative constitutional powers. That it partakes too much of the nature of internal improvements, and that such works can only be urged upon the plea of public necessity. But is there no necessity? Our prison is filled to its full capacity; our jails and our poor houses are overflowing; tramps wander up and down our streets, and our towns swarm with the needy and unemployed. Even constitutions, when they are subversive of the public good, are subject to revision. Other states have been compelled to adopt some such measure upon a minor scale for their own protection. Gov. Smith, in his late annual message, expressed the need of more stringent laws against vagrancy. But poverty is no crime, and it is the duty of the state to prevent crime as well as to punish the criminal; to protect its citizens from want as well as to confine law breakers behind brick walls and iron bars. It may be claimed that public enterprise is cumbersome. That private enterprise develops greater energy, skill and economy. That competition will regulate prices; but competition always ends in ruin or combination, generally the latter, and never fails to result in united or individual monopoly. We have relied upon private enterprise until it has already been the means of depriving one-third of the farmers of their homes, and has crippled American industry. It has concentrated wealth in the hands of the few at the expense of the many. It has built up a monied aristocracy whose tendency is to make labor menial,

and while developing the country's resources has impoverished the country's laborers.

It is our object, as agriculturists, to advance the agricultural interests; and as labor will produce only a certain quantity of wealth, whatever tends to the building up of other interests beyond our own, must be at our own expense, and will exact tribute from agriculture. Whatever other business secures greater profits will become more honorable and detract from our own. Just as long as agricultural productions constitute the chief article of export, just so long will this primarily be an agricultural country, and farming should be subservient to no other occupation; and just so long as farmers are the majority, they may, make the exercise of proper judgment, be the ruling spirits. It was asserted, not long since, in the senate chamber of the United States, that "property and intelligence would rule this country." Intelligence! Yea! But when property rules this country, woe betide the laborer! For its power is as heartless as vengeance, and as cruel as steel! Its path will be strewn with the wrecks of broken lives, and the wails of poverty and misery will fill the land! Hark! Are there no cries coming up from the haunts of distress to awaken our sympathy? If nay! then property does not rule this country, and the danger, if real, is yet to come. If yea! then mark me, the chains are being forged to bind us hand and foot, for property is ever vigilant and watchful, and will jealously protect its power and tenaciously guard against its own overthrow.

As a nation we have encouraged manufactories and stimulated individual enterprise until wealth has accumulated and men are decaying for the want of it. Agriculture, the fountain from which flows the wealth, has been left to take care of itself. Farmers have been looked upon as public prey, and have been subjected to every swindle which the ingenuity of man could devise, and now we are to draw our consolation from the humiliating fact that it is all the result of our own folly. Yet it is no less unendurable on that account, but a continuation of the tendency of the times, if continued, will be the result of future folly. No class or occupation will lessen farmers' tributes but farmers themselves. Farmers cannot accomplish this unless prompted by intelligence. He who harbors a cess-pool that breeds miasmi must suffer the pangs of sickness and become the physician's servant. He who harbors anger

and stimulates a quarrel with his fellowman must give the product of his labor to lawyers to adjust his difficulties. So they who harbor ignorance and avoid social intercourse — I care not how hard they may labor nor how much wealth they may create — will ever be society's servants, and must submit to society's dictations, while they themselves will suffer the pangs of poverty and be society's outcasts. In fact, the harder they labor, and labor in ignorance, the more danger that wealth will accumulate and men decay.

Farmers, then, must cultivate social intelligence. They must organize more effectually, and through their organizations and by united efforts encourage and sustain systematic co-operation, whose object it shall be to build up and sustain agriculture. A slave may create wealth, but the master will utilize it. He who creates wealth for others to utilize is practically a slave. The aim of agricultural societies has been how to create wealth to utilize labor to a higher state of husbandry; to produce better stock and better productions, and to make one acre of land perform the service of two. Their efforts are commendable and have been largely successful. They have also worked great good in another direction, as the results of their efforts could only be secured through an enlarged intelligence on the part of the farmer. But the effect has been local or individual — the few have outstripped the many. The tendency has been to create caste in our own ranks, and sometimes results in the "big fish eating the little ones." A society organization that shall become more general in its influence; that shall reach the farmer's fireside; that shall be with him throughout the year; that shall appeal to his intelligence and brighten his pathway; that shall teach him to husband as well as to create wealth, and shall impress upon his mind that it is only valuable for the use he may make of it; that shall teach him how to change the log cabin to the cosy, well-furnished cottage; the sightless door-yard to the pleasant lawn; the impoverished acres to a well tilled, productive farm; the tired, over-worked housewife to a cheerful and contented matron; his unsophisticated, romping children, to an enlightened, intelligent, happy family; that shall teach him to transform himself from the petty tyrant to the indulgent husband and father; from the envious, cringing, society's drudge — the butt of every jest and ridicule — to the man of honest pride in self-conscious integrity and ability; from the victim of every swindle to the man capable of

guarding and protecting his own interest; from one who detests and abhors his home and occupation, to one who is justly proud of his surroundings; and that the labor of the farm, instead of being a peremptory task exacted by the demands of nature — the effects of which shall be barely sufficient to hold soul and body together — may be a healthful, profitable employment, which shall justly reward the husbandman for his labor.

What farmer has not had this picture in his mind when he struck the first blow upon his farm, wielded by the arm of youth and vigor? What an insignificant per cent. have ever found the reality? They have sought it by excessive labor, and dwarfed the mind in the struggle, and too often, if a competency was reached, it was by the thorny and contemptible path of avarice, or by staining the soul with treachery by defrauding his neighbor, either of which ever blunts the finer qualities of man's nature, and deprives him of the true, heartfelt enjoyment of his labors. The only way to secure these results is by society organization. Let us build up and sustain the grange — its objects are all and more than I have enumerated. If it has failed to accomplish them, the reasons are obvious. Time must be absorbed in educating its members to the importance and magnitude of the labors to be performed. No great work was ever perfected without serious mistakes and discouraging and partial failures, nor without encountering opposition from those who should be its friends and co-workers. All highroads to reform have been strewn with dry bones and putrid carcasses engendered by error and treachery.

Agricultural societies are intended to advance the farmers' interests, and farmers should give them their support. The grange is no less a farmers' organization, and if it faints and falters by the way, farmers should rally to its aid. If it is working for a laudable object, going in the wrong direction to secure its ends, it needs the counsels of wisdom and experience to set it right. Those who cannot see that it has accomplished good in the past, must be blind, indeed, if they can see no advantages which may be derived from combined and properly directed efforts on the part of the farmers.

Blessed as we are with a country of boundless resources; with a soil of unparalleled fertility; with machinery in every branch of labor, to assist the muscles, lighten toil and hasten the development; with means of communication which defies time and distance; with

a school house at every cross-roads, and a weekly publication in every village; with our granaries filled to overflowing with the products of the farmer; and all branches of industry overstocked with productions; yet all owned to the last farthing by the hungry demon, Credit, for whose benefit it has accumulated while men are decaying for the want of it, and gaunt want sits by our firesides, and our children, crowded out by his presence, grow up in ignorance; and if we dare to overstep the bounds of nature's absolute demands, and cultivate a taste for the beautiful and refined, we are to be accused of extravagance, of ambition beyond our station, and are told we must work more and spend less. To work more is generally impossible; but to work to better advantage, and to make the results more beneficial to ourselves and our families, is possible, and it is one of the prerogatives of the grange to teach it. To spend less is an imperative demand; how best to do so without infringing upon the necessaries of life, is a question for solution, and one which the grange has constantly under discussion. But its main and paramount object, to which all others are subservient, is to develop in the agriculturalists a higher and nobler manhood and womanhood; to strengthen their attachment for their occupation and their homes, and to make life pleasant and attractive, not only to themselves, but to their children also; to develop a taste for wisdom and understanding, for truth and honesty, and for the beautiful and the refined. Recognizing the imbecility of individual efforts to remove those tributes which retard and prevent the accomplishment, they seek to do so through co-operation. If impelled by honesty, however blindly they may grope, prompted by such motives, their efforts cannot fail to be productive of good; but if guided by the counsels of wisdom, the benefits which they may confer upon the tillers of the soil, and through them, upon society at large, are incalculable.

Whatever is calculated to bring man in contact with his fellow man, and elicit discussion, will develop and bring forth hidden truths, and each new truth displaces an error. Farmers should seek knowledge, for knowledge begets wisdom, and wisdom directs effective action. It was forethought and action that have developed our country and given us that state of enlightenment and prosperity which we now enjoy. Let none imagine by the import of this paper that I do not recognize that agriculture has made im-

mense strides, and that the advantages of the past generation bear no comparison with those of the present; but that I do realize the necessity for further improvements and continued efforts for the benefit of ourselves and our posterity. I believe that the tillers of the soil should march in the front ranks of progressive civilization, and their intelligence and influence should be second to none. That agriculture is a science more profound than law or medicine, and that man should be educated to be a farmer as well as a lawyer or a doctor; that agricultural colleges should be so in fact as well as in name; that farm houses should have libraries as well as kitchens, and that the mind should be fed as well as the body; and that it may be possible for a farmer, with frugality and moderate labor during the vigor of youth and manhood, to make for himself a home; to educate his children; to secure to himself a season of recreation and travel, and to rest in his declining years upon his own attractive lawn, made so by his own skill and labor, beneath his own vine and shade tree.

I am thankful, too, that this is not wholly imagination; that our state is dotted over by such farmers' homes; and I further recognize and glory in the fact that many of the brightest stars in the halls of education, our institutions of learning, were born and reared upon those farms; that the daughters have been educated in the mysteries of the kitchen as well as to ornament a drawing room, and that their children will figure in the next generation; for it is of such mothers that heroes are born; that the son's early education at the plow has developed *physique*, and laid the foundation for that energy which, by the aid of the education thus given them, will give into their hands the future destiny of this nation. Well would it be for America if more of them made agriculture their future occupation, instead of seeking other and more lucrative employment, by which they are enabled to draw their support from farmers' tributes, at which they can best succeed, through farmers' ignorance. What we want is more of these educated farmers, sons and daughters, that agriculture can receive its equitable share of them; but so long as we submit to tributes that make other occupations more profitable, just so long will ignorance predominate among the farming classes. Go with me to those homes in which were reared these educated children, and there you will find reading, thinking parents, members of agricultural societies and agri-

cultural organizations; such as gather here annually to strengthen their ideas by contact, and gather wisdom from the experience of others.

But it is for those more remote that I appeal; those practically deprived of the benefits of your organized society; those deluded victims of farmers' tributes. Give to them thorough, organized efforts, the wisdom gathered of experience, that we may contrive to shut off by one grand, united effort, those unjust tributary exactions which prey upon the profits of our labor. Teach the farmer in his home to realize that mind is more potent than muscle, that those children growing up in semi-ignorance throughout our state may receive the benefits of a thorough education and bring it home with them upon the farm. Then may we hope for a brighter day to dawn in the American firmament, when farmers' tributes shall practically cease; when wealth created shall be utilized, not accumulated; and men shall strengthen, not decay.

Convention re-assembled in Agricultural rooms, Friday, Feb. 7th, when Dr. P. R. Hoy, of Racine, President of the Academy of Arts and Sciences, read a paper on Injurious Insects, and exhibited his very large and excellent collection of good and bad, big and little bugs, which brought forth the following discussion :

Mr. Peffer — Have you the blue grape beetle ? It is a kind of a flea beetle that attacks the grape vine in the spring, in the buds.

Dr. Hoy — I have not. There are two or three or four of those little insects, but I have not specimens with me, and thought best not to say anything about them because the idea was to see the insects.

Mr. Peffer — They have done more injury to my grapes this spring than they ever did before, although I believe I was the first one that sent them to the entomologist, and that was, I think, twenty years ago.

Mr. Plumb — Some of the gentlemen present have been examining a model of a curculio catcher that was sent here. Give us your opinion on that.

Dr. Hoy — The curculios can fly as well as a bird, and no curculio catcher can have anything to do with them at all. They raise their hard wings and unfold beautiful little membranous wings under them. Any catcher only shows the ignorance of the designer.

Mr. Plumb — I brought this out because the designer of this catcher is a very intelligent man and he is laboring under a great mistake. He sent this model to explain his theory of preventing the curculio beetle from going up plum trees to deposit their eggs.

Dr. Hoy — He has seen the curculio and has not been able to see the wing; neither can he see the wings of any of the beetles I have here, and they can fly as well as a bird. He never goes up the tree; he flies up.

Mr. Robbins — I feel very much interested in this historical lecture in entomology. It strikes me very forcibly. I know the fellow now that does the damage. Now the question is, what am I going to do about it. I do not want any of those animals let loose in my neighborhood.

Dr. Hoy — I have got them under glass.

Mr. Robbins — I want him to kill every one he gets hold of. I have a few apples and grapes and raspberries and blackberries. I do not want any of those animals let loose among them. I am like the boy that was bit by a chipmunk. Says he, "I am glad you bit me because I know where you are." I know his name now, and I know some of them have an eye in the tail. Now, in regard to that fellow, if I want to catch him I will go to his head and he will not see me and I will catch him. I have learned that much. But the question is, what am I going to do about it.

Dr. Hoy — I will ask any gentleman present to send me any worms that they find injuring their crops or the forest about them. Put them into a little tight box. There is no necessity for any holes. Put in some of the plant or the leaves you find them on. Holes are no use and they are injurious because of the evaporation of the plant. They would be very easily destroyed if they were so tender you would have to furnish them air. They are very tenacious of life.

Mr. Robbins — Are you going to kill them? That is the question.

Dr. Hoy — I know that is a question the farmers ought to be better instructed upon. We must understand their habits before we can manage them. We see such ignorance as that "catcher," thinking the curculio climb up the tree. If that was so we would have saved our plums long ago.

Mr. Robbins — He thinks he has found out.

Dr. Hoy — There is that difference between wisdom and happi-

ness. The man that thinks himself the happiest is the happiest, but the man that thinks himself the wisest is not always so. Put the insects in boxes and tie a string around it, and mark on the outside "Samples of Natural History;" put the name to it; it only costs a cent an ounce. A cent will pay for a pretty good lot of worms. Address "Dr. P. R. Hoy, Sr.," Racine, Wis., for there are two Dr. Hoy's in Racine, and I will be very happy to correspond with you and give you information, and answer such questions as you may propound. I think in more than a hundred instances people have been destroying their best friends, supposing them to be enemies. A man in Racine went to my son and told him his plum trees were just overrun with a sort of bug or worm that runs on the bark, and he had killed thousands and thousands of them. He told me. I said "They may be beneficial to your plum trees," and he brought some to me, and they were the young of what is called the "lady-bug." The trees had been infested with plant-lice, and they had been up and entirely destroyed the plant-lice and come down on the body preparatory to undergoing the change to come out as those beautiful little beetles, our best friends. That is the way he rewarded them for their services.

Mr. Kellogg — I am glad to have this so well simplified as we have to-day. I think it is the finest entomological talk we have ever had. It brings the matter right before us in common language. I wish you would describe the lady-bug as it is before it gets to be a lady-bug, so we will not destroy it. As to the box you speak of, will any little pasteboard box do to send specimens in?

Dr. Hoy — The pasteboard box is not very good. They did make a kind of matchbox of wood which is good. The pasteboard box is apt to get smashed up. A small tin box is good.

Mr. Kellogg — I want to ask the best methods, or whether there is any way to catch the coddling moth by sweetened water or vinegar, or in any way.

Dr. Hoy — A great many of those insects can be caught in large quantities by taking some stale beer and sugar and plastering it upon the side of the tree, and just after night you go there and the tree will be perfectly covered with them and you can destroy them; and by killing the parents you very frequently interrupt the propagation of the insects.

Mr. Plumb — The greatest terror there is to the apple tree

planter, as a member of the assembly from Green county told me last evening, is the canker worm. He said they were sweeping all through the township where he lives. Said I, "Don't you know it is easier to destroy them than it is the potato bug?" No, he did not know anything about it. Everywhere I go I find people who are letting the canker worm sweep over their orchards, destroying thousands and tens of thousands of valuable property, when they are much easier destroyed with Paris Green or arsenic than the potato bug is. One pound of arsenic which can be bought for five cents, will poison eighty gallons of water so that it can be distributed with very little labor over an orchard. Two or three cents worth of that poisoned water thrown from a force pump will completely eradicate the canker worm, in its earliest stages, from a tree able to bear eight or ten bushels of apples. It is a practical remedy. It has been told here before, and yet people do not know it. Now the question with me is, how far can we go with these poisonous remedies. That is to me a subject of grave enquiry. I am glad we have had so much of entomology, and we could easily spend this whole forenoon at it.

Prof. Daniells — I would like to enquire if that solution would kill the curculio on the plum.

Dr. Hoy — It would be dangerous to the plum, for the poison would be on the plum. It does not hurt the tree or the foliage.

Prof. Daniells — It has been suggested to sprinkle the foliage when it was wet, with Paris Green and flour.

Dr. Hoy — There is no trouble about that. There is no danger whatever.

On motion of Mr. Kellogg the thanks of the convention were given to Dr. Hoy for his able presentation of the subject of entomology.

Mr. Phillips then offered the following resolution :

WHEREAS, Some destructive insects seem to be increasing throughout the state and promise to be more annoying to horticulturists in the future than in the past; and,

WHEREAS, It is desirable that information upon this subject be placed within the reach of the largest number possible the coming season; and,

WHEREAS, The Press of the state is the most efficient and practical remedy for the purpose; therefore,

*Resolved*, That the Secretary of the Horticultural Society be instructed to prepare at the proper time short, practical directions for preventing the ravages and the increase of destructive insects, and present it to the press with the request of the society that all state papers will copy.

The resolution was adopted.

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## FARM BUILDINGS.

BY B. S. HOXIE, COOKVILLE, WIS.

[A paper read before the Joint Convention of Agriculture and Horticulture, at Madison, Wis.]

*Mr. President, Ladies and Gentlemen of the Convention:* When I commenced my paper on "Farm Buildings" at your last meeting, it was my intention to speak not only of the "house" with its comforts and conveniences, but of all the buildings of the farm and their relation to each other. But on a more careful consideration of the matter, I found that my time and the space allotted them were both too limited; and next, that the subject was of sufficient importance to be embodied in two distinct papers; and so to-day, while I invite your attention for a few minutes to a further continuation of the subject, as I shall speak of the "Barn and Out-Buildings," you will not expect any fine spun theories of castles built on paper.

The average Wisconsin farms have to-day, and will have in the future, perhaps fifty barns costing less than one thousand dollars, where there is or will be one costing three thousand dollars; and if, as I said a year ago, the farmer cannot afford to hire an architect to superintend the erection of a house, he of course generally thinks himself quite competent to build his barn, *i. e.*, instruct the carpenter in its details. To this class of farmers then I may address this paper, for the one who is able to build his three thousand dollar barn, with all modern improvements, is able to have his plans and designs all skillfully drawn and worked out by an architect. The decision, of course, is reached that he must have a barn, and also whether it shall be a rough, plain structure or one whose exterior finish and painting shall be a little more showy than the one his neighbor built last year.

The regular down east style and size used to be about 30x40, fourteen or sixteen feet posts, the floor or drive-way nearly in the center, with "tie up" in one end and the bay, or hay mow, in the other.

This of our boyhood days was about all there was to a barn. Now and then or occasionally you would see one with a basement across one end, but it was only as a receptacle for manure which was dropped down through trap doors, there to remain until a convenient season allowed it to be taken to the field.

This plan is now about as obsolete as is the theory that all the manure must be kept under cover to be of much value to the farm—to save its virtues, they said. But of this I will speak again in another place.

The barn of to-day, like the house, must be something more than four square walls enclosing a given space, and instead of a small basement across one end, the whole area of the building, and often under the driveway to the main floor, a room is utilized.

Then in every instance I would adopt this mode of building, not only as the cheapest for the amount of room, but in every way the best; and I would finish it up with stalls for horses, stables for cows and pens for calves and sheep, with convenient methods of sliding partitions and swinging gates, so as to make one or a number of such pens, as circumstances at the time might require.

Some will say, perhaps, a basement is too warm for my cows, and my horses will take cold whenever taken out. This would be an objection if it were true, or if there was no remedy; for we are all willing to admit that it is just as necessary for comfort and economy of feed that our dumb animals should have good, comfortable quarters, as it is for human beings to be well housed and protected. Indeed, a certain degree of heat must be maintained in the system at the expense of food, shelter and tissue, or all of these combined.

So a certain amount of warmth, good shelter and wholesome, pure air is just as necessary for the health, growth and development of the animal as it is for the human; and there is no more need of a cow or horse taking cold by being kept in a warm stable than in a cold, open one, if the owner exercises the same care and thought for his horse as he would for himself.

The basement should be well supplied with windows, so constructed that they can be opened, in whole or in part, as may be

desired, for the purpose of ventilation. I would make one or two cupaloes on the roof, depending on the size of the barn, for the double purpose of use and ornament. I would also have one or more ventilating shafts extending down into the basement room and up near by to the roof. These shafts should be about three feet square, and for convenience should be over or at the end of the feed alley, and made with slats nailed on three sides, far enough apart so that hay can be put down at any stage of the mow. The other side, make as a common ladder, which will be convenient oftentimes as a means of ascent or descent, without going to the stairway. As a general rule, I would make all single stalls for horses; for however gentle and kind a pair of horses may be at work or in harness, it is often quite a different thing when eating their feed or in fly time, and damage often results by having two confined in one stall. These stalls should be furnished with good mangers, with top plank and feed boxes of oak, or if made of pine, finish top edge with iron, unless you expect to replace them in a year or two. Nothing pays better than to have work of this kind well done. For every two stalls I make a box or shute two feet square, and a trifle larger at the bottom, to prevent hay from clogging. These shutes extend down to the top of the manger, and up two feet or more above the floor, and all closed in above the floor, except one side, which is left open to put the hay in. I think any one who has ever seen or used this arrangement must give it the preference to narrow, high mangers and racks for common barns; besides, they afford a means of ventilation without creating a direct or unpleasant draft of air.

Does any one imagine that a basement constructed and finished up like this, will be so close as to endanger the life of the inmates?

Well, we must tie up the cows, and to economize in space confine them in stanchions with their heads always in line with their body, whether standing up or lying down; this is in more military style and no danger of getting loose, the advocates of this method tell us, and this always clinches the argument. If the man who invented that kind of fastening for cows, and those who advocate it, were obliged to be confined in a similar manner for one hour even, every year, they would adopt something more rational and more humane. Gentle bovine will pay you if she is treated with a little more consideration; and you need have no fears to put two of

them in a double stall. I would make the manger about eight inches high on the front side and two feet on the back, and two feet six inches wide, with the back flaring or somewhat wider, and to prevent too much reaching about or robbing, either of hay or grain; put a partition in the manger between every other cow, and in this partition on either side put a round post or stanchion, or, what may be better, a long staple with a sliding ring to attach the tie, chain, or tie-rope, putting it around the neck rather than the horns, and my word for it she will look around to express her thanks every time you come to the barn. It may take one minute longer, perhaps to fasten a dozen cows in this way than it will with the use of stanchions; but what is that when compared with the comfort of our best friend. I consider a rope every way preferable to a chain; and any one who can splice a loop in one end with a piece of wood about six inches long in the other, can easily make them. They are quickly put on and off, and the flexibility of the rope prevents their getting loose or becoming unfastened. I have one of this description which has been in constant use for fifteen years, and to all appearances it is as good as new. The floor under the cows should be raised four inches above the one to receive the droppings. The transverse floor should be perfectly tight, and have an inclination of a few inches to facilitate cleaning and removing the manure, for which purpose I would have a door wide enough to back in a sled, and take the manure direct to the field. I know that some will object to this mode of disposing of fertilizing material as a great waste; and the English farmer especially, thinks everything must be well forked over and well rotted before going to the field. But we must remember that our soil and climate are different from old England. With us and our soil, I am of the opinion long or raw manure plowed under is the best way to apply it, for if there is any gain by using the liquid we surely get it in this way, and certainly the farmer has more time now than in the summer to do this kind of work, and it saves once handling over at least.

But as this paper is not a treatise on manure, I must pass on to the location of the barn; and if I say where I would not locate it, and my reasons, you will readily see where it should be located. Then I do most seriously object to the down east Yankee style of "spreading out" on both sides of the street, or public highway house, barn, sheds and hog pen, for in this case the road must be

crossed some over two thousand times a year; and, to say the least, one-half of the time through mud or snow, and, unless the barn be open to the street (public property, as it were), must necessitate the opening and shutting of gates, setting down and lifting up of pails of milk, swill and other articles which must be carried from house to barn, and barn to house again. And I can conceive of no advantage gained to overbalance these objections.

The house and lawn should be the prominent feature of a farmer's home, and second to this should be the barn, which, for convenience of access and well ordered in appearance to the landscape, I would locate a little in the rear of the house from the street, back of it, or to the right or left, depending upon the site best adapted to its uses. It is a fine thing in theory to have a pipe conducting water to troughs in front of every manger or stall, and no doubt many amateur farmers with an abundance of means take pride in an arrangement of this kind. But I am of the opinion that the average farmer, if he had the money to spend, would think it a useless contrivance, though it did run by water. A good wind mill to raise the water, and to convey it in pipes to a tank in the yard, and another in the basement, is quite as convenient, less expensive, and in every way less trouble to keep clean and in repair; besides, it seems to be more natural for cattle to drink in the yard, when taking their exercise, than when confined in their stalls.

A cistern in connection with the wind mill, so arranged that water may be drawn from it to a trough in the basement, is very handy to use in very cold weather, or when, for a number of calm days, there is not wind enough to raise water sufficient for everyday use. One pipe with a branch or a faucet or stop-cock, is sufficient to connect the cistern with tank and trough. A good cistern, holding from fifty to one hundred barrels, will be sufficient for any ordinary supply, and the cost of constructing one is a trifle when compared with its utility. And my experience goes to prove that a cistern, plastered on a good stiff clay soil, with an arch of one thickness of brick, put below frost, of course, is cheaper and generally more durable than when constructed in any other way for a moderate sized cistern. For convenience and for every-day use, I would have a grain and feed bin on the main floor of the barn, with a hopper or garnered bottom and spout leading to the room below, to draw from by means of a slide emptying into a

small box, which will be found more convenient than to go up stairs or to a distant granary twice or three times a day. For, as time is money, the farmer must economize his time in doing chores, as much as though he was at work in the field. Unless the farmer can build a separate house for shop or tool room, provision must be made for this in the barn or granary. I mean those small tools for the farm which are not in every-day use, and for all such as are in need of repairs which can be done at home; and in this room every tool must be returned as soon as used, though the farmer or hired man be in a hurry to get to the field; for, mark me, it will take less time to return the tool or implement to its place, than it will to hunt it up when wanted; and if this rule is adopted, every man or boy on the farm knows where to find what he wants, without making a dozen enquiries or spending a half hour to hunt it up. A few common carpenter's tools and the grindstone, with a work bench and a good stout vice and piece of hard wood lumber, and that indispensable thing, the old iron box, will save many a trip to town when work is most driving at home; for I am talking to a class of men who are not looking for an excuse to get to town every day. I once heard an old lady say, calling a neighbor by name, that "she was not fit for a farmer's wife, because she did not keep a button bag;" so a farmer who does not keep an iron box as the place for old pieces of iron and bolts, will often be obliged to pay in time and money more than one hundred per cent. to get the very thing wanted out of the old iron box.

What I have said of the barn and its construction, will signify that the arrangement and grouping together of the barn, granary, tool house, corn crib and hog house, to make them easy of access and to avoid laying too many walks, or shoveling snow in winter, for to economize time in this direction is just the same as to economize it in the field. And no rational man, who is mindful of the work for the family to do in the house, will neglect to have good dry walks from the house to the out-buildings, either of plank or stone; and a good foot scraper at the door is a much easier method of cleaning the feet than a mop and broom in the house.

So much is now being said and written about sanitary laws and the proper requisites in and about our homes necessary to the preservation of health, and of a good supply of pure air and water, that this paper would be incomplete did I leave out or pass it idly

by as of no importance. The "privy," and these are often so carelessly constructed, or placed so remote from the house to avoid the nuisance caused by false construction, that I am induced to give a description of a simple plan which I have adopted of late years.

And let me say that no privy, either in town or country, should be constructed with a vault where it cannot be well cleansed once a year, and if any one doubts this proposition let them read the report of our State Board of Health, or any treatise on sanitary laws, to be convinced on this one point. So, then, instead of placing it eight or ten rods from the house, have it of convenient access to all the inmates, and whatever size you build it, construct the frame so as to allow a good stout box under the entire length of the seat; and in order to give more room put your cross piece, or what would be the back sill of scantling, up as high as the seat, so that you can make a projection of about six inches, and over this projection fit a cover or door and paint the same as the building. This allows the box to be taken out on the side, which is more convenient than to run it in at the end. An occasional sprinkling of the contents of the box with dry earth, or if you neglect to do this, use coal ashes or unleached wood ashes, which must be dry to derive the benefit of an absorbent and deodorizer. Then it will be no difficult task to empty this box on the manure heap, or draw it directly to the field; and my word for it the privy instead of being a nuisance will be a source of wealth to the corn field and the owner.

With the brief time at my command since I received the programme, announcing to give a continuance of the subject, it has been my aim to give a general outline of what I consider well constructed farm buildings as to convenience, without going into details of any special mode or a definite plan in the construction of any, for I am well aware that the taste of the owner, the length of the purse, and other considerations must always be taken into account in this as well as any other enterprise of farm improvement. Besides the expense of preparing plans and having them engraved would be entirely out of the question, for me or the State Agricultural Society, and a plan that would suit one would be entirely inadequate to the wants of another. So my advice is to all who contemplate building, either house or barn, spend a few days riding around the country with no other business on hand than to examine with eyes wide open, and with pencil and paper to take items. By

so doing you will find much to admire and imitate, besides much that is useful. I remember a number of years ago while building a house for a well-to-do farmer, I asked him one day what kind of chimney top suited him. Well, he replied, I do not much care, I suppose they are all alike. But as he was the next day going on a journey of some twenty miles, on a road he had often traveled, I told him to take notice and pick out one that suited him, as I remarked there was not one house in twenty at that time which had a decent looking chimney top. So of course he looked at chimneys that day, and on his return reported on the truthfulness of my remark.

And so it is always the subject we are interested in for the time being, best claims our attention at that time. I am aware that some of our barns here in the west are quite like palaces when compared to those of our ancestors, and so are our houses; and to those who are able to build such, my remarks and suggestions will hardly come up to their ideas of model farm buildings; and if I have altogether failed to benefit the average Wisconsin farmer, then I hope our worthy secretary may be more fortunate in his selections next year.

Prof. Daniells — Mr. Hoxie spoke of wood ashes in the closet; wood ashes sets ammonia free from everything it comes in contact with, and would destroy the value of your fertilizer, while dry earth would renew it.

Mr. Hoxie — I am aware of that, but farmers, when they are busy, do not always have time to collect this dry earth. It is the best material, but I suggested ashes because they always have that handy, and because the destruction of this would be of more importance to them than it would be to utilize the contents.

Prof. Daniells — But your odor is worse and there is danger of decomposition, because you are driving off the substances which you do not want into the air all the time.

Mr. Hoxie — That may be, but I mention the dry earth because, as all know, that is preferable.

A Member — I would ask if leached ashes would be less objectionable?

Prof. Daniells — They would be less objectionable, though anything made use of needs to be dry to be of any value, and leached

ashes are seldom dry. I have visited one farmer's place, where he used ashes during the summer, and it was about as offensive, for a place that was kept clean, as anything I ever saw, simply from the odor that was driven off all the time.

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## BENEFITS OF GYPSUM OR LAND PLASTER.

BY W. H. MORRISON, ELKHORN, WIS.

At the Agricultural Convention held by this Society in 1874, Prof. Daniells said: "So far as plaster is concerned, I do not think there is any man in the world knows anything in regard to it." We often hear assertions like this, and it is well; for it is diversity of opinions which originate or provoke discussions and incite us to experiments, thereby unfolding and disclosing to us those truths and facts for which we seek.

A few weeks ago on my way to Milwaukee, I had the pleasure of meeting C. M. Clark, of Whitewater, a successful breeder of Short-horns and fine woolled sheep. Charley is an enthusiast in his chosen vocation. I wish we had more. And

"We talked of the weather, the news and crops,  
Of the relative profits of barley and hops,  
Of the different plans of the farmers around,  
For reclaiming their swamps and enriching their ground;  
And the policy — now very much on the gain —  
Of expending in fodder the most of their grain,  
And restoring the crop in that way, to the plain."

We concluded our visit with exchanging ideas upon dairying. He claimed that it did not pay, and said he could take pencil and paper and figure it right out to the satisfaction of any reasonable man, that the dairymen of the Northwest were pursuing their business at a loss; but there is one part of it that he could not understand. "Look at the large, commodious barns they build, and their houses, and the improvements they make; the style they put on tells unmistakably that they are prosperous." Thus we can make figures and statements in reference to agricultural and horticultural matters, but they do not always express the *whole truth*.

No one article of rural economy has proved so useful, and none

has excited so much speculation and inquiry, as gypsum or land plaster. When it was first introduced, the effects were so striking that many pronounced it a dangerous drainer of the soil, a present benefit, a promoter, a stimulus that would inevitably be followed by exhaustion, a fertilizer that would bring wealth and luxury to the present incumbent, but barrenness and poverty to the successors. This alarm has in some measure subsided, and this valuable enlivener of vegetation is fast coming into general use.

Recent investigations have proved gypsum to be the most natural food for plants of all the fertilizers in use, showing by a chemical analysis that it is a powerful absorbent; and the spring breeze that brings life and vigor to the dormant vegetable world exerts a more magical influence upon those fields that have been sown with plaster, attracting and assimilating the ammonia that is so volatile, exhaled from innumerable sources, and having a stronger affinity for sulphur than lime has, dissolves the gypsum, combines with the sulphur, thus forming a sulphate of ammonia. I accept this as the true theory, knowing no reason to doubt it; and believing sulphate of ammonia to be a powerful stimulant of plant growth, we can easily see how the desired result is produced.

One of the properties of plaster is that by a moderate heat it readily passes into a state of calcination; becomes liquid and boils like water. This sometimes is considered a test of its quality — the best will most easily calcine; and in that state it imparts to the tongue the styptic sensation of quick lime. It is the opinion of many, that under this operation, by the heat of the sun, gypsum becomes an exciter of vegetation, passes into and forms a component part of plants.

Whatever renders the earth loose and porous, so as to admit a free circulation of the air to the roots of plants, will best promote the great system of the economy of nature, and thus render it active and vigorous by the free circulation of oxygen.

In the plowing under of clover or any green crop, whatever causes fermentation the quickest best accomplishes the desired result, by rendering the earth or soil light and porous for the admission of air and moisture.

In an experience of thirty years of farming I have made many experiments with gypsum; have sown in belts or strips, and the increased growth in the plastered parts has always excited comment.

Two feeders of Dutchess county, N. Y., having impoverished farms, sowed freely upon clover and grass land with good results, largely increasing the pasturage and hay, thereby keeping a larger stock and materially improving the fertility of their lands.

I will refer to but one experiment that came under my own observation: Several years ago, I think about 1864 or 1865, I had a field of thirty-three acres sown to spring wheat; in May, one-third of it received 200 pounds of plaster per acre; in growth, a perceptible difference could be discerned in favor of the plastered part. A few days previous to harvest, that little marauder, the chinch bug, that has blighted the most sanguine hopes and prospects of so many wheat growers, made its appearance. The part of the field that had received no plaster whitened rapidly and commenced to fall down, and, in order to save any, it was cut; the remainder was apparently unmolested. It ripened up, golden and bright, and many, looking at the two pieces side by side, were astonished, but not more so than some of the Waukesha and Jefferson county farmers of this state, who sowed salt upon their wheat land last spring. Some that were incredulous and believe only half what they see, would sow their fields in strips or lands. One, that I am well acquainted with, to test whether there was any virtue or salvation in salt beyond all cavil, commenced and sowed entirely around a 40 acre field for several rods, then left several rods, measuring it accurately and pulling up stakes, and then finishing up the center of the field with salt. The contrast was as striking as in the first case, when plaster kept at bay the chinch bug; around the entire field there was a wide strip that stood erect, ripening, bright and yellow, then a strip that was white and blighted, and the center like unto the first; beautiful, golden heads, well filled. The success of the experiment was so gratifying that the parts of the field that had received the salt were gathered; the land measured out at threshing time gave a yield of 25 bushels per acre, while the unsalted only yielded a trifle over 10 bushels.

Who that has tried some of the fertilizers that are at our disposal, for a moment doubts that we have the means of an increased plant growth, if we will but use them?

Last autumn, while in attendance at our state fair, I met Mr. William Hovey, the very gentlemanly agent of the Grand Rapids

(Mich.) Plaster Mills, who was in attendance at the fair, making a very creditable exhibit of gypsum in different forms as it came from the quarry, after grinding, and also the calcined. While here, he distributed over 2,500 pamphlets or circulars. Wisconsin farmers are using it largely.

From a prize essay on the "Cultivation of the Potato," written by D. A. Compton, of Hawley, Penn., we take the following, as it so nearly conforms with our experience in cultivating the potato: "However much lime or other fertilizers may be applied to the soil, still, great benefit is derived from the use of plaster. After all, plaster is the main dependence of the potato grower, a help on which he may rely with the utmost confidence. Astonishing results are obtained from its use, when applied in a proper manner. The writer has seen a field, all of the same soil and prepared alike, and all planted with the same variety at the same time, on one-half of which, that had no plaster, the yield was but sixty bushels per acre, and many rotten; the other part, to which plaster was applied in the manner hereinafter explained, yielded three hundred and sixty bushels per acre, and not an unsound one among them.

"The action of plaster is often puzzling. From the fact that, where land has been strongly limed, a small quantity of plaster applied shows such decided benefit, there would seem plausibility in Liebig's theory that its effects must be traceable, not to the lime, but to the sulphuric acid. The ammonia in rain water in the form of carbonate (a volatile salt), is decomposed by plaster, the sulphuric acid having greater affinity for it, and thus forming two new compounds, sulphate of ammonia and carbonate of lime. But as arable soil has the same property of absorbing ammonia from the air and rain water, and fixing it in the same or even a higher degree than lime, there is only the sulphuric acid to look to for an explanation of the favorable action of plaster on the growth of plants."

It is sometimes asserted that plaster is of no benefit in a wet season; such is not always the case. It is certainly beneficial to clover, wet or dry; so of potatoes. A few years since, when the drouth was so intense in this section as to render the potato crop almost a failure, the writer produced a plentiful crop by the use of plaster alone. That gypsum attracts moisture may be proved by plastering a hill of corn and leaving a hill by it unplastered; the

dew will be found to be deposited in greater abundance on the plastered hill.

Plaster is repugnant to all insects, and, when mixed with Paris green, one part to sixty of plaster, is a perfect remedy for the Colorado beetle, while at the same time it invigorates the vines.

I regret that this paper has assumed the length that it has, and all that I ask in conclusion is, that those of you that have never tried gypsum, do so; purchase a ton and experiment with it. Do as a granger that resided in Walworth county a few years ago, did, with the new varieties of potatoes. It was during the potato mania, when many of us were willing to pay from one to five dollars a pound for a new (?) variety — The "White Rose," the "Red Rose," the "Late Rose" and the "Prince." I will not take time to enumerate the beautiful, suggestive names by which they were called. To come back to the incident, this gentleman had procured several of the new varieties and had planted them in short rows in his garden. At the time I was looking at them in July, the vines had attained their full growth. I called his attention to them and remarked that there was quite a difference in the growth of the vines. "Oh! yes," says he, "those are the kinds that I am *protesting*." I do not want you to protest against plaster, but give it a fair trial.

Mr. R. P. Main — As the use of plaster tends to increase the products, I wish to ask whether it would not be proper to consult more as to the price of what we produce than to consult how we shall increase our products. We are told, and I believe it is generally admitted by the most of people, that at the present time we are suffering from over-production. If that is the case, is it right that we should seek to increase that evil rather than to lessen the products. It seems to me, that if we have an over-production it is not best for us to seek to produce any more, but if that is not the case, we will seek for the causes in other directions. I think one of the causes of the troubles of the farmers is, that we have sent bad men to make laws for us. If we would send men to make laws whose hands are hardened by honest toil we would have better times.

Mr. James Smith — I would like to ask Prof. Daniells if plaster would be likely to have the same effect on alluvial soil that it would upon a high oak ridge or a ridge of oak timber — such as that kind of timber grows on.

Prof. Daniells — So far as plaster is concerned as a fertilizer, the only thing that I can say is, that “the proof of the pudding is in the eating.” In some cases a small amount of plaster upon land has most wonderful effects, and in other cases, when there is no known reason why the effects should not be just as great, it seems to be almost worthless.

Mr. Field — Can you tell us why it does have an effect upon certain soils?

Prof. Daniells — One hundred pounds on an acre is about an average dressing, which is about ten ounces upon a square rod. Now, how much moisture do you suppose that will bring on a square rod of soil? How wet do you think it will make the land of that square rod? All of you who were in the army know the wonderful effect upon a band of men, who have been marching, and have undergone severe fatigue, if you give them a cup of warm coffee. You know how it refreshes them. Physiologists do not very well understand how it is. They put it in this way: that it enables the system to economize the force it has, to make it go further. Now, it is supposed that gypsum may have some such effect upon the soil; that it enables the material of the soil to be economized by the plant and go further. I confess I do not see very much in that explanation, but it is as probable to me as any I know of. I do not know why plaster has the wonderful effects that it has. I know it does have such effects in a great many cases, and in other cases it does not produce them. Now, in regard to its furnishing any material which the plant wants, soils of our state always contain more lime than the plants can take up. That you all know. They are nearly all of them lime soils, yet the sowing of lime upon the soil will often produce excellent effects. It is not because the plant wants the lime; it is not because there is not a great excess of lime in the soil; but caustic lime will produce chemical changes in the soil and take the place of material which the plant does not want and which is thus made obtainable. If we take a hundred pounds to the acre, which would be ten ounces to the square rod, it would not furnish a very large amount of absolute nutriment to plants. If we had gone still further, as Mr. Morrison explains, a little more than two-thirds of the sulphate of lime is the sulphuric acid element of the salt, we should get then about six and a half or seven ounces on the square rod of soil. If all of this material went to furnish nutriment to the

plant, you would get less than seven ounces upon a square rod of your land, which you know does not at all account for the increased yield. Now, whatever effect this plaster has, may be looked for in an indirect manner rather than in a direct manner, and just how this beneficial effect is produced, I don't know.

Mr. Robbins — Why is it so much more valuable on clover than corn? I know it is not valuable on corn because I have tried it.

Mr. J. M. Smith — It is on corn in some places.

Mr. Robbins — I say in the same amount at the same place. I tried them both, and it is very valuable on clover and not on corn.

Prof. Daniells — I do not know, but clover has more sulphur in its composition than corn, and yet that is not sufficient to explain the increased effect. It generally succeeds better on clover and on the plants which belong to the bean family; why it is I do not know. At the University farm, plaster has not proved of any value with potatoes. Upon corn it has proved of very little value; we have not tried it upon wheat and small grain.

Mr. Hoxie — I suppose it is evident to every agriculturalist and a great many of our practical farmers, that our soils do not lack so much the elements of plant growth as they do that element which will make it susceptible for the plants to take it up. As Prof. Daniells says, all our soils are lime soils, yet lime quickens the plant growth. I claim the lime in the soil is not the best for plant growth. We know that almost every soil is benefited by plowing clover under, and clover may be termed one of these plants that is just the thing required to put the soil in condition for other plants. It has been shown repeatedly that our soils possess all the materials necessary for plant growth, and the experiments on the farm with the ground that had no fertilizers, showed what an increase of yield there was by cultivating that in the condition it was put in. We do not so much need a knowledge of how we shall increase the crops as we do how much we can increase on an acre; and if we can put on that one acre that which will make us produce as much on the one acre as we could on two or more, then we are benefited. If the knowledge we possess will enable us to keep two cows that will produce us more net profit than it would be to keep six cows then keep the two. So I look upon this matter and the information we gain here. We do not want to know, when there is an over-plus, how much more we shall raise, but can we do it with less

expense and time, and have more leisure to devote to intellectual pursuits and otherwise.

Col. Warner — If Mr. Smith had asked me the question he did Prof. Daniells, whether plaster had the same effect on alluvial or prairie soils that it had on clay ridge, I should have unhesitatingly said no. I presume because I do not know as much about it as Prof. Daniells; but we have experimented some in our vicinity with plaster, and I think the universal opinion is that on clay lands, or opening lands, plaster has very great effect on clover and potatoes and grass, and some upon wheat. My farm contains both kinds of land, and I have sowed it across the land, and on the opening soil very great results were seen, and very little on the prairie. One year I sowed it on the opening soil without showing any results, but the next year I was astonished when I went down there to see the beautiful wheat that was growing on this land, and the small wheat on the same kind of land where I had not put plaster the previous year. And for three years the effect seemed to continue on this piece of ground, so that we became satisfied that these results came from the plaster, as there has been no difference in the cultivation or lay of the land in any other respect. The result upon the prairie soil was very slight. I could see where I sowed it across on the clover. The clover was somewhat larger than where we did not, but not nearly as marked as on the opening soil. That was the general result. Prairie farmers dropped off entirely from using it, and oak opening friends continued to use it.

Mr. Fratt — A gentleman present has a new creamery which he wishes to present to the convention and explain its merits.

Mr. C. C. Fairlamb — I will state that this entirely new system of setting milk in cold air instead of cold water has been advocated, for some time back, by very eminent men in the dairy interest, and, before I commence with my paper, I will read to you a statement made by Prof. Arnold, Rochester, N. Y., December 20th, 1875. He says: "It must be apparent that it would make a wide difference in the quality of butter whether, while the cream is rising, the milk is cleansing the air, or the air cleansing the milk. In cooling with cold water or with cold air, this difference is made, and it is the principal reason why the creamery butter keeps no better than it usually does. Allow me to state another reason why it is better to set the milk in cold air than in cold water. Cream rises better

while the milk is losing heat than it does after it has reached its bottom temperature, especially if that bottom temperature is a low one. This fact will require but little observation to verify, and yet dairymen and dairy writers have overlooked it. On this account, as well as for deodorizing, it is better that milk, when set for cream to rise, should cool slowly; air being a poorer conductor of heat than water allows of slow cooling, and thus aids in the perfect rising of the cream."

It is generally conceded that in order to get a fair return of butter from milk, it must be made from creameries by co-operation. In order to compare the old system with this, I have prepared a short paper on short notice, which I will read.

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## THE FUTURE OF BUTTER AND ITS MANUFACTURE.

BY C. C. FAIRLAMB, MAZOMANIE, WIS. ;

*Mr. President and Gentlemen of the Convention:* The subject on which I wish to speak, is the future of butter and its manufacture. You are aware that four butter is selling in the markets at prices ranging from six (6) to thirty (30) cents per pound, and in some instances, well known brands of fine quality will command higher prices. The cost of handling, shipping, etc., of the low-priced article is the same as that of the high-priced. The poor qualities are a drug in our markets, while the fine and choice qualities are in demand. The poor grades of butter are not wanted at any price for table use, but have to be sold for other uses, or shipped to some foreign country, where they are consumed by people who have never used any other kind. The finest grades of butter are bought by the wealthy, who are willing to pay exorbitant prices, and will procure it if possible. The next grade may be termed as good butter; that is, possessing ordinary flavor, of good make, color, etc. This quality is taken by the middle classes, who cannot afford to pay the price of the finest quality, and will not buy the medium grades.

The medium grade is taken by the working classes, if it can be purchased at the price asked for oleomargarines, which is fast

taking the place of the medium grades, or average dairy butter made in the northwest, it being its equal in quality.

Our choicest butter is now being supplied by creameries. One taste of creamery butter is generally sufficient to destroy forever the use of a medium or poor grade of butter. We can look to the future for an increasing demand for creamery butter, and a diminishing demand for medium and common grades.]

A matter of great importance just now is, how can creamery butter of the best quality be produced; by what system of setting milk may the best results be obtained, and what will be the cost of manufacturing, and by what method? In order to produce the best quality of butter, we must start with the best quality of milk, and, in order to get the milk, we must have the cow and proper food. As there are so many breeds of cows, and so many different opinions as to their butter-producing qualities, I will leave that question to others who have made this subject a study and are better qualified to determine which are the best.

The feed given to the cow should be of such quality and quantity as will produce the best results in cream or butter, and should be in a pure condition, in order to get untainted milk. Milk should receive the greatest of care. Cleanliness must be strictly adhered to, and it must also be properly cared for by cooling and storing away for cream-raising at the earliest moment after milking. Good cream can only be obtained from milk cleanly handled and of a quality free from foreign flavors.

By what system of setting milk can the best results be obtained? This question, however, can only be settled by actual experiments made under proper circumstances. The following points should be considered: First, quality of cream raised; second, quantity of cream raised; third, keeping qualities of butter made from cream; fourth, cost of raising cream.

There are many good methods of raising cream, and there are many poor and expensive methods in use. The cost of manufacturing butter in creameries or factories is of great importance to the dairyman. Upon this depends the future of butter to a great extent; if the cost and loss in making butter by this system is too great, it will drive the dairyman back to the old way of making butter at home.

In making butter by the creamery system, there is the expense

of hauling the milk to and from the factory, in addition to the cost of making the butter; this is the apparent cost only, but the actual cost is not generally known, yet it may be explained so as to be understood by all. The hauling of milk in wagons to the factories, will make a loss in the quantity of butter made of one-half ( $\frac{1}{2}$ ) pound per hundred pounds of milk hauled. By furnishing milk only once a day, there will be a greater loss. There is another feature in this creamery system; there is a great loss to one patron, yet a profit to another. The old proverb, "It is an ill wind that blows no good," holds in this case. What I refer to, is the plan of reckoning or purchasing milk by the hundred weight (cwt.), regardless of its richness or the amount of butter it will produce. You will readily see the unfairness of this plan, as the dairy furnishing the richest and most valuable milk, receives no more pay per hundred pounds than the dairy furnishing a poor quality of milk.

I find, by tests, a difference of fifty per cent. in the quantity of butter obtained from different qualities of milk, the same weight of milk being used in each case.

By this creamery system there is no encouragement for the dairyman to secure cows having the best butter-producing qualities, as they would not receive pay for the extra richness of the milk furnished. This state of things has been the means of keeping pure blooded stock out of our country. Had dairymen for the past ten years been paid for their product of milk according to its richness, or the amount of butter it produced, you would see better cows and better informed dairymen. I will now conclude by giving you a description of a new method by which butter can be made at factories, or creameries, as they are commonly called. The system of setting milk is also new, and for this purpose the Fairlamb Patent Milk Can for cream raising is used. The can is of the following dimensions and construction: It is  $19\frac{1}{2}$  inches high, 12 inches in diameter at the top,  $10\frac{1}{2}$  inches in diameter at the bottom, having a tube in the centre, 4 inches in diameter and 16 inches high; this tube is connected with the outside of the can, at the top, by a pipe three-fourths of an inch in diameter. The can is provided with a cover of tin and rubber which excludes the air, thus hermetically sealing it. It is also provided with a glass gauge marked with a scale of inches, for measuring the amount of cream raised on the milk. The advantages of this can may be briefly stated: Its cost is small; it is

very durable; it will raise all the cream in from 12 to 36 hours, according to season and temperature; it requires no special place for setting in order to raise the cream; in the summer season it may be used in water, in sub-earth ventilation houses or in cellars; for fall and winter use it may be set out of doors in the open air (temperature not being lower than 26 degrees F.), in sub-earth ventilation houses, or in the dwelling house. A low temperature will raise the cream in less time than a high one. For illustration: At 32 to 40 deg. F., the cream will raise in 12 hours; at 50 to 60 deg. F., from 12 to 24 hours; and at 70 to 80 deg. F., 24 to 36 hours will be required to get the full amount of cream. The time required, however, depends much upon the breed of cows. The milk from Jersey cows will raise its cream in less time than the milk from native stock and many other breeds, on account of the particles of cream in the milk being larger. By the use of the can, milk may be cooled slowly or quickly, as may be desired; in either case, there will be no change in the quality of the milk, the centre tube preventing what is generally called centre rot, which is caused by the cooling of the milk on the outside of the ordinary can, thus driving and concentrating the heat and gases of the milk at the centre, where it soon rots. The cream will be free from all foreign flavors, or odors that may be in the surrounding atmosphere, the can being hermetically sealed as before described.

The method which I have adopted consists of the gathering of cream (instead of milk) from dairies by the agents of the factory. The dairies are supplied with the cans referred to above, the cream being measured by the gauge placed in the side of the can, an inch of cream being one inch in height by twelve inches in diameter. The agent skims the cream, gives each dairy credit for the number of inches of cream taken, deposits the same in the hauling cans in his wagon, and delivers it to the factory. It is then stored until it has ripened, when it is ready for churning. By the above method a better quality of butter will be made than by the old creamery system of hauling the milk to the factories, for the following obvious reasons: The milk, by hauling, sustains a loss in quality by generating a gas caused by the motion of the milk in the cans. The dairymen, as a rule, do not feed for the best result in cream, but feed for a quantity of milk, regardless of its richness or butter value, as the milk would only sell at the common price paid; con-

sequently there is no encouragement for the keeping of blooded stock, or such stock as would produce the best and richest milk. It simply results in a loss to the dairy furnishing the richest milk, and becomes a profit or gain to the dairy furnishing a poor quality. It is plain to be seen that the best quality of butter can only be made by the method that pays the dairy for the milk according to its richness, instead of paying for weight, regardless of quality.

The cost of hauling cream and making butter at factories is about the same as the cost of making butter at factories where the milk is delivered by the dairymen. By the new method there is a saving in the hauling of milk of from 3 cents to 5 cents per pound on the butter made. Another advantage is a gain in the quantity of butter made of about one-half pound per hundred weight of milk; that is, a hundred pounds of milk set at the dairy will produce one-half pound more butter than the same milk will produce after being hauled to the factory. There is also an increase of 25 per cent. in the butter product over the old creamery system. This is obtained by the personal attention of the dairyman in setting the milk and in having a guide or reference on the cans (that is, the gauge), which will teach the secret of how to produce the most cream or butter. The can thus becomes an educator.

Mr. Field — I would like to ask Mr. Fairlamb now to explain his system a little more. I will ask him if he can set this in water.

Mr. Fairlamb — Yes.

Mr. Field — And have the cream rise in about what time, if you have the water as cold as they pretend to use in the Cooley creamery?

Mr. Fairlamb — We could raise the cream in about the same time.

Mr. Field — Will you state to the convention what you believe to be the advantages of this system over the Cooley system, where you use cold air and they use cold water.

Mr. Fairlamb — The Cooley can, as many are aware, has been well advertised and well sold, and there have been advantages claimed for it that from time to time have been changed. The first I ever heard of the Cooley can, it was placed in market, and of course the butter would keep as well as any other butter, but in a short time they came out with a card that in order to make butter of keeping qualities you should allow the cream to stand for a certain length of time so it would ripen, and the age of the cream

would keep the butter. I claim that the reason that creamery butter has not keeping qualities is that the milk is spoiled before it reaches the factory.

Mr. Field — What is the difference between raising the cream in eight or ten or twelve hours by the Cooley system, and raising it in the same length of time by your system. Is there any difference?

Mr. Fairlamb — There is no difference in raising the cream. There is a difference in preparing to raise the cream, and that is this: the Cooley can is a plain, straight can; the milk is placed in it warm, and it is covered up and submerged in water. We all know there is an animal flavor there, a smell, a gas, and that there is heat in that milk. What becomes of it? Where is it forced to? What are the laws that govern it? We all know that heat will rush away from cold; that heat is motion. There is no escape for that heat but to the center of that can, and there it remains with the gases and impurities of that milk; to improve the flavor of it? No. If you will let that can remain you will find that the milk will thicken first in the center. The can cools from the outside and the heat will run to the center. If you take a hog and hang it out, you know that the outside will be frozen and the inside will be spoiled.

Mr. Field — I guess not, unless it is a bigger hog than I ever saw.

Mr. Fratt — There are cases of that kind.

Mr. James M. Smith — If you did split them open they would spoil.

Mr. B. F. Adams — I would like to ask this question. Butter factories and cheese factories are constantly carrying milk on a circuit of three to five miles. In this plan of making butter I would like to ask how large a range of country you calculate one butter maker would take cream in.

Mr. Fairlamb — All that we have manufactured so far we have hauled about twenty-two miles, and a factory started in Mazomanie contemplates going twenty-four miles. The difference between the Cooley plan and this is simply in cooling the milk in the center and in cooling it on the bottom instead of on the top first. This heat and these impurities in the Cooley can cannot get out of the top of the can because there is no chance. You are all aware that the cream will rise, for instance, five inches, and shrink up to four inches, or three and a half. What is the cause of it? There is some cause. There is some gas in that milk, because the skim milk

contains a great deal of gas; and I have it on very good authority that it is a very dangerous milk to give to young calves. I would not make it a point against the Cooley system because they may be trained to drink that milk the same as to drink other things, but gradually. Now, by cooling the milk in the center, first it prevents the concentration of the gases there, and, from the construction of the can, there is a smaller surface on the bottom than on the top; and as a result the cold temperature falls and the milk first cools at the bottom, and the bottom will be cold and the top warm, and by that process it drives off the impurities of the milk. Wherever the cream rises it will remain; the cream is solid and thick and pure; and the milk, you can drink all of it you please. All our patrons have used it on the tables that never have used skim milk before. It is sweeter because the sugar of the milk is more concentrated, and they have never received any injury from it.

Mr. Hoxie — How soon do you close it?

Mr. Fairlamb — When the milk has become cool we cover it, not before.

Mr. Hoxie — I think as a general rule there are more impurities in the atmosphere that affect the milk than in the milk.

Mr. Fairlamb — If the atmosphere is cooler than the milk the condensation is in the atmosphere; if the milk is colder than the atmosphere the impurities will condense in the milk.

Mr. Hoxie — I am not speaking of cold or warm atmosphere, but dairymen all know there are impurities in the air, whether warm or cold, which will affect the milk. Now, should we not guard more against the impurities in the atmosphere than against those of the milk.

Mr. Fairlamb — We guard against that by covering it. There cannot anything come in contact with this milk while this escape of heat is going on.

Mr. Hoxie — I find that the milk coming to my dairy is injured more by the atmosphere than by the impurities of the milk itself. The milk coming to my factory is better when it is first drawn from the cows. If we could have it then we would have no difficulty, but the impure atmosphere often damages the milk. Now you let it cool before you close it up, and, if there are impurities in the atmosphere, I claim they get in before it gets cool.

Mr. Fairlamb — We have placed them in stock yards and in

different parts, and we have never found any bad cream in our practice.

Mr. James M. Smith — Where do you get your cold air in hot weather?

Mr. Fairlamb — Set them in cold water, or in houses built over wells or sub-ventilation. It is just as easy to obtain cold air as cold water.

Mr. Smith — Then you resort to this system?

Mr. Fairlamb — No. Milk was set in water before Cooley ever thought of it.

A Member — I will ask you if you have any advantage over the Hyde plan?

Mr. Fairlamb — This plan is adapted for creameries for the manufacture of butter by taking the cream from the farmer instead of the milk, and we do not compete with any pan or any can as yet. We are the first to venture into that system. We will go and take the farmer's milk, if he has two or three cows, and we will go miles for it. I think, with all the pans manufactured, you can get good results, but this can is especially adapted for the creamery system, which is just the reverse of the present way of manufacturing butter. We skim the milk with an ordinary skimmer or by placing in the can a small tube, say an inch in diameter, with a rubber cork, and by pulling out the cork the cream will run out of the can. There are two ways, but we can skim the milk very quickly with a skimmer as we can take out a pint at a time. The ventilator is for allowing a circulation of air and water through the can. An experiment was tried by Prof. Morris. He took water at a temperature of eighty degrees. He filled the tube in the can with ice and placed a piece of musquito bar over it; then put it in a tub of water at a temperature of fifty-two, and filled it with water at a temperature of eighty. It lowered eighteen degrees in twenty minutes. Then he made another experiment by taking out the ice and having no ice in the tube, just the water, and at the same time the temperature was lowered two degrees more, and he said that the circulation of the water was very plain to be seen; that there was a circulation of the water discharging in this pipe. There is a continual circulation of air or water in this tube, when there is warm milk in the can, and when the milk becomes of the same temperature as the outside, of course there is no ventilation there.

Mr. Field — Do you think, if that can was set into a tank and the water came just over that pipe, and then you let a stream of water run into that large tank, an inch stream, for instance, so as to change the water continually, that you could see during the whole time until the milk became of the same temperature as the water, that there was a current from the under side?

Mr. Fairlamb — The water would have to be perfectly still in order to have a current.

Mr. Field — You think there would be a current.

Mr. Fairlamb — Yes, sir. Where we have a stream of water we attach a small rubber pipe and extend it over the top.

Mr. Babbitt — It seems to me that the time has arrived when a little condemnation should be given to the agriculturists of Wisconsin. It seems to me that the theory advanced here yesterday carelessly by myself and my friend, Mr. Adams, that we are producing too much, ought to be considered a little. I do not claim that we ought to stop producing, but I do claim that we ought to stop producing one article to the exclusion of every other article and every other interest in the state of Wisconsin. It is very apparent that if we have a few more speeches brought forward here under the inspiration of divine authority, and presented in the manner in which Brother Bryant has presented the claims of the Jersey cattle, that the brains of the agriculturists of this state will be run away with, and we shall not know any kind of drink except Jersey cream. Now, my friend insinuated a day or two ago that I was affected somewhat by this Jersey interest, on account of a man living just above me owning a herd of Jersey cows and the water coming down through there. Now, let us give this creamery business and all these varied interests due consideration, but under no circumstances let the farmers of the state forget that their strength lies in a multiplicity of productions. We must produce wheat, corn, oats, cattle, hogs, sheep, grain, all kinds of fowls and every thing else, and by that means, possibly, we may be able to stand on our feet. One thing is sure, if the agricultural interests of the state do not stand, there is nothing in this state that will stand. It has got to stand, or else the fabric of this country and all that makes it desirable, all that makes it grand, our educational and other advantages that we have — must be sunk; and while we devote all the attention possible to these various interests, we must

not forget that we have got to run the other part of it. We have got to look after the expenditures, not particularly the expenditures of ourselves, but the expenditures of our agents.

FRIDAY, 2 o'clock P. M.

The convention convened in the senate chamber, and papers by the following persons were read:

Dahlias, Mrs. D. Huntley; Thoreau's Life of Labor and Study in the Woods, Mrs. H. M. Lewis; Mrs. Ayers and Mr. and Mrs. Reynolds.

Mr. Kellogg — It made me feel bad to hear what a wonderful time Thoreau had, and to think what he might have done if he had only looked around. It might have prolonged his life and made him so much more useful, if he had only just found the right kind of an old maid.

Mr. Field — I do not think I can add anything to what I have already heard. I have listened with a good deal of pleasure to the papers that have been read. I regret exceedingly that so few of the ladies we expected here were present. The reading of their own papers gives them a better effect. We get the best sense from them; better than we do when they are read by another person, however well read, as they have been this afternoon. I sympathize to some extent with my friend Kellogg in relation to this young gentleman we heard so much about, and so very pleasantly read of by Mrs. Lewis of this city, and certainly there are many thoughts in that paper that are of interest to us all; many lessons were there taught, and especially that we need but little in this life to make us happy, but little expenditure for food or clothing or shelter; and yet she tells us that he was supremely happy. No, I will take that back; said that he was happy, that he enjoyed all these things in nature and that he was happy; and I think she stated in the latter clause of her paper that he was true to himself, true to his country and true to his God. I could hardly reconcile that with the first clause, or nearly so, of her paper, where she said he was unmarried. I think that is hardly possible, and yet he might, perhaps, have enjoyed life reasonably well, but to say that

he fulfilled his duty to himself, to his country and to his God — I cannot see it in that light. Mr. President, I did not rise to make any remarks; I simply rose to make a motion thanking the ladies who have prepared these papers, and especially the one who has dared to come here and read it. They have given us some very excellent thoughts in these papers, that are worthy of consideration, and I move you that the thanks of this joint convention be tendered to them.

Motion carried.

Mr. S. Barter — I would like to make a few remarks, although I am a stranger here. The text of my remarks will be, Summer Flowers. I came here without any preparation, but fearing that some of the ladies who have presented such highly interesting papers may think they are not appreciated, I think it is proper for us to say something in regard to them. The one that has been the most pleasing and attractive to me is the article on Summer Flowers, read last year by Mrs. Huntley. If any lady or gentleman has not read it, it will well repay them for perusal. This article is the more attractive to me from the fact that I think the cultivation of summer flowers is attended with less trouble than any others. House plants are attended with a great deal of trouble and care. During the last cold spell that we had, I received a letter from my wife which said that our friends and neighbors had lost nearly all their house plants during that cold snap, but summer flowers are attended with very little trouble. I think that any of our friends who have any experience in the cultivation of house plants, should give their experience from the best modes they find in their cultivation. My plan in sowing seeds is, to put them in rows about a foot apart. In that way we can follow along in the row as the seeds come up, and hoe out the weeds between the rows when they are so small that you can hardly tell the flower from the weed. In this way I have succeeded admirably in raising house plants from seed. You generally get them too thick in the row, but you can transplant them if you take them in a moist time and set them in any part of your garden, and they will scarcely know that they have been moved. The best success I have had has been in raising pansies. Any one who has had any experience with pansies will concede that they are perhaps the best flower that is raised, taking all things into consideration. There is very little trouble in raising

them, and their variety and beauty cannot help pleasing any one who has any appreciation of flowers. I shall be very glad to see Mrs. Huntley's article on dahlias in print. She discusses it admirably. Last summer I had very good success with dahlias. I had a very elegant yellow one, and a white one which was a dwarf plant, but very excellent in color — pure white — a beauty. It remained long in blossom, but was not a very free bloomer. I had a mottled one which was very good. I have about a dozen vases and I intend to add about a dozen more, perhaps a hundred, before I get through. In speaking of the growth of roses, it might be well enough to state that a great many people have been discouraged about raising roses in Wisconsin, by the many enemies they have to contend with, the slugs and the small bugs which perforate the leaves. The small bug is the greatest enemy of the rose plant, but they are very easily destroyed by a weak solution of Paris green. Put it on with a little wisp broom; one application entirely destroys the bugs so that they never afterwards hurt the bushes. Many persons present, I presume, have heard about the "Last Rose of Summer." I anxiously watched them until the last blossom fell away and certainly regretted it when it went. Roses are certainly the best summer plants, both in fragrance and in beauty. There is no reason why we cannot have a splendid display of roses in this climate. It is very little trouble to protect them in winter. My method is to lay them carefully down and let some one drive sticks on each side of the bush. Then tie across the rose bush with twine to hold them down in that way, and cover them with straw. That is ample protection. I will read this article of Mrs. Huntley's.

Mr. Smith — I want to say that Mrs. Huntley is an old acquaintance of mine. What she preaches in regard to flowers she practices. Her husband is a farmer, and I know of no reason why any common farmer cannot have flowers, and have as pleasant flower beds and as pretty ones as she does. Her dahlias and flowers as I have seen them, year after year, are equal to her descriptions; fully so.

Mr. Plumb — I think we have in the paper of Mr. Reynolds some good substantial teaching in regard to the conduct of horticultural societies. It is from a practical standpoint. Almost all the instructions we have on this subject are from a theoretical standpoint, but happening to have been with this society at least at one of their meetings, and knowing their history, their progress, and

their complete success, I wish you would especially bear in mind the instructions and advice given in that paper, and if it comes in your way in your homes or in your communities to put those things in practice, treasure them carefully. They are valuable words. I believe it is within the province of every thinking man and woman to unite themselves in every community into a local horticultural society that shall carry out this work and disseminate these beautiful and interesting and profitable truths, that we get here at these meetings.

Mr. Hatch — During the time that we have been assembled here the question of butter making has been proved backwards and forwards and in all ways, but there probably was never anything done on earth but what somebody could beat it; and, while many of the essays and papers have been covered up with a great many words, now and then we get a great deal of philosophy, and philosophy and principles go further than mere conclusions and opinions. Experience and philosophy is what we are after. I was very grateful to the gentleman who explained the philosophy of the milk can to-day, because yesterday I thought there was a disposition on the part of the advocates of the Cooley plan to rather override others, because they had concluded it was the best thing in the world and it could not be beaten, but I have made up my mind that anything can be beaten. You may think you have got the best plan in the world to make butter, but there is something about it that is not known yet. It will be beaten after a time. When Mr. Hofer explained his way of growing grapes it was very good by way of awakening an interest in the matter. When Mr. Greenman showed the philosophy of it, that was better yet, because he gave an understanding of the principles and philosophy to work on, and you could adapt the principles and philosophy to your own circumstances. I think Mr. Greenman is entitled to a great deal of credit for the interest he has manifested and the expense he has been to in order to illustrate this subject to us, and it is no more than just to him to say that the trellis he has shown here is not patented. It is free to you all. There is no royalty on it. Now, when Mr. Curtis presented the paper here on butter, while he admitted the advantages of the Cooley plan, he did not intend to say that the way he suggested was better, but they were ways and principles for men without means, who were perhaps in doubt, by which they could

demonstrate to themselves how these things were, and whether there was any superiority in the old method of the open air setting of milk. Now, there are several new ideas in agriculture that we want. If sub-ventilation and submerging of milk is beneficial, and if the new trellis is in advance of anything that has ever gone before, we ought to have these things philosophized to us, and then we can advance. I think the true philosophy of getting along in the world is to produce plenty on the farm as cheaply and as intelligently as possible, and then put it into the market and sell it with the least possible expense; and the time of over-production is the time to develop the home market. I live within six or seven miles of five cheese factories. At the height of the season they were using from seventy-five to one hundred barrels of milk a day. Milk literally flowing before my eyes, yet I have not been able at any time to buy cheese for less than seven cents a pound at the factory, and take the whole cheese at that. Now, within a circle of twenty miles around any cheese factory in the state, I may safely say there are twenty thousand inhabitants, probably not one but has within a circle of forty miles in diameter twenty thousand inhabitants. Now, in this time of over-production, cannot they relieve cheese of the luxurious price that is paid for it, and put it in the hands of the feeble to increase their comforts and happiness? I should think it might be done, and the idea of developing a home market ought to be applied, not only to cheese, but to all products. For instance, honey is not sold for what it is really worth, but it is sold as a luxury and you get a speculative prize for it.

At one time a gentleman told us that the Jersey cows were the best. At another time another gentleman told us the Short-horns were the best, and they proved it both ways just as clear as mud. Now, the kind of breed you will have on the farm will depend a great deal upon resources. If the feed you wish to turn into beef or butter is in the pasturage on rugged hills, you want a breed adapted to the place. Now, on our rugged hills our dairymen have taken the Devon, and have good Devon cows that throughout the herds will weigh ten or twelve hundred pounds; excellent cows. They are first rate grazers; they are not in fashion like your Short-horns and Ayreshires, still they answer our purpose very well, and our dairymen produce seven cent cheese. Now, your Short-horns, if you have a level farm, and if you have got your feed in bins, is a

very good breed, because you can feed it to them, but if they had to run the rugged hills at Richland, I think they would fare pretty slim. Our Devons would beat them.

Mr. Field — I will occupy just a minute in order to take up the time. One gentleman says the Short-horn is the milking strain of stock, and the other says the Jersey is, and they prove it, as has been said, as clear as mud. My idea has been all my life, and the older I get the more I am convinced that it is the true plan, to gather all the wheat and the chaff together and then sift it yourself. You have got to put it through your own mill at last any way. I like to hear these discussions. I like to hear gentlemen show us wherein the Short-horn is better than any other stock that can be produced. I like to see the other gentlemen come in and say that the Short-horn is nowhere, and the Jersey is the best, and tell us why. Then we will take all these things and put them together in our own crucible, and try them, and see for ourselves. Then we get at results, and if we satisfy ourselves, that is all right. I believe if you want cows purely for milking purposes, whether for butter or for cheese, the Jersey stock crossed with the native stock of the country is the best there is, though some might think others better; but if you desire, as I do, not only to make butter and cheese but to raise calves, I am satisfied from the best information I can obtain from the best dairymen here and elsewhere, that the Short-horn cross is the true cross — the milking strain of Short-horns. I am not skilled in the pedigree names. Any of them are good, but there is really a difference. There is a certain strain of Short-horns that are better than others, but I am satisfied that anything, if it is a Short-horn, will make a good milch cow; but I think there are families of the Short-horns that will make better milch cows than others, and I would say buy that strain. Get a good full blood bull and cross with the best native cows you can get, and you will have good milking stock. I can show you plenty of it in this state which the gentlemen that own them say are as fine as any there is in the state. They are willing to put them against the best Jersey cows in the state for the same amount of feed consumed and milk produced. Not only will you get good milch cows, but you will get a calf that is a calf for beef, and, if you want to raise that calf, and make a good steer, one that will command a price in the market, five cents for instance now in the Chicago market, while common

beef is three or three and a half, and weigh sixteen, seventeen, eighteen, nineteen hundred pounds, you can make it out of that. You cannot make it out of these little fellows.

Mr. Robbins — I am not now going to find any fault with anything that has been written or said. As for myself, I shall not buy any Ayreshire or Alderney this year. I want to buy a full blooded Short-horn calf. I do not care about his giving milk, but I want him to come from a good milker. I have some half-breeds and some three-quarters; they are nice heifers at that. I bought one of the best Short-horns I could get, four years ago, and gave one hundred dollars when it would weigh just about a hundred pounds. That is about a dollar a pound; it was awfully extravagant, but I have made by the operation. I sold him last fall for thirty-five dollars. He weighed fifteen hundred when I sold him, but he was worth just bull beef. I sold him to a man who was going to breed from him. He came out and looked at the stock and said he was just the thing he wanted, exactly, although a man had been killed by one of these nice bulls within three or four miles of there. I told him the animal would not hurt him if he used him as nicely as I had done, and he took him off. I am not going to raise any wheat, if I could raise a hundred bushels to the acre, because my wheat last year was a failure, and I can buy it cheaper than I can raise it. I will not raise any barley, because the chinch bugs will eat it all up. I am going to sow some oats and plant some corn and reform my grapery, not on the Greenman plan, but on the other man's plan; but I am going to try and split the thing a little, and, instead of having one cow raise two calves, where I almost have to give away my heifer calves, I am going to make butter and make my calves drink skim milk. I think I have intelligence enough now to go to my tinner and tell him just what kind of a pan I want. I think it will be half way between the Cooley patent and the other. I am going back on to the farm and try these experiments, and I will be here next year and tell you how I have succeeded in Short-horns. I have some to sell now. I heard that a man shipped fourteen day before yesterday that averaged 1650 pounds. I do not know what he got for them, but I do not propose to sell mine for less than four cents. I have five at home; the last I sold I got eighty-five dollars a piece, for beef. They were steers.

Mr. Smith — Wasn't there money in them at that price?

Mr. Robbins — Well, I was offered fifty dollars for them in the fall, and I fed them about two months and sold them for eighty-five. I thought there was a little money in them. Now I have got some more, and I raised them. I think more of them when I raise them, because they are kinder and better. One thing I do that I would not advise anybody else to do. I salt my cattle on Sunday, but I enjoy myself and it pleases them. The minute they see me they commence bellowing; you would think that they would run right over me, but the minute they get to me they stop. I do not think one of my boys ever salted one of my animals, or anybody on my farm, for twenty years, but myself. I am not going to try to change my farm much. The times are too hard to try experiments. I shall raise all the apples I want this year. I have no doubt of it, and all my neighbors want to eat that come. I shall raise all the blackberries I want, and enough for all the birds and worms too; and I shall raise all the strawberries I want, if they do as well as they have the last eight or ten years. So I am not discouraged at all, although I do not expect to make any money. I do not care whether I make any money or not. I have the finest evergreen grove there is in Grant county, and I have apple trees that I set out. I have tried experiments with these men, but have not got any apples, and I have set them around among these evergreens, and I expect to come up here next year and tell you that I have some of the finest apples I ever raised.

Mr. Field (?) — I do not think they tax you enough, if you have such a nice place as that.

Mr. Robbins — I am going to beat the tax gatherer. I am going to sell forty acres of land this year or give it away, and double the labor on the other forty, and they will not charge me any more on that. It is the only way I can beat the tax gatherer, so I have made up my mind to sell one forty. It cost me in all fifty-six dollars an acre. I paid a dollar and a quarter. Now I am willing to sell it for forty dollars an acre and wait ten years for my pay, if he will only pay me what the interest is on two thousand dollars, that is about fifty dollars an acre. That is all I want. I paid fifty-six, and paid ten per cent. interest until I paid for the land. I am not going home discouraged at all. I believe I have five years longer to live than if I had not come up here. I have come within a hair's breadth of being killed a good many times, and did not get

hurt. The nearest I ever came to being killed was here, in Madison, when I told them about the big appropriation here. They came near taking my head off. You never saw a newspaper man in Madison that ever gave me a puff in the world, though I have been in the legislature seven years and was chairman of the Committee on Education five years, because I did just mean things enough to offset every good thing I ever did.

Mr. Hoxie — This can of the Cooley system which was advocated, seems to set at variance all our notions of setting milk. We all thought it must have air, so we looked upon this with a little distrust. Now they tell us to take the milk from the cow, put it in the can and submerge it in water and keep it away from the air. I suppose if Prof. Harding were here he would advocate the sub-earth method. The butter we used to have years ago in the old dug-out cellars, where it came in contact with the earthly air, was the best butter we had and kept the best. Though our butter and cheese stand high in the eastern market, yet, as a nation of butter and cheese producers, we are far behind other nations. The Germans and Irish can beat us all to pieces in making butter, and they get better prices and make butter which will keep better. The Irish make nice cheese, and it is conceded by all that the English cheese is superior to ours. I have no doubt they steal some of ours and put on their brand and sell it. I say we looked upon this with distrust, and I do not know but we have reason to, because there are so many things we are told are the best, and they certainly cannot all be the best; but, if any of these men who get up these patent milk cans will tell the factory men how we can get milk to our factories, whether butter or cheese factories, in just as good condition as it comes from the cow, it would suit me better. I tell my patrons I do not care so much about their setting the milk in a tub of cold water, which they think they must do, but I say to them, "if you can get the milk reduced down to the temperature of the atmosphere — if you have got pure atmosphere around where you set your milk cans, stir it up and get it to the temperature of the atmosphere, and if you can do that and get it in just as good condition to my factory, that is all I ask;" but they will not do that. Now the idea of shutting it up in an air-tight can! I do not know that I could make a cheese fit for the foreign market or the home market, if I shut it up like that. But we want

some way in which we can get the milk to the factory in good condition, and then, when we make the cheese at the factory, if we could have any inducement to make cheese in Wisconsin that we could keep on the shelves forty days, and then let it go on to the market, and it would be a good cheese in six months, it would be a better thing. But as soon as cheese is thirty days old and fit to eat, we cannot sell it. If a buyer comes along and wants our cheese in July, and we have any June cheese, he will not touch the June cheese because it is a little off flavor, he says, and there is no inducement to make cheese that will hold its flavor, because they will not take it after it is a month old. Three years ago there was a Montreal buyer at my factory to look at cheese. I had cheese there that was cured in a cool room the first of July, and this was in August. He said to me, "that cheese is the finest dairy cheese I have seen anywhere. It is as fine flavored and as nice as August cheese." I said to him, "Why don't you pay me August price for it then?" O, well, it was June cheese or July cheese, and when it came on the market it would be left. I sold him the July cheese and the August cheese, and I said, "Shall I put any distinguishing mark on the box so that you will know the June and July cheese from the August cheese?" Says he, "I do not know as you need to." Says I, "You will sell that all as August cheese." Says he, "I do not know but I shall, if I can." What inducement is there to me to make a cheese that will go on to the market as good when it is two months old as when it is one month old, and sell just as quick.

This gentleman said that with the Cooley system the butter went on the market when it was fresh, but would not keep. We want a butter that will be in good condition when it is six months old. Certain conditions of the cow make the butter keep better, of course. We want to get this matter before the people some way, and dairymen and buyers, so that we can make a butter that is just as good as the Irish and German butter, and that will keep and bring just as good a price. We can make just as good as they do there, but we do not do it. The buyers do not encourage the farmers and the factories. We look with distrust upon all these systems, because they are so at variance with what we were taught in our early days. I have made hundreds of milk shelves and these revolving racks, so that every milk can would come in contact with

the air. We thought it must have air, and now they tell us we do not want air at all in this Cooley system. So I say, do not let us swallow everything with regard to the Cooley plan.

Mr. Fairlamb — Why do you advise your patrons to stir their milk?

Mr. Hoxie — I wanted it to come in contact with the atmosphere so, if there were any odor, it would take it out. My theory is that the better way is to take out any of these bad odors rather than confine it.

Mr. Fairlamb — If these odors are not taken out by stirring, what is the result? Where do they settle?

Mr. Hoxie — I do not know, any more than when we have music. We hear it in the room for a time, and after a while we will not have it and we cannot tell where it goes to. It is not for me to tell. Some dairymen tell us the milk is impure when it comes from the cow. I do not know about that. We know it becomes impure by coming in contact with any bad odors, so the advocates of the Cooley system and Mr. Fairlamb, I suppose, agree; only he says close the milk right up; and he lets it cool a while open to the air; but the advocates of the Cooley system say put it right into the cold water as soon as it is drawn from the cow, because the damage resulting from coming in contact with the impure odors, etc., in the atmosphere is greater than from the impurities in the milk.

Mr. Field — I think we have developed sufficient knowledge in relation to this matter of raising cream since we have been here to say this one thing, if nothing more; notwithstanding this and that patent and the sub-earth ducts, and all that sort of thing, it comes down to this one point, that you can get the cream from milk set any way you please if you only have it cold enough. I believe they all agree about that. Mr. Fairlamb shakes his head, but nevertheless he says you must have the atmosphere cold. I do not believe it makes a straw's difference whether the atmosphere is cold or whether the water that surrounds it is cold. If you get that milk to the natural temperature of the atmosphere for cream to rise to a short time you will get the cream raised, and as to their being impurities in milk I do not believe there is any more impurities in the milk when it is drawn from the cow, than there is in the egg before you break the shell. If there is anything wrong with the cow, her milk may be bad, but I believe if she is perfectly healthy,

the milk is just as nice and pure when it comes from the cow as anything can be. I do not believe you can put it into the purest atmosphere that ever Heaven gave us and get it any better than it is. As to animal odors, there may be something in that, but I doubt it mightily. I had just as lief, and a little rather, take that milk when it is first drawn, and drink it, than after it has stood around in some man's stable or in a house that is not properly cleansed and ventilated.

Mr. Fairlamb — I suppose a great many here are aware of a few facts in regard to milk, and a great many know that if milk is set away by itself, without stirring, or without any other device by which milk can be cooled in the center, that it will become rotten; and I think that any parties who ever furnished milk to a factory have gone back mourning from that cause, because it was not stirred; and milkmen who sell milk in the city have to be very careful to keep the center of the milk in agitation; if they do not, it will decay; and the principle of that can is to protect the center of the milk from this decay caused by the heat of the milk being centered there as the can cools. I have seen several gentlemen, and one in particular, who states that he has seen milk frozen on the outside and spoiled in the center.

Mr. Merritt — You have heard a good deal of Jersey cows and cream and butter and milk, and these great improvements in dairying are worthy of consideration, and yet it is not all milk and butter and cheese. If we have all butter we will not have any bread to eat it on. It used to be that we had milk and honey. There was a country recommended long ago that flowed with milk and honey, and it has been regarded in all ages as the very highest food for man. Our country not only provides milk, but it provides honey, and its produce is almost an agricultural pursuit, or perhaps horticultural, and possibly it belongs to both. The production of honey in this country is carried on by men who hardly pursue it with any system or science. That is saying a great deal, because there are a great many bee men here, and a great many that have spent their time in bee hives and bee boxes, and of course they are interested in their plan of raising honey. Now, I am interested in milk and butter and Jersey cows just as much as I want to be, and it is partly a luxury and partly a necessity, but honey is considered a luxury, and it would be if it were not for the adulterations of it. We raise

now, even with our poor system of management, an immense amount of honey, and it is put into the market, and seven parts of it is adulterated, glucose or something else, and yet we are struggling on, trying to raise an article of luxury and bring it into common use. Now, why can we not do it? Give it half of the thought you do butter and cheese and cows, and you can raise a greater luxury and bring it down to every man with less money than you can the milk and butter and cheese. It has been demonstrated here to-day by a paper that a bee has a business end, and that he is controlled by a bug; that is, his head was bitten off and he was eaten out wholly. He has a business end, but a bee can be controlled just as well as Jersey cows, and with no more trouble. Let me come up to one of you and put my fist in your face and you will resent it. So it is with the bee. You go up in that abrupt manner to any man's house and he will resent it, and has a right to; and so it is with the bee; but you treat them as carefully and kindly as you do a Jersey cow and they will treat you just as well, and do more labor in proportion to their physical ability and size than you can. If we could perform as much labor as the bee will, according to our size, we could jump over this capitol. There is as great a variety of honeys as of flowers, and there are thousands of varieties of flowers. Honey always partakes of the flower from which it is gathered. White clover or bass wood forage is the best bee food we have in this country. Bass wood forage is wonderful. I had seventeen barrels of bass wood forage from fifty-seven swarms of bees one season. Of course they were made from one hundred swarms in reality. I make my swarms double. It is the large swarms that bring the honey. It is with bees, I suppose, just as it is with Jersey cows. Those which have the best forage produce the most; and there is something in management. I think, perhaps, in the same ratio, and possibly more. I said it was a part of horticulture, perhaps. Mr. Hofer says he does not trim the grape vines at a certain time, because he is afraid of scaring away the bees. There is an idea there that is quite important. They do fertilize these grape flowers, and you get more and better fruit for their being fertilized; and it is so with any kind of fruit. Why do your apples fall off? My opinion is, it is because they are not fertilized. If you had bees in every farm yard, I think you would have more fruit. It is just so with corn. There are times when

we do not raise good corn, because we have bad storms and it carries the pollen in the wrong place. It must be fertilized by the pollen. Bees get honey from the corn, and you get better fruit and flowers and seed by its being fertilized by the bees, besides getting all this honey.

Mr. E. W. Daniells — I do not agree with what Mr. Merritt has said in regard to adulteration. We don't extract much, and you cannot adulterate the comb honey very easily. It is not practiced to any extent at least. Besides, he had some erroneous ideas about advancing the growth of corn. They do not gather any honey from the corn, nothing but the pollen, as I understand it.

Mr. Merritt — They gather honey from the silks of the corn.

Mr. Daniells — That is not the way I have understood it or read it; they gather very little honey from the corn. We do not extract much honey. I never extract any. I think I can make more out of the comb honey than I could by extracting. It does not sell for near as much.

Mr. Merritt — When you extract the honey you get the pure honey and nothing else, besides, you can get a distinct species by extracting the honey, and you cannot do it in any other way to a very great extent, because the bees want to make comb. They not only consume twenty pounds of honey to make a single pound of comb, but they form an independent cluster of bees in every hive or box, no matter how large or small, before they can make a single particle of comb, and when they do that they always work inside of that. In all these boxes, perhaps, the theory is right, but the bees must form an independent hive before they can make that comb. Of course you only get one-third as much honey when you only get comb honey, even in large boxes; but if you made it in small ones you would not get near that proportion, and you will get a much better article by extracting, and those bees forming that independent cluster are engaged in that business. When I put my bees in shape to gather honey and extract it, I have the comb made beforehand. Our honey season is very short, sometimes not over two or three weeks, but during that time I put every bee right down to business, bringing honey and nothing else. If you do that, every man with two or three swarms of bees can get honey enough for his family. There is no patent on it, and we would like to get you all to raising honey and having a luxury for

your table. If you do that we can sell our honey for more than we do now, because it will be appreciated at what it is worth. In Ohio, where they raise a much larger quantity than we do, they demand double our price.

Mr. Kellogg — After one year's experience in keeping bees I have made up my mind that if I had but two cows and no bees, I would swap a calf for a swarm of bees. Bees are only worth two or three dollars now, but I do not know but I would do the same thing. I do not believe in artificial swarming. I would like to hear what is the best hive and the best forage, and whether there is any artificial food that we can give them.

Judge Bryant — I believe the bee is the biggest humbug there is in the business. They are thieves, liars, robbers and murderers. They are thieves because they steal all the sweet there is out of the clovers and rob it from the cows; they go around among the grape vines stealing the sweet from the grapes. They are liars because they make us believe the "little busy bees" are the busiest people in the world, whereas, when you get him in the country, where he does not have to work, he is the laziest fellow in the business. He is a murderer. You go anywhere within thirty or forty rods of him and he will strike you, and if he does not strike hard he does it with all his might and strength; and I would be in favor of having the whole bee business abolished.

Mr. Merritt — The bees do not rob the farm of anything that could be utilized in any other direction. The clover is worth just as much for the cows as before, and besides, you would not have any red clover if it were not for the flies and the bees that fertilize it, and you do not have any in the first crop, but you do in the second, and that is the time they fertilize it. You ought to understand more about the bee, because they help to feed your Jersey cows by fertilizing this clover, and furnish your table with a luxury you can get nowhere else. There are several counties where the bees are overstocked. There is no forage to supply them with. It may be provided artificially by sowing buckwheat, which is a very remunerative crop to raise. And there is a certain kind of rape seed which is used for oil, the same as flax seed. It is quite a profitable crop and forms quite an extensive forage for the bees. Mustard is a good forage. I do not believe there is any more in Jersey cows and in patent milk cans than there is in bees. I think we

might gain some useful information about them. I believe there is science in this milk can and in the Cooley plan, too. I believe they will come here another year and perhaps make some improvement. Let us use the best we can, and that is perfection.

Mr. Findlayson — I am not a bee man, but I am informed that the bee does not gather honey from red clover. If that is so, there is an error here, and the Judge is not so far out, if the bee does not affect the seed. They tell me the bee cannot penetrate the depth of the neck of the flower and withdraw the honey. I did think the bee was just sharp enough to stick that little sharp thing in anywhere and withdraw it, but it seems not.

Mr. Phillips — It seems a little too much to take up so much time unless we can learn something in the line of facts that will be instructive. Of course the bees are deserving of credit, but when a man gets up and tells us we would have no red clover without them we all know better than that. The clover will seed on the first sowing. You sow it next spring, and the clover will seed the coming fall. I know that to be a fact.

Mr. Freeport — I would answer Mr. Findlayson. I remember sending Mr. Greenman a barrel of honey made from red clover. The first crop is generally so long that they cannot reach it, but in the second the distance is so short that they can reach the honey.

Mr. Merritt — The idea I advanced in relation to fertilizing is perfectly correct. The red clover is fertilized by the bees and nothing else. The willow is in the same condition. There would never be a willow in this country or any other, if it were not for the bees. I do not say the bees do it all, but the bees get honey from the red clover sometimes. The bumble bees get honey from the red clover, and they are the ones that fertilize the most of the crops that contain seed, and, if you will study the matter, you will prove to yourself that this is a fact. Not only is this so, but bees are propagated and improved by the same process as any other stock. A certain kind of bees are brought up to a certain physical condition so that they will be much stronger and much more ready to fertilize crops; and my neighbor, who carries on his business with black bees and various kinds of bees that are produced in the descending grade of physical development, is injuring my business and not improving his own.

Mr. Field — I am prepared to believe almost anything these days,

but I am not prepared to believe that bees or any other insects fertilize all our clover; neither do I believe that they increase our crop of corn a single kernel, and I wish there was not a single insect that ever preyed upon my corn. I raised two hundred acres of corn last year, and not one has ever been seen in it yet. I hope they will be brought there soon. I like their honey. I like to see them forage on me and get what they can, but I am not afraid but what I will raise all the corn I want if I prepare my land properly, put in good seed, whether there is a honey bee within a hundred miles of it. Besides, I sowed the red and white clover last year, the first, I believe, that has been put in within a hundred miles of me. It has gone to seed this summer and I do not believe there was a bee within sight of it, for I did not see a bee or a bumble-bee in that country, and it has seeded beautifully. It is a wrong impression that we have got to have the honey bee or any other insect to get good corn or anything of that kind, and hence I do not think that it should go to the world that we advocate any such ideas or indorse them.

Mr. Merritt — I did not wish this convention to indorse what I said; I only wish you to investigate.

A Member — What is the proper size for a bee hive and the best style?

Mr. Chipman — That question is bringing out the idea of the biggest humbug we have to contend with in these times. The bee, I contend, is not a humbug, but the hive business is a humbug. There are thousands, I might almost say millions, in this state of worthless hives, and they are patented and paid for, that are not worth a picayune only for kindling wood. A good, plain, simple, movable frame, that you can move and understand every department of the hive, is just what you want. I use Mr. Langstraw's patent hive. It is not a patent hive, but it is a hive that one man in this state has made use of, and made forty thousand dollars from his bees. I do not indorse any patent hive or patent box or anything.

Mr. Kellogg — I would like to know the best method of catching the coddling moth, if there is any practical method?

Mr. Olds — My experience goes to show that pasturing an orchard is the best remedy where it can be done. Pasture the orchard with sheep or pigs in the early part of the season, so that all the early

wormy apples are destroyed. Then you will not have trouble with the main crop.

Mr. Chipman — I want to give my experience in pasturing orchards. I had heard so much about this being a great benefit. I had a large hog field connected with the orchard, and if it would benefit the orchard I thought I would turn them in and fence them in. They ate the apples and laid around the trees. They ate the corn finally, but before they ate the corn they killed the last tree in the orchard. They laid around the trees and, I suppose, tramped them to death. The trees all died. The trees were from five to twenty years old, and some of them 28 and 20 inches through. Every tree in the orchard died, and I could find no other reason only the hogs walking and eating the corn and getting up in the shade packed the earth pretty solid, and the next spring there was but one tree that leaved out any, and that shed its leaves within a month.

Mr. Phillips — I had twenty hogs last fall and set apart five acres for hogs. I set rings in the hogs' noses. There was some old straw in the corner for them to lie on. They behaved as well as Jersey cows all summer. They did not hurt a tree in my orchard that I know of. There were some four or five hundred trees. I am going to turn them in next summer. So there are two sides to this question. I noticed the hogs did go and lay under the trees. I found one or two places where they had rooted, although I had rings in their noses, but I thought it would be a benefit to the ground where they stirred it a little.

Mr. Kellogg — A neighbor of mine a mile from me injured an orchard by turning in a large quantity of hogs. The season was wet and the foliage not very abundant, and those hogs tramped that ground sufficiently to injure that orchard.

Mr. Peffer — I have a neighbor that has a small orchard of twenty trees, and one who had fifty trees in his orchard, and the corn was not very good and the hogs wanted something to eat, and they gnawed the bark off the trees; and when there was not enough of that, they gnawed the bark off the roots; the consequence is there is not a live tree there.

Mr. Chipman — There was no gnawing the trees whatever in my orchard. There was plenty of corn for them to eat, and they laid there and packed it. They had some fifty acres of grass they could run out onto if they chose, but they chiefly ate the corn and came

up under these trees and laid there; and when they had laid there long enough they would go away. The ground was planted to corn. We planted the orchard to corn the same as we did the field. I intended to fence between the orchard and the field, but so many said the hogs would benefit the apple trees, I let them all go.

Mr. Keyser — What breed of hogs did you have?

Mr. Chipman — Pretty well graded up Poland-China.

Mr. Field — What condition was your ground in? Was it packed down very hard?

Mr. Chipman — Very solid. This land had been corn land for about seventeen years. That was the first year I ever turned hogs in it. Under every tree where the hogs lay the ground was packed as hard as a road. I think the packing of the earth was the cause of the dying of the trees.

Mr. Kellogg moved that the thanks of the joint convention be tendered to the different railroads for their kindness.

Unanimously adopted.

## MISCELLANEOUS PAPERS.

## MEXICO.

## THE GREAT WEST OF THE NEAR FUTURE.

BY JOHN A. RICE, OF MERTON, WIS.

[Address delivered in the Senate Chamber at the Capitol, at Madison, Wis.]

*Ladies and Gentlemen:* Having been urged by many friends to come before you, for the purpose of giving you some account of an experience, and imparting to you some of the information, obtained during a late excursion to the Republic of Mexico, I will premise by saying, that I do so with a great deal of hesitation and with a feeling of great diffidence, as there is so much to say in regard to that country, and I have had so little time since my return to arrange in proper form the information there gained, that I fear I shall be neither interesting or instructive to many of you. I hope, therefore, you will excuse all imperfections of style, manner, or arrangement of the subject, as I know they are all open to criticism.

I am surprised at the very general interest our people have taken in this expedition to Mexico. Almost everywhere I go it is the subject of conversation. It is the same in Mexico, and whatever the results may be in a commercial way, it is sure to make the people of both countries better acquainted with each other, and leads us to hope for a better and a more intimate relationship hereafter. It is, therefore, with pleasure, I shall endeavor to give you a short account of the excursion, its inception, its object, our reception in Mexico, and also to give you some idea of the actual condition of that country at the present time.

In almost every library a few old musty volumes may be found treating of Mexico. But in none of them, with which I am acquainted, can any knowledge be obtained of the present condition

or prospects, or of the great, and in some respects most remarkable political changes, which have lately been taking place in that country, and which give so much promise of a brighter, and let us hope a more prosperous, future.

The excursion party of which I had the good fortune to be a member, was made up on the invitation of the Mexican minister at Washington, and was extended to the Chicago merchants only, and doubtless would have been made up of Chicago people entirely, had it not been for a certain letter written by Mr. John W. Foster, our minister to Mexico, and addressed to the Manufacturers' Association of Chicago. In this letter he advises the Chicago people not to come to Mexico, as in that country life was unsafe; tariffs high; trade was in the hands of the Germans; that it was impossible to do business with profit or safety. Consequently but few of the Chicago merchants availed themselves of the opportunity to go, and what was originally intended for a Chicago enterprise, became one representing all parts of the Northwest.

I had early determined to go, if possible, not because I had anything to sell, but because I desired to see and know something of that wonderful country. Fourteen states were represented — Wisconsin by five of its citizens. The press seemed to take great interest in the excursion, and the following papers had able representatives with the party: *Chicago Times*, *Inter-Ocean*; *New York Herald*, *New York Tribune*, *Frank Leslie's Illustrated Journal*; several St. Louis papers; *The Illustrated London News*, and the Galveston papers. Bankers, railroad officials, railroad contractors, merchants, manufacturers, scientific men and live business men made up the balance of the party, consisting in all of 82 members. And I desire to say that, excepting myself, for intelligence, enterprise and gentlemanly bearing, it would have been difficult to have gotten together a more respectable body of men or men better calculated to make a favorable impression upon foreigners. The intention was to have started the 4th day of December, but at that time applications enough had not been made to make it an object to go, and it was not until the 4th day of January that the party assembled at the Palmer House in Chicago, where the expedition was organized under the name of the U. S. Industrial Expedition to Mexico, ex-Gov. Fisk, of Kentucky, president. We received the hospitality of the Palmer House in a grand and com-

plimentary dinner given by Mr. Potter Palmer, and left the city of Chicago on the evening of the 4th of January, via the Illinois Central Railway; our tickets for the round trip, via New Orleans and return via Galveston, costing us \$150. Reaching New Orleans on the evening of the 6th we were received by the members of the board of trade, and the next day was spent in visiting the cotton exchange, the two houses of the legislature and many other points of interest in that city. On the morning of the 8th we embarked on board the steamer City of Mexico, of the Alexander line of New York, and the only steamer running between New Orleans and Vera Cruz. All went well until we reached the gulf, which we did at 7 o'clock P. M. the same day, the party enjoying the trip down the river very much indeed. As we entered the gulf a very heavy trade wind was blowing from the southeast, and as the course of the steamer was southwest, it was across a very heavy cross sea, and the rolling and tossing of the ship was terrible, and in less than an hour there were only eight of our party able to be on their feet. I was very fortunately, and very thankfully, one of that number. Almost all the party were compelled to keep their berths until the evening of the 11th, when we cast anchor under the lee of the "Isle de los Sacrificios," a small island about eleven miles south of the harbor of Vera Cruz. We were compelled to pass the night there, in consequence of the tremendous sea which was running, making it impossible to enter the harbor.

This island was so named by "Grijalva," the first European who set foot on Mexican soil, and was so named in consequence of his first here observing evidence of human sacrifice. It was exactly on this spot that General Scott anchored when he made his celebrated attack upon Vera Cruz, and many a poor American soldier sleeps on this island. The graves of many French officers and men are also here, buried during the blockade of Vera Cruz in 1837. Early on the morning of the 12th we steamed up and cast anchor under the guns of the famous old castle of "San Juan de Neoa."

Two committees of reception, one from Vera Cruz and the other from the Mexican government, came on board, and the steamer was soon surrounded by a swarm of small boats manned by boatmen clad in the whitest and scantiest of clothing. Ourselves and baggage were transferred to these boats, which were provided by the

authorities, and we were soon on our way to the city, distant two miles. Landing upon the mole in front of the principal gate of the city, we were conducted to one of the principal hotels, and a very fine one, where we left our sick, of which we had quite a number, and those who were able to walk were taken to a magnificent club room, where we sat down to one of the best repasts ever spread before a hungry crowd. And here our Mexican experience really began. After dinner a few of our party paid their respects to the governor of the State of Vera Cruz, who, upon learning that I was a medical man, immediately insisted that we should pay a visit to the hospitals of the city, a proposition which I cheerfully assented to. There are three hospitals in this city. The civil, or general hospital, the Hospital Zamaraga, and the military hospital. The civil hospital is an immense building, formerly a Franciscan convent, and is built in the most substantial manner. It is a model of its kind; exceedingly well kept, and is presided over by native physicians educated in Paris. Here I saw patients from all quarters of the globe; black and white, all receiving the most excellent care and treatment. The Hospital Zamaraga is a very fine structure. Here are gathered all the orphan children of the state, several hundred of them receiving the kind care and attention of a home, and also receiving an excellent education, all at the expense of the state; and it was really refreshing to see the scores of homeless waifs so comfortably and so kindly cared for. The governor seemed to take great pride in this institution. A visit was then paid to the military hospital. In the fever ward there were three cases of yellow fever, but I had no curiosity to visit that ward. The physician in charge told me the troops brought down from the uplands suffered much from this scourge.

Vera Cruz is an ancient walled city of about 16,000 inhabitants. It is a remarkably clean and well kept city. Nevertheless, it was not thought safe to allow us to pass the night in this city or anywhere at an elevation of less than three or four thousand feet, so at four o'clock we left the city on a special train for Orizaba, a city of 12,000 inhabitants, and distant 80 miles from the city of Vera Cruz. It is the centre of the coffee region. We soon pass the crumbling walls and bastions which surround the city, surmounted with their enormous cannon, and find ourselves fairly in the dreaded "tierras calientes," or hot lands. For twenty-five or thirty miles

the road traversed a low, sandy, flat region, almost barren of vegetation, when, all at once, the scene changes and we find ourselves surrounded by the rich and splendid vegetation of the tropics. In these humid valleys the vegetable world reaches perfection. Aromatic odors borne by the softest of breezes; flowers of every kind and color, lend their beauty and their perfume to the enchanting scene. But under this beautiful carpet lurks a poison more deadly than the upas, and woe be to the northern man who lingers long to enjoy the scene, so closely are the beautiful and the terrible united in this world. And this is not the only place where the beautiful and the alluring conceals a more deadly poison still.

As we ascend the eastern slope of the Cordilleras and leave the hot, heavy air of the valleys, our spirits rise; a strange sense of relief takes possession of the body; we breathe freer; and at every station our whole party leap from the train with an alacrity that surprises us, and return only when loaded with oranges, bananas, and flowers of every known and many unknown varieties.

At 9 o'clock we reach the ancient town of Orizaba. I say ancient, for its known history runs back over 500 years. Its name signifies, "Joy in the waters." The city is situated upon an expanded ridge of the mountains, at an elevation of 4,000 feet above the sea. We were met at the depot by the city officials, who were on hand with carriages to convey us to the hotels. I was taken to the Hotel "Diligencia" and passed the night in the very room where Maximilian had his last interview with General Bazaine, and where he so justly and so bitterly accused the Emperor Napoleon of his desertion, abandoning him, as he said, "to his death and destruction," a prediction soon after verified.

The regions of this elevation in Mexico are called the "Sierras Templedes," and here the genial warmth of spring reigns eternal. Here is the paradise of lazy men. The generous soil yields all the fruits and flowers of the tropics, with the least possible exertion. Clothing and artificial heat are hardly required, and the fortunate inhabitant of this region whiles away the hours in his siesta or in the whirl of the fandango, without thought or care for the morrow, and is apparently the happiest and most contented being on earth.

The hot breath of summer or the rude blasts of winter never reach this delightful spot, and nowhere in this wide world can its equal be found. Nowhere is there a purer or a more exhilarating

air or a brighter tropical sun. Here the moon and the stars shine with a lustre unknown to northern skies.

Every step you take brings you to some novelty in vegetation. Thus it is that, in changing our latitude and climate, we see a change in organic nature, both in the form of animals and plants, which impresses a peculiar character upon every zone.

With few exceptions the soil of every region is covered with different plants. It is not so with inanimate nature. The same soil on which only moss will grow in Lapland, and the pine and oak in Wisconsin, is found again in the tropics, where, under the influence of equatorial heat, the shining foliage of the towering palm unfolds itself, and ferns grow to the size of trees; the orange sends forth its sweet flowers and ripens its luscious fruit, and the oleander is in perennial bloom. So when the inhabitant of northern latitudes lands within the tropics, he is surprised to find himself surrounded by a crowd of unknown productions. Everything around him is strange. Even the human form is not the same he is familiar with. At every town he meets with unexpected surprises. Everything is new, except the soil he stands upon. It is therefore not without emotion that, in the midst of a new world, he beholds the sands and rocks of his native country.

At six o'clock on the morning of the 13th we are aroused and find a splendid cup of native coffee and a warm breakfast awaiting us, after which the carriages in waiting take us to the depot, where we bid good-bye to the city fathers amid a vast crowd of swarthy Mexicans who have assembled at this early hour to get a good view of the "Americanas."

After leaving the city we almost immediately enter a gorge in the mountains. The lofty summits towering far above seem almost ready to fall upon us, and the grandeur of which in the early morning light no one can describe.

We soon reach Multrata, a station 20 miles beyond Orizaba, 45,000 feet above the sea. Here our engine stops to take breath before beginning the real and difficult ascent of the mountains. Our train is soon completely surrounded by a crowd of Indian women offering us fruit of every description. The men in the fields close by are planting corn, and corn is also to be seen in all stages of growth. Peach trees are in full bloom. The view from this little valley is grand beyond conception. The peak of Ori-

zaba with its snow-capped summit towering above the clouds is in full view, and seems almost within our reach, although it is 40 miles away. On our left, and almost over our heads, a train of cars can be seen creeping along the side of the mountain, 4,000 feet above us; but in order to reach this point a detour to the right has to be made, and a distance of  $17\frac{1}{2}$  miles has to be traversed to ascend this 4,500 feet, and then, from where we stand, we are only 1200 feet nearer the city of Mexico. And such were the engineering difficulties to overcome, that this part of the line to Mexico will always remain one of the great engineering feats of the world.

The whistle sounds and the tremendous Farlie engine, weighing 80 tons and carrying 160 pounds of steam, begins the ascent. Your speaker is seated on the cow catcher with his overcoat on, having been cautioned that it would soon be needed, and, if the mountain scenery already passed through was grand, what now came was terrible to behold. As we ascend the mountain the vegetation rapidly changes, and the conifers and ferns take the place of the palm and the banana. Still we rise until we reach a tremendous gorge in the mountains where the vegetation almost disappears. Here we creep along the edge of a precipice, so deep that the sun never penetrates its recesses. This chasm is called the "El-infernillo," or Little Hell. Our train stops a moment to let us view the chasm, and seems to tremble on its very edge. A stream of water can be seen dashing from rock to rock, but no sound reaches the ear from its awful depths. Few can look down without instinctively catching hold of the cars to steady the swimming brain. We are again on our way, passing through innumerable tunnels and over tremendous gorges spanned by the tiniest of iron bridges. The summit is soon reached, and all are suffering from the cold, while two of our party faint from the extreme tenuity of the air acting upon a fatigued body, and one of them I had hard work to keep alive until we reached a lower altitude. From this point we get the first glimpse of the great table lands of Mexico and also of the lofty summits of "Popocatapetl" and its near neighbor "Iztacihuatl." At noon we reach the station of Apizaco, and as we approach the depot our ears are greeted with the familiar air of "Hail Columbia." Our entire party leap upon the platform and range themselves in a row, and three such Yankee cheers were never heard in that region before, while the astonishment depicted upon that vast crowd of

Indians was interesting to behold. Children ran in terror to their mothers, and the soldiers stationed to keep the crowd away, grasped their arms as if they expected to be immediately gobbled up. Indians never cheer; that taciturn race never think of such a thing; and to hear the Americans splitting their throats in that way, took them completely by surprise.

The only onslaught made by us, however, was upon the magnificent and splendid dinner in waiting and spread in a building prepared for the occasion. Thirteen courses of meat and game, some of them garnished with snails, were served. Five or six kinds of wine from the best vintages of Germany and France, and which some of our party did ample justice to, were served. Our dinner was eaten amid the strains of familiar airs, played by a band that would have done credit to any country. After dinner came the speech-making, and several good speeches were made, both by our party and the Mexicans; Gov. Fisk, of Kentucky, and Mr. Azon, a member of the Mexican congress, making soul-stirring speeches. We soon became a very happy crowd, which is not to be attributed to the wine, but to the rarity of the air. My temperance friend, Mr. E. D. Holton, of Milwaukee, made a very good speech, and I thought I saw him lift a glass of claret to his lips in his enthusiasm, but I could excuse him on account of the scarcity of water, as our Mexican friends seemed to think Americans never drank water, and few of us had yet learned the name of that article in Spanish.

Dinner over, we managed to embark without accident, but some of our party were very dizzy from the rarity of the air. I noticed the air effected the Mexicans also, although the elevation was less. I had not heard so much complaint of rarified air before.

We rapidly pass down the valley, and at every station large crowds were waiting to catch a glimpse of our party. At 7 o'clock P. M. we roll into the depot at the city of Mexico, and were met by a committee of reception, and, as we step upon the platform, we are again welcomed by a band of music, and beyond that platform such a sea of human beings I never before witnessed, but all were quiet and respectful. I thought all Mexico had come to see us. Carriages for the whole party were in waiting, and we were soon transferred to the comfortable quarters of the great Hotel de Iturbide, in the centre of the famous old city of the Montezumas.

This hotel is the house occupied by Iturbide, the emperor of Mexico, in 1821.

The next morning we were introduced to several gentlemen who were commissioned to act as our guides and interpreters during our stay in Mexico. Some of these men are noted generals, others are men occupying high positions in the Mexican government. All are gentlemen of merit and education; many have traveled in Europe; and the most strong and, I hope, the most lasting friendship has sprung up between the members of our party and these men; men to whom many of us owe an everlasting debt of gratitude for their courtesy, their constant attention, and, above all, for their truthfulness while there. And they never ceased their attention until we again embarked on the steamer for home.

The evening before our departure from the city of Mexico, a grand state ball was given in honor of the excursion. This ball was said to have cost the sum of \$20,000 and was one of the grandest affairs ever seen in this city. Over 1,500 of the *elite* of Mexico were present. Fountains throwing water with every hue of the rainbow were playing under calcium lights, and, as an illustration of the wealth of Mexico, I will state that it was estimated that the display of diamonds alone was worth \$10,000,000, the wife of one foreign merchant wearing diamonds costing \$100,000.

During the preparations for this ball I remonstrated with the Mexicans for making such a useless expenditure, as it would give an opportunity for criticism on the part of the Mexican opposition. Such was our reception wherever we went. Transportation was generally furnished, the telegraph was open for our use, a band of music met us on our entry into any of the considerable towns outside of the city of Mexico, and a repast was waiting on our arrival. We did not visit many of the towns we were invited to. It was dead-heading reduced to a science. All the while we were there I had the good fortune to be placed on a committee of observation. Orders were issued by the government to admit the members of that committee at any and at all times to every public institution in Mexico. Access was given to all the archives of the government, an opportunity I made haste to improve. Governors of many of the states came there, and from hundreds of miles over the roughest of roads, bringing with them prepared statistics of the resources of their several states, for our use. No set of men

ever left this country who have had such extraordinary facilities for obtaining accurate and reliable information, and, although we represented no one in an official capacity, and were merely an informal deputation on behalf of American commerce and industry, we were received with lavish welcome and entertained with a graceful and an exuberant hospitality. And the majority of our commission have hastened to testify to the cordiality of this reception, and to put on record the sum of our observations, in a set of resolutions published in the Galveston papers.

Now you may well doubt whether a man received in a country in the manner I have described, will not have his understanding clouded and his judgment warped to such a degree that his opinions may not be worth much. I have tried to avoid this, and in an interview with President Diaz, in company with the correspondent of Frank Leslie's Journal, I told him our people knew very little of his country, his people, their condition, resources, or anything else in regard to that land; that we had come with nothing to sell, and did not wish to buy, but solely for information. He immediately replied that every facility for obtaining information would be furnished by the government, and it was I visited almost every village in the valley of Mexico, dining with the richest of Mexican nabobs and eating tortillas in the meanest of Mexican huts!

Mexico is a country but little known to the general American reader. It is true, every school boy has read with wonder and delight the story of the conquest by Prescott, which seems like some creation of the fancy, rather than the relation of historical facts. But where is the book which describes the actual condition of that country with the great political changes which have taken place since 1810. One reason for this ignorance is, that it has always been difficult and dangerous to reach. Its sea ports are few and dangerous to enter; its eastern coasts are low and exceedingly unhealthy; its table lands are surrounded in every direction by lofty mountains; and not until the completion of the Vera Cruz and Mexican railway has it been possible to reach the central portion without the greatest discomfort, if not danger.

Besides this, until the year 1844, the laws were such, that foreigners not Catholics were almost totally excluded from the country.

Mexico is a country full of natural wonders. The traveler never tires of sight seeing, and after reaching the table lands, every view

you get is worth the painter's brush. It has the loftiest mountains, the most active volcanoes and the most beautiful valleys in America. It has the most stupendous caves in the world. The cave of "Cacahuamilpas" is so lofty in places that an ordinary rocket fired off fails to reach the roof. Hot springs, saline springs, sulphur springs, and springs of every kind and quality, exist without number. The sulphur spring at Puebla is thirty feet in diameter and over five hundred feet in perpendicular depth, and pours forth a vast quantity of warm water, found exceedingly useful in many diseases. Here is found the finest climate and, perhaps, the most healthy one in America; and these are the words put into the mouth of the patron saint of Mexico: "The Lord hath made no land like this under the sun."

The city of Mexico is nearly 8,000 feet above the sea, and here the atmosphere is so rare and so pure, that the traveler is always deceived in estimating distances; buildings which seem only a few rods away are found to be miles, and the lofty mountains which surround the valley appear to be within hailing distance, but whoever would ascend them, will find days of travel before reaching their summits. At this altitude within the tropics, it is never hot and never cold enough to require a fire, and where there is water to be obtained it is one eternal round of vegetation; the soil no sooner yields one crop than another is ready to be put in. Of all countries in the world this is the one for the poet and the painter; of poets, however, there are none; but of painters, there is an abundance, and very good ones, too, as religion has always fostered the painter's art, and in no country in the world of the same population can so many masterpieces of art be found. Every church and every private house of any pretensions whatever, are filled with the most beautiful and costly paintings. The private summer residence of Mr. Barron, at Yucubaga, contains paintings valued at over one million of dollars; there are found real "Murillos, Rembrandts, Vandykes, and scores of pictures by old masters whose names I do not now remember. This is probably the largest private collection of paintings in America.

The antiquities of Mexico are as wonderful as any to be found, and to the archæologist it will always be as interesting as any portion of the globe. The multitude of her antiquities is astonishing. Her pyramids will compare in size and number with those of

Egypt. I ascended one at a place called "Teotihuacan," which is 185 feet in perpendicular height, and 725 feet square, and covers over twelve acres of land. Another, close by, is 165 feet in height, 625 feet square; near by are many hundreds varying from twenty to sixty feet in height, and the plain around is strewn for miles with fragments of pottery; and it is impossible to step without putting your foot upon some fragment of an ancient and unknown civilization; near one of these pyramids is to be seen an immense carved block of granite. The Indians call this the "Fainting Stone," and they declared to me that whoever sat upon it was sure to swoon away and become unconscious. I tried to convince them this was not so, for I ascended and sat upon it without fainting, very much to their surprise; but no Indian can be induced to sit upon this stone.

The pyramid of Cholula is about 200 feet in height and 1,200 feet square, and covers nearly thirty-two acres, and is built of sun-dried brick. The amount of labor required to erect these monuments is almost incalculable, especially when it is known that the ancient inhabitants of America used no beasts of burden, and, therefore, all this material had to be transported on the shoulders of men. I have seen amphitheatres 200 feet in diameter with solid stone and cement seats, still in a state of good preservation. The ruins of Xochiculco are about seventy miles southwest of the city of Mexico, and are situated on the top of a hill at least 1,000 feet in height; this hill is surrounded by a walled ditch six or eight miles in length; its summit is crowned with a temple built of enormous granite blocks, perfectly squared and fitted together and covered with sculptures in "*basso relievo*." This temple is surrounded with vast ruins, and the mountain beneath is "honeycombed" with passage ways and rooms, some of them larger than this senate chamber, all dug out of solid rock. A great many of these finely sculptured stones have been drawn away to build a mill dam nearby, and the water is pouring over sculptured designs, the age of which is now beyond calculation; and you cannot lift a spadeful of earth anywhere in the valley of Mexico without throwing up some relic of ancient civilization. I made excavations near the pyramids before spoken of, and in a distance of twelve feet, four *distinct* and *perfect* cement floors, each of a different age were passed through, and the ground was literally filled with fragments of pottery, stone and obsidian implements.

We might possibly have known something of the history of these vast piles of antiquity but for the great conflagration of the ancient Mexican and Tezucan manuscripts which took place in the great square, by order of the first archbishop of Mexico, an act the historian will forever deplore.

The city of Mexico is the largest and most beautiful of all the cities built by the Spaniards in the new world, and is situated upon the site of an ancient and a strange civilization; a civilization which has always attracted the curiosity and excited the wonder of students, made all the more intense by the jealous care with which it has been guarded by the Spaniards, a people who have endeavored to destroy every vestige of this ancient civilization, and blot out every recollection of its former greatness. A strange fascination hangs about this great elevated plateau, and many attempts have been made to solve the enigma of a people who existed in isolated independence of all the world. The city was built in 1622, and the traveler who now enters it will behold a vast number of rich and beautiful buildings. Its hotels are large and well furnished, but all conducted on the European plan. The restaurants are clean and well kept. The theatres are large and well patronized; one of them is the largest in America, and is said to be capable of seating 6,000 spectators. The school of mines is an immense building, and here are shown over two hundred minerals found in Mexico, all of which can be worked with profit.

The art gallery is a large building and contains many paintings by the old masters.

There are ten banks in the city, one of which is a branch of the Bank of England, with a capital of 2,000,000 sterling; the circulating medium is silver; American greenbacks are worth 18, gold 20, and foreign exchange 24 per cent. premium in Mexican dollars, yet the Mexican dollar contains more silver than the American dollar.

There are six papers published in the Spanish, one in the French, and one in the English language.

The National Museum is a part of the "National Palace," and contains a vast number of Aztec and Toltec antiquities, besides a complete display of the animal and vegetable kingdoms of Mexico. The director is a full-blooded Aztec Indian.

Telegraphic communication exists between all the principal cities of Mexico, and the telephone is used in many places.

Street railroads run to almost all the villages of the valley; one line running out of the city twenty-two miles.

The population is about 250,000. The upper classes are polite, obliging, and exceedingly affectionate. The lower classes are humble and their politeness is extreme. During our stay I never witnessed an act of impoliteness or rudeness; even the robbers are said to demand your money with the air and the language of gentlemen, always begging pardon for the inconvenience they put you to.

The hospitals are ten in number, some of them very large, and will compare well with those in the United States, being well supplied with every necessary, and attended by physicians who have received their education in Europe.

The public parks and drives are as beautiful as any to be found, and are well filled with statuary. The equestrian statue of Charles IV weighs 22,000 pounds, cast in one piece, and Humboldt says the statue of Marcus Aurelius is the only one superior to it.

The city is well supplied with fountains and baths, and is well lighted with gas, made from resin obtained from the pine growing on the mountains.

The states prison is a large and not very well kept building and contains 1,200 convicts. Of these, 965 were sent here for the crime of stabbing, and in 95 per cent. of these cases the stabbing was unpremeditated, a fact which goes far to show the passionate character of the people. By far the larger proportion of the convicts are of the mixed race. The Mexicans have much to learn in prison management, as no occupation or employment is furnished or required by the government.

The ladies of Mexico will hardly compare with their northern sisters, but they have the most beautiful and fascinating eyes in the world, and woe be to the northern bachelor who exposes himself to their attractions. One of our number fell a victim and will return to stay. I have taken a wide range, and have endeavored to crowd in as many facts and as much information as possible. I hope you will pardon me if I now give you a comparison of the present condition of the country with what it has been, and venture an opinion as to its future prospects. I desire also to state that I shall make no statement but what I believe to be a fact.

The time has come when the eyes of Americans are turned to-

wards that portion of this continent lying south of the 32d degree of north latitude, and which is so justly esteemed the garden of the New World; its varied climate, rich soil, its magnificent tablelands and mountains filled with gold, silver and precious stones; with its soil producing every plant and shrub, medicinal and useful; with its scenery second to none on the globe; crowned with cities full of wealth and splendor; with a history that dazzles the imagination with its stories of wealth, and excites our sympathies with the most stupendous wrongs ever inflicted upon a people. It has heretofore often been predicted that that race which has already subdued the north would sooner or later find its way into the inviting regions of the south, where the natural advantages are thrown away upon a people who are incapable of improving them. Thus it is that the Mexican problem presents itself for solution. American statesmanship has not been and cannot afford to be indifferent to the material advancement, the social progress or the political and commercial fortunes of our sister republic. American statesmanship cannot afford to look on in apathy and see that country fall a hopeless victim to the elements of stagnation and decay. I may say, also, that American statesmanship cannot put aside the Mexican problem, if it would. Sooner or later it must be solved, either by peace or war. Border troubles will force one solution or the other. Educated Mexicans see and acknowledge this. At present it is a standing menace, which may be converted into a blessing or into a deformity, requiring a military occupation and requiring years for its settlement. It would be easy to march our army from the Rio Grande to Mexico, but it would require years to plant the conditions of peace among 10,000,000 of people traditionally hostile. Add to this the discontented people of the south, and what prophet can predict the result to republican institutions. I am led to say this for the reason that some of our leading papers openly advocate the military occupation of the country.

The leading statesmen of Mexico know and feel the truth of what I say; and I declare unto you a truth when I say that they sincerely and pleadingly invite our people to a peaceful solution of the problem. They have therefore very wisely appealed to the commercial interests of the country for aid. They invite our capitalists, our merchants, our manufacturers, our railroad men, our emigrants, to assist them, and this is the true secret of our princely

reception in that country. We were the representatives of peace.

Now what is the actual condition of that country? I will endeavor to give what I believe to be the truth. In order to do so, it will be necessary to briefly present the leading facts in the history of Mexico.

Cortez, as you all know, invaded that country in 1519. According to unquestionable authority, the population was much greater at that time than it has ever been since. He found a people tilling the soil, with great and populous cities governed by wise laws, and they lacked only the elements of a purer and more humane religion to make them the superiors of the invaders. Their manners were mild, their hospitality was extreme. Their priests and nobles were noted for polished manners, and I may say for their learning. The city of Mexico was more populous than it is now. It was surrounded by a system of canals and supplied with water brought by means of an aqueduct, the foundations of which are used for the same purpose to this day. And the city is still supplied with vegetables brought in boats on the canals, built long before the time of Montezuma.

In less than ten years not only the lands but the bodies of these people were transferred to the ownership of the Spaniards. Not content with robbing the Indian of his liberty and the proceeds of his toil, they have also enslaved his mind! For more than 300 years the most cruel and exacting oppression has been showered upon his devoted head by a cruel and blood-thirsty race. Submission was the only alternative. The sole purpose for which the Indian existed was held to be that of collecting the precious metals. Millions upon millions of treasure has been extracted from the mines by the blood and sweat of these poor Indians, and amid untold wealth he has been doomed for centuries to squalid poverty and grinding despotism. For three hundred years these Indians have supported an idle swarm of non-producers and lazy monks imported from Europe. They have built churches without number, and every hillside is crowned with an enormous monastery requiring the labor of millions of men to erect.

In the province of Mexico alone there are standing to-day 90 convents, filled until the year 1862 with an innumerable swarm of monks supported by the labor of the Indians. The Indian was

compelled upon pain of death, outwardly at least, to conform to the doctrines of the Church. The gospel of Christ was forced upon him, only to bring the most unmitigated woes and oppression, and under this regime Mexico became the most religious and the least moral of all the countries of the world; and, although the Indian has been disciplined for 300 years, it is to-day impossible to say how much religion and how much paganism is mixed up in his religious ceremonies. And it is a singular fact that the colossal image of one of their deities, which now stands in the grounds of the national museum, is still crowned with flowers when it can be done without observation. So strong was this feeling of reverence, that so late as the year 1790, which was the year this statue was unearthed, the authorities found it necessary to re-bury it, to conceal it from the Mexicans, and it was not until the year 1822 that it was again exposed to public view. Crowds of Indians are now to be seen apparently viewing it with the greatest awe, as it reminds them of a liberty once their own, and only now returning. Nor need we be surprised at this, for the history of a race once enslaved who have forgotten that lost freedom has yet to be written.

Now, although the Church made priests of the Indians, it was never possible for them to rise above a common curacy. All the rich positions were held by Spaniards, and even Cortez complains of the "extravagant luxury of the priests, leaving enormous wealth to their natural children, and gives great scandal to the newly converted Indians." These are his exact words. For 300 years these people patiently endured all the wrongs it is possible to imagine, until the thunders of the cannon in the American revolution crossed to Europe, overturned the throne of France; then followed the invasion of Spain by Napoleon. The Spanish inquisition was abolished, the echo of those cannon returning to the New World on the night of the 15th of September, 1810, under the lead of the Catholic curate, Hidalgo the Terrible, and the bloody tragedy began. The wrongs and oppressions of 300 years were about to be revenged. Under the cry of "Death to the Gachupins," the Spaniards fell by thousands, and from that day to this the struggle has been going on with varying success, and it will continue to go on until the liberal party and liberal principles are fully established. This is the true secret of Mexican politics and revolutions, but it has not been a war against religion, but against oppression and tyranny.

Mexico is to-day governed by an Indian. President Diaz is nearly a full-blooded Indian, and he is a man that to know him is to love him. Many of the leading men are full-blooded Indians; the best orator in Mexico is a full-blooded Aztec, and speaks the Aztec language. Juarez, the man who defeated and executed Maximillian, was a full-blooded Indian, and it was under his administration that the decrees for the confiscation of the monasteries and nunneries, and the expulsion of their inmates from the country, was accomplished; and, to-day, not a nun or a monk is to be found in all Mexico. It was the clerical party who brought about the French intervention and seated Maximillian upon the throne for a brief period, but who, finding it impossible to restore the monasteries to the church, was abandoned by that party to his fate.

To the inquiring traveler who visits Mexico and sees the changes brought by those people in the short space of twenty years, he is surprised not that so little has been done, but so much.

Prior to the year 1857 the clergy never allowed a public school; a very few schools for the education of clerical students were supported by the church, but all others were forbidden under the plea "that it was inexpedient for learning to become general in America." To illustrate the change I will quote from government archives for the year 1876, the latest complete returns: Primary schools, 8,751; seminaries, 24; normal schools, 54. Of this number the federal government and the states support 677; the municipalities, 5,676; corporations and private individuals the balance. Many of these schools are well supplied with all the modern scientific apparatus. One of the schools in the city of Mexico has over 700 students; and to show the intense desire for education, I will relate an incident. One day when I was at Cuernavaca, the capital of the state of Morelas, I was walking through the suburbs with my guide; I entered an Indian hut to take refuge from the intense heat; I was politely provided a stool; near me sat an Indian; I inquired his age, and was surprised to learn he was 104 years old, and expressed some doubts about it; he called his son and said his son could prove it by a book he had; "my son," said he proudly, "can read! my children shall all learn to read;" yet this man was a full-blooded Indian, who, therefore, can doubt the issue of the struggle now going on in that country; and where is the American who will not bid it God speed.

The population of Mexico has never been accurately ascertained

but according to the best information it cannot be less than 10,000,000, probably more; some say 11,000,000; of this number at least 8,000,000 are Indians, a fact not generally known. I went to Mexico expecting to see nothing but Creoles. But I have been in Indian villages where one-half of the population still speak the Aztec language. Books have been published in many of the Indian languages of Mexico; as many as forty books have been published in the ancient Aztec language, and it is a fact generally acknowledged in that country that the population of Europeans and Creoles does not exceed 2,000,000.

The Indian population is the most docile and the most easily controlled of any people in the world; their politeness and kindness is remarkable, and I never yet entered an Indian hut that I was not treated with the greatest respect and consideration; and so far as I was able to learn they are the most virtuous and honorable of any of the people of that country. An Indian can be trusted to deliver the most valuable package; he never fails to leave an article where he is directed; and I could relate many remarkable instances of this kind which fell under my own observation. I had occasion to employ them outside the city, and I have never met people more anxious or willing to do what is told them; and this is the universal testimony of all the missionaries and foreign residents I have talked with. It is not so with the half breeds; they are, many of them, thieves, and seem to have inherited every vice without any of the virtues of their ancestors.

But the hatred of the Indians for the Spanish people is almost without a parallel. As an illustration of this hatred, on the night of the 2d day of June, 1872, they attempted to burn the celebrated tree "La Noche Triste," or the Tree of the Sorrowful Night, under which Cortez passed his most terrible night contemplating destruction, after being driven from the city in his first invasion of Mexico. It is now surrounded by a high iron railing, the gift to the city of an Englishman. This celebrated tree is an immense cypress, fourteen feet in diameter, and is pointed out to every stranger. The Indians hate it, because they hate the name of Cortez.

These Indians were enslaved by the Spaniards, and their lands were confiscated by act of Charles V, in 1529, and they remained in slavery until the 16th of September, 1829, just 300 years; and it was this same year the Spaniards were expelled by law from the

country, and few of them have ever returned. The number expelled is estimated at 80,000.

I have before referred to the great number of monasteries built by these Indians. By the law of 1856 this property was all confiscated; many of them are now used for hospitals and schools, many have been sold to private individuals. Some outside the city are not used for anything. Unless they are seen, it is impossible to form an estimate of their size and the splendor of their decorations. The monastery at San Angel is one of the largest in Mexico. I entered it with my guide and traversed its long corridors. Its lofty ceilings were covered with the most beautiful and costly frescoes; its walls were still hung with the most costly oil paintings; but under these the goats come and go at will, and not a sound did I hear but the reverberations of my own footsteps.

I entered the vaults beneath, and in the crypts are stored hundreds of coffins piled one on the other, each containing its silent sleeper; but the keepers had gone, no one could tell where. The grounds around this convent contain at least 100 acres and is surrounded by a wall twenty-five feet high and three feet in thickness, and within the enclosure the water still pours into a reservoir 280 feet long and twenty-five feet deep, contained in a wall which will be good a thousand years hence, and the garden around it was once the most beautiful in Mexico; and this is only one of many such to be seen in Mexico. Some of these monasteries have been sold for the sum of ten dollars, and the buyers are still, and probably always will be, in peaceable possession of them.

It is impossible to give a description of Mexico without devoting a good deal of time to the church, for Mexico has been the church and *vice versa*. In all Mexico that I have seen you are never out of sight of one; from the top of the great pyramid of Teotihuacan I counted twelve, and that was in the open country. These structures are all built in the most substantial manner; the walls are exceedingly thick, and the roofs are all composed of solid arches of stone covered with cement. At Cuernavaca I visited the second church built in Mexico, erected by Cortez in 1527; it is an immense building, and has never needed repairing. I measured its arched roof and found it nearly three feet in thickness; in its tower still swings the pendulum of the second clock made in Spain and presented to this church by Phillip II. These churches are all

embellished with the most costly decorations, the paintings costing in many instances thousands of dollars. The decorations of the great cathedral in the city of Mexico are said to be worth \$15,000,000. This is one of the richest and finest church structures in the world, and no pen can describe its grand and magnificent interior; it must be seen to be appreciated. Every one of them has been built and paid for in Indian labor. Nowhere else in the wide world has the selfishness and greed of the church found a parallel. So rich had it become that in 1857 it was said to own one-half of all the property, and have a mortgage on one-half of the remainder; and this statement I got from an educated and good Catholic. But to the credit of the church, be it said, that many of the miracles preached in Mexico are not recognized in Rome.

The inquisition was introduced into Mexico the 4th day of November, 1571. Its first victims were two foreigners, one an Englishman, the other a Frenchman, burnt in 1574; its last victim was an Indian priest, Morelas, burnt in 1815. For 241 years its decrees were enforced without question, and it was not until 1838 the decrees were removed from the doors of the great cathedral, where they were posted for the information of the populace. The palace of the inquisition is a vast building, and is now used as a medical college.

I have devoted considerable time to a description of these costly structures, but their cost was small in comparison to the revenues enjoyed by the clergy. One-tenth of all the productions of the country went in their hands as tithes. For their maintenance, it cost Mexico eight millions of dollars yearly.

It is hardly necessary for me to disclaim all intention of assailing the great body of believers in that or any other church in what I have said. My only desire is to show what the actual condition of Mexico has been, and at the same time express a feeling of gratitude that the day when tyrants can oppress mankind in the name of Jesus has passed away never more to return; and no person acquainted with the facts can deny that Mexico furnishes a terrible example of this kind; and also because the true history of the struggles and trials of these people are but little known, nor are the causes which have led to them understood. In vain have I searched for an impartial history of Mexico since the year 1810; the facts have to be picked up here and there as they can be obtained,

and the only way of judging of the progress in any country, is to compare it with itself.

Now, has there been any progress in this country? Let us see. Slavery was abolished by the first constitutional congress on the 16th day of September, 1829; law on church property on the 17th of September, 1856; reaffirmed and put in operation in 1874; decree of the law establishing civil marriage in 1859, and reaffirmed by Maximillian in 1864; liberty of the press in 1860; laws decreeing religious liberty in 1861; expulsion of monks in 1861; promulgation of the law prohibiting religious processions in 1873. In regard to this law, it is a fact that the church calendar prescribed 175 feast days in which no true Catholic could work, which hardly left time to earn the marriage fee of sixteen dollars. Free schools have been and are being established all over Mexico.

Gambling, the great passion of the Mexicans, has been suppressed in the city of Mexico, and by law all over Mexico.

The degrading bull fight is no longer to be seen in the federal district, and some of the states have also suppressed it. Now, all these reforms are the direct result of the exertions of the liberal party. They have received no assistance from any outside source whatever, and the French occupation was for the purpose of restoring the old regime.

Now, it is a fact that there is liberty of the press throughout all Mexico.

There is a free school system, and also compulsory education in some of the states.

There is religious freedom, and Protéstant churches are springing up in all directions, and they are protected by the government. Many of the laws of Mexico could be wisely copied by our people; and it is a fact beyond controversy, that the moral condition of the people is a hundred times better than it was twenty years ago.

It is a fact that the liberal party desire reform and progress, and that they are ready to adopt reforms and to correct abuses as fast as possible.

But, say some of our people, this is a country of revolutions and of confiscations. This is very true, and in view of the facts, it ought to be, for they have been the necessary steps taken by all peoples on the high road to freedom; and, my friends, we of all peoples are the last in the world who ought to reprove her for them.

The only wonder is that they have not been more bloody and terrible than they have, and it is not to be doubted there is danger of more trouble. The Mexican statesmen look for it and expect it, although this danger is becoming less every day. The liberal party look to our people for moral support and assistance in developing their vast resources, as the most certain and sure road to permanent peace and prosperity. Shall we give it to them?

Now does that country offer any inducements to American merchants and capitalists? In answer to this question, I will say that the trade of Mexico is almost wholly in the hands of the Germans, and that many of them have made immense fortunes in a residence of a few years. I found German merchants in every city in Mexico. They sell their goods at an immense profit. They make no effort to develop the resources of the country. The Mexicans see and feel this, and therefore desire competition, and naturally look to us for it. As an evidence of their prosperity, there has not been a commercial failure in twenty years. Now what the Germans can do, I believe the Americans can do. And, although life may not be as safe as in the northern states, I believe it is quite as safe as it is in the western states of America; the Germans make no complaint that they are uneasy on that score.

The possibilities in that country are almost incalculable, but the conditions of permanent peace can only come from the infusion of Anglo-Saxon enterprise and capital. The first step to be taken is a commercial treaty, and the next is the building of an international railway; and the time is not far distant when it will be built, and then the wave of emigration will settle the problem.

The population of the valley of Mexico and of the countries immediately tributary to it, is about 3,000,000. Of this number more than one-half are practically non-producers, therefore they are non-consumers. These people are willing and anxious to work. At present 1,000,000 of these people can be hired at 31 cents per day, and they will board themselves. They are good laborers in mines, on railroads, in factories, or wherever you may put them. With an international railway, American enterprise and capital will soon make these people producers. Employ them, and peace and prosperity will soon reign in that country. With peace, prosperity and intercommunication, that country will soon become a part of our own, a destiny which is finally inevitable. The only question is, shall it be a peaceful or a warlike conquest?

As one of the results of our visit, an international fair will be held in the city of Mexico in January next. To this fair our people will be cordially invited. No doubt many will go. They will have an opportunity to exhibit their own wares and, also, to become acquainted with the productions of Mexico, its resources and its people. One thing is certain; whoever sees fit to go will be cordially welcomed, and need have no fears for his safety. Every student in Mexico is studying English, and there is nothing like English for the advancement of civilization. It is to be hoped that the visit of the excursion party has sown seeds which will bear good fruits.

If it should result in the improvement of the Mexicans in the least, then I, for one, am thankful that I was one of the party, the recollections of which will always be one of the most pleasant of my life.

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## THE VALLEYS OF THE NILE AND THE MISSISSIPPI.

BY COL. SAMUEL H. LOCKETT.

[An address delivered before the Agricultural College of Louisiana.]

*Ladies and Gentlemen, President and Students of the University:*

When your most worthy president, and my most excellent friend, Col. Boyd, informed me that I had been selected to deliver your commencement address for this year, I thought to myself, and wrote to him, that a most injudicious selection had been made.

On such occasions as the present, when the college exercises of a long session are fast drawing to a close; when the routine work of scholastic life is about to give place to the joys and delights of vacation for the under-graduate, and to the real, active, earnest work of manhood for the post-graduate, it is meet and proper that one from the "wide, wide world" should welcome the college student back to the busy haunts of men. He who, in the seclusion of college walls, has been struggling with the difficulties encountered in the acquirement of book knowledge, needs to hear words of good cheer, and of welcome, and of advice, from one who, on the broad battle field of the world, has been engaged in the real struggle of life. Hence you will recognize at once the inappropriateness of

having one who has been traveling in the same groove as yourselves, to occupy your time and make demands upon your attention. You are tired now, and rightly so, too, of books and bookish men. You naturally rebel against anything or anybody that would coerce your thoughts back to the old things of school-days, and prevent them from bounding outward and upward to the new things of the approaching holidays.

Knowing and feeling all this, and being in the most hearty sympathy with it, I have a difficult task before me to-day. I must in justice to you, get out of my groove; must cut loose from the things with which I am most familiar; must endeavor to hide the teacher that is in me, and play a new role. I must, if possible, appear to you as a man not altogether oblivious of the great interests which lie outside of college walls. I trust that the theme which I have selected for our consideration to-day, will enable me to do so, and will, at the same time, commend itself to you as worthy of your most earnest attention.

I will attempt, then, in the following discourse, to present to you, as completely as the brief time at my disposal will permit, a comparative view of the two most important valleys of the world; namely, those of the *Nile and the Mississippi*. As Louisianians, dwellers upon the banks of the latter majestic stream, and as students of the State Agricultural and Mechanical College, this subject should not lack in intrinsic interest to you.

Perhaps it may not be known to all my hearers that I have been myself a dweller upon the banks of both of these famous streams. For five years, as professor in this institution, I devoted much time to the study of that grandest of rivers, which sweeps with majestic tide before your doors, and for two years my home was on the banks of the Nile, in daily sight of the pyramids of Ghizeh and in hearing of the voice of the Sphinx, if she had not ceased to give forth her oracles and propound her mysterious riddles to men.

What, then, I shall say to you on this occasion, will at least have the advantage of not being second-hand. It may not be original, or striking, or new; but it shall be what I have seen with my own eyes; what I know of my own knowledge.

In the first place, I will ask you to go with me across the great ocean, and across the continent of Europe, to the land of the Pharaohs of old, and of the Khedive of to-day. Though this gives us

a voyage about one-third around the circumference of the globe, yet I trust you will be nothing loth to take it with me; for well is this land worthy of even more than a flying visit. Here, old Time himself was young; here the human race passed from infancy to its earliest manhood; here unnumbered dynasties ruled and passed away, leaving historic records in imperishable monuments and everlasting hieroglyphics, while the rest of the world was wrapped in the darkness of ignorance and barbarism. Here, too, Joseph dwelt and gave laws to his captors, and Moses and Aaron marshaled the hosts of Israel for their forty years' wanderings in the wilderness. Here Alexander crowned his career of conquest by founding the great city still bearing his name. Here for three hundred years under the Ptolemies lived the cultured Greeks, rivaling the ancient rulers in works of art and monuments of architectural skill, until the invincible Cæsar won Egypt by his arms, and was himself almost vanquished by the charms of her voluptuous queen. Here the Virgin Mother sat, a refugee from the land of her birth, under the friendly shade of a fig tree, which is said to be still standing in the garden of the Matarieh; and here in successive waves, Persians and Saracens and Mohammedan propagandists, and Christian crusaders, and Ottoman hordes, and Bedouin bands, the flying cohorts of the Mameluke Beys, and the resistless legions of the Man of Destiny, have swept, with destructive fury! And yet the land still lives! the richest, greenest, most fertile and productive spot on earth! the dwelling place of millions, and the granary of Europe and the east! No wonder that it has been the coveted prize for which so many people and potentates have contended! no wonder that to-day the Ottoman Empire should cling to it in its death agony as the only really living part of its huge but moribund body! No wonder that England and France should both be turning towards it eyes of longing desire!

But let us take a nearer view of this marvellous land. Let us suppose that while we have been engaged in this retrospect of historic Egypt, we have been rattling over hill and plain, mountain and valley, behind the puffing, screaming, fuming locomotive, and have been transported in just three days from here to New York city. There we took the White Star line, and at the rate of 17 miles an hour, we went bounding over the great billows of the Atlantic ocean; and in just one week we were safely moored in the

magnificent docks of Liverpool. Here we were ushered into a first-class coach on the 8:30 express; and in four hours we have traversed the length of merry England, and are at Charing Cross station in the heart of mighty London. But we do not stop here; we are not visiting the world's greatest emporium; the Tower, and Westminster Abbey, and Hyde Park and Regent's Garden, have no attractions for us; we are on our way to Egypt, and we wish to make the trip in the shortest possible time. So on we dash to Dover and across the straits of the same name to Calais; and thence without stoppage, we speed to Paris by midnight. Here we must wait perforce, until the next morning to take the "through express" for Italy. The next day we traverse France, beautiful France! and the sun sets on as lovely a landscape as the eye ever beheld.

But where are we next morning, just after the day dawns? High up among the tumbling cascades, the eternal snows of the Alps, and just at the black yawning mouth of the Mount Cenis tunnel. A half hour, we are buried in the bowels of the great mountain, and just as the sun breaks through the clouds on the eastern horizon, we emerge on the southern slope. Oh glorious scene! but no! we cannot stop here, we are on our way to Egypt; so on we dash; down the Alps; across the lovely plains of Northern Italy; on through towns famous in song and story; on through Rome even, as if it were any other way station; on and on, along the via Brundusina, now a modern railway route, until we strike the shores of the Adriatic at Brindisi. Here we go at once aboard an Austrian Lloyd's steamer; and in three more days, or four at farthest, we have crossed the blue Mediterranean, and the famous Pharos of Alexandria welcomes us to Afric's sunny shore. We have actually made the trip in just eighteen days from the banks of the Mississippi to the mouth of the Nile! And this is no theoretical voyage. I have had letters come to me in Egypt, from Baton Rouge to Cairo, in, twenty-one, twenty-two and twenty-three days.

I have sketched out this rapid voyage to Egypt with a purpose. I want to show you that she is not so far from you that you need look upon her, and think of her, as belonging to another world. Steam has made Louisiana and Egypt neighbors to each other; and nature has made them so much alike, in many respects, they may well lay claims to a close kinship.

A Louisianian landing at Alexandria would see many sights very

familiar to him. The levee of New Orleans is replaced by a long line of stone docks, but you see the same forest of masts, bearing the flags of all nations; you observe the stalwart forms of black laborers bared to the waist, their glossy backs shining in the hot sun; and you soon recognize that they are rolling cotton bales, and carrying rice sacks on their broad shoulders to the waiting shipping. You notice, too, that in-coming vessels are discharging coal, and iron, and huge boxes of manufactured goods, and general merchandise. The small boats that swarm around your steamer are laden with oranges and bananas, figs, pine apples and luscious grapes, watermelons and cantelopes, and all the fruits with which you are familiar.

But there are many things new and strange to you. Such a babel of tongues you never heard before; such a variety of complexions and costumes never before did your eyes behold. All the nations of the West, and all the tribes of the East, have here met together.

But we will extricate ourselves from this motley crowd. However interesting may be the kaleidoscopic picture before us, it is foreign to our present purpose to linger long in its study. Our object now is to see the Egypt of the Nile, the Egypt of the untold centuries of the past, Egypt as it is to-day, and as it will be in the future until the Nile runs dry. In other words, we want to see the land of Egypt, and not its ephemeral population, which to-day is, and in a few years will have passed away and given place to another and perhaps a very different generation.

So passing through Alexandria — not stopping, even, to gaze upon Pompey's Pillar or Cleopatra's Needle — we take the express train for Cairo. Soon we leave the dusty, noisy city behind us, and are rattling along at the rate of thirty miles an hour into the heart of the land we have come so far to see. What is that on our right? that broad sheet of water, with its wide margin of black, glistening mud, and its fringe of tall waving sea-grass? It is Lake Mareotis; and the railway skirts along it, as your New Orleans and Mobile Railroad does along the shores of Lake Borgne. Sometimes you are flying over the shallow, rippling water; sometimes over the trembling salt-marsh. On your left you see broad fields of waving rice, and orchards of orange trees, figs and bananas. In fact, nearly everything is as you would see it on leaving New Orleans by any

one of her systems of diverging railways. You will mark the absence of the towering feathery foliaged cypress, the wide spreading live-oak with its grey beard of Spanish moss, and in truth, of all of our magnificent forest trees. On the other hand, you will observe long lines of date-palms, with tall, thin columnar stems capped with graceful pendulous fronds.

Soon you come to the banks of a broad bayou, as you would call it here in Louisiana; but in Egypt it is the khalig (or canal), at Mahmondieh. Along its levee you speed awhile, and then turn eastward across the fields. You notice that a change has come over the scene. The rice fields are gone, and in their stead endless acres of cotton and corn lie on either side of you as far as the eye can reach. Through fields of these great staples, with here and there a wheat field, or a small patch of sugar-cane, and numerous vegetable gardens, you pass, until you reach Cairo, at a distance of one hundred and thirty-one miles from your starting point.

Meantime, you have remarked many peculiar and interesting features of Egyptian scenery. You have crossed numerous khaligs, or canals, both natural and artificial; you have crossed, on splendid iron bridges, both of the main branches of the Nile; you have had a sight of the great Barrage, which is intended to dam up the waters of the Nile, when nature does not give it rise enough for the purposes of irrigation; you have seen almost numberless villages of low, mean, filthy mud huts, nestling in grooves of friendly palm-trees, or clustering around little mounds which are just above the mighty river's overflow; you have noticed an occasional palace surrounded by its high, jealous walls, which hide everything but its gilded cornices, and lofty dome, and the tops of exotic trees, which flourish in its luxurious garden; you have seen two nearly level lines on either side of you closing in the horizon, and instead of the dark greenish blue tint of the primeval forest to which you are accustomed, as the limits of your vision, you have in this case marked the purplish yellow hue, and have learned that you were gazing upon the confines of the eternal desert waste of sand which everywhere limits the narrow alluvial bottom of the Nile. You have passed through several large towns, and have been amazed at the multitudes of blind, and halt, and lame, and decrepit men and women, who throng their thoroughfares; you have wondered at the filth and foulness, everywhere visible near the haunts of men; you

have been struck with the rude methods of agriculture; wooden ploughs drawn by sleepy looking buffalo oxen, or an ox and donkey, or an ox and a camel, or a man and a donkey, or two men, or a man and a woman, working together in harness, being common sights; you have marveled at the patience which could irrigate a whole crop of corn or cotton, by lifting water from the adjacent river, or canal, by the bucket, or rather, basket full. Many other things equally as strange and novel as those mentioned have excited your surprise; but if you be a close observer, you will have been most of all impressed by the unparalleled fertility and fruitfulness of the land through which you have passed. Scarcely a square yard of ground but is productive of something useful. The broad fields are teeming with the great staple crops, while every nook and corner, and levee slope, is loaded with vegetables, or melons or fruits.

Now that we are at the end of our journey, let us pause and take a general survey of this fruitful land. Cairo, like your own city of Baton Rouge, stands on the first high ground which abuts the river. To get a general view of the delta of the Mississippi, Baton Rouge is the best point that I know; and you would mount to the cupola of your own university building to find the best standpoint for your observations. In Cairo you will take your stand on the flat roof of the famous citadel built by Sultan Saladin on a spur of the Mohattun hills. Here, at an elevation of some three hundred feet above the level of the Nile, only the natural limits of the human vision and the rotundity of the earth's surface restrict the extent of your view. By turning around on your heel, all of Egypt will pass before you. Let us first look back towards the Mediterranean sea and study the topography of the country through which we have just passed. Immediately in front of us lies Cairo (El Kahireh the victorious), with its densely packed flat-roofed houses, its narrow, crooked streets, its hundreds of oriental palaces, its half-a-thousand minaretted mosques, and its half-a-million of motley people. Beyond is the Nile, almost an exact counterpart of your Mississippi, finding its way by sinuous path to the sea. Twelve miles from your standpoint, the two branches, the Rosetta and Damietta, diverge from each other, and across them the Barrage is plainly visible with its massive turrets and arches of masonry.

Turning your eyes to the northwest you see the long line of yellow sand hills, which bound the delta on that side; following these hills you come at last to the southern shores of Lake Mareotis, on the opposite side of which stands Alexandria. Standing here at Baton Rouge and turning from a due south direction about the same number of degrees to your left, you will see a line of bluffs bearing off to the southeast, which finally terminate on the northern shores of Lake Pontchartrain, on the opposite side of which lies the city of New Orleans.

New Orleans, however, to be situated like Alexandria, should be at the mouth of the Rigolettes, where Fort McComb now stands, instead of upon the banks of the river. •

Looking to the northeast from the citadel of Cairo, and to the northwest from the State University of Louisiana, the views have no resemblance to each other. In the one case, you see a second line of yellow, barren sand hills bearing off to your right, terminating at last in the elevations which border the depression through which runs the famous Suez canal. Your corresponding view from this point, is the apparently limitless bottom of the Mississippi; and you may travel in the direction indicated many a weary mile through broad fields, across deep bayous and lakes, and through many a pathless swamp, before you reach a foot of land not subject to overflow.

At last, after crossing the upper part of Grand Lake, and Bayou Teche, near New Iberia, you will reach the shores of Vermillion Bay. This sheet of water corresponds somewhat in position to Lake Menzaleh of Egypt.

Now, with your two standpoints as centres, and a radius of about one hundred miles, strike arcs of circles, terminating at lakes Mareotis and Menzaleh in the one case, and at Lake Borgne and Vermillion Bay in the other, and you will enclose almost exactly the same areas. One of these will be the Delta of the Nile, in its entirety, and the larger part of Egypt, so far as its arable area is concerned.

The other will be but a small part of the Delta of the Mississippi, and a much smaller part of the state of Louisiana.

In looking to the west from Cairo you see the great Lybian desert, with the mighty Pyramids of Ghizeh standing on its confines, and between you and them the beautiful valley of the Nile, with a

width of ten miles. Turning around towards the rising sun, you are at once confronted with the stern desert hills of Mohattun, which continues in unbroken sterility to the Red sea. Looking due southward, you see the Nile like a white ribbon fringed with green, laid in graceful curves upon a cloth of gold. Gradually the green fringe becomes narrower and narrower, and for about five hundred miles its average is less than five and a half miles; and this is the rest of Egypt, with the exception of the Fayoum, which is a sort of verdant gulf let into the ragged outline of the desert, about eighty miles above Cairo. The Fayoum has an area about equal to that of the two Baton Rouge parishes taken together.

Looking to the westward from Baton Rouge, you have a distance before you too great for human vision to span, ere you greet the bluff lands of Opelousas on the trans-Mississippi borders of the great *bottom*. Looking to the east, you have the beautifully level and fertile lands of the *bluff* region of East Baton Rouge, extending to the banks of the Amite. Now turning your eyes to the north, and the great Mississippi bottom extends for half a thousand miles with an average width of thirty miles. Hundreds of its tributaries, like the Red river and the Ouachita, can boast of valleys broader than that of the Nile; and in addition to all this, every foot of uplands on either side to the summit of the Alleghanies on the one hand, and the distant Rocky mountains on the other, is capable of producing food, fuel or some mineral substance useful to man.

This, then, gives to you a fair idea of the relative magnitudes of the valleys and deltas of the two greatest rivers of the world. In the rest of my discourse, I shall confine myself mostly to a consideration of the alluvial bottoms of the two rivers: those areas which are subject to overflow: the flood-plains which owe their fertility, nay, their very existence, to the waters of the mighty streams which flow through them.

The Nile area extends from the first cataract in latitude  $24^{\circ}$  north, to the mouths of the river in latitude  $31^{\circ} 30'$  north; that of the Mississippi from Cairo, Illinois, in latitude  $37^{\circ}$  north to the Gulf of Mexico in latitude  $29^{\circ}$  north, giving a length in the one case of  $7\frac{1}{2}$  degrees, and in the north of 8 degrees.

The Nile area is 11,351 square miles, including lakes and marshes, with an estimated tillable area of 7,000,000 acres, and an area of ground actually tilled of 4,625,000 acres.

The Mississippi bottom contains over 31,000 square miles. Louisiana alone contains 11,600 square miles of alluvial and diluvial surface, of which 3,615,000 acres are arable at this time, and nearly as much more of this surface is reclaimable, and will ultimately be reclaimed.

All of Egypt proper, then, is about equal to the bottom lands of Louisiana. Louisiana, in addition, has her fertile bluff lands, her beautiful prairies, and her rolling lands covered with forest trees, all of which swell her cultivable acres to over twenty millions of acres.

But I do not wish to weary you with a multitude of unretainable figures. Let us look at these two rivers and their flood-plains in a more general way. In many respects, we will find points of strong resemblance between them. But the points of dissimilarity are, I think, more numerous and more striking; and in nearly every case the *natural* differences are in favor of the Father of Waters of the new world.

As you well know, the two great capitals and business emporiums, Cairo and New Orleans, are situated in the same latitude, and about the same distance from the deep waters of the sea. The climate of the two cities is almost identical, Cairo having rather the higher average summer temperature, and New Orleans a lower winter average. But there is one great and important climatic difference; vastly in favor of the Mississippi delta. Cairo is in a rainless region, while to every part of Louisiana "the former and the later rains come in their seasons." All of the causes of this great difference are too numerous to notice. These are the principal. The Nile flows from the *south*, its sources being immediately under the equator; through all of its sinuous length it flows under a torrid sun, and brings down to its lower valley nothing but its heated waters and fertilizing sediment. The Mississippi, on the contrary, has its origin in the temperate zone, and flows throughout its entire length in this zone, and brings down to its delta the cool waters of its fountain head, which condense from the warm and humid atmosphere of the gulf-regions refreshing rain and dews. The Nile valley, and the circumjacent deserts, are treeless regions, while the whole valley of the Mississippi and all of its boundless confines are covered with the most magnificent forest on the earth's surface. These two prominent facts are considered sufficient to account for the climatic differences above mentioned.

The soils of the two deltas are very similar in appearance and in qualities. In both cases we have the rich, dark, generous loam, of unfathomable depth, and of inexhaustible strength. That of the Mississippi is rather the more complex of the two, from the fact that the numerous tributaries which pour into it, come from so wide a range of country, and bring down sedimentary materials from every known geological formation.

The products which flourish in the deltas of the Nile and Mississippi are almost exactly the same, and are among the most important of commercial commodities. Rice, corn, cotton, cane and all kinds of vegetables and fruits, are produced in the greatest abundance. There is, however, this marked difference in favor of the valley of the Nile. There, all the cereals attain a perfection unsurpassed in any country of the world; and, strangest of all facts in this connection, the habitat of these cereals, and especially of the wheat, is from Cairo *southward* as far as the green valley of the Nile extends. The reasons for this striking disparity, I am not entirely able to give. They are well worth searching for, however; and I recommend them to the State Grange of Louisiana, and the Agricultural Department of this institution.

The Nile valley is peopled by a mixed race, in which are found all types of mankind compounded in all possible proportions. It is really a most motley crew, whose impurity of blood can be matched only by an equal want of purity of morals and manners. It is an alloy of nondescript composition, into which all the inferior and bad elements of humanity have been blended into homogeneity, to the exclusion of every superior and good trait. The majority of this population are slaves, the descendants of slaves for a hundred generations; the small ruling minority are Turks, a race of tyrants and robbers since the eruption of hordes from the central plains of Asia. On either side of this low-land population, tribes of nomadic Bedouin Arabs and barbarous negroes constitute an unenviable voisinage.

In the broad valley of the Mississippi, on the contrary, and to the utmost limits of this vast continent, the pure white race is dominant, and numerically superior to all others; and into the hands of this race is entrusted the destinies of this the newest and greatest field for man's future labors and development.

And now I will present this ever changing picture to you in still

another light, and this time you will see that Egypt will appear before you in much brighter colors than her rival, Louisiana.

You will remember that I told you that all of Egypt proper is about equal in area to the *alluvial lands* of Louisiana, these lands being but *one* of her topographically different subdivisions.

Now let us examine and compare the products of these two countries favored by nature with so many similar advantages.

In the year 1875, Egypt *exported* of cotton, 653,530 bales of 400 pounds; of sugar, 98,600,000 pounds; of wheat, 4,185,000 pounds; of beans, 2,450,000 pounds; of cotton seed, 7,375,000 pounds; of oil-cake, 7,000,000 pounds; and lesser quantities of rice, maize, barley, peas, lentils, flax, flour, dates, coffee, hides, horns, bones, wool, salt, soda, ivory, gum-arabic, ostrich feathers, pearls, mother of pearls, incense and fruits, amounting in value to \$63,651,000. All this, too, after feeding and supplying her own population of 55,000,000 souls, which dwell within the valley of the Nile between the first cataract and the sea.

It is difficult to get exactly corresponding data for Louisiana; but according to the best information I can find, the *total products of the whole state* amount to very nearly the same figures. Deducting the consumption of her own people of her great staples, and the enormous sum paid for imported provisions, the excess of receipts over expenditures must be vastly less than that of Egypt.

Now, the question naturally arises: why this heavy balance in favor of Egypt? This is a question of deepest interest to every Louisianian, and the answer to it is one which should claim your attention. I will endeavor to give that answer. I can do so in one word, and that word is *Labor!* Not skilled labor, for of this Egypt cannot boast; not labor of any high scientific order, or of excellent quality, but labor in *immense quantity*; labor, actual, of the millions of fellaheen who toil in the broad fields from the earliest streak of dawn to the latest ray of departing daylight; week after week with no intervening Sabbath, month after month with no rest days of rainy weather; year after year with no winter of repose between the harvest of one season and the planting of another; accumulated labor, too, handed down from the remotest generations of the past, and stored up in a thousand forms to be utilized in this day, just when and where it is most needed.

And what has all this labor done? As I have once before re-

marked, it has made every foot of arable land teem with abundance; it makes that land produce *three* staple crops a year, unless one of them happens to be cotton or cane; in which case there will be two. It has covered the whole face of the country with canals, to the number of eight hundred and seventy odd, of which one hundred and thirteen are navigable. It has brought the mighty Nile under perfect control, so that when his annual period of overflow arrives, his precious waters are caught, and stored, and distributed to every part of his flood-plain. It has lined the banks of the Nile and the canals with tens of thousands of Sakiehs and Shadoofs by which, in the rudest way, water is lifted up during its low stages and poured upon the thirsting soil; it makes that soil produce such crops that the laborer who pays from twenty-five to thirty-five dollars rent fee per year, per each acre of land, and a capitation tax for himself of seven and a half dollars, is yet able to live! In addition to the eight thousand miles of canals, it has constructed over a thousand miles of railway, and numerous telegraph lines, and docks, and harbors, and light houses, and fortifications, and bridges, and palaces and public houses. This labor, in the year 1875, paid to the Egyptian government an income of fifty-five million of dollars, which was independent of the six or seven millions received by the Khedive from his private estates, which were worked by his subjects *without pay*.

Think of this, Louisianians, you who groan under a debt of \$15,000,000, upon which you have to pay an annual interest of \$1,050,000, with state expenses of about \$1,000,000 more!

And this brings me to the great need of Louisiana, to the only thing she lacks to make her the rival, not only of Egypt, but of the richest and fairest lands of the earth in wealth, productiveness and prosperity. That need is *Labor*. Labor to cultivate more thoroughly the ground now tilled by your planters and farmers: labor to reclaim the waste places, formerly under cultivation, now lying by tens of thousands of acres idle and overrun by weeds and briars: labor to drain, and clear, and bring under the control of the plough, vast areas of swamp land, now dark as night with the shadows of an impenetrable forest, but possessed of almost infinite potentialities for productiveness: labor to claim from the dominion of the sea-wide expanses of marsh, now the home of the wild fowl and alligator, but capable of being converted into rice-fields of un-

paralleled fruitfulness: labor to control the old Father of Waters and make him docile like a well trained horse to do your bidding, instead of unmanageable and terrific with his destructive energy: labor to convert every sluggish, slimy bayou, now overhung by tangled vines and the interlacing branches of trees, now reeking with pestilential vapor, into bright, clear, glassy canals, freighted with the abundant productions of their fertile shores: labor to get rid of surplus water, and to irrigate the parched soil when the flood gates of heaven are closed, and the land languishes under the scorching heat of one of our long continued droughts: labor to develop the resources with which nature has blessed this favored land, whether those resources be in her fertile soil, in her salt and sulphur mines, in her majestic forests, or on her broad and beautiful, treeless and flowery prairies.

And how must all this labor be obtained? How supply this sole deficiency of your otherwise most highly favored state?

With an attempt to answer this important question, I will close.

In the first place, truthful and well-told accounts of *Louisiana as it is*, should be scattered broadcast all through the United States and the thickly settled countries of the old world. The facts that Louisiana possesses the richest soil in the world, of which hundreds of thousands of acres are untilled; that her climate is genial and salubrious; that her people are hospitable and generous, should be made known in every part of the globe, and especially wherever there is a surplus of capital and labor. And with these facts should go out a cordial invitation to all honest and industrious people, no matter what their nationality or politics, to come and *find a home* in this favored land. Bid them come prepared to stay; come with their wives and children, come with their household goods, come expecting to own a part of the soil of this fertile valley, and to leave it as an inheritance to their children.

And when they come, be prepared to welcome them, and lend them a helping hand. Give them work when they ask for it; sell them land when they wish to buy; break up your mammoth plantations, now so unwieldy, so idle and unwrought, and make homes for the millions.

Then, and not till then, will a new era dawn for Louisiana; then will a new energy be visible throughout the length and breadth of your state. Then the doubt, anxiety and despair, which have so

long oppressed every thoughtful Louisianian, will give place to lively hopes and bright anticipations. New enterprises will spring into life; old schemes for improvement will be pushed to completion. Railroads so long talked of that they have become a by-word and a reproach, will be finished and put in operation. Canals so long drawn on the map and yclept "proposed," would become actualities. Cottages, hamlets and towns will spring up on the banks of your majestic river and innumerable bayous. Your great alluvial bottom will bloom and blossom as the rose; your reeking swamps will be drained and become the most productive spots on earth; your grassy prairies will echo to the tread of countless herds of cattle and horses; your vast expanse of sea marsh will be a waving sea of golden rice; your forest covered hillsides will be crowned with summer residences for the wealthy, and the intermediate valleys be vocal with the hum of busy and prosperous communities; your washed and gullied bluff lands will be terraced, and covered with the branching vine; the now almost tenantless pine regions will resound to the chopper's axe, and the insprising whirr of the saw-mill; all the latent resources of the whole state will be brought to light, and prosperity and plenty will everywhere take the place of poverty and distress.

And, last but not least, corruption, and ignorance, and profligacy will be uprooted by honesty, intelligence and economy; peace, blessed peace, will spread her white wings over the land; her people will lie down to rest at night in security, and will rise up at each succeeding dawn and be thankful!

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## ADDRESS.

BY HON. E. E. CHAPIN, OF COLUMBUS.

[Delivered on the Fair Grounds in the village of West Bend.]

*Mr. President, Ladies and Gentlemen:* When I received the kind invitation to address your society on the occasion of its 20th annual fair, I was quite loth to accept, for well I knew that there were many in your midst better qualified than I to interest and instruct.

Here in Washington county are men of culture, orators, statesmen, those who have held high places in the councils of our commonwealth, those who have been and are now honored and respected by the body of the state. Yes, those who know your habits and tastes, who know your likes and dislikes, your sins of omission and of commission. These can far better entertain and enlighten, benefit and improve than I; but having accepted, I shall speak plain words, as good farmers and lawyers usually do, words of truth and soberness.

Of the good farmer nothing need be said. He is comfortable and happy, and tries to make others so. But there are two or three kinds of farmers which have come under my observation, in different parts of this great state, which need attention. I don't know that you have any of the kind of which I may speak, here in Washington, but if you should, and if there should be any such present, it is hoped that they will be profited by the words spoken. For a fair speech is intended for the general good.

Every farmer, like every other person following any occupation or pursuit, should do all in his power to get comfort and happiness for himself, his wife, his children and his neighbors and friends. Comfort and happiness! Golden words! The real aim of life.

If your annual fair brings enjoyment and instruction, if it begets mutual respect and intelligent co-operation, if it brings honest competition in this display of products from farm and garden, from heart and home, from store and shop, from brain and muscle, for the furtherance of growth and prosperity of the different branches of industry within your midst, for the benefit of agriculture, mechanic arts, manufactures, trade and commerce, it brings comfort and happiness.

If an association be formed for the purpose of bringing reforms in agriculture, in growing produce for mankind, in making cheese, in raising stock, in the improvement of farm machinery, whereby the burdens of life may be lessened, it brings comfort and happiness.

If the exhibitors of farm products, live stock, skilled workmanship for competition, and premium, are the means of bringing farmers, mechanics, middle men and trade together for the general good, it brings comfort and happiness. If your association and fair will improve, encourage and build up the backward, if they stimulate

the advanced to work for greater improvements, if they unite and strengthen the soul of a community to further progress, to higher and nobler aspirations, these bring comfort and happiness.

If going over these grounds, through the buildings, on to the track, and here see no rusty machinery, no poor farm products, no gnarly fruit, no skimmed milk cheese, no frawy butter, no neglected garden sauce, no scrawny horses, no scrubby cattle, nothing displeasing to the five human senses, it makes you feel comfortable and happy. You are enjoying the things of to-day, the pride and spirit of 1878.

Man, woman and child should be happy at fairs, any way. Not so much on account of *the dollars* in premiums which may be hoped for, but of the satisfaction and delight of owning and possessing that which the judges pronounce, and yourselves do know, is the best.

The stock that wears the blue ribbon this year may wear the red next.

The farmer who bears away his baskets and sacks of red ribbon fruits, grains and vegetables this year, may carry off the blue next.

The person who received a diploma or worthy mention this year, may bear away the blue or red next.

He who had come with a good purpose, and received neither blue nor red, diploma nor worthy mention this year, must remember the old song,

"If at first you don't succeed,  
Try, try again."

This may be poor consolation, but what else can you do? It won't do, as the boys say, "to get up on your ear," for there is none to listen. The only way out of it is to go right to work and grow and raise that which will win. Get the blue and red ribbon by merit. Having earned them you will prize them. Not for the dollar or two just to pay expenses with, but because you have the best. Then you will be happy.

Agriculture has been reduced to an exact science. Tilling the soil by hand is a thing of the past. Tilling the soil by guess is a thing of the past. Brain work has given us machine work. Brain work has given the average farmer independence.

There is not an intelligent farmer in our great commonwealth but ought to be able to give the book theory, and to possess the

practical knowledge of tillage, rotation of crops, drainage, fertilization, of the nutrition and fattening of stock, production of wool, making butter and cheese, breeding, rearing and use of stock, properties of pastures and meadows, kind and quality of grains, economic use of vegetables, the time for plowing and planting, and the season for harvesting and marketing, and last but not least, the kind of farm machinery to buy and use.

To-day we are in the enjoyment of the full fruition of agriculture as a science. To-day we have every opportunity for the successful culture and management of farms.

We are not living in the dark ages. The old oaken bucket has fallen in pieces. The sickle which our forefathers hung on the willow, has rusted and gone. The old flail has long since been burned to ashes. The boy's hoe, the boy's scythe, and the boy's corn cutter, are "gone but not forgotten." The inventive genius of the last half of this 19th century has made the "good old days of Adam and Eve," so long sung and sermonized, very, very misty.

The historian tells us of the hardships which our forefathers endured, and we have no reason to dispute the story. With the farm implements they used, and inconveniences of their day, we only wonder they did so well. The farmer of to-day has no such excuse as the farmer of twenty-five or thirty years ago for not doing more and better. To-day, he is in a situation to enjoy a full measure of this world's comfort. He is in a situation, in beautiful land, to live well and take good care of his family. And to this end he must work. "In the sweat of thy face shalt thou eat bread till thou return unto the ground." This command was put into the Good Book, I suppose, because it is a truth. The farmer is not the only one of God's creatures who must work, eat and sweat. It matters not what man sets out to do in life, whether to farm it, merchandise, learn a trade, or take a profession, he must work. Mankind must have food, clothing and shelter. To get these and keep them, requires work. The lazy, good-for-nothing tramp works hard to avoid work. To be sure, you know of some one whom you call the laziest man in town, and you often hear it said, "He is too lazy to draw his breath;" but that man works all the same at something, and if he happens to be a farmer, you will see how it goes with him and his. The improved farm machinery does not help him out, scarcely any. He is a little behind his neighbors in everything.

He is usually stacking oats while you are doing your fall plowing. He is finishing up his haying while you are cutting up corn. He is husking corn in the snow while you are carrying your children to school or marketing your fattened hogs. Such a farmer almost has his hogs (and poor ones at that) killed and ready for sale in the time of a thaw!

A lazy farmer always gets the worst of it, no matter what he undertakes. A lazy farmer is a most pitiable object.

No person has a right to be lazy in this busy, beautiful world of ours. Why? God and the angels work! Much more should man.

Did you ever notice the outlook of a lazy, shiftless farmer's house and premises? The house itself. Look at it! One story high, with an eight foot lean-to, on the cold side; a joint of stove pipe sticking out of the side, which faces the general course of the wind; a crumbling chimney, just in sight, growing out of the midst of the roof in the upright; no eave troughs, no conductor, no cistern; and in a stormy day, in the thunder, roar and lightning glare, you may see a little puny, over-worked woman, the mother of a half-a-dozen or more of his children, out by the side of his house, at work arranging an old stray board under the eaves, with one end of the board resting on an old rickety barrel, trying to prop up the other end, making an inclined plane, to catch a little soft water, to wash herself and children, while her husband sits indoors, smoking away, taking no thought of the morrow, caring nothing for water or washing. And why should he? Did he not take his bath while washing sheep a half a year or so ago?

Then look at the pump, if he happens to have a well. It is all out of kilter. The oldest boy primes it with his hat, the wife with the tea kettle. Is it not abominable? If he had not inherited the place he would undoubtedly have settled near by some creek or pond where water could have been had cheap — had without work. Such men never commit suicide by drowning. A lazy farmer never had a wood pile of any size, and seldom, if ever, enough chopped ahead to cook a meal, or last over Sunday.

No sight is sadder than to see the wife of such a man out in the burning sun, where a good wood pile fit for the stove ought to be, trying to hack — (She can't chop. God never made woman to chop) — hack a few sticks into stove wood to start a fire to cook a dinner for her lazy, hungry lord. A lazy man is always hungry.

Woman has enough to do indoors without working out. She was not made to stone hogs or cattle out of the garden, nor to till the ground.

Look at the barn, if he has one. Ten to one if the front barn door is not off the hinges and otherwise dilapidated. Not an out-house. No fences which the law would say were legal. His cattle are kept from getting into the unhusked corn by his wife, dogs and children. Everything has the appearance of shiftfulness and laziness.

There are other kinds of farmers besides lazy ones. Take the careless farmer; look at him. Careless in his dress. Careless in his habits. Careless in his conduct. Careless in his manners. Careless in his management of his farm. He will leave his team unhitched while he runs into the house for a pail or a cup, and while he is gone his team are gone. He then owns a runaway team, and has to repair damages.

It is so expensive to be careless! The careless, negligent farmer finished reaping in the back lot. He is always in a hurry. He has left the reaper right there. When he gets time he will take it down by the stacks and cover it with boards. He has not had time yet to build a shed to cover any farm implements. Well, the machine which the inventive genius and manufacturer has given him is left to winter in the open field, there to rust and go to ruin. This is careless economy.

The careless farmer is plowing late in the fall, and if the "freeze up" comes like a thief at night, where will you find the plow? In the furrow, till thawed out in the spring. Old Put left his plow in the furrow; but as his was an old wooden thing it didn't matter so much. Besides he left his in the spring time. Plows of to-day are not improved by being "wintered out."

The careless farmer is as apt to leave his seed sower, cultivator and rake where last used, without covering save the broad canopy of heaven, till the season following, as he is to put them under shelter. He borrows from his neighbor, and has been careless about returning the article borrowed till it is wanted by the lender. "Borrowing dulls the edge of husbandry."

These two classes of farmers, the lazy and the careless, have more trouble than all others combined. They therefore fail to get happiness.

The forgetful farmer is an unfortunate being. He is in hot water all the while. He forgets that he has a wife and family, especially while he is talking politics on the cross roads or at the village post office. He forgets that other classes of industry have a right to live as well as himself. He forgets seed time and harvest. He forgets to make hay while the sun shines. He forgets the Sabbath. He forgets the counsel of his friends. He forgets to be a man.

Then there is the land-getting farmer. He is not satisfied with his little farm of 80 or 100 acres, all paid for, and being put under a good state of improvement, but he must purchase an adjoining eighty and mortgage this and the home paid up farm, to secure the purchase price of the recent purchase. It is the same old story. The money lender gets both by foreclosure, and lets out the farm to be skinned by a tenant to pay for working it, and to pay the money lender his interest on the investment. Both the landlord and tenant are uncomfortable and unhappy. And the whilom more-land-getter may be found in the nearest village, running a dray, moving buildings, or standing around.

No farm, for farming purposes, for economy, comfort and happiness, should exceed 100 acres of land. Our laws give a man forty acres outside of the village or city limits as exempt from attachment or execution. Such an exemption for homestead purposes, for the family, should never be mortgaged. More money can be made off a homestead of forty clear, than an eighty encumbered.

The fault is, running in debt; and the belief that more land will help you out of debt, is a delusion and a snare. There is always profit in "a little farm well tilled." It can be managed. It can be made a home. The larger the farms the lesser the conveniences. Where do you look for the eave troughs, conductors and cisterns? Not on the house which is surrounded by land as far as you can see. No sir! That farm which ranges in the neighborhood of from 60 to 100 acres gives the most comfort to man, woman and child. The more land a farmer gets above a hundred acres, the more miserly and niggardly he becomes. As his possessions increase his soul diminishes. The more he gets the more he craves. I am talking of the farmer, not the agriculturist, who has made his money by speculation, or being president at \$50,000 a year; farms it for the fun of the thing; but the farmer. And when a farmer becomes miserly and niggardly, "may God have mercy on his soul." His

wife and children. Oh, how sorry we are for them. They never look up. They are always ashamed. They think every one they meet is saying, see how mean he looks! Did you ever notice how liberally a stingy farmer dresses his boy? Why look at his coat and pants. They are almost always store clothes, about three sizes too large, so they won't wear out before he grows into them; a hat or cap, old style, not fit for any head, boy's or man's, so only that it was bought for ten cents at the Cheap John's store. And his boots or shoes. Loose enough to scar the foot from toe to heel, and up the ankle. And instead of patronizing the village barber, his hair is cut by a miserly hand with the family shears! It is not cut at all. It is gnawed off, and the boy knows it. Why not have the boy's clothing fit him? Why not use him well? It is poor economy. A stingy farmer's boy is an object of pity. No person more so, unless it be the stingy farmer's wife.

What a difference between a stingy farmer, who lives to skimp, and the thrifty, careful and sometimes called, close-fisted farmer; he who makes everything work together for good; he who wastes not in riotous leaving; he who cares not for the luxuries of life, but plain solids; he who has the blessings and comforts of life surrounding him and his household. Such a farmer, God and his neighbors love.

You ride through the country. How happy you are when you come upon the thrifty farmer's close. You see and are delighted. What a picture! No artist ever painted such. The comfortable farm house, high between joints, painted, eave troughs, conductors leading to a cistern, a well, with a wind mill or good pump, a door yard, clean and roomy, a good garden, enclosed by a neat, substantial board fence, shade and fruit trees, a bed or two of flowers, a wood house, well filled with seasoned wood, stove length, an orchard in the rear of the house, a grain, hay and horse or stock barn, a place for storing wagons, sleighs and farm implements, a barn yard fenced, clean of compost, or reasonably so, a pig yard and pen, the entire farm not exceeding 120 acres divided into available lots, for the rotation of crops, a herd of well kept cattle depasturing in a field of clover, a flock of sheep, a colt or two feeding. What, I repeat, is more pleasing to man? A perfect paradise. Where on earth can be found a more perfect realization of the true,

the beautiful and the good, the comfort, happiness, and independence of man.

You may say such a place is seldom seen. So it is. But why should it not be oftener seen? especially in Wisconsin, the garden of the world.

Now, my idea is that a farmer can have just such a place as this if he will only work, and save, and study more and more into the beauties and duties of life. If he can't have it all at once, let him have what of it he can, especially the house eave troughs, conductors and cisterns, barns, trees, gardens and flowers. His wife should have something beautiful to look upon. A little work at the right time will do wonders in beautifying and adorning your farm houses, door yards and gardens. And everything which tends to make you and yours happy should be done at once. It takes get, grit, and gumption, the three Yankee requisites, to do these things, but when done you are proud of the achievement.

The successful farmer must "either hold himself or drive." He must be honest, industrious, temperate and faithful. He must not spend his time whittling a stick to a point. He must not be the politician's cats-paw to pull chestnuts out of the political fire. He must not think to "gather figs from thistles." He must not think it large economy to buy every lightning rod that comes along, nor gang plows, gang drags, nor gang sieves, nor gang anything. He must not buy patent rights. He must not seek any other road to immediate wealth than by hard work and an honest life. He must not try to do two things at once. He cannot farm it and railroad it at the same time. He cannot be a farmer and a middle man at once. He cannot farm it and preach the gospel too. Either the farm or the gospel would suffer.

To succeed, the farmer must keep up with the times. He must raise, keep and sell that which will pay the best. It costs no more to raise a thoroughbred than a scrub. It costs no more to keep a good cow than a poor one. It costs no more, nor as much, to raise and fatten a Poland China or a Berkshire than one of these long-snouted, long-eared, long-shouldered, slab-sided racers, the gaunt, and lean, and hungry Cassius kind. A hog that runs to snoot, neck and shoulders is not profitable. Souce is not as valuable as it once appeared to be. Shoulders are cheap. They can be bought smoked at six cents per pound. Hams are worth fifteen cents per

pound and are scarce at that. What kind of ham can you get out of a racer?

What an amount of cutting, cleaving and paring you must go through with to get, what? A long bone with precious little meat on it, and that too tough and stringy.

Compare this with the ready made ham of the Berkshire, or Poland-China, to say nothing of the leaf lard and side pork.

If people will eat pork, give them good pork. The best is bad enough.

It costs no more to keep a good, sound, healthy flock of sheep than it does a poor, diseased, scabby, foot-rotted flock. Sheep should be raised for the mutton as well as for the wool.

Nothing is better than a good mutton chop from a well fattened Southdown or Cotswold, in season, the same which Pickwick wrote of to Mrs. Bardell.

A good farmer, who has made agriculture a study, who understands flocks and herds, who keeps up with the times, who sees things as they are, who has good, sound sense, who has integrity of character, who is temperate, who is industrious and frugal, who looks to his family, who lays by a little every year, so as at Christmas time he can give each child a book, his wife a new dress; in fact, who will in all things be a man, is the prince of husbandry. He is the honored one of all the land.

Ours is an age of wonders. Ours is a day for the inventive genius. Improvements are seen on every hand. Think of the improvements of fruit and flowers, to say nothing of machinery, stock and grain. Take the love-apple of thirty years ago. Then it was a little, round, red ground fruit, all skin and seeds. To taste was almost instant death. To-day, it is fair, and plump and big. It is prized for its worth. So of the grape. The gardener on the Hudson has given us a great variety. The cost of a grape vine is nothing. Its cultivation costs but little labor. Man, woman and child love grapes. Raise them. So, too, the strawberry. Do you recollect the strawberries that grew away down in the meadow? What little berries. They were sweet and good to our taste. What made them so? Is it not the recollection of that sainted mother, who always loved her boys, who went away with them to pick enough for supper? Yes, it was the mother who made the wild berries sweet and good. The propagator has given us the Wilson,

Albany and other varieties, which may be found now in our market places from early spring till past midsummer. We love the improved strawberry, but we will remember the old and its hallowed associations. The crab apple, the wild cherry, the wild gooseberry are not sought now. They never were very good. It required the ingenuity of the entire band of fallen angels to make Eve and her fool of a consort eat of the fruit of her day. She would have required no coaxing here, would she?

She would do as the editor of *Peck's Sun* does at Fox's or Col. Johnson's eating house; just pitch right in, and take and eat!

Every one loves fruit, to see, to taste, to eat. A good ripe apple eaten at the right time, is better for the system than all the mixed bitters in Christendom. I mean the kind of bitters which contains a large quantity of villainous compound, mixed with a very little poor whisky.

It costs nothing to raise a few apple trees, which will stand our climate, such as the Red Astrachan, Duchess of Oldenburg, Fameuse, Fall Stripe, Tallman's Sweet and Russets. If an apple will aid in the comfort of life, raise it, eat it. Instant death will not follow eating ripe fruit. If you don't raise apples, and your children should be tempted to take and eat, their defense should be justifiable larceny. Why not?

Flowers are the poetry of earth. They share in our joy. They weep in our woe. They speak to us words of comfort and consolation. No man or woman can be bad or vile in the presence of flowers.

The lily of the field greets your approach from every side. It has no cold shoulder. The Savior of the world immortalized the lily. "Solomon in all his glory was not arrayed like one of these." Shakspeare's Ophelia song of rosemary "for remembrance," and of pansies "for thoughts," the columbine "for fidelity," and the daisy "for beauty and innocence." Robert Burns glorified the four-leaf rose, wild and strong, that grew by Doon. The beautiful little buttercup, once held by no unkind, untrue hand under the chin of your youth, to test your love — of butter; the violet, which met its mate and both fought as roosters; the five-leaf clover, forever sought but seldom found. Ah! these, these, the recollection of our childhood days, are ours to remember and glory!

Woman loves to be among flowers that grow. Among the shrubs,

beside the clambering vine, where humming birds and angels are.

Now, why can't you, my farmer friends, aid and assist the woman of the house to these pleasures? It costs but little in time and money. Try it; and my word for it you will be blessed a hundred fold.

Mr. President, a few words more and I have done. At these gatherings, as we look upon the things set before us, we inadvertently go back to the time when we were boys upon the farm at the old homestead, when "the general muster" and the "4th of July" were our only holidays, and when after the stint was done we could go and have a York shilling to buy small beer and a piece of ginger bread, and bring back the change, to show how careful we were about spending money; just to show the neighbors' boys what extravagant vagabonds they were. How hard we worked. Every thing done by hand. Why it is hardly thirty years since the triumphant march of farm machinery first began. Hardly thirty years since our vast carrying system by steam and rail got under way. Why then, General Manager S. S. Merrill, of the St. Paul Railway, and General Manager Marvin Hughitt, of the Northwestern Railway, were mere lads. Now where and what are they? Each managing the largest railway in the world, each company employing thousands and thousands of men, and millions upon millions of capital. Verily the majesty and power of capital and labor combined. Hardly thirty years since Morse was forcing electricity over a wire, which finally gave us the great wonder-working system of telegraphy in use to-day.

But why look back? Ours is the present. We are living in a day of science, of art, of philosophy; in a day of greatness. And every day is as a thousand years.

It may be that times are hard. It may be that greenbacks can't be found growing on every bush. It may be that the wail of "silver and gold have I none," is going about the land. It may be that communism, Ben Butlerism and Kearneyism are running up and down the country, creating strife, discord and hoodlumism. It may be that the dreaded tread of the weary or wicked tramps may be heard even upon the threshold. It may be that disease is stalking through a part of our great domain, carrying death and desolation in its pathway. Yes, all these and more. But whatever may come,

the farmer, the hard-working farmer, should avail himself of every means which God and the inventive genius of the age has afforded, to make himself, his wife, his children, and his man servant, his maid-servant, etc.; aye, everything that is his, comfortable and happy.

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### ADDRESS.

By HON. E. W. KEYES.

(Delivered at Monroe, September 6, 1878, before the Green County Agricultural Society.)

*Fellow Citizens of Green County:* In accepting the invitation of your agricultural society to address you on this occasion, I did not flatter myself that I should be able to present anything for your consideration that would be of any particular benefit or advantage to yourselves or your society. I have no new or startling information or advice to give on the subject of agriculture or the mechanic arts, questions in which you as well as all others are deeply interested.

These annual gatherings at the county fairs are looked forward to with great interest by the sturdy yeomanry of the several counties in the state. As a part of the programme there must be an address; without an orator on such an occasion, without a talk from some one, on some subject or other, it would be considered like the play of Hamlet with that ancient and respectable character left entirely out of the performance.

Admitting, then, the necessity of an address, from long established practice and precedent, I will proceed; not in telling you all I know about farming, for if I would it would be comparatively little, and would not enrich you nor make me very poor.

In the first place, permit me to say, that I have been not a little embarrassed as to the nature or kind of an address fitting and proper for the occasion.

A prominent professor of agriculture in a state institution of learning, well versed in his calling, and with experience in speaking to audiences on occasions like this, said to me: "If you speak to the farmers at their county fair, the less you say on the subject

of agriculture the better you will please your hearers, and the more popular your address will be."

Now, it may be that when you come together on this annual holiday or exhibition of the fruits of your toil, which is a grand *re-sume* of the growth and production of your harvests, your minds — which for the year ending have run so nearly in the same groove, watching intently the winds and the storms, the sunshine and the clouds, the rain-fall and the drouth, the heat and the frosts, the potato bug and the chinch bug, and the many other influences and agencies that determine the harvest — reach out after new thoughts and new ideas upon other subjects. I do not think that it would be passing strange if such were the case. The tired laborer, mental or physical, finds rest and recreation in a change of occupation, whether it be for his hands or his head.

I will not wholly adopt the theory of the professor, and assume that the tillers of the soil, in this rich and prosperous county of Green, are disinclined on this their holiday, to listen to a few words spoken in a general way upon a subject which is their life, their hope, their earthly all.

#### CHANGE AND PROGRESS.

Forty-one years ago this present month of September, my father's family, with a wagon drawn by oxen, left the waters of Lake Michigan, to penetrate the then unbroken wilds of the territory of Wisconsin. As a lad of eight summers, I kept step to the music of that lonely march. After a week's tiresome journey, a wholly unsettled township was reached, where our tents were pitched in what is now the county of Jefferson. Since that time I have been almost an eye witness of the development and wonderful growth of our state. Measured by a lapse of time, these years, in which I have been a continuous resident here, would seem to be a great while, but glancing back through the years to 1837, I can hardly realize the fact.

The farming of to-day, in our state, has greatly changed since the time when I was a "farmer-boy" in that neighboring county, not only in the variety of products, market values, methods of growing and harvesting, but also in almost everything else pertaining thereto. My earliest experience as a worker was in a saw-mill. From the mill I graduated to the farm, and from the years 1843 to

1849, inclusive, I was a young and enthusiastic disciple of Mother Earth, little thinking then that I should ever engage in business other than cultivating her munificent favors. At that early period of our state's history its agriculture was in infancy. The number of our farmers was comparatively few. The markets of the world had not then been opened up to our products. The ideas of the present styles of farm machinery were then lazily resting in the inventor's brain. The iron horse had not touched our soil, slaked its thirst in our streams, or sounded his screeching neigh over our prairies and through our woodlands. The principal article then of remunerative production from the farm was *winter wheat*, which found its market in Milwaukee and other lake ports, whither it was hauled in the rumbling wagon, and sold too often at a very low price. In fact, I have hauled it myself a distance of fifty miles to Milwaukee, and sold it for sixty cents per bushel. The winter wheat of those days, then nearly the only wheat grown, was of superior quality, and was a sure crop. The spring variety had not been introduced and adopted to any great extent. Corn, oats and barley were raised in limited quantities for use upon the farm. The demand for these grains was light. Barley was considered of the least importance. It was before the introduction of that nut-brown beverage known as *lager beer*, which has stimulated the growth of this grain and made it profitable to the producer. At that time the dairy but little more than supplied the wants of the household. The surplus found but a poor market and poorer prices. The refrigerator car was then unknown as an art preservative, to convey the butter and the cheese in the twinkling of an eye, to the seaboard, to be then shipped across the cool Atlantic, to tickle the palates of kings and subjects. Beef and pork, at times, were hardly worth the killing. I have sold the hind quarters of fat steers for two cents per pound, and retailed at that.

With this condition of things then existing, do you wonder that I quit the farm?

The changes, since the years I have named, are radical in the extreme. The acres tilled have increased from *thousands to millions*. Those mighty agencies of transportation — the *railroads*, now pierce or touch, with but a stream between, every county in the state, less only a half dozen. The markets of the world are almost at our doors. Our products are rich, varied and reasonably profit-

able. Though the wheat crop may in part fail us, the coarse grains, the beef, the pork, the wool, and, last but by no means least, the products of the dairy, are never-failing streams of wealth pouring into the coffers of our thrifty husbandmen.

In the matter of labor-saving machinery the change is wonderful indeed. Then the scythe and the cradle felled the standing grasses and ripened grain. Now the reaper and the mower, yea, the binder, pursue their resistless way over the broad acres constituting our magnificent farms. Without these skillful appliances, these tributes to mechanical genius, it would be impossible to sow and reap the vast acreage of crops produced by your county, our state, and the great West.

The amount of wealth annually yielded by our generous soil is incalculable. I will not worry your patience by giving the figures. One thing is manifest; the condition of the farmer has vastly improved. His means of production have been increased. His occupation is not one of such slavish toil as it was; and if, with these advantages, he fails to secure greater comfort, and to widen out in intelligence, the fault is in himself and not in his lot.

#### CAPITAL AND LABOR.

It is not infrequent at the present time that we hear ominous sounds of a coming conflict between capital and labor. The farmer, belonging to the most numerous class of capitalists, is deeply interested in the subject. The consideration of the relations of these twin questions can only receive a passing notice. There is no need of conflict here. They should go forward hand in hand, like the bride and bridegroom. In this free republic we have no titled nobility; no descents of large landed estates; no possible monopoly that could successfully oppress labor. The genius of our system of government, the practical workings of our politics, are opposed to it. Capital gives employment to labor; under the fostering care of capital labor produces results, not only beneficial to both, but to the civilized world. Emphatically this is true of farmers and farmers' boys. No class of people are more interested in stable, conservative ideas. No class are more interested in upholding a government that protects the rights of property, and thus encourages the thrift and frugality necessary for its acquirement.

The laborer of to-day may be the capitalist of to-morrow. The field is open to the honorable competition of every man.

## FARM TIDINESS.

As a general rule, the small farmers of the state might be very much benefited, pecuniarily and otherwise, by a display of more thrift and enterprise. It has always been a matter of great surprise, and no little disgust to me, in riding through agricultural districts, to notice the slatternly and untidy appearance of the smaller farms; the dilapidated condition of the fences, the tumble-down appearance of the barn and sheds, and not unfrequently the house; the accumulated heaps of manure, so much needed upon the exhausted soil, and especially the unhoused reaper and other implements left upon the ground, where the last blade of grass or stock of grain was cut, or furrow turned, exposed to the elements, left alone to rust and rot — the owner giving them no thought until the near coming of the next seed time or harvest. Such extravagant waste is a shame and a disgrace to all who permit it. In a pecuniary point of view, you might as well leave exposed, the season through, to the pitiless storm, your favorite horse, or your best cow. The money invested in one is no better than the money invested in the other. Both are necessary articles of property for use upon the farm, and both reduce the amount of your hard earnings.

It may be that these slovenly practices do not much prevail in this county of Green. I hope not. But I know that they do in the county adjoining on the north. I am informed by an extensive dealer in agricultural implements, that at least fifty per cent. of their wear and decay is directly attributable to carelessness and neglect, and unnecessary exposure to the elements. I have known farmers whose yards were carpeted with the manure that had rotted for years; whose cattle were sheltered from the wintry blasts only by gnawing holes in the straw stacks; whose front yards were ornamented, not with lawn and shade trees, but with pig troughs and cobs. Perhaps these sturdy sons of toil attributed their bad luck to the tariff; to some bloated monopoly; or the contraction of the currency; or to high rates of interest; never dreaming that the same waste and carelessness manifested by them, would bring to poverty the men engaged in any other business.

## FARM INDEPENDENCE.

The independent life of the farmer is without parallel in the business pursuits of life. No matter what mutations and changes

may occur in business affairs; what misfortune and disaster may happen to those in other pursuits of life; what depression and discouragement may overtake the artisan, employed in the great manufactories of the country, caused by the over-production of skilled labor. The farmer, snugly ensconced in the midst of his acres, with his possessions well about him, is most likely to escape the misfortunes of humanity incident to society everywhere.

The Savior of the world, born in a manger, first saw the light of day upon a farm, and since that epoch in the world's history, it requires no great stretch of the imagination to conclude that the people who till the soil are the favored of God. The great architect of the universe, it is said, tempers the wind to the shorn lamb; so does He control and direct the elements of nature, in a greater degree, in a manner that the richness of the earth shall be made available to the support and maintenance of those who delve in it. Is there one within the sound of my voice, who during all his years of experience upon a farm, can recall a year when there was a failure of his crops to such an extent, that a comfortable support was not vouchsafed to himself and family? While it is true, that in some years the products of the farm are greatly diminished, owing to natural or other causes, and perhaps some one production is wholly cut off, still it is equally true that the general average is sufficient for the substantial wants and particular necessities of all interested. The wheat crop may be nearly destroyed in one year; in another the biting frost may cut down the corn, and so on through all the list of farm products, and yet gaunt penury and piping want are not to be seen around the farmer's door. We are a nation of farmers; a very large proportion of our population are tillers of the soil. The farmers are emphatically the greatest producers of the country. Unless success and prosperity attend them in their pursuits, the blighting and withering effect is immediately felt throughout the whole land. The channels of trade, the walks of industry, always in direct sympathy with this producing class, can only thrive and prosper in a measure proportionate to the harvest returns of the farmer.

Agriculture, then, being the great and overshadowing interest of this country, must be encouraged and sustained. It is the foundation of the government, the basis of all business prosperity. It affords a living and support to millions not engaged in it. Without

the trade and business afforded and necessitated by the products of agriculture, the site of your flourishing inland village might be a cornfield or a pasture. The merchant and mechanic are alike dependent on the farmer; when the latter has good crops, the former is prosperous. A large proportion of men who are active to-day upon the stage of life, were born upon a farm, and their earliest years were spent amid its rural scenes, and *there* was laid the foundation upon which was built whatever success in life they afterwards attained. The insight into nature thus afforded, the rugged constitution developed, the habits of industry, energy and economy encouraged, and the inculcation of the principles of good morals, sterling integrity and honest manhood, eminently fitted them for greater achievements; while young men graduating from gentler walks of society and life have made miserable failures, owing to lack of physical vigor and the absence of the qualities so essential to success. In speaking as I do, I do not wish to be understood as encouraging the boys to break away from the farm to push out into the uncertain ocean of life. If they are not too restless, I would advise them to remain. There if he will, and the stuff is in him, he can be the architect of his fortune, the arbiter of his destiny. Is he anxious to grow rich? He can cultivate riches from the soil. Would he acquire knowledge and fill the storehouse of his mind with the richest treasure of the intellectual world? He can do it on the farm. Does he wish to enter the arena of politics? Is he ambitious for political distinction? Has he a hankering after office? Where, O, where, I say, is there a wider field in which to operate than in the ranks of agricultural life. I say then to you farmer boys: "That no pent-up Utica *can* contract your powers" — for if you will it, "the whole boundless continent is yours."

Right here I wish to remind the farmer boy that he starts in life with one great advantage. If he understands farming he can engage in other pursuits, learn a trade, embark in commerce, and if he fails, or bad luck overtakes him, he can return to the soil; she will yield him a living whatever ill betide him. The boy who understands farming will never be out of a job, or go hungry for want of work. The operative whose skill is all in the factory, depends on the market and the prosperity of the times for his bread. It is a subject of frequent remark among professional men, that they would greatly prefer their sons to become farmers — that if

they were removed from the dangerous allurements of city life and satisfactorily settled down upon a farm, they would rejoice. This feeling is not new to me, and there are many who experience it. While I am thus speaking of the boys, I want it distinctly understood that I am not unmindful of the charms and virtues of the lassies of the farm. The pure diamond will glow as brightly in the dark mine as on the coronet of the king. The farmer's daughters are destined to be the future mothers of the republic, and now, as they ever have been, in story and in song, will they be loved and revered.

The farmers, from the nature of their employment, detached as they are from the more active pursuits of life, free from the excitements of cities, and thickly settled communities, uninfluenced by the quick workings of popular prejudice and sudden passion, pursuing their life work in the country with all their surroundings particularly conducive to clear heads, honest minds and sound judgments, should be the safe and conservative element of the people. He owns what he has, and is the indisputable possessor of a portion of God's heritage. They should oppose all that is bad in politics, and correct all that is wrong in government. If they understood the various important questions of the day, and were sure they were right before they went ahead, being so numerous a class, they could render invaluable service in the direction of good government. They might, if they would, become the keystone of the arch that supports the temple of liberty. While the great body of farmers are honest and well-meaning, imbued with correct principles, and desirous only of doing right, there are among them, as among all other classes, men of the most mischievous tendencies, who assume to direct and control their fellows in matters of public and private concern. These busy-bodies are generally demagogues of the first water; they are of the blatherskite order, and should be shunned by the honest farmer, as if he were a leper. In the determination of political questions which come before the farmer, and are decided by him through the medium of the ballot, there is little occasion of making a mistake. Certain great principles underlie them all, and the humblest tiller of the soil in the most distant corner of the township, is more likely to settle them correctly, than the brawling loafer around the village corners, who has access to all the avenues of intelligence.

While it is the theory of this fair that is made up and carried on exclusively by the farming community, I presume that practically such is not the case. The tradesman is here with his wares, and the mechanic with his handiwork and skill, and all forming parts of one harmonious whole. While under the circumstances of my appearance here, and the supposition, natural enough, that I am to address the farmers especially on matters concerning them, still I would do injustice to myself if I did not pay a passing tribute to all the other classes of the community, who are co-workers upon the great farm of life. The reciprocal relations always existing, in great harmony, between the agricultural, mechanical and mercantile interests of the country, are closely interwoven for their mutual benefit and advantage, and are productive of the most satisfactory results.

#### DAIRY.

Of late years the manufacture of butter and cheese has been claiming a good deal of attention from our farmers throughout the state, and many more are investing in this lucrative branch of farming every succeeding year. The butter and cheese product of Wisconsin stands unrivalled. No state in the Union has a better reputation in this respect. Already do these productions of our dairies command the first price in the markets of the world. Our facilities for the manufacture of these articles are unsurpassed, and the receipt of good prices is tolerably certain. I commend this subject to your more extended consideration.

I recently met an extensive cheese manufacturer from the county of Sheboygan. I inquired of him how the cheese business was getting along this year. He replied in a cheerful voice, "That it was very satisfactory, indeed." I said, "Is not cheese very low in the market at the present time?" He answered that it was. "How much do you get per pound?" I asked. He replied, "Six to seven cents." "How much did you use to get?" "Twelve to fourteen cents," was the answer. On noticing my look of astonishment he added: "But never before since I have been in the business would a pound of cheese go so far or buy so much as now." There is in this remark the whole situation in a nutshell. Volumes might be written in elaboration of the subject, but I pass on.

It would seem that heretofore not enough attention has been paid, by our farmers, to the products of the dairy. The conclusion

is being forced upon us, by the experience of the past years, that Wisconsin is rapidly retrograding as a wheat growing state. This crop is becoming so uncertain, and its partial or complete failure is so discouraging, that the farmers are necessarily compelled to turn their attention to other productions. The dairy seems to be the most practicable, and from what I know of the business, it is likely to be the most profitable branch of farming to succeed wheat growing. Good butter and cheese are among the necessaries of life. The latter is growing into favor as an article of diet at every table. Even the question of making it an army ration for our soldiers is being seriously considered, and will probably be adopted. The greater the amount manufactured, the greater will be the consumption, and without diminishing the price, and the more likely it will be to come into general use, to grace the table not only of the rich, but of the poor and laboring classes. Experience has shown that it is a most substantial article of food as well as an economical one to the consumer.

Very much of the value to the farmer of his wheat and coarse grains is lost to him in the cost of transportation to market; not so with butter and cheese. These articles, the very essence of farm products, are concentrated into small space and weight, and of consequent cheap transportation. For instance, a bushel of wheat, weighing sixty pounds, worth one dollar, might cost for carriage from Monroe to Milwaukee fifteen cents. A firkin of butter weighing the same, and worth in the market ten or twelve dollars, would cost but little more. The same theory also holds good in reference to cheese. So here is a great advantage to the producer, and it would seem to be a strong argument in favor of the manufacture of these articles. Add to this the consideration that the soil is not exhausted, but constantly improved by this kind of production, and the benefits resulting from the dairy are obvious. But here, as in every other pursuit in life, excellence should be attained. The market may be overstocked with poor butter and cheese, as it is with poor lawyers, doctors, preachers and mechanics; but good butter and cheese, like genius and talent, can always command its price.

The raising and fattening of beef for the general and eastern markets, owing to the length and severity of our winters, is not as profitable as it should be. In this matter it is impossible to compete with the cattle growers of the western and southern plains,

where the stock subsists entirely, winter and summer, upon the luxuriant wild grasses of those regions.

If the dairy, then, is to receive particular attention at your hands, an inquiry eminently proper to make of you is this: Have you the best possible breed of milch cows attainable for the purposes of the dairy? If not, you should investigate the subject and remedy the omission. You know it costs as much to keep a poor cow as a good one. In the one case you might be rewarded with a pail full of milk, while in the other only two quarts, strippings included, would reward your effort. As one of the Regents of the State University, and a member of its Agricultural Farm Committee, my attention has recently been called by its chairman, Hon. Hiram Smith, of Sheboygan, who is one of the most extensive and successful cheese manufacturers in the state, to a new breed of cattle, known as the Holstein breed, imported from Holland, or Deutschland. Mr. Smith claims that the cows will give more milk, by far, during the season than any other kind known to our dairymen. They are said to be emphatically the best cows for cheese making. It may be they are already introduced here, and that you know more about them than I do. At any rate, I thought I would mention the matter to you. You will doubtless agree with me on the main proposition, that if you have not the best milkers, it will be more profitable for you to get them.

#### TRAMPS.

The army of tramps which has infested our state during the present year has become a serious question, not only to the dwellers in villages and cities, but also to the farmers in the country. From whence come these wandering vagabonds, and whither do they go? Who and what are they? There may be once in a while in their ranks a real laborer, honestly seeking employment, but he is a rare exception. The bulk of them are just what they seem to be—thieving vagabonds.

Where they come from we know not, but we know that this social scourge, this moral plague, never came upon us until communistic ideas began to claim attention. What shall be done with them? That is one of the momentous questions of the hour. My answer is that they must go to work like the rest of us. "Where?" asks the inquisitive tramp, the spokesman of the wandering vagabonds. "Show us the field of our labor and the place where we can get

employment." Where? Is there not land enough over yonder in the broad west? There are wide prairies waiting for the hands that are to tickle them with the plow, that they may laugh with the harvest; immense forests, silent and still, expectant and longing to hear the sharp echo of the woodman's ax. Go there, I say, ye able-bodied and unemployed wanderer! For there, at least, the hard hand of honest toil can raise enough to live on. There you can obtain your bread by the "sweat of your brow." Is there no market for your produce? What of that? It will make bread, and bread is the staff of life. Besides, you have to wait a few short years and the car of almighty progress will bring a market to the very doors of your log cabins. The pioneers who started the now imperial west on its career of glory might have been tramps had they remained in the over-crowded east. But actuated by the impulse of honest labor, they came here and toiled and waited until time and progress brought them their reward.

But suppose the lazy, listless tramp will not go to the field of labor which is open to him and the harvest which waits, but prefers to beg his daily bread from door to door, or steal it from our pantries. Then, I say, set him at work breaking stone in your jail yard.

Labor, severe, exacting labor, either voluntary or forced, is the remedy for this intolerable nuisance. Let the tramp know that he must obey the first great command, and earn his bread by the sweat of his brow; that he must work, either for himself or for the public, and this now alarming evil will, in good time, be abated. The statutes of the state, in their provisions, are ample to meet this question. All idle persons, out of employment and without visible means of support, all wanderers and tramps, are taken and deemed to be *vagrants*, and as such are liable to be proceeded against and sentenced to hard labor. Rigorous treatment of this kind will soon free your neighborhood and drive them from the state. In this respect sternness is humanity. A little added expense on your county in enforcing the law is economy. No community can afford to tolerate idle vagabonds, whose presence is a menace to its peace and a burden on its industry.

LIST OF OFFICERS OF AGRICULTURAL SOCIETIES FOR THE YEAR 1878-9.

COUNTIES.	Name of Society.	President.	Secretary.	Postoffice.
Barron	Barron County Agricultural Society	W. W. Flinn	Fred. Telke	Barron.
Buffalo	Buffalo County Agricultural Society	F. Gilman	J. W. De Groff	Alma.
Burnett	Burnett County Agricultural Society	Wm. Irvin	J. J. Buck	Grantsburg.
Calumet	Calumet County Agricultural Society	W. H. Cook	George D. Breed	Chilton.
Clark	Clark County Agricultural Society	J. S. Dore	J. A. Kimball	Neillsville.
Columbia	Columbia County Agricultural Society	F. C. Curtes	Z. J. D. Swift	Pacific.
Columbia	Columbus Union Agricultural Society	James Webster	M. Adams	Columbus.
Columbia	Lodi Union Agricultural Society	J. O. Eaton	E. W. Gardner	Lodi.
Crawford	Crawford County Agricultural Society	North Miller	Fergus D. Mills	Seneca.
Dane	Dane County Agricultural Society	Matthew Anderson	Geo. C. Russell	Madison.
Dodge	Dodge County Agricultural Society	Samuel Eastman	W. T. Rambush	Juneau.
Door	Door County Agricultural Society	James R. Mann	Rufus M. Wright	Sturgeon Bay.
Eau Claire	Eau Claire County Agricultural Society	G. E. Porter	H. M. Stocking	Eau Claire.
Fond du Lac	Fond du Lac County Agricultural and Mech. Soc.	John Nickols	G. De Neven	Fond du Lac.
Fond du Lac	Ripon Agricultural Association	C. F. Hammond	H. W. Wolcott	Ripon.
Grant	Grant County Agricultural Society	Hugh H. Moore	T. F. Baldwin	Lancaster.
Grant	Boscobel Agricultural and Driving Park Ass'n.	Geo. F. Hildebrand	T. J. Brooks	Boscobel.
Green	Green County Agricultural Society	W. S. Wescott	W. W. Wright	Monroe.
Iowa	Iowa County Agricultural Society	John Ellwood	W. H. Priedeaux	Dodgeville.
Iowa	Southwestern Wisconsin Industrial Association	William T. Henry	D. P. Beech	Mineral Point.
Jackson	Jackson County Agricultural Society	J. K. Horswell	John Parsons	Black River Falls.
Jefferson	Jefferson County Agricultural Society	Walter S. Green	David W. Curtis	Fort Atkinson.
Jefferson	Central Wisconsin Agricultural and Mech. Ass'n.	Jesse Stone	F. P. Brook	Watertown.
Juneau	Juneau County Agricultural Society		M. H. Case	Mauston.
Kenosha	Kenosha County Agricultural Society	Frederic Robinson	H. H. Tarbell	Kenosha.
Kewaunee	Kewaunee County Agricultural Society	Frank Kwapil	G. W. Wing	Kewaunee.
La Crosse	La Crosse County Agricultural Society	William Van Zandt	W. J. Dudley	La Crosse.
La Fayette	La Fayette County Agricultural Society	N. T. Parkinson	H. L. Brown	Darlington.
Manitowoc	Manitowoc County Central Agricultural Society	Ira Clark	J. E. Harris	Cato.

Marathon.....	Marathon County Agricultural Society.....	B. Ringle.....	H. Q. Wheeler.....	Wausau.
Marquette.....	Marquette County Agricultural Society.....	James Graham.....	S. A. Pease.....	Montello.
Monroe.....	Monroe County Agricultural Society.....	C. E. Hanchett.....	C. E. Boyden.....	Sparta.
Monroe.....	East Monroe County Agricultural Society.....	L. S. Benjamin.....	E. L. Bolton.....	Tomah.
Oconto.....	Oconto County Agricultural Society.....	Augustus Cole.....	E. F. Paramore.....	Oconto.
Outagamie.....	Outagamie County Agricultural Society.....	J. H. Carver.....	R. H. Randall.....	Appleton.
Ozaukee.....	Ozaukee County Agricultural Society.....	Alexander M. Alling.....	Chas. Wilke.....	Pt. Washington.
Pepin.....	Pepin County Agricultural Society.....	S. L. Plummer.....	Wm. H. H. Matteson.....	Durand.
Pierce.....	Pierce County Agricultural Society.....	John S. Copley.....	Daniel J. Dill.....	Prescott.
Portage.....	Portage County Agricultural Society.....	Wm. V. Fleming.....	A. J. Smith.....	Amherst.
Racine.....	Racine County Agricultural Society.....	R. H. Baker.....	Chas. McCumber.....	Burlington.
Richland.....	Richland County Agricultural Society.....	J. M. Thomas.....	W. M. Fogo.....	Richland Center.
Rock.....	Southern Wis. and Northern Ill. Industrial Assoc'n.....	.....	B. A. Chapman.....	Beloit.
Rock.....	Rock County Agricultural Society.....	.....	R. J. Richardson.....	Janesville.
St. Croix.....	St. Croix County Agricultural Society.....	F. W. Hitchings.....	Rufus R. Young.....	Hudson.
Sauk.....	Sauk County Agricultural Society.....	John M. True.....	G. A. Pabodie.....	Baraboo.
Sauk.....	Baraboo Valley Agricultural Society.....	James Lake.....	A. F. Lawton.....	Reedsburg.
Shawano.....	Shawano County Agricultural Society.....	H. Luecke.....	D. H. Pulcifer.....	Shawano.
Sheboygan.....	Sheboygan County Agricultural Society.....	J. F. Moore.....	Byron Sanford.....	Sheboygan Falls.
Sheboygan.....	Sheboygan County German Agr. and Ind. Society.....	Ch. Wippermann.....	Ferd. Stösser.....	Sheboygan.
Trempealeau.....	Trempealeau County Agricultural Society.....	Alex. A. Arnold.....	E. F. Clark.....	Galesville.
Vernon.....	Vernon County Agricultural Society.....	Peter McIntyre.....	Wm. F. Terhune.....	Viroqua.
Walworth.....	Walworth County Agricultural Society.....	Sidney Buell.....	W. H. Morrison.....	Elkhorn.
Washington.....	Washington County Agricultural Society.....	Leander F. Frisby.....	John Pick.....	West Bend.
Waukesha.....	Waukesha County Agricultural Society.....	John Porter.....	M. L. Butterfield.....	Waukesha.
Waupaca.....	Waupaca County Agricultural Society.....	I. C. Alden.....	Wm. Woods.....	Weyauwega.
Waushara.....	Waushara County Agricultural Society.....	J. N. P. Bird.....	W. L. Munroe.....	Mt. Morris.
Winnebago.....	Northern Wisconsin Agr. and Mechanical Assoc'n.....	A. H. L per.....	R. D. Torrey.....	Oshkosh.
Wood.....	Wood County Agricultural Society.....	G. F. Witter.....	D. J. Cole.....	Grand Rapids.

STATEMENT OF PRINCIPAL FARM PRODUCTS GROWN IN THE SEVERAL COUNTIES OF WISCONSIN, IN 1878.

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NUMBER OF ACRES.

COUNTIES.	NUMBER OF ACRES.							
	Wheat.	Corn.	Oats.	Barley.	Rye.	Potatoes.	Root Crops.	Cranber- ries.
Adams .....	7,452	10,141	5,506	61	9,459	656	82	63
Ashland .....	5	5	20			75	10	
Barron .....	7,065	574	3,490	976	282	385	74	
Bayfield .....	20	30	60	40		100	15	
Brown .....	19,119	1,601	10,597	1,309	3,187	1,650	104	
Buffalo .....	52,927	7,772	12,829	1,313	910	937	65	
Burnett .....	1,886	109	544	53	259	107	34	3,360
Calumet .....	34,169	4,422	8,075	3,443	233	839	34	
Chippewa .....	22,597	5,444	13,293	2,103	910	2,070	1,529	412
Clark .....	3,907	1,526	3,915	315	384	722	139	20
Columbia .....	76,641	36,811	22,033	4,074	6,926	1,777	214	27
Crawford .....	29,058	13,976	10,837	1,489	1,008	1,088	53	
Dane .....	111,220	74,967	59,721	12,789	8,735	3,333	524	
Dodge .....	140,058	27,514	24,446	9,490	2,292	2,862	66	37
Door .....	9,204	272	3,595	647	680	906	255	6
Douglas .....	30	8	54			33		
Dunn .....	34,678	8,486	12,617	1,439	1,170	910	423	1
Eau Claire <sup>1</sup> .....	33,864	6,645	11,789	680	1,178	596	59	
Fond du Lac .....	101,888	20,022	24,139	8,679	1,168	2,627	73	
Grant .....	40,008	92,815	57,723	1,371	3,683	3,164	24	
Green .....	9,328	55,766	32,823	265	4,567	1,921	17	
Green Lake .....	30,029	16,753	6,975	773	3,487	544	16	47
Iowa .....	30,400	49,012	37,021	1,317	1,943	1,801	90	
Jackson .....	27,524	7,549	11,604	2,063	932	579	270	12,990
Jefferson .....	37,496	24,991	15,249	4,993	7,163	1,776	98	
Juneau .....	13,175	10,636	14,088	295	3,720	1,810	70	2,510
Kenosha .....	5,442	14,759	14,643	782	674	716	27	
Kewaunee <sup>2</sup> .....	16,124	145	6,957	998	2,306	1,111	600	

WISCONSIN STATE AGRICULTURAL SOCIETY.

STATEMENT OF PRINCIPAL FARM PRODUCTS.

La Crosse.....	43,856	10,680	11,476	1,453	4,733	833	60	.....
La Fayette.....	6,600	64,680	51,688	577	2,080	1,906	36	.....
Lincoln.....	308	2	447	15	3	45	.....	.....
Manitowoc.....	52,112	750	19,055	3,540	5,221	2,464	234	.....
Marathon.....	6,275	409	5,593	498	274	736	228	.....
Marquette.....	11,038	12,280	4,070	69	11,529	836	112	259
Milwaukee.....	14,145	6,876	10,630	4,186	3,653	3,258	194	.....
Monroe.....	36,858	12,873	16,817	1,814	2,524	1,437	163	817
Oconto.....	3,424	683	2,164	239	702	1,701	140	.....
Outagamie.....	36,978	7,191	11,178	1,428	1,825	1,581	115	1
Ozaukee.....	30,631	2,408	10,777	3,069	2,156	1,691	93	.....
Pepin.....	13,175	5,770	3,670	305	1,047	373	71	.....
Pierce.....	48,494	7,107	9,645	1,406	409	1,085	73	.....
Polk <sup>3</sup> .....	12,962	1,099	4,034	614	426	620	1,158	.....
Portage.....	22,448	12,112	10,255	953	14,169	5,202	185	49
Racine.....	10,070	14,780	14,739	1,295	1,848	1,393	67	.....
Richland.....	19,028	23,401	13,032	655	1,895	1,785	14	.....
Rock <sup>4</sup> .....	27,790	76,396	57,210	15,646	12,898	2,676	143	.....
St. Croix.....	90,807	5,314	15,392	987	143	1,016	473	4
Sauk.....	37,213	28,700	24,009	1,283	6,677	3,178	149	2
Shawano <sup>5</sup> .....	9,987	1,502	4,521	218	1,786	572	104	142
Sheboygan.....	13,584	6,515	14,932	5,837	4,279	2,298	392	6
Taylor.....	54	45	102	7	53	156	76	1
Trempealeau.....	66,950	11,249	17,856	1,642	942	1,155	77	1
Vernon.....	51,018	19,838	22,363	3,709	1,314	1,871	732	8
Walworth <sup>2</sup> .....	31,093	41,780	27,040	5,879	3,799	1,796	175	.....
Washington.....	66,956	12,188	13,238	3,680	5,312	2,306	422	50
Waukesha.....	43,914	24,077	19,544	6,408	7,852	3,518	316	40
Waupaca.....	20,619	9,405	8,741	1,063	6,732	2,133	173	81
Waushara.....	15,357	16,519	9,274	534	16,291	1,117	71	802
Winnebago.....	51,326	13,068	12,213	600	1,184	1,308	23	100
Wood <sup>7</sup> .....	763	774	798	38	1,108	507	87	3,205
<b>Total</b> .....	<b>1,798,647</b>	<b>943,322</b>	<b>872,746</b>	<b>131,404</b>	<b>192,130</b>	<b>87,128</b>	<b>11,320</b>	<b>25,041</b>

<sup>1</sup> Two towns not reported.

<sup>2</sup> Acres of peas reported, 702½.

<sup>3</sup> Three towns not reported.

<sup>4</sup> Acres of cucumbers reported, 16.

<sup>5</sup> One town not reported.

<sup>6</sup> Acres of buckwheat reported, 82.

<sup>7</sup> Five towns not reported.

STATEMENT of the Principal Farm Products — continued.

COUNTIES.	APPLE ORCHARD.		NUMBER OF ACRES.					MILCH COWS.	
	No. of Acres.	No. of Bearing Trees.	Flax.	Hops.	Tobacco	Grapes.	Growing Timber.	Number.	Value.
Adams .....	127	3,632		458	9		61,766	2,920	\$44,577 00
Ashland .....							1,152,000	40	720 00
Barron .....	63	1,059		30			313,706	1,413	26,508 00
Bayfield .....							500,000	30	900 00
Brown .....	171	8,137					87,368	5,377	79,847 16
Buffalo .....	110	5,615		1		4	14,317	6,042	84,623 00
Burnett .....	2	200					2,719	770	9,642 00
Calumet .....	452	14,133	2	20	8	4	67,331	5,808	114,341 49
Chippewa .....	59	3,582		11			940,200	2,948	49,715 00
Clark .....	121	2,893		4			679,150	2,550	41,933 00
Columbia .....	2,312	70,922	9	346	13	26	77,980	11,505	190,322 00
Crawford .....	831	25,896	63	7	14	4	88,198	4,303	62,114 00
Dane .....	3,290	99,498	113	189	2,044	67	104,867	20,988	346,075 00
Dodge .....	2,717	93,842		74	7	594	52,069	19,122	343,237 00
Door .....	1,993	3,900			6		26,834	1,797	31,893 50
Douglas .....							170,000	74	1,850 00
Dunn .....	127	4,558		42			108,640	4,902	74,126 00
Eau Claire <sup>1</sup> .....	103	4,853					41,072	2,867	52,512 00
Fond du Lac .....	3,099	94,086	4	34			40,797	16,146	303,262 00
Grant .....	2,598	119,596	14,138	77	20	54	161,172	13,792	207,232 00
Green .....	1,315	52,970	332	6	9	4	64,963	14,034	240,303 22
Green Lake .....	1,388	45,828	65	20	5		24,337	4,853	87,730 00
Iowa .....	1,016	36,892	14,144	72		14	71,243	10,226	191,349 00
Jackson .....	106	3,496		76		1	100,801	3,579	57,480 00
Jefferson .....	2,481	87,240	1	576	75	36	35,781	15,444	342,779 00
Juneau .....	424	10,066	1	672	2	5	46,447	4,169	69,834 00
Kenosha .....	1,744	66,622	6,320				12,300	5,970	125,488 00
Kewaunee <sup>2</sup> .....	123	4,132	3	3	18		47,995	4,168	66,301 50

## STATEMENT OF PRINCIPAL FARM PRODUCTS.

La Crosse	315	8,200	181	4	34,236	5,151	87,973 00		
La Fayette	1,463	57,150	26,422	3	57,106	10,435	202,925 00		
Lincoln	2	35			691,000	173	2,811 00		
Manitowoc	999	21,549	3		158,534	11,066	174,987 00		
Marathon	7	1,200			861,192	2,853	44,777 00		
Marquette	506	10,984	48	2	53,142	3,427	51,714 00		
Milwaukee	2,110	53,173	15	68	15,410	7,343	141,425 00		
Monroe	533	13,162	289	2	51,401	6,240	111,813 00		
Oconto	12	565	3		1,532,197	1,132	21,230 00		
Outagamie	591	17,231	17	1	80,511	6,884	129,202 00		
Ozaukee	1,421	18,277	4		22,274	5,875	108,350 00		
Pepin	19	2,882	2		41,749	2,132	32,723 50		
Pierce	210	5,554	1		160,662	4,358	65,565 00		
Polk <sup>3</sup>	215	1,265	10	10	47,428	2,124	35,471 00		
Portage	131	3,793	449		325,489	3,881	65,643 00		
Racine	4,447	78,370	5,559	25	14,983	6,556	113,677 00		
Richland	600	13,233	221		185,000	6,157	106,471 00		
Rock <sup>4</sup>	3,944	134,282	239	14	57,105	15,015	320,001 00		
St. Croix	392	8,616			99,034	4,511	75,424 00		
Sauk	1,617	37,369	1	2,068	134,789	9,436	151,062 00		
Shawano <sup>5</sup>	70	1,330		2	161,890	2,319	38,850 45		
Sheboygan	3,302	81,215	45		73,979	17,358	412,977 20		
Taylor		2			621,720	124	2,985 00		
Trempealeau	335	10,456	33		42,563	6,356	94,354 00		
Vernon	1,058	20,691	61	114	147,241	7,255	96,172 00		
Walworth <sup>6</sup>	4,091	132,159	1,737	44	49,453	12,795	315,586 00		
Washington	2,201	67,692	4	19	57,087	9,725	168,185 00		
Waukesha	3,592	109,529	26	176	49,989	11,806	257,778 00		
Waupaca	300	10,195		147	141,579	5,989	89,652 00		
Waushara	290	8,891	51	225	61,828	4,932	77,075 00		
Winnebago	1,291	47,088		56	19,688	9,396	149,153 00		
Wood <sup>7</sup>	73	786		3	84,882	739	13,629 00		
Total	61,819	1,840,572	69,310	6,975	4,652	925	11,229,194	339,380	\$7,006,336 22

<sup>1</sup>Two towns not reported.<sup>2</sup>One town not reported.<sup>2</sup>Acres of peas not reported, 702½.<sup>4</sup>Acres of buckwheat reported, 82.<sup>3</sup>Three towns not reported.<sup>4</sup>Acres of cucumbers, reported.<sup>7</sup>Five towns not reported, 16.

## THE PRINCIPLES OF BREEDING.

BY CHARLES L. FLINT.

(Secretary Massachusetts State Board of Agriculture.)

Nature works according to fixed rules, which have received the general designation of natural laws. It is true we may find exceptions. Difference in circumstances will sometimes lead to a variation in results; but still there is, through all experience, a connected thread of evidence of the existence of well established laws, and these laws, in their application to the stock upon the farm, may be comprehended under the general term of the principles of breeding.

Nothing need be said of the importance of farm stock: it is daily becoming more clearly recognized and appreciated; and so is the fact that the principles applicable to the whole class can be studied and determined all the more satisfactorily by studying individual cases. What farmer has not observed the marked difference in the fattening capacities of his various animals? Some of them fatten so easily, that they pay by their increase of weight for all the food which they consume; while others would be expensive could they be received as a gift. The same thing has been observed, though it may be less apparent, in our dairy stock. Some animals, by their abundant yield, or by the quality of their product, pay richly for all the food they consume; while other animals fall far below this point, and entail a constant loss or expense upon the owner.

Now, we want to search out the rules which govern the results we seek to obtain, and to study the system to be pursued in putting them in practice; and it may serve to encourage us, to know that certain results seem uniformly to follow the same fixed laws in the breeding of all varieties of farm stock, as cattle, sheep, swine, etc.

You have heard of the old and well recognized maxim that "like produces like;" but this rule, as all others, is liable to be misapplied, and the error will appear in the form of contradictory results in practice. If an animal is capable of transmitting any characteristic to its young, it must, of course, possess that characteristic itself, although now and then qualities may predominate in the

offspring which were almost or quite latent or hidden in the parent. Now, if any characteristic quality becomes hereditary in an animal, it must correspond with a similar quality inherent in the parent from which it descended. But if we breed from a female of certain qualities by a male of an opposite character, so far as these peculiar qualities are concerned, we cannot expect to perpetuate in the offspring both characteristics. We should obtain a result which might appear to contradict the maxim that "like produces like." And here we come at once upon one of the leading principles in the breeding of all stock, — that though "like produces like," and can produce nothing else, when the two parents possess opposing or unlike qualities, the one which possesses the strongest hereditary qualities, or the strongest power of transmitting his qualities, will gain a preponderating influence over the offspring.

Take, for instance, a cow with some special peculiarity of form, and put her to a bull having points of form quite opposite in this respect, and the calf will take the character, so far as this peculiarity of form is concerned, of the parent which possesses the greatest hereditary power, or the greatest purity and unity of influence — what we may call fixity of type. And these hereditary powers are very largely under our control, to be increased or diminished by our own course of action.

If we take two animals to breed together, both possessing a strong similarity of type, the result we shall have will be an offspring possessing the like character, but in a higher degree. The result of putting together two animals of a strong similarity of characteristics is not only to perpetuate their corresponding peculiarities, but to intensify them in the offspring; that is, if the parents actually possess a striking similarity of type in any given point, each successive generation which they produce receives an increase of hereditary force, or an increase of power in transmitting its peculiar stamp upon its young. It is a cumulative power. But if this hereditary power accumulates, and becomes stronger and stronger, with a strong similarity in the parents to start from, it absolutely and invariably diminishes, if the parents, instead of possessing similarity of character, really possess an opposite or antagonistic character.

It reminds us of the familiar and well known principle of mathematics, that two plus or positive quantities multiplied together

will produce a far larger plus or positive quantity as the product; while if we multiply two unlike quantities, a plus and a minus, for instance, the result will be a minus, or negative quantity.

Professor Tanner, who is entitled to be regarded as high authority on this and kindred subjects, puts the matter somewhat like this:

Suppose, for example, we have a well bred ram, that, by long and careful breeding through several generations, has acquired certain strong and valuable hereditary powers; and suppose these powers, for the sake of illustration, are equal to 100, if they could be expressed in figures. Now, suppose we put this ram to a ewe of a different character, one that has been cross bred, or bred without any care or system — very much as our native sheep or our common cattle have been bred. She has, of course, far less hereditary power; far less fixity of type and strength of blood, as we say. Her hereditary power may be represented, we will suppose, by 60. The result would be a lamb possessing very much the same characteristics as the ram, because we have seen the ram possessed a greatly superior hereditary power. To the eye he may look very like his father; but the hereditary capacity of this lamb will be greatly reduced, and his power of transmitting his peculiar characteristics will be represented by  $100 - 60 = 40$ . He may still look to the eye about as good as his father; but he will possess less than half of his father's hereditary power, and less even than that of his mother. In other words, he may have all the perfection of form and marked characteristics; but his power of transmitting these peculiarities will be only in the proportion of 40 to 100, and for a breeding animal to get stock from he will be worth less than half as much as his sire.

In other words, if you select animals of a similarity of type, that is, if the likeness is strongly marked and well developed in both parents, the young will not only possess the same character as the parents, but it will possess an increased or multiplied power of hereditary transmission of these characteristics. But opposite characteristics mutually weaken each other's influence, and the offspring will have the power of hereditary transmission only in a greatly reduced degree. The exact proportion of this reduction of the power of transmission, or hereditary power, may not be precisely like that stated by Professor Tanner; but it will correspond with it in the main, and sufficiently for illustration.

These are a few general and well established principles which have been arrived at by the most skillful and scientific breeders during the last half or three quarters of a century; and it would be idle to dispute them or to deny their force.

We are to bear in mind, also, that this capability of transmitting the qualities or characteristics from the parent to the offspring is not limited to any one peculiarity of the animal—like the secretion of milk, the disposition to take on fat, the strength of constitution, the likeness of figure, or the habit of growth—but extends to all the characteristic points of the parent animal. All the peculiarities of the system, physical and constitutional, are very largely within our control; and the character which results will be governed by the tendencies of the parents we select to breed from, and will depend on the adjustment of the balance of qualities, sometimes inclining to the side of one parent, and sometimes to the other, according to the respective power of transmission which has been spoken of.

If this power largely preponderates in one parent, owing to the length of time in which it has been carefully bred, or the number of generations through which it has become fixed and intensified, while it has been broken and weakened in the other by cross or promiscuous breeding, the character of the offspring will be governed almost exclusively by the parent that has the stronger blood; while the other will have but slight influence over the qualities of the offspring. But if there is a more even adjustment of this power of transmission on the part of the parents — that is, if they are nearly or quite equally well bred — the dam will succeed in imparting some peculiarities, and the sire will communicate others. The dam may impart the general form of the body, for instance, but be unable to control or overcome the stronger power of the sire over certain points of the body. The dam, for example, might have slightly deficient hind-quarters, and the sire a strong tendency to impart a good hind-quarter; and in this respect she would be compelled to yield to the superior strength of influence. In those points of character or features where they correspond, or were similar, both being good or both being bad, the result would be to increase and intensify such points, and to reproduce them in a still stronger form. In some particulars the influence of the male will predominate; in others, that of the dam. So you see the hereditary

qualities of long and carefully bred stock will represent the maximum of good qualities and the minimum of undesirable ones.

If I have succeeded in making myself understood, you have already a few of the most important general principles from which the judgment of each breeder will enable him to deduce many details to be applied in practice; and the first and most obvious is to *breed only from the best*, — not merely the best looking, the animal that strikes and fills the eye the most completely, but from the one that has the hereditary power, the capacity to transmit his good qualities in the highest degree to his offspring; and the strongest evidence of this power will be the length and perfection of his pedigree, showing the qualities of his ancestors for some generations back, unless, indeed, some of his stock can be seen to tell as plain a story to the practiced eye of a judge of stock.

We have often heard practical men, intelligent men, who profess to know something about stock, and who ought to know better, say: "I don't care anything about your pedigree: let me see the animal, and I can tell whether I want to breed from him or not." Let us not deceive ourselves by any such assumption, from whatever source it may happen to come. It will be sure to lead to frequent disappointment; for, as we have shown, an animal may possess an almost faultless form, and strike the eye of even the most experienced judge as possessing remarkably fine qualities, and indeed really possess them, and yet have no fixity of type, no great hereditary power; when, if put to a low or ill-bred female, he will be more likely than not to get poor stock, or, at any rate, there will be no reasonable certainty of transmitting his own qualities.

The importance of the greatest care in the selection of the male will be apparent from the fact that his influence extends to a far more numerous progeny. He should not only possess in the highest degree the good qualities sought after in the class of animals to which he belongs, but he should possess the power of transmitting them in the highest degree; and as this power is latent or hidden, and does not appear to the eye, it is to be judged either from the stock already got, or more commonly from the qualities of his ancestors through several generations. And here, again, the quality of the pedigree — that is, the quality of the ancestry — is more important than its length. It is of little use or satisfaction to trace a pedigree back through inferior or ill-bred stock, except as a warning against the use of the male at the end of it.

At the same time, the longer it is, the better, provided it shows a high character in the ancestry; for we have seen that the hereditary power, or capacity for transmission, is cumulative; that is, it becomes stronger, and more intense and fixed, from generation to generation, where the respective parents possess similarity of characteristics, as is commonly the case in our well-established breeds,

I have said that the choice of the male to breed from is of special importance, because of the great extent of his influence; that is, the very large number of his offspring, in proportion to that of the female, among our domestic animals. But it is well established now, that the influence of the male imparts vigor of body and the general conformation of the system, especially of the forward parts, and that he transmits to his progeny the qualities of the mother by which he was born. A well-bred bull dropped by a first-rate dairy cow will produce a calf that will make, if a heifer, another good dairy cow. He will transmit to his daughter the qualities of his mother, if he have well fixed in his constitution the hereditary power of which I have spoken. In breeding dairy stock, therefore, it is of the utmost importance to study and to know the quality of the stock from which the male has descended.

There are three objects which the general breeder desires to gain, with a view to profit, and each requires a mode of proceeding peculiar to itself; and any departure from this mode will be sure to result in loss, or failure to attain the special object in view. The first is the production of milk.

The milking or dairy qualities of our stock have a wide range of development; that is, they are not confined to any one race or class of stock, but are found, to a greater or less extent, in cows belonging to all the well-established breeds, and in many individuals among our common stock, though some breeds or families of animals have been raised with greater attention to the milking qualities than others. In other words, high milking or dairy qualities are now the rule in some breeds, while they are the exception in others. The mode of feeding has much to do with the practical results in the dairy. Still, the quantity of milk which an animal, a cow, for instance, is capable of secreting, depends very much upon the supply of blood which passes into the mammary glands, but especially upon the activity of those glands; while the quality of this milk depends upon the internal structure of the cow.

The animal in a wild state, or in a state of nature, has stronger reproductive powers, greater energy of the system and constitution, than one long under the influence of domestication. The natural laws are to some extent interfered with by the efforts we have to make to establish and perpetuate certain peculiarities of the animal system, the extraordinary development of which is unnatural and artificial, but which development may be essential to our interests. The tendency to secrete milk is a natural one, found in all animals that suckle their young; but the extraordinary development of milking powers is *artificial*. In the wild state the cow yields milk for only a short time, and that only in sufficient quantities, probably, to nourish her young. As we recede from this wild condition by domestication, and subject the animal to a variety of circumstances which modify her form and system, we do it at the expense of certain qualities, for the sake of gaining other qualities better calculated to promote our immediate interest. The reproductive powers become weaker, the vitality and vigor of constitution lessened; but the formation of fat, or the tendency to produce meat, and the profitable production of milk, may be largely increased. That high breeding has this tendency to diminish the vital force and strength of constitution, is apparent enough when we consider how utterly absurd it would be to attempt to pit an improved Short-horn bull against a rough and ill-bred bull in a Spanish arena. He would have the improvement knocked out of him before he had time to turn round.

Good dairy qualities, therefore, being artificial to a great extent, there will always be a natural tendency to revert to the natural state; and hence the necessity of constant and unremitting care to preserve and improve by the methods already intimated what we have already gained; that is, by the most careful selection of the animals from which we propose to raise dairy stock, especially to have the male from a family remarkable for milk.

It is a fact well known among farmers, that in all classes of stock, as cows, ewes, sows, etc., a strong disposition to accumulate fat in the system is commonly attended by a marked deficiency in the secretion of milk; and there can be no doubt that the general structure of the animal exercises an important control over the quantity and richness of the product in milk.

This must be evident from the fact that the first process which

the food taken into the system is made to undergo after digestion is the separation and preparation of the fatty and nutritive parts, so as to introduce them into the circulation of the blood. In some animals this process apparently goes on with less loss than in others; but the rapidity with which the elements of food pass on into the circulation of the blood is plainly seen in the shortness of time it takes to show itself in the various secretions of the body. Thus certain plants or other substances taken into the stomach half an hour previous to milking will perceptibly affect the taste and quality of the milk. If you administer a dose of aloes to a horse in the form of a ball wrapped up in paper, and within twenty or twenty-five minutes after put a bullet through his head, and dissect him, you will find the paper left in an undigested mass in the stomach; but you will find traces of the aloes far along at the very mouth of the large intestine. It has dissolved and entered with wonderful rapidity into the circulation of the system. That has been tried time and time again. It is related, also, that an ox going to the butcher caught up an onion, and ate it. In a very short time he was knocked in the head, when it was found that the onion had tainted the whole body.

The completeness and economy of this separation of the fatty elements of the food vary according to the internal structure and organism of the animal itself. We cannot, perhaps, tell exactly how this happens; but the fact is well known. Perhaps it is owing, in part, to the fact that one animal will masticate, or grind up and digest, its food more perfectly than another, and so prepare it to enter more completely into the circulation.

Now milk is supposed to be secreted from the blood. I adhere to the commonly accepted theory for the present; but I am not unmindful, of course, that some of the German physiologists, like Furstenberg and Voit, take the ground that the formation of milk requires the actual decomposition of the mammary glands themselves, or the substance of the cellular tissue, by which they are transformed into sugar of milk, caseine, etc., with a fatty degeneration. They maintain that milk is simply liquified cellular tissue, and that it does not depend for its abundant supply upon the quantity or quality of the blood. They base this deduction on the fact that caseine, which enters so largely into the composition of milk, is not found, as such, in the blood itself, but results from the first

process in the decomposition of the gland-cells; while the sugar of milk, also wanting in the blood, is another result of this decomposition. According to them, milk is formed by the transmutation of gland-cells; or, in other words, the globules of milk were once cells or tissues of the mammary glands, and not merely an exudation, or a sort of straining of the blood through these glands.

But other physiologists, whose opinion is entitled to equal weight, maintain that the office of the milk-glands is chiefly to separate the materials requisite for the formation of milk from the blood, and to transform them into the constituents which we find in milk, especially in milk-solids. They take the ground that the caseine of milk is formed from the albumen of the blood through the agency of a peculiar ferment which is found in the milk-glands; and that the increase of the caseine is always at the expense of the albumen of the blood.

Without entering into this controversy, it is apparent, at least, that the large amount of water in milk must depend directly upon the blood itself, and upon the food which the animal takes; for we know perfectly well that very moist or succulent food causes the milk to be thin and watery as well as abundant, showing that there must be a diffusion of water directly from the blood. It is incredible that such great quantities of water could be obtained from the decomposition of the gland-cells; and, as water constitutes by far the largest part of milk, it is practically correct to describe it as a secretion from the blood, even if we admit that the milk-solids have their origin in the decomposition of the mammary glands.

Now, if the blood is poor, thin and watery, if it is but slightly charged with the fatty elements which have been taken up in the food, the quality of the milk secreted from this blood must of necessity be poor, because the quality or richness of milk is supposed to depend on the amount or proportion of fatty constituents, or what is more commonly known as cream and butter. And you will generally find that the quality bears an intimate relation to the quantity produced.

The second step in the process of assimilation is, therefore, the separation of a larger or smaller proportion of these fatty elements in the blood, in the form of milk, the richness of which will be governed very materially by the food and by the perfection, the completeness, with which the fatty elements have been separated from the food, and enter into the circulation of the blood.

One animal may perform the first operation — the separation or elimination of the fatty matter in the food to be stored away in the blood — as well as another, and, if so, they accomplish the first step in the process of conversion with equal economy; and so far as this goes — that is, the separation and accumulation of fatty matter in the blood — it is the same whether the subsequent use to be made of it be to form the fat or butter in milk, or the fat or tallow of the body.

Now, after this storing away of the fatty elements in the blood, it will still depend largely upon the structure and organism of the animal whether it will be deposited in the form of fat, or secreted — given up by the blood in the form of the cream of milk.

We see, therefore, that the economical preparation of the raw material of the food is equally important for the fat in the blood, whatever may be the ultimate form into which the animal system is to convert it; and the internal structure which accomplishes this process differs widely in different individuals, so that one animal will effect this separation, preparation, or elimination, completely, with the least possible loss or waste of food; while another will fail to extract the fatty elements of the food, and allow them to pass on to be excreted with the other cast-off wastes of the body; and we see, also, that animals best formed for fattening are also best formed to fulfill the first condition essential for the production of rich milk.

We have then arrived at the point where the fatty portions of the food have entered into the circulation of the blood, and are now to consider the influence of the living animal system over these substances; that is, the elimination or secretion of either fat or milk.

There are organs for the deposition of fat as well as for the secretion of milk. The former are called adipose tissue; the latter, the mammary glands; and whether these fatty matters in the blood are to be changed, or deposited in the form of the one or the other product, will depend mainly upon the comparative activity of the one or the other set of organs. Both these organs are subject to the breeder's influence. If we breed so as to enlarge and stimulate the adipose tissue to great activity, we produce an animal whose constitutional predisposition is to accumulate fat. If, on the other hand, we increase the activity of the mammary glands by

breeding and feeding with special reference to this object, we develop the size and activity of these glands, and the result is an animal that will yield large quantities of rich milk. The form, size, position, and functions of these organs, come more properly into the department of animal physiology, and we have not time to devote to them. It is sufficient here to say that the mammary glands are stimulated to special energy after the birth of the offspring; so that this activity becomes superior to the tendency to form fat; and at such times, if the food is deficient in oily matter, the fat already laid up in the system is again taken up into the circulation, and goes into the formation of milk.

So you see, when the mammary glands are acting in a healthy and energetic manner, the fatty matters of the blood which pass through them are secreted in the form of milk, and, if these fatty matters are deficient, the fat already laid up in the cells of the adipose tissue is dissolved, and goes on in the circulation to form milk; and if this fat gives out, and is not kept up by the food, the very substance itself of the adipose tissue is capable of absorption into the system, so that ever after it will become more difficult for the animal to take on fat. This explains, perhaps, the difficulty of bringing up an animal that has become emaciated, what is called "hide-bound." The adipose tissue — the organs whose function it is to deposit fat from the blood — is gone; dried up; absorbed in the system.

Now, in some instances, the mammary glands get into an unnatural and torpid state, lose their energy to such an extent that even the birth of the offspring is not sufficient to call them into activity and excite them to energy. In such cases, even with good food, and with all the rich, fatty elements in the blood which courses through these glands, they fail to appropriate it as milk; and the blood will pass on to carry its rich treasures to other parts of the body.

Our object in breeding stock for the dairy, therefore, is to stimulate these glands to the greatest possible activity, to increase their natural energy and power of secretion, and to prolong their period of activity. Now, they are so largely subject to hereditary influence, that great progress has been made in increasing their power to perform their natural functions, as we see in the establishment of various breeds of cattle remarkable for milking quali-

ties; while a neglect to develop and encourage the functions of these glands has in some breeds so far reduced their energy and activity, that whole classes of animals—like the Herefords, the Devons, and, to some extent, the Short-horns—have ceased to yield milk in quantities to be profitable upon the dairy farm.

In those breeds where the tendency to produce meat has been encouraged, where the yield of milk has been overlooked, and sacrificed to early maturity, we could, no doubt, by judicious management, bring the condition of the mammary system to its required standard of efficiency, and even elevate this standard to a high degree; but we should probably injure or reduce the tendency to the economical supply of meat. We should impair the value of certain very important qualities which have been highly developed for specific purposes, and should get only what we find already highly developed in other breeds, viz., a tendency to the largest production of milk. Not that the two qualities are irreconcilable or incompatible in the same animal, which I do not believe, but that they have not as yet been combined with any degree of success in the meat-producing breeds. We find generally in practice that a cow that produces a large amount of rich butter will, when the secretion of milk falls off, feed most profitably for the butcher, unless there are other counteracting or objectionable peculiarities.

The second object we have in breeding stock is the production of meat; and while upon the general principles of breeding, let me allude to the difference between breeding for the production of milk and the production of meat. For the latter, a large part of the success to be expected will depend upon management and attention to feeding. It is absolutely essential to keep the animal in a thriving condition from its birth; but still we can exert a powerful influence over the natural predisposition of the animal. We are to choose a female that yields an abundant supply of milk. An animal—a cow, for instance—that yields a liberal supply of milk will nourish the *fœtus in utero* more completely, and bring larger calves; her offspring will be fatter, finer, and in far better condition at birth than that of a poor milker. A cow that has a strong predisposition to form fat, and secretes little milk, will almost invariably bring a puny calf, and one out of all proportion to the size and condition of its dam. The cows of the breeds most noted for the production of beef—pure and high-bred Short-horns, for in-

stance — are far from being the best for raising calves designed especially for the most economical production of veal. A well-formed grade or common cow (if in sound health, and capable of nourishing its young) put to a carefully-bred Short-horn bull whose ancestry through some generations had possessed a strong disposition towards the production of fat and meat, will bring forth a larger calf than a high-bred Short-horn. The bull from such a parentage will possess hereditary powers so strong as to transmit all his essential characteristics to his offspring with as great certainty as if that offspring came from a too finely bred cow. This, of course, supposes her to be large and roomy, and well proportioned in size to the bull. But the bull must have the advantage of a good pedigree or careful breeding.

But it would be a fatal mistake to adopt the opposite course, and to put a high-bred pure Short-horn cow to a low-bred or scrub male; for, though the cow would succeed in stamping her character upon the calf, she could not nourish it so well; she would be less hardy in constitution, and not so certain as a breeder. It is far better to impart through the male in breeding the qualities we want for the production of meat; and, in the economical conversion of vegetable into animal matter, purity of blood is not essential in the offspring.

For the breeding of stock for the most economical production of beef, take, therefore, good fair dairy cows of good size, and put them to a bull of first-rate pedigree — either Short-horn, Devon, or Hereford.

With respect to breeding for purity of blood, the third object we have in the systematic breeding of stock, I need not stop to say much in this connection. Here the object is to create and preserve a fixity of type, and we must select animals possessing the same characteristics in order that we may invariably reproduce the good characteristics with greater certainty, and in an improved form, in the offspring. If the individual animals be well selected, we shall in every generation gain stronger and stronger hereditary power and permanence of qualities. We shall concentrate the peculiarities of the race or breed. But we must avoid, as far as possible, any opposing influences in the parents, as tending to weaken the hereditary tendency in the young. We are to avoid any thing like crossing with the strictest care.

With respect to the practice of breeding in-and-in, as it is termed, which comes naturally in this connection, many conflicting opinions have been expressed; and the general conclusion arrived at is, that it is safe only within certain narrow limits, and then only under the hands of the skillful breeder.

Breeding in-and-in is commonly understood as an indefinite term applying to any near relationship; but its legitimate and proper application is to designate animals of the same blood, as own brother and sister. But a son is only half the blood of his mother, and a daughter is only half the blood of her father. You may breed such relationship together to a certain extent without injury; that is, you may put a bull to his mother or to his daughter, and greatly concentrate the hereditary power in the offspring. But even this course is to be followed with care and judgment, and not pursued too far. After reaping the first advantages to be derived from it, the breeder will do well to stop and consider. Breeding in-and-in, *i. e.*, own brothers and sisters, will give a more perfect form; but, if carried beyond one generation, it will be at the certain sacrifice of size, and perhaps of the strength of constitution. It greatly weakens the reproductive powers, and often leads to other and still more serious evils. Bear in mind that I refer to own brothers and sisters. More distant relationships can be put together with less risk, of course, and, if carefully watched to discover the least injury to the vigor of constitution, this course may be adopted to some extent where the design is to bring up a pure herd having certain highly important qualities which it is desirable to concentrate and perpetuate. At the same time it should be borne in mind that pure-bred animals have now become so common and so numerous, that it will not be difficult to change the strain of blood sufficiently often to avoid any necessity of breeding from too near relationships. The necessity of breeding from close affinities will rarely exist, except for the purpose of trying to build up a new breed, where, in some instances, it may be unavoidable.

Cross-breeding is the coupling of two animals of different and distinct breeds. Where it is practised for the sake of getting size and early maturity for the butcher, it is often expedient; but where it is the object to produce animals to breed from, it is never judicious. The use of a pure-bred male upon a mongrel or grade female is not a case of crossing; but the term is often used as between two

strains of blood or two families of the same breed. Crossing with the purpose of procuring animals for the butcher offers many important advantages in individual cases; but it is seldom the object upon New England farms. There are few sections in this state, where, in the case of cattle, it is thought desirable to breed especially for the butcher. But the use of a pure-bred male upon a low-bred female will almost invariably succeed, and produce good results.

Coming now to the application of the general principles of breeding to the details of the breeding of stock for the dairy, we are met at once by a large class of questions on which the minds of practical breeders have long been divided. Among them are questions as to the age at which the young animal intended for the dairy should be put to breeding — is there any method of influencing the sex of the young? What is the value of Guenon's method of judging the qualities of dairy stock? and how shall we avail ourselves of its advantages, if any, in breeding for the dairy? At what period of the "heat" will the cow be most likely to conceive when put to the bull? Has the first impregnation of the heifer any perceptible influence upon the progeny got by subsequent impregnations by the same or other bulls?

To answer these and innumerable other questions of a similar nature connected with the practice of breeding, grouping together the vast body of facts which bear more or less directly upon them, would require something like a treatise devoted to the solution of each. I can expect to do little more than allude to them, with no attempt at giving them in a systematic or logical order.

In breeding for the dairy, I believe in bringing heifers in at two years old; for the reason that, at that age, the organs of secretion, like all parts of the body, are in a more pliant condition than they will be at a later period, and they are consequently more readily influenced. The secretion of milk is well calculated to develop them, and to enlarge them to their utmost capacity. If the animal is to become a large milker when she arrives at maturity, she must have abundant room to lay away large supplies of milk; and the capacity for holding these supplies must be created while her system is pliant, elastic, and easily influenced.

Let the heifer take the bull towards the end of July, in August, or early in September, if she will, and you bring the parturition in

the following spring, at a time very favorable for the production of milk. In spring the grasses are green, abundant and tender, full of rich milk-producing juices, which cause the largest development of the milk-forming organs.

If, on the other hand, the first parturition of the young heifer takes place in winter, the distention of the udder on dry forage is slight, and the product in milk corresponds. The milky glands will have but slight development. Soon this habit will become a second nature, so to speak, which no amount of feeding can wholly correct. The external signs of a good milker may be there; but the yield does not come up to the production which they indicate; and this fact will often explain an apparent exception to the established rules. I do not hesitate to say that, in my opinion, a heifer coming in in May or June, and properly treated, will be worth a great deal more as a dairy cow than one coming in with her first calf at any other season of the year.

So far as my observation has gone (and the experience of the best dairymen will coincide), a heifer coming in at two years old — if properly fed, carefully milked, forced up, if you please, to her utmost capacity of production, and made to hold out almost till the new milk springs for a second calf — will invariably make a better milker than one coming in at three years old. Of course this supposes that the animal, as a calf, has been well fed, and kept in a thriving condition up to the age of a year or fifteen months, when she will go to the bull. She should have a fair development and good growth; and it is better that she should go to a small rather than a large bull. The draught on her system for the nourishment of the fœtus will be less severe than if she is fecundated by a large, over-grown bull.

Besides stimulating the mammary glands to great activity, and enlarging their capacity at this age, there is the additional advantage that the animal is more easily handled, usually more docile; she may be better managed; and she arrives at her maturity of production (which is not till after the third calf) a year earlier, so that a year is gained in her profit.

To offset these great and manifest advantages, there is the liability to some check in her growth and size, owing to the strain upon her system before it has reached its full development. This may be guarded against and counteracted by liberal and judicious

feeding; and with this there will be no appreciable difference in size and thrift between such an animal and one brought in at three years old, when they reach the age of four or five.

As to the age of the bull when put to service, our theory and practice are widely different; for, while most intelligent farmers are ready to admit that one year is too young — that the system is not mature, that the animal is not developed, and ought not to be used — they do, in fact, use yearling bulls far more commonly than older ones. If well-fed and thrifty, we should not object to a limited use of a bull at fifteen months, and from eighteen months and onward more freely, in getting dairy stock and stock for beef. For getting working cattle, or animals for labor, the bull should be at least two years or two years and a half old. The bull is better to be worked; and if it were our custom to use all our bulls more or less in the yoke, they would undoubtedly be all the better for it.

As to the methods to be adopted to influence the sex of the calf, a vast number of experiments have been tried, but they have usually ended in disappointment; and no law has been discovered which governs the sex. But it has been observed that the most vigorous parent will generally govern the sex; that is, the probabilities are, that the sex will take after the stronger, more robust parent. Thus, a feeble cow, or too young a one, or one too old (past her prime), fecundated by a vigorous bull, will most generally bring a bull calf; but the reverse will happen if the inferiority is on the side of the bull.

Thus, at the agricultural college at Grignon, which I visited a few years ago, forty-six parturitions of young heifers with their first and second calves brought twenty-nine bulls and seventeen heifers; while twenty-eight parturitions of older cows, in their full vigor of maturity, brought eighteen females and ten males. So at the agricultural institute at Hohenheim, which I also visited, a hundred and forty parturitions of young cows brought eighty males and sixty females; while older cows have always brought more females than males.

And so, if you put a cow that has recently calved, while still rather feeble, to a vigorous bull, the product will almost invariably be a male. A good dairy cow, with her strength of constitution constantly taxed, will bring more males than females, unless spe-

cial pains are taken to increase her constitutional vigor by extra care and feed.

I need not stop to discuss, in this connection, the numerous points or signs which long experience has fixed upon as indications of more than ordinary dairy qualities — such as the fine, clean head; the slender neck; the straight back; the loose or open and relaxed jointure of the spinal processes; the supple skin, with its rich and creamy color; the large development of the mammary glands, with loose, free folds when empty; the fine, clean legs; small bony structure; and freedom of offal, or waste and useless parts. Many of these signs have been known and observed for a long time.

A few years ago a Frenchman near Bordeaux, long familiar with dairy cows, and accustomed to observe and study them carefully, discovered what was thought to be a new and invaluable means of judging the quantity and the quality of milk which a cow would give, and the length of time in which she would hold out in milk.

Guenon's theory was, that the folds or convolutions of the mucous lining of the mammary glands exercise an important control over the arterial system, as manifested in the downward-growing hair of the *perinæum*, or the back part of the udder, extending from the udder, between the thighs, up to the vulva; and that there was a direct and constant relation existing between the direction of the hair in this place and the activity of the milky glands; that the direction of the hair is subordinate to that of the arteries; that when a large patch of hair is growing from below upwards on the *perinæum*, it proves that the arteries which supply the milky glands (which lie just behind this place) are large, and convey a large amount of blood, and so indicate great activity in these glands.

I might place it in another and perhaps clearer form, by saying that the size of the escutcheon outside is an indication of the extent of the mucous surfaces within; so that if the escutcheon, or milk-mirror, be large and well developed, the secreting surface within is correspondingly ample.

Guenon, in his enthusiasm, possibly carried his system too far, and claimed too much for it; but in the main it is correct, and offers an important means of judging of the qualities of the cow, in connection with other and well recognized signs. Probably in a large majority of cases — perhaps in nine out of ten — where a large and good development of the milk-mirror or escutcheon, as it is called,

is united, or found in connection, with other favorable indications — a soft skin, a fine head and limbs, and a large development of the hind-quarters — the cow would prove to be a good milker; and the cases which were apparently exceptions might be due to some accident, or some mismanagement on the part of the keeper. I regard it, therefore, as a valuable sign, and by no means to be overlooked; but at the same time I do not believe it should be carried too far, or to be depended upon without the concurrence of other good indications.

Now, in breeding dairy stock, the bull should be selected with special reference to this object. He has his fine dairy points as well as the cow; and among them is the escutcheon, which, though not so largely developed as that on the cow, is still very apparent on most bulls from good milking stock; and, where a correspondence exists between his perineal development and that of the cow, it would be so much in his favor.

With respect to the period during what is called the "heat," at which the cow should be put to the bull, no rule can be laid down upon any rational grounds. Perhaps we have too few facts in regard to the effect or influence of a service early or late in the heat. Some farmers think conception is much more likely to take place if the copulation is deferred till near the end of the term; and this is a fact very generally accepted by physiologists.

There is no fixed time during which the "heat," or desire for the bull, continues in the cow; it varies according to condition, age, and many other circumstances. It may last two, three or four days; but sometimes it ceases in twenty-four hours. In very rare cases it continues ten to fifteen days, and in some cows not more than four, five, or six hours. In some cows the length of its duration diminishes with age to such a degree, that it has been known to last only an hour. Conception always causes it to cease, and not unfrequently a copulation that is not fruitful will prevent its recurrence; but usually, if the cow does not conceive, the period of heat will return in twenty or twenty-one days.

Now, this peculiar, excited state of the cow is the moment indicated by nature for connection with the bull; and it is generally better to follow nature, and put her to the bull as soon after it appears as practicable.

Some cows will come in heat nearly every month, and it is quite

difficult to get them with calf. This often occurs among high-bred cows, or cows kept too fat; but with other cows it indicates an internal scrofulous disease, commonly phthisis, or pneumonia. It is better to fat and kill or sell such obstinate cases. To stimulate heat in the cow, as well as in the bull, there is nothing better than more abundant and more nutritive feeding, with some grain, bean, or especially pea meal. Salt stimulates the appetite, and facilitates digestion; and exercise and moderate labor will also excite sexual desire. The better a cow or heifer is fed, the more intense and frequent will be the "heat" till conception takes place. If the "heat" is allowed to pass several times without satisfaction, the fecundity of the animal is injured.

Never countenance the absurd and ridiculous practices in some neighborhoods, of running a cow after copulation, or giving her a cold bath. Never cut off the end of her tail to make her "stick." All these practices are utterly absurd — as absurd as sticking a plug of garget-root into the dewlap to cure the garget in the udder.

Many curious and interesting facts might be presented to show the importance of giving special attention to the quality of the bull that is to go to the young heifer, as it is well known that the first impregnation will sometimes have an influence upon the progeny got by subsequent impregnations by different males. It is an influence by no means always perceptible; but it is liable to appear. This caution will apply especially to pure bred stock, and matters less with lower bred animals.

The opinion of Prof. Agassiz on this and some other points is presented in my report of 1866, and subsequent ones. Among the many striking facts that bear upon it, I will stop to allude to only one. The Earl of Morton was desirous of obtaining a breed between the horse and the quagga, and selected a young seven-eighths Arabian mare and a fine quagga male, and the produce was a female hybrid. The same mare had afterwards a filly and then a horse-colt by a fine black Arabian horse. Both resembled the quagga in the dark lines along the back, and the stripes across the forehead and the bars across the legs. In the filly the mane was short, stiff, and upright, like that of the quagga; in the colt it was long, but so stiff as to arch upwards, and hang clear of the sides of the neck.

But not only the first impregnation, but mental impressions received by the female during the period of the œstrum, or heat, will

be likely to affect the offspring, and often to a very remarkable degree. A Mr. Mustard, of Angus, in Scotland, had a cow that came in heat while at pasture in a field bounded by one belonging to a neighbor, out of which an ox jumped, and went with the cow till she was brought home to the bull. The ox was white with black spots, and horned. The cow and the bull were not only hornless, but there was not a horned beast on the place, nor one with any white on it, the polled Angus breed being jet-black. But the calf in the following spring was black and white and horned.

A curious case is related of a Dr. Hugh Smith, who was traveling in the country with a favorite female setter, when the bitch became suddenly enamoured with a mongrel cur that followed her till he was obliged, in order to separate them, to shoot the cur. The image of this sudden favorite, however, still haunted the bitch, and for some weeks after she pined excessively, and obstinately refused intercourse with any other dog. At length she admitted the caresses of a well-bred setter; but, when she whelped, the doctor was mortified with the sight of a litter which he perceived bore evident marks, particularly in color, of the favored cur, and they were all destroyed. The same also occurred in her future litters; invariably the breed was tainted by the lasting impression made by the mongrel. The mental impressions received at the time of the heat are sufficient to stamp the progeny.

We cannot be too careful to select the associates we keep with our pure-bred stock.

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## DAIRY COWS, AND HOW TO BREED THEM.

By GEORGE E. BRYANT.

(Prepared for the Wisconsin Dairymen's Association.)

I am no scientist in the business of keeping or breeding dairy cows. Bred to the bar, I became the owner of a 100 acre farm, at the close of the great rebellion in 1865, because I believed that the four and one-half years lost to the profession had wiped out all prospect of success in that line, and because I had that terrible disease so common to soldiers, and which was as depleting to the army as were the bullets of the enemy. One summer on the

farm, delving in dirt, rising with the sun, early bed time, with the simple habits of a small farmer, restored health, and to this day I have stuck to that farm as a boon from heaven. The farm is a dale tipping to the sun, its southern boundary being the Nine Spring creek, at the head of which is the fish hatchery of the state of Wisconsin. Its buildings are low, its parlors and cows are small, but there is corn in the crib, roots in the cellars, plenty of Jersey milk, and cream, and butter to eat for the family and the work folks. There is always hay (made-grass) on hand, for I early learned that "grass was king." Oh, how often I have sighed for a big barn to cure it in. My first winter was spent in doing the chores myself, while the hired man was kept for more than three months steadily drawing three loads per day of nasty, dirty, filthy manure from the city, that cost only the hauling; you cannot get it in that way now. Sewers carry to the lakes the food the land craves, and the product of the city stable yards are bought and paid for yearly in advance. My pet that winter was a Jersey heifer (Pet No. 1432), that I bought when a calf for \$100, on the recommendation of my valued friend, the late Hon. Charles H. Phillips, who has often said to me, "stick to the breeding of Jerseys, and you will not only be a benefactor to mankind, but you will leave in them a heritage to your children." I sold my "Pet" last autumn to a gentleman in Illinois for more than she cost me in calfhood, and I had realized over \$1,000 from her calves. The law for breeding dairy cows is found in the book of Moses, called Genesis, in the first chapter thereof, and is in these words, so plain, so simple, that the humblest of men and women should understand their import and meaning: "Every seed shall bring forth of its kind." Remember these words, and if you want milkers breed to milkers; if you want kickers breed to kickers; if you want creamers breed to the Jerseys; if you want chalk and water breed to the scrub who whisks the flies in some other man's pasture than his owners, and nine to one you will not have to use the city pump. There are families of milkers among the Short-horns, and because they are the most numerous, they have done the most good to the dairies of the west. But the Jersey, bred on the island whose name they bear, from the days before George Washington hacked apple trees, and owned up to the corn, with one single end in view, to wit, the most cream for the food eaten, have become a "nation" of creamers. There is no blot upon their escutcheon.

Upon the tablets of ancient Egypt, that look down to us from more than thirty centuries, you find engraved the image of the horse called to-day in Arabia the Kochlani, the model of horses, which means that the laws of horse breeding have been kept for more than 3000 years by the men and their children, who sent the English thoroughbred to Britain. So the dwellers upon the Channel Isle, the followers of King John, whose fathers routed Alexis on the shore of Butrinto, with

“ Their vesture sad,  
Investing lank, lean cheeks and war-worn coats,  
Presenteth them unto the gazing moon,  
So many horrid ghosts —”

have for centuries bred the dairy cow, until to-day she is the acknowledged thoroughbred of the bovines. The Arabs say the foal follows the sire. What is true of horse flesh is true of beefs flesh. Hence the great good dairymen have received from the use of thoroughbred Short-horn bulls from milking families; but if the dairy be your sole aim, you've got a certainty with the Jersey; they are thoroughbreds in the dairy business, and

“ Can trace their lineage higher  
Than any Bourbon dare aspire.”

I never hesitate, on sale (of grade heifers, got by a Jersey bull), at their first calving, to guarantee satisfaction. I have sent them far and wide, and have always been pleased to learn of their goodness. Not one has proven false to her mission. Never whip, scold or card with a milking stool a dairy cow; don't do it in person, or by the hired man. If he has a pent-up feeling so that there is danger of its bursting, send him out of the barn and away from the cows. Let him go and kick the hog pen door. That's a wonderful specific for the cure of temper in men and boys. Feed well. The dairy cow is a machine to grind the products of your farm into golden ducats. No matter how tall the grass or how sweet the clover, feed a little extra from your hand in the crib or manger, to make her love her home and you. When you visit your herd in pastures green, under spreading branches or by the babbling brook, speak to them kindly by calling each by name, pat their glossy necks, let them kiss the hand that giveth them a tit-bit from your pocket, tell them they are beauties, and, upon my word, you will

find your reward for, and their remembrance of your kindness in the milk pail at night. I would as soon forget my breakfast as I would forget to speak to my little herd when I meet them, and let them know that I love them, and give them a chance to tell me that they love me. Breed young; never let a dairy cow pass two years without becoming a mother. Develop the quality you seek after as soon as you may. As a rule, old cows like old maids, make poor mothers. Learn your calves to drink, to lead, and to be fondled and petted in earliest calfhood; give them a good warm stable, good food — lots of it — pure water, and the golden sunlight. Do these things with a zest, and, if cheese is down and butter is low, you can't help but say that you have had a good time (and that is nearly all we can have that is worth having) in managing and caring for the dumb things which it is our lot to control.

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## GOVERNMENT AND AGRICULTURE.

BY PROF. WILLIAM H. BREWER.

Address read before the National Agricultural Congress held at New Haven, Conn., August 27, 28 and 29, 1878.

The relations of government to agriculture are so many, so intimate, so various, and so important, that it would take volumes to discuss the subject in merely its most obvious aspects. Inasmuch as the food and the clothing, a vast proportion of the objects of commerce, and the raw materials of manufacture of all civilized people, depend on the agricultural productions of the soil, and as national prosperity and power depend upon this conjoined with good laws, it is easy to see that the subject would directly or indirectly include almost everything which relates to government and industry. When, therefore, I accepted the kind invitation of our acting president to read a paper on this subject, I did it with the mental reservation to confine myself merely to some of the many ways in which our government can legitimately, wisely, and profitably aid this great industry. Practically, we find three phases of governmental organization and function involved — national, state, and local governments, respectively. Lying at the very foundation, and controlling all else, are the systems of

## LAND OWNERSHIP,

and the political rights of the owners and the tillers of the soil. With us, these great matters were practically settled by our national government when it came into existence, and the experience of a hundred years has shown us that, in principle, it cannot be bettered. We have improved its details, and further improvement in minor points is possible; but, as a whole, the system is as nearly perfect as human wisdom can make it, and the human sense of justice can suggest. Any one may own land; he is free to till it as he chooses, the only restrictions being those on which a community depends for its general welfare and safety. It can be bought or sold without troublesome legal hindrance, its ownership brings with it no special political privileges, and the men who own or who till it have every political right and privilege which any other citizen has. How great these advantages are it is hard to appreciate, unless we make a long study of the subject, or have a bitter experience in some other land, with another system of land tenure, or other political conditions imposed on land ownership or land tillage. I need not discuss this further, except as it bears upon other questions. The theoretical principle underlying our governmental action is to foster the production and accumulation of wealth by giving the widest liberty to individual action and individual enterprise that is compatible with the safety of the small property holders and of the poor. Such being the case, the agriculture of the country has been developed by private means, government aid in any form being given but sparingly and mostly indirectly. We are total strangers to many of those governmental acts by which other nations have fostered, modified or improved their agriculture. But, as the area of tillage has grown, population becomes more dense, and competition more severe, production more systematized; and more than all these, the unoccupied fertile land to be had for the asking has become more distant from the great markets, and there is a growing wish to have our government give greater and more direct aid to agriculture, as it has long done to commerce, manufactures, railroad building, and indeed to everything that uses large amounts of capital, controlled or managed by few persons. We are fed from the soil, and a free people must be well fed. No government is strong enough to stand upon the votes of hungry men, and therefore the perpetuity of our free

government depends upon keeping agriculture in the front rank. Late years, various causes have so modified, improved and developed other industries, that the condition of agricultural production, relative to that of other productions or sources of wealth, have been changed, and now it must have aid in ways, or to a degree it has not hitherto had, or the balance will be still more disturbed. A loud complaint comes up from the whole land about

## HARD TIMES,

and everywhere we hear the story of over-production of manufactured goods, brought about by new machinery, new methods, new applications of science, and new discoveries — that manufacturing and mechanical industries, fostered by government and aided by science, have grown much faster than agriculture has done, and that this has been in part produced by legislation specially fostering such industries. To get back again to a better balance of power in the industrial world, agriculture must now, and in the future, receive more of the attention and the aid of government than it has heretofore. This should not interfere with the wide liberty heretofore allowed to individual effort and individual enterprise. The government aid should be largely directed to the protection of the rights of the farmer, the solving of such problems as individual enterprise cannot, or will not, reach, and to the dissemination of information among the people. This is in accordance with our agricultural traditions and our political organization, and I believe that, in the end, this will be the most effective as well as the most profitable aid. In this way, too, the aid can be best distributed, the national, state and more local governments each in its own way doing its own appropriate work. This generation has seen nearly every department of human industry changed or improved as a result of the teachings of science. Many occupations have been entirely changed by this, in connection with

## MECHANICAL INVENTION,

the two having gone hand in hand, mutually dependent on each other. Many kinds of business have been entirely revolutionized, and the rewards are so great for a new invention of a successful machine or process, or a new and better way of working an old thing, or the production of a new but desirable kind of goods, that

men are stimulated to invent, investigate and discover in the hope of such pecuniary rewards, and wealthy companies find it to their interest to employ scientific men to investigate by scientific methods the processes and principles involved in the various operations.

But in respect to the operations of the farmer, many scientific problems of equal or greater economic importance do not hold out the same inducements and rewards to the individual or corporate investigator or discoverer. The man who investigates the cause of loss in certain manufacturing processes, and devises a remedy, gets his reward in patents, or through increased profits on articles manufactured cheaper and enhanced in value by tariffs.

But no such award awaits the man who, by study and investigation, devises a cure for the potato rot, or a means of checking the ravages of the Hessian fly or cotton worm, no matter at what expense of time, labor, study and money, it may have cost him; from the very nature of the case, a practical solution of these is a public good rather than the special advantage of the successful discoverer. The individual farmer, if his potatoes rot, can plant something else on his land, or if the fly destroys his wheat, will soon learn to grow barley in its stead; but the public suffers and the nation is poorer. The public suffers greatly from the loss which may be slight to each individual. A wise government should give its aid to stop such loss, just as it would remove a dangerous rock in the track of navigation, or protect the community from a pestilential disease or other public calamity.

#### DUTY OF GOVERNMENTS.

Upon the general government most undoubtedly devolves the duty of doing certain necessary work for the general good, but which lies outside of special individual profit. In this catalogue belongs the investigation of insects injurious to crops, such as the locust of the west, the various wheat parasites of the north, the cotton worm of the south, and others which readily suggest themselves to each of my hearers. In the same catalogue belong certain extensive and destructive diseases of crops, such as the potato rot. Also various contagious and epidemic diseases of live stock. Such questions as these, involving vast economic interests, can only be profitably and successfully worked up by scientific methods, and if cures are ever found, it will be through scientific study. But as

they now stand, they are questions of economic rather than scientific interest, and they will never be thoroughly worked up by scientific men entirely at their own expense, so long as more fascinating problems of scientific research invite their labors at vastly less cost of thought, time and money. Moreover, what scientific man or society in this country has the money needful for any such great work? Nor have colleges and schools. In the cases mentioned, individuals and schools or societies, at their own expense, have already done about all they can do with such means. Upon the government the duty now devolves, and of late, most valuable investigations have been made in such directions; and perhaps the main reason why the general government has not done much more and long ago, has been because of the unfortunate complications arising out of the connection of such government work with political rewards and party spoils. In this respect, we hope that a better day has dawned upon our country.

The collection and publication of agricultural statistics and official estimates, and the dissemination of certain kinds of agricultural information, belongs rightly to the agricultural department of the government. I know that both of these have been and continue to be criticised by certain of the public press of the country. Regarding the first of these, the collection and dissemination of statistical information (other than in the decimal years of the national census), if it be left entirely to parties who have direct pecuniary interests in such statistics or information, then it is evident that it will be done in such a way as to be most profitable to those who do it. And in these times of speculation and "corners," it is needless to say that if the collection and dissemination of such information is to come only through such sources, then all but the speculators must suffer. Plainly, it is the duty of the government to protect its citizens, so far as possible, from speculative swindles that may be perpetrated under such circumstances. The masses of the people will suffer enough from such evils after all had been done by the government that can legitimately be done in the light of our present knowledge. Moreover, we need official statistical estimates for other uses and purposes than immediate use in the markets; what is of so much value and use in all other civilized countries, surely cannot be worthless in this.

## THE DISSEMINATION OF AGRICULTURAL INFORMATION

through annual reports and other printed documents has been the subject of even severe criticism and condemnation, mostly directly by those who claim they have information on the same subject for sale. It is a stock subject of jokes, flings and insinuations from the pens of those wise writers who "instruct the people," and "direct public opinion." I have for years noted the tone of this criticism, and it appears to be mainly founded on the theory that the newspaper press can more thoroughly and quickly reach the public, and could sell this news to the public more cheaply than the government can; that the news will be more valuable than that furnished by the government, and that the anonymous editor of the agricultural column of a city daily, or the agricultural column of a religious weekly, is a higher and more reliable authority than any official can be. Let me not be mistaken in this. I do not mean on the one hand to underrate the value of the work done by the newspapers and the agricultural papers — nor do I wish to be understood as indorsing the nonsense which has more than once been put forth as scientific truth officially discovered and officially published, but which has created a broad grin as widely as the reports reached; such accidents will happen to political appointees. But that does not disturb the principle I am arguing for. The newspaper press (including, of course, the agricultural papers) must continue to be the chief and great means of reaching the people, and to furnish the means for their inter-communication. It has been one of the greatest elements in the success we have achieved as an agricultural people. It has done much, very much, for us, which in other countries must be done by official or government aid, if done at all.

But after they have done all that they can or will do, there is still a large field outside and beyond this, and as the population becomes dense, competition more severe, agricultural questions more varied and complicated, there will be an increasing want of official publications to supply and preserve information for use and reference.

With the question of

## INLAND TRANSPORTATION

and the fight (for such it has become in some places) between the farmers and the railroad rings, I will not seriously

meddle. I feel entirely unequal to grasp and discuss the subject or to suggest a feasible remedy, believing it to be but one phase of a much wider question, the solution of which lies in the indefinite future. The theory of our government has been that the greatest good to the greatest number would be secured by giving the widest freedom to private enterprise, whether of individual or associated action. It has not been the function of our government to provide work for the laborer, goods for the merchant, "a mule and forty acres" for the lazy, transportation for the producer, and wealth for everybody. These were to be acquired, if got at all, through the labor, exertion and frugality of the individual, and to secure it the individual and the corporated company has the widest liberty of action. Our success as a people and a nation has been won under the principle of government.

The most prominent feature of the business world to-day, is the organized action of capital to do what is beyond the power of individual enterprise. To a great extent private corporations now do what in other ages would have been done by governments only, if indeed done at all. Corporations can dig canals, build railroads, open highways for commerce which governments themselves dare not attempt. Manufacturing establishments are built on a gigantic scale, the beneficent intent to mitigate the losses caused by fire and even death is made a business, and insurance companies manage large sums of money. National finances, even, are not stronger than combinations of banking corporations. Our cities are lighted by gas companies, and often the very water we drink is supplied by water companies holding franchises. Such organizations of capital are now a necessity. They have grown along with our modern civilization and have become an essential factor in its future growth; without them we would retrograde.

But with the growth of any good thing an attendant evil always develops with it, a correlation of growth as inevitable in the organism of society as in physical organisms, and how to repress and control such evils which are correlated with essential or durable benefits, has been the great political problem of the ages.

#### THREE GREAT CONFLICTS.

Our civilization has seen at least three great conflicts since the dark ages. In each case it was the fight of the many, the majority,

who were individually weak and oppressed, with the few, a minority, who were strong — strong by wealth, social position, intellect, custom and law. In each case the oppression has been of slow growth, beginning with some rude benefit, had on its side the most of the keenest intellect and best culture of the age, particularly that phase which we may call professional culture. In each case it had concentrated in its hands practically all the legal power, and in two of the three it had aggrandized a vast proportion of the accumulated wealth and landed property. In each case the way out was through intellectual contests waged in all possible ways, from the secret intrigues of the closet to the public speeches in the market places; yes, and by bloody battles, two ranging all the way from mere mobs, striking madly and wildly, to battles between the armies of nations. One of these conflicts we call the contest with feudalism. It was a conflict between the many who were oppressed, and the few who held the land and the wealth and the law (and the lawyers) on their side. But in the end the people won, and in the victory the tiller of the soil won a place he had not held before the fight. He won citizenship in a wide sense of the word; won the right to own the land he tilled; won the right to the fruits of his own labor; but the traces of that conflict still remain on the agricultural customs and on the land laws of nearly every country in Europe.

Another was the conflict between the laity and the ecclesiastics. We call this (in popular language) the Reformation.

The third conflict to which I allude was the struggle of the people with their hereditary rulers. It was a fight for more just laws and greater liberty. The result you know. Some countries, as a consequence, have republican forms of government, and all the leading monarchies of Europe have changed in their character; the subjects have practical constitutional checks on the power of their rulers, and the people are freer, happier and better for it.

Now I believe that the coming conflict in our civilization will be a fight of the people to better define and limit the power, and prevent or diminish the oppressions of organized capital, or at least certain kinds of great corporations; of combinations of capital founded on legal enactments created by laws made by the people chosen by representatives, managed and controlled by the strongest business intellects the world now knows; defended by the most

eminent lawyers whose services are in the market. We all of us feel the power of these corporations, sometimes most uncomfortably so. We all of us see individual cases of wrong and oppression by them, sometimes very definite, but often if vague, yet not the less actual. We see that some one or some class may be oppressed without being able to either right the wrong or to lay the blame on any one man whom we can call to account.

Our laws, our traditions and our instincts are for the protection of our property and earnings from violence. We have officers to catch, and courts to try, and prisons to punish the thief, the burglar and the robber, with almost vindictive severity; but we see a life's earnings go through a scoundrelly insurance company or a dishonest railroad company, and we are powerless either to redress our wrongs or to punish the oppressors. We all feel that as yet there is no practical remedy applied.

We feel, too, their strong hand (and not always a gloved hand either) in every state legislature, and mutterings all over the land show a wide-spread fear that even now their power is more than a match for the national government itself. We see this as a great cloud rising all along our political horizon with ominous portent of a coming storm.

As I have said, I believe this will be the next great contest in the general history of progress. It may not be so bloody as some that have gone before, but it will be a hard and bitter struggle.

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### THE AMERICAN SOLDIER.

BY COL. WM. F. VILAS, OF MADISON.

An address delivered before the Society of the Army of the Tennessee, October 30, 1878.

*Mr. President and Companions of the Society of the Army of the Tennessee:*

We are met again, in this season of the falling year, as men of a time already left well behind in the rapid sweep of a hurrying age—the surviving participants in the eventful scenes, which are fast receding from the foreground of an engrossing present into the quieter light of history—to answer the call of our names from the roster of an army many years disbanded and scattered, whose

ranks can never again be reformed, whose banners are kept as the emblems of a glory achieved, whose arms are preserved only for transmission as honorable legacies to other generations. The tie that binds us is the memory of a companionship in a mighty struggle, when side by side we trod the weary steps of the line of march, or shoulder to shoulder faced a threatening foe. We are gathered in no convention to revolve the problems of an uncertain future, or to discuss the questions which agitate the turbulent present. We pause in the busy life which surrounds us, to renew the greetings of former friendships and cherish the recollection of old associations, to sit again around a common camp fire, and, with social cheer, review the scenes in which we acted a part. The lights and shadows of a day that is gone flit again before our view, all the lights more grateful to the vision, the shadows all the softer, from the healing touch of time. Mingling with all, the memory of our honored dead breathes a holy calm upon our hearts, and shades the joys of reunion with the sadness of our treasured sorrow. At such a meeting it would be wrong to awaken, by any topic of discussion, differences of opinion or feeling which might range us in divided ranks, or to strike a note to sound discordant in any ear. Obedient to this sentiment, I shall ask you to listen to no discourse upon any theme of present agitation, but relying on the spirit that animates your gathering for your interest in my remarks, I shall simply essay to draw some lines from the character and actions of the American soldier, which distinguish him among all who have borne arms on the battle fields of the world, and display his just title to the gratitude of his country and the admiration of mankind. I shall, in this, attempt nothing new. His deeds were done in open view, seen and known of all men. Bright and clear as sunlight, they shone at the rising, and have illuminated the forenoon, of our national day. Yet the mind never tires upon the inspiring strains of an epic poem, nor does the blood cease to flow swifter from the animating glow it continually imparts. So the heart of mankind is swelled with thrilling emotion by the repeated story of the soldier of the republic. Especially in such a presence we may recur with renewed delight to the springs of our national glory, to be filled afresh with the enthusiasm of patriotic devotion, with renewed hope for the happy future of the land we love.

That type of soldiership which the discriminating historian wil

paint as distinctively American, he will not find in the discipline, habits and warfare of any standing army. It does not live in the perpetuated traditions and practices maintained through successive ages by a renowned school of arms. Twice, only, has the peculiar soldier of the republic taken the weapons of war and entered the arena of battle. In both instances he was a sudden apparition, born of the great circumstances of the time, and disappearing so soon as he had fulfilled its high demands. In both instances, he came of a people unused to arms, but was put to do, and gloriously achieved, results of warfare as mighty in themselves, and momentous in consequences to mankind, as any which were ever accomplished.

First, he tore this new world from the grasp of its masters in the old, and, having won it, at once laid aside his arms and devoted it to the fraternal enjoyment of mankind in political liberty. His entry on the stage of action created a new nation, with a new order and system of government so humane and benevolent, so equal, just and free, that within a single century the continent, which for ages had been a wilderness, was transformed into a happy abode of millions of his race in the fruition of a prosperous and enlightened civilization.

And his second advent was like unto his first. That beautiful frame of freedom and order tottered with the almost overwhelming blow of unexpected and terrible revolt. But the later soldier of the republic was potent to save what his ancestor had been able to build. His struggle was intense and protracted, but the event was complete. Again, he disdained all claims as a conqueror, restored the enemy he had subdued to his former place as a fellow countryman, quietly laid down his arms, and disappeared from the scene.

Thus, in war for its creation, and again in war for its salvation, the champion of American liberty has twice appeared in arms, and twice performed a great part in the drama of human destiny. The prayer rises involuntarily from the heart: In the gracious providence of God, may he never be required more!

I claim for the men of the last great army of freedom the characteristic features of noble distinction which history has accorded the soldiers of the revolution; some more, some less conspicuously displayed, as their circumstances varied. Submission to discipline and obedience to authority, skill and dexterity in tactical training

and the use of arms, fortitude and steadfastness in privation and extreme trial, courage and valor in conflict, the loyal sentiments of soldierly honor — these are attributes of all successful warriors, in greater or lesser degree. But in the men who created, and the men who saved, the splendid fabric of our independence, higher characteristics were found. Their peculiar glory rests on their personality, springs from their distinct individuality of understanding, character and action. Their cause was, indeed, the noblest that ever led men to war. But their title to honor is not alone in the cause, nor their victorious vindication of it. Far more it is founded on their complete understanding of its nature as a personal duty to freemen, and their manly performance of all the peculiar demands which that duty imposed. Out of this they are distinguished among all men of war, in the motives of their action, the spirit of their patriotism, their self denying demeanor in the hour of victory.

And I hold up to your view to-night, the individual soldier of American liberty — familiar spirit in the emotions of our earlier manhood. I hope, though but with quick and hasty touches, to portray the marks of his independent personality — to display his cause and the impulses of his conduct in honorable contrast with the purposes of historic warfare — to discriminate his deeds from the bloody course of rapine and slaughter which war has inflicted on mankind — to show him the intelligent friend, not the savage destroyer of humanity — and to find a generous and noble patriotism in the simple rewards which he claims for his achievements. We may be told we dream of an ideal, rather than an actual soldier. But I present him as an ideal realized, a noble ambition accomplished; as you have seen him in many a moment of fervid devotion, when, in hardship or in battle, you have supported your constant minds by his clear image, and have striven and seen your comrades strive — as none can know but those who have felt the trial — to fill the measure of his character. Call him up again, the idol of old enthusiasm, to fill this passing hour with the pleasing memory of glorious duty done; and realize in the accomplished facts of the present time the solid work of his arms!

If we undertake, in a comprehensive retrospect, to view as a whole the progression of the human race, in the old world, from the earliest period to the present time, what is the history of man

but a tale of the rise and fall of dynasties, and the story of their wars? When the student strains his eye to pierce the dim twilight of remotest antiquity, he discerns the indistinct forms of armies engaged in fight to assert the quarrel of some old king, or gain him some new source of tribute. Descending to a period of clearer record, he continues to read of ambitious conquerors, strewing the fields of earth with havoc and desolation in the vain effort to satiate their greed of dominion. All the great oceans of tears, expressed from the tender eyes of countless women and children by the cruelties of unceasing war, has not so much wet the page of ancient history, as the few drops of unsatisfied blood-thirstiness which welled from the ardent soul of a warrior who had mastered the world.

Through all the earlier ages the hatreds of race, and the rage for conquest, gave humanity few and troubled respites from the calamities of strife, until the success of Roman arms bestowed the peace of subjugation. Nor was the restful blessing of that splendid dominion long enjoyed. Rival Cæsars and emperors tore it with their dissensions; and over the broken members of the empire the fierce barbarians of Scythia rolled in successive herds, more like beasts of prey than men. Then ensued, for centuries, the struggles of princes to secure their utmost portions of territory and power among the down-trodden people; and in their mutual greed and animosities, were the baneful influences of continual conflict. In the midst of all, flamed up another element of human passion and folly, the fury of religious fanaticism; and the known world was swept with its besom of destruction. Humanity has quailed before its mighty power, and philosophy cannot fathom its foundations. Like a stream of burning lava, the despised Arabs of the desert poured over Asia and Africa, even lodged in the peninsula of Spain; and the sway of Mahomet has never passed away from the continents his disciples subdued. Christianity gained the mastery in Europe, and, the companion of civilization, has risen to a complete ascendancy. By doctrine and precept gentle in every word and deed, patient of every insult and injury, its teaching has been upheld by the most antagonistic examples. The Lamb and Dove have led the front of most direful war, and their followers stood to the waist in the blood of human slaughter. Such, in brief, is historic warfare, its springs and causes. Cast back the eye

on the dark and bloody scenes through which the people of civilized Europe have risen to their present forms of nationality, and behold their progress to the ends of destiny! The storm of war has, for ages, hardly ceased to blow, or, if intermitting its violence or checked in temporary lull, it has but regained vigor to renew the gale; and, down through the centuries, the surge and roar of strife falls unceasingly on the ear as the beating of waves on the ocean's shore. Through it all, the philanthropist and philosopher may see the necessities and ambition of princes, the greed and craft of rulers, the red-hot bigotry of fanaticism, to have kept the plains of the old world resounding to the tread of armies and its peoples sick with strife. And this contention has not ended; nor ever will end where governments belong to princes and not to peoples. Even in the broad light of this modern noonday, when statesmen profess the welfare of the people to be their chief concern, who can deny that the cause of the cabinet is taken for the cause of the people? Who will not admit the ambition of rulers to extend their dominion; who claim the wars of this century to have been the necessities of the nations? Who can not strip the cover from the punctilio of diplomacy, assigned in technical phrase as *casus belli*, to see craft aiding ambition, the cant of religion cloaking cupidity for power? Under our immediate observation, the great vultures are picking the bones of the sick man of the east, before he is yet dead. On many a field this year, in farther Europe, the spots of deeper green in the new-grown vegetation have stirred the observer's horror, marking recent blood spilled there in pretext of the Christian's cause.

The character of soldiery cannot rise above the character of the cause for which they contend, and the nature of the institutions under which they enlist. To the trained profession, in every grade and rank, the be-all and end-all of justification has been obedience to superiors. The rule is, in good truth, the backbone of an army's composition, a *sine qua non* of its power. But in the policy of royalty, it goes beyond the needs of discipline, and bids the subject to cast on the cabinet the solution and peril of all questions of political right and wrong. By the casuistry of kings, it is made the solace of their troops, for the maintenance of their own dominion.

In like subservience to their uses, the ministers of monarchs educate and guide the hatreds of race, isolating their people from the

common brotherhood of humanity; they inflame and pervert the frenzy of religious feeling, putting the love of God to work cruelty to men; they put out the eyes of patriotism, and the noble instinct blindly follows the cause of the ruler as the cause of the country.

Formidable armies rise on such foundations; the purse equips them with a full panoply; they are instructed with skill and often commanded by genius; and they play the mighty game of war with spirit and fortitude, when the arts or anger of diplomacy are followed by the word of command.

But individuality is utterly lost in the mass; the soldier is nothing more than his rifle and bayonet; the rider and the horse but one implement; all voiceless parts of a great instrument of state, whose direction and uses are governed by a master without and above its own consciousness. Exceptions rise on the rule, and splendid instances of individual renown in soldiership illuminate the records of the past. But, though a Sydney or a Bayard be a comrade within its ranks, the soldier in such a body cannot but realize that he yields his strength or life to maintain quarrels in which he and his have no concern, to gain results in which they can have no share. To gather fit material for such uses the recruiting sergeant and press gang might well solicit or compel the idle and dissolute. Nor is it strange that disbanding such an army should scatter apprehension and dismay among the peaceful classes of society.

Against this history and these methods, the American soldier, in purposes of action, in personality, character and conduct, stands in marked and honorable contrast. The difference is extreme and radical. It distinguishes him in his motives, in his entry into service, in his return to citizenship; to some extent in his discipline and habits; and, peculiarly, in his resolute perseverance to a complete accomplishment of his objects of war. These differences are as great in degree, and the same in kind, as those which divide the institutions of political manhood from the government of kings. The root of all is the personal individuality of freemen. The soldier of America has taken arms only because he was an independent man, conscious of the rights, willing to abide the duties, of a free manhood, and fearless to defend the former and perform the latter. Upon the same foundation rests our free society. Its benign influences educate and improve the character. Its hopes of

perpetuity rest upon the steady maintenance of that character by its citizens. If ever that unhappy day shall come, when her people shall want the manhood to be such soldiers, or to prohibit other forms of armies in the land — which may God forbid — in that day our republic must fall!

The experiences of our forefathers were singularly adapted to beget individuality in their soldiership, as well as to instruct them in the rights of humanity. They were forced to wage many a hard conflict, and to fight an uncommon foe. They had no teaching in civilized warfare; nor would it have much availed them. Their trials were beyond the forecast of the military art, outstripping the fables as well as realities of previous war. Their march was in the primeval forest, a toilsome passage forced with stealthy watchfulness, the silent threat of unseen peril ever present to the mind. Their battle was a series of personal conflicts: each fighting severally according to his temper and skill; their co-operation the result of individual intelligence, with little of generalship to guide it. At home, and in the fields of their labor, constant vigilance and courage were indispensable to preserve their families, and continual alarms disturbed their repose. By insensible degrees, and almost unconsciously, there rose among them a new order of fighting men. And when Braddock's brilliant army was routed, and the men of forest training saved, by their intrepidity, his flying thoroughbreds from destruction, the glamour of invincibility fell from British discipline, and the birth of the American soldier became known.

Upon that discovery the spirit of confidence rose in the colonies. Their life in the wilderness had filled their minds with the understanding of the natural rights of man, and, supported by this new consciousness of strength, their heroism was exalted to resist tyranny and demand their rightful independence.

The suddenly gathered host which the great Captain of our Liberties found ready to his command upon the surrounding heights of Boston, was a typical beginning of the true American army. They had risen spontaneously and individually, one by one. No love of arms had enticed them; no conscription compelled them. They were not sprung from idle or dissolute social life. They came of the best forms of manhood, and from every rank with equal zeal.

They came, besides, of various peoples. No one race or nation contained their ancestry. The most adventurous and bold of different lands alone had dared to tempt the forbidden wilderness, to plant civilization in the face of its savage possessors; and, in their common manliness and the mingled blood of their generations, the differences and hatreds of race and nationality faded away. They were shaped by nature to establish a state founded on the brotherhood of man.

None had military training; nearly all were unused to arms, except those weapons which were common to the settlers of a new country. They were men of peace, with families at home — fathers, husbands, sons, brothers. But they were resolute to risk all, to suffer or to die, as need might be, for their cause. They matched themselves, without fear, to fight the best armies and the richest nation of the old world.

They obeyed in their coming no decree of cabinet, no call of rulers. They owned no rulers. Their cause was wholly their own and that of their fellow men. They understood it. They fought the fight of manhood. The morning light of independence illuminated their souls.

The world had seen men struggle for liberty before, and it laughed them to scorn. It soon heard with amazement that these untrained men, by their individual appreciation, co-operation and courage, had repeatedly rolled the splendid troops of perfect science in bloody disaster down the slopes of Bunker Hill; that the lesson of Fort du Quesne was illustrated by the slaughter of Gage's veterans.

Upon such an army engraft discipline and skilled mobility, and it becomes formidable — almost invincible. But their subsequent discipline was of their own stamp, the submission of freemen, for the time being, that their work for freedom might be stronger. In it they did not forget the nature of the cause, nor their citizenship. The license of war did not debauch their minds, because they were good soldiers that they might enjoy to be good citizens.

It was peculiar also to their character that there could be for them but one issue from the strife — the event of complete success and independence. All soldiers must have endurance. They had more; they had fortitude with self imposed patience and self-willed persistence. No diplomacy could negotiate a compromise of their

quarrel. They wanted no patchwork of peace. Complete, finished, absolute victory, entire and perfect independence, must be theirs!

And they achieved it! How nobly and well is now the treasured memory of the world. The beautiful dream of human liberty became a realization. Philosophers had discoursed upon it, poets sung of it; yet it could never attain the credit of a prophecy. By the help of God, our fathers accomplished it for men!

They builded their structure in wisdom and understanding, with a benevolent foresight and love for their race, which may well seem beyond the attributes of human nature. They left it to us, a rich legacy of happiness, the fruit of their heroism, their labors, their sacrifice and their blood. Where is the man whose heart does not swell with pride that he sprung from such an ancestry, surpassing in the nobility of manhood the lineage of kings? If, now that the fathers are dead, their great inheritance cannot be maintained to the blessed uses of human liberty, the shame shall not impeach the wisdom of our sires, but the degeneracy of their sons!

For near a century this frame of social order stood secure before the world. The great trial of man's possibilities for self government seemed assured of success. The nation's strength had long since risen to proportions which defied all danger from any foreign source.

And at home, how excellent have been its uses to its people! Fed with its abundance from youth, we do not appreciate the truth that its beneficent blessings have been without parallel, nay, without near approximation, in any other country under the sun. Those honors, privileges, opportunities and gratifications, which in other lands distinguish the higher ranks, are here the common right of all. For the ranks have no existence. Neither government nor law confer gradations of superiority. All stand upon a level floor; the head and shoulders alone may rise. Those fruits, in truth, which grow only upon personal qualifications—the abilities, courage, and devotion of the individual—governments cannot bestow; but they may diminish or destroy. Yet look around! Of our citizens of wealth, of power, of good report and consideration, behold! nine in ten have gained it all themselves.

Look at the workmen who must daily labor for livelihood. Respectability, not degradation, attaches to his honest industry. In the home to which he repairs from toil, he may, with thrift, have

more comforts than the nobility of England three hundred years ago.

It is an epoch marvelous for invention. The arts of utility and taste are productive to abundance, and a free press scatters the wisdom of science and the pleasures of literature in profusion. No country on earth so promptly and diffusively enjoys the benefits of the advancement of knowledge and the increase of skill, pre-eminent in this age. In civilized Europe, whole communities, entire classes and orders of people, remain to this day practically unacquainted with these advantages, still plodding the hard paths of past generations. They are spread on every hand with lavish prodigality about you, in this splendid city and surrounding country, where the forest stood within the memory of living men; and so every town and village has its share. The provision of nature has been bountifully adequate to the wants of such a people. Her skies are generous and temperate; her scenery pleasing to the eye; her climate salubrious and inspiring; the harvests of her soil will feed the world; even in the ages of Chaos she had forethought for us, and filled her paleozoic storehouses with minerals and fuels suitable to our every need.

It is a land of plenteousness and a land of beauty; but what is more, and most of all, it is a land of liberty! From every quarter the eager claimants of its generous beneficence have been received, and made welcome. In every country of civilization its citizenship has been respected. The happy possessor of that title, if, journeying on some distant errand, he chanced upon a crowded seaport fluttering with the banners of many nations, saw no emblem lifted by the breeze of greater safety or higher honor than the beautiful flag of stripes and stars.

Who that loved his fellow men did not rejoice in the institutions of American liberty? Who that believed the great Creator comprehended all men in his benevolence, not the special few, did not pray for their perpetuity? Above all, how could an American fail to love his country? — or dare attempt to destroy it?

But it is written that sin shall be visited even upon the third and fourth generation. And there was sin in the land. Out of it grew sectional division and hatred between countrymen. Ambition and craft seized upon the fact, plotted in secret, and stirred up strife. The voice of warning was unheeded. Its very excellence was a

temporary danger to our system, so confident were men no design upon it could be serious. And when upon a sudden the storm burst upon it, the government of men tottered and trembled to its foundation under the fierce assault.

Then rose to arms the second Army of Freedom — fit successor to its early prototype! How enlarged and varied the great theatre of its action, yet how like the first, in its characteristics!

Again it was the cause of the people, again the fight of manhood. Liberty and independence were again at stake. Not upon the issue of creation; that had been accomplished, the experiment had been tried, its splendid usefulness established. I enter into no refined debate upon contingent possibilities. The union of these states, and the liberties and happiness of their citizens, are inseparably bound together. The great question was, Shall the institutions of freedom endure?

Now, as before, the momentous question rested upon the individual and personal qualities of a free people. It was fully comprehended. Do we not all remember? In every household, on every family altar, the incense of devotion rose. In the breast of manhood, the consciousness of duty was accompanied by resolution, and from every hamlet came a quick response in the tramp of thousands to the front.

Like the army of our fathers, these soldiers were men of peace, and behind them were parents, wives and children. The weapons of war were unfamiliar to their hands. Even the sight of holiday soldiers had been rare. Military training was all unknown. Though willing to submit to every demand of duty, the discipline of soldiery was strange to such a people. They were formed into companies, regiments and capital divisions. They wore the clothes and carried the arms of soldiers. Impelled by the hasty cry of ignorant enthusiasm, they hurried forward to engagement — as brave men by nature as ever met an enemy — but little better than a mob. Large bodies came in conflict, and then, where individual valor is nothing if discipline do not regulate and science guide its force, confusion ruled the scene. Both sides shared the confusion, but the defeat and humiliation were ours.

It was, after all, a useful day. Disaster awakened strength, and its sharp stroke, like the blow of Moses' rod upon the rock in Horeb, but opened a more copious flow of reanimating vigor. The

reservoirs of courage and endurance in this land of peaceful prosperity had been wholly unknown. They made a dreadful mistake, who reckoned on a lost manhood in the offspring of the revolution. Foolish enthusiasm settled into resolution. Out of their mingled shame and devotion, above the smoke of battle, there rose before the enemy and in view of the world, that magnificent spectacle — unseen for a century — the firm and undaunted countenance of a free people, in mighty fight for the institutions of freedom. There it stood, our national character! There were its iron features! Like the square forehead, solid jaw, steadfast eye, and grim visage, which mark our first great commander, now journeying in a foreign land; no hope for relenting lay in that stern aspect.

Well was it for us in time of trial, that the forethought of our fathers had planted that quiet school of science on the banks of the Hudson. The rich seed of its nurture now bore abundant return, and repaid us in harvest of its discipline and drill an hundred fold. What though some among its disciples turned awry its teaching to the injury of their country? Happy, thrice happy, was this people that its wise instruction had also fallen on the fruitful soil of patriotism and understanding, yea, quickened and bore fruit in the brain of living genius, equal to our hour of need!

Throughout the splendid army which accepted, with quick intelligence, the practical training of the military art, there remained the characteristic individuality of which I have spoken. In so great a host, its manifestations were less open to the outward observer. To him who was in frequent contact, it was ever conspicuous. It was not so much the warrior, as the citizen in arms, who fought our war. It was becoming to him to strive to be a good soldier, and all the sentiments of soldierly honor held lively sway over his mind. But his discipline was put on with the understanding that it was to make him useful. He aimed not to gain the rewards of a soldier's life. His hope of recompense lay in his return to citizenship. There, in the circle of home, secure in the enjoyments of peace by his valor, he should gain his reward.

There was representation of many nations in our ranks. The various origin of our soldiers gave renewed expression of that characteristic of the army of our ancestors. It was fitting to the nature of our national life. Risen on the strength of the principles of free manhood, the genius of our land has trusted in that strength; and

American citizenship has demanded no rite of induction, but that its claimant should declare his faith in liberty and his allegiance to her institutions. And right well that trust was repaid. The flame of devotion burned high and brightly in the hearts of our adopted countrymen. They were found in every regiment, they fought on every field. Mingling with the native current, the blood of Irishmen—whose birthright is hatred of oppression—of Germans—whose ancient stock was free when all the world was subjugated by Rome—of the sturdy men of Scandinavia—and many other countries still—flowed freely on the altar of their chosen land. The hope for freedom for all men rises higher and higher, upon such proof that all are capable to maintain it; from such examples the promise brightens that race lines shall fade away, and the clasp of common humanity bind all in equal possession of the rights of man.

I have remarked of the army of the revolution that a complete success was necessary to its character. The same unflinching persistence was peculiar to the army of salvation. But one issue was possible to its mission. No temporizing diplomacy, no compromise, was admissible. But one end could appease the injured spirit of liberty and order—the utter submission of the last foeman. Our fathers had delivered us forever from all fear of enemies without. It was for us to administer the lesson which should deliver the nation forever from the danger of revolt within. And not one syllable was omitted in the example of the army. All the hosts of rebellion were scattered, and, from the chief down through every rank, the last man in arms was laid a captive at the feet of his injured country.

Comrades, I am of those who rejoice in the magnanimity of spirit which has prevailed; who regret that its splendor was at all clouded by some unnecessary violence; who have such faith in the republic as would have admitted no despotic hand to do what the force of restored law might have done; and would have trusted—as henceforth we all know we may trust—the patriotism of our fellow countrymen, regained from the interrupting frenzy of temporary anger, to share the honored memories of our common ancestry and participate in the glorious possibilities of our common future, with abiding faith in their honor and abiding pride in the association.

But for all that, I would not abate one jot or tittle of the true

teaching of the memorable past; nor withdraw one line from the full measure of that condemnation, which the issue of the appeal to arms adjudged to the portion of rebellion. If, indeed, as we trust, the actions of men are under the immediate guidance of Almighty God, and nations do but work forth His great purposes, then, assuredly, this people, who for so many years received the uninterrupted flow of his benevolence in unexampled prosperity, may well recognize His hand in the complete and finished result which His Providence has commended to be a warning to all after time.

There can be no error admitted here. It questions our title to the dearest reward we enjoy. It molests the repose of our heroic dead. It exposes to peril all the fruits of sacrifice and blood. The triumph of our armies was not the work of chance. The mighty struggle was not a game between gigantic wrestlers, in which the crown of dominion was the prize of the stronger. This was no battle of Greeks, for mere mastery over our fellows. The significance of our victory is not that superiority is with the greater numbers in war. It is not true now; and it never has been true. History teaches a better lesson, and even in war we read the progress of mankind. God will defend the right!

It is, indeed, our highest glory — and without it are we miserable men — that we fought for the right, and conquered in the right. Our cause was the cause of humanity. Our gallant comrades who are gone were not deceived. They laid not down their lives in vain. For the welfare of their race, for their children and their children's children forever, they met a mortal foe, and, in the fierce conflict falling, they bravely died for men. Rest! rest in glory! Noble Shades! Gallant and manly in your lives, honored in your glorious death! The great tree of liberty, whose roots your life blood watered, shall spread its hallowed branches over your posterity forever.

But, Companions, while we will not yield the supports of our conduct and our title to honor, we recur to them in no spirit of remaining anger. Long ago it was forgotten. First of all, the soldiers of the Union were ready to "clasp hands across the bloody chasm." Better than others, they knew the valor and the worth of our brethren of the south. And right ready have they ever been to rejoice in the restored brotherhood, and heartily they pray that if ever again this nation shall have need of war, shoulder to shoulder

we shall oppose a common foe, and, each for the other, fight its common cause.

Nor are we assembled in any spirit of boastfulness, or vainglory. We meet no more as soldiers. But in days that are passed, when we were all younger men, we were comrades in privation and in peril. Together we suffered toil and hardship. We were to one another then friends and helpers. The old Army of the Tennessee was a band of brothers-in-arms. The ties which such experiences form, life is too short for forgetfulness to sunder. In the words of our constitution, the object of this society is, and shall be, "to keep alive and preserve that kindly and cordial feeling which has been one of the characteristics of this army during its career in the service."

Nor are we here to perpetuate a spirit of military ambition. We are here now, as we were joined in the army, as citizens and lovers of our country and our country's liberties. The inspiration of hope which we renew, is hope for the continuance of liberty and peace in a happy land. In that glorious expectation, is our joy and our reward. Upon it we build our trust in the prosperity and happiness of ourselves, our families, and our posterity. And the dearest wish to the heart of the old soldier of America is, that when, his life work done, he turns his last look upon the scenes of earth, he may close his eyes upon the country he has saved, standing secure from every danger, the dispenser to men of all the blessings governments can bestow.

I picture him in fancy, sometimes, when his age shall have settled upon him, and the labor and toil of manhood shall have passed, as he waits for the summons to go where his comrades have gone before. I see him sit upon the western porch of his children's cottage home, where the well kept vines have clambered on the lattice, while the sunny afternoon sinks away. He holds upon his knee the sweet granddaughter who is nearest to his heart. Translating to the simple speech of childhood, he tells her tales of younger days, when he was a soldier for his country. How sweetly she listens, with wondering eyes! How proudly she thinks of the great actions in which her grandsire had a part! How tender the joy of that old man's love for the little beginner of life!

Bye and bye, the soft warmth of the summer's day inclines him to sleep, and his old frame, once so strong, is now easily wearied.

The continued talking has tired his senses, and his head drops back upon his easy chair. She pillows her face upon his breast, and together they rest in gentle slumber — emblem of peace reposing in the arms of its savior and defender! Lo! from the evening sun a ray breaks through between the trees, and falls upon his whitened locks with a touch of light and glory. It is the benediction of heaven on the old soldier of liberty! May it rest on them all forever!

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## IMPORTANT TO FARMERS.

It is coming to be better understood that success in farming depends far more upon how much one gets per acre than upon the number of acres he cultivates. If a man's time, teams, seed, implements, etc., are worth or cost \$500 a year to cultivate fifty acres, and the crops produced, whatever they may be, are equivalent to twelve bushels of wheat per acre, worth on an average \$1 per bushel, he has just \$100 left for interest of the land, taxes, etc. If the crops equal fifteen bushels of wheat per acre, he has \$250 surplus for land, etc. If they are equal to twenty bushels of wheat per acre, he has \$500 surplus; if twenty-five bushels per acre, he has \$750. The same rule holds good for 100 acres, or any other area. The great question then is, *how* to increase the yield per acre, with only the same cost for labor, teams, implements, and seed.

### AS TO FERTILIZERS AND THEIR ACTION.

Omitting the question of drainage, and of green manures, and supposing the land in proper dryness and tilth, there is no doubt that a sufficient amount of the right kind of manures or fertilizers will secure this eight to thirteen bushels per acre *increase*.

Recent observations, careful experiments, and extensive chemical investigations, show that our cultivated crops need for their best growth the presence of several substances. Three or four are seldom abundant in soils, or are largely available in but few, and are rapidly exhausted by the removal of crops. Two of these, for example, phosphoric acid and nitrogen (phosphoric acid, united with lime, makes the solid parts of the *bones* of all animals. It must come from the food eaten, and the grain, hay, etc., must of

course get it from the soil. But it is rare to find land containing one pound of available phosphoric acid in 1,000 pounds of the soil. This explains why it is so soon exhausted by growing crops, and why it is so important as a fertilizer. (Chemists take away the lime from burned bones and get the phosphorus so much used for friction matches). Nitrogen abounds in lean meat (muscles), cheese, etc., which come from plants. It is scarce in most soils, hence its usefulness as a fertilizer to supply crops. Potash abounds in the ashes of wood and of all plants. We wash it (*leach* it) out of ashes, evaporate the water and get the solid potash. This, too, is seldom abundant in soils, though important to the growing plant, and hence it is valuable as a fertilizer), are indispensable as plant-food. Potash is also needed as food, and to develop and prepare other food. Lime acts like potash in feeding or preparing food for plants.

#### THE MOST VALUABLE CONSTITUENTS OF SOILS AND MANURE.

Of these four substances, *nitrogen*, *potash*, *lime*, and *phosphoric acid*, some soils and crops want one, some want two, and some want three, if not all of them. Good barn yard manure invariably contains all of them. So long as one can get *enough* of good barn yard manure, cheaply enough, and near enough to the fields, that is all that is needed. With it, if the other conditions of the soil, its dryness and tilth or mechanical condition, be right, we can raise our crops from an equivalent of twelve bushels of wheat to twenty, or twenty-five, or more bushels per acre.

But unless it be on farms mainly used in stock raising, there is far from enough good yard manure to secure the higher profits. And just here another question comes in. If a soil lacks potash *only*, a small quantity of this in the form of potash salts, or of ashes, may be as useful as thousands of pounds of yard manure containing only the same amount of potash. In that case we could buy and apply the potash more cheaply than we could haul and apply the manure to a field distant from the yard, allowing the manure to cost nothing. If the soil lacks *only* phosphoric acid for a certain crop, a bag of superphosphate or dissolved bones will supply more of it than several tons of yard manure. If, then, we can ascertain just what a field lacks, we may find it very profitable to buy the special fertilizer the soil wants, and use the yard manure on such fields as

need all it contains, or on those heavy soils where its loosening effect will be most useful, and where little hauling is required.

#### WHAT OUR SOILS NEED.

But soils are so variable, even on the same farm, that it is next to impossible to say, without actual trial, that for a particular crop, this soil wants potash, that one wants phosphate, this one wants nitrogen, that one wants plaster, this one wants lime, and so on. Novices in agricultural science, and certain quacks, a few years since claimed that a chemical analysis of the soil would reveal its defects. This is not now claimed.

If the farmer knew just what his soil lacked, he could cheaply supply that lack, and farm it much more profitably. Now he tries one thing or another, in doubt and uncertainty. To help him the editors of the *American Agriculturist* have devised a cheap, simple set of soil tests, which will go a great ways towards helping every farmer, at trifling cost, to know *what* fertilizers he can use on his particular soil to the best advantage, and with the greatest profit. This is not a speculation — not a penny of profit to anybody but the farmer himself. The April number of the *American Agriculturist* sets forth the plan of testing soils at length and clearly. The experiments will doubtless be worth millions to farmers and to the country.

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#### WHAT GARDEN HAVE YOU?

The best paying plot on any farm, and the one yielding the most enjoyment, too, is the vegetable garden — or “kitchen garden,” as it is frequently called, and quite appropriately, especially when the “kitchen folks” have the chief or sole care of it. A good supply of garden products for the table *costs less* than the standard bread, meat, and potatoes, is more healthful and nourishing than all corn beef, salt pork, and the small assortment usually found on the farmer’s table. Need we add anything about palatableness, comfort, home enjoyment? Contrast a table set nearly the year round with bread, salt pork, corned beef, potatoes, boiled cabbage, varied with hash, mush, buckwheats, and occasionally a few other items, with a table well supplied in succession and abundantly with

asparagus, green peas, lima beans, string beans, sweet corn, radishes, carrots, beets, parsnips, celery, salsify, turnips, cauliflower, spinach, lettuce, egg plants, tomatoes (all the year), rhubarb, okra, squashes, onions, cabbage, cucumbers (?), and other things, — filled in with currants, strawberries, raspberries, blackberries, not to mention grapes, pears, etc. We do not accept the standing excuse, "I am too poor, too hard driven, too much to do in my fields, to bother with the garden." We repeat, *with emphasis*, that every farmer can have most, if not all the above pleasant and healthful variety *with less labor and less expense* than the table can be supplied in any other way. Every day's work in the garden will produce several dollars' worth of good things. One quarter of an acre, more or less, according to the size of the family, will suffice. Select the best soil available, as near the house as possible, but at a distance if absolutely necessary. A good loam where water never stands is desirable. Heavy clay will not do well without a good deal of preparation. If not naturally dry, underdraining is desirable, but even an open ditch around the plot, and one or two through it, if needed, may answer for the present. Plow and harrow fine, working in a liberal supply of the best well rotted manure that can be obtained — half a wagon load on every square rod will be all the better, but much less can be got along with.

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#### GREEN PEAS — HALF A BUSHEL A DAY.

Is there anybody who does not enjoy well cooked green peas, fresh from the garden — a good many of them — and very often, too? They are a nourishing food, and healthy also, if well cooked, and not swallowed with the skin or seed-coat unbroken. They are one of the most certain, easily grown and earliest products of the garden, and can be had in succession most of the summer. When our family is large we always plan for "half-a-bushel" a day (in the pod) from some time in May, according to the season, up to the end of July, and often well into August. The ground producing them is used for a second crop — celery, or something else. Selecting as dry and warm a spot as can be allotted to them, and applying a fair quantity of well-rotted yard manure, we sow on the same day at least two varieties, in rows, as soon as the snow is gone and

the ground can be worked without packing. A good assortment to start with is: a few "Improved Daniel O'Rourke's" for the earliest (they are bettered by a *little* sugar added in the cooking); plenty of Alphas for the chief early crop, with more of them sown five or six days later, or with "Laxton's Fill Basket," or "Little Gem," or "Advancer," sown at first, to come in after the Alpha; and Champion of England sown plentifully at first, and more sown every week or oftener, to keep up a constant succession. The Champion may be varied with the "British Queen," and "Vietches' Perfection," if desired. The "Tall Sugar" can be sown by those wishing peas to be eaten "pods and all." Alphas and Champions, sown at first, and in succession, answer very well without other varieties. Sow at the earliest possible day, to have them ready to follow asparagus, if you have it. If by starting too soon, the first leaves get nipped by frost, they will send up more leaves and try it again. If killed outright, put in more seed. Get a good pile of brush all ready now. It can be re-used for the later crops. If brush is not available, firm stakes can be driven along each side of the rows, and two or more wires or even strong twine (tared if possible) be stretched to hold up the vines — say two feet high for the Alphas, and three feet or more for the Champions.

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#### ONE GRAPE VINE — EVERYBODY.

Every family occupying a dwelling, in country or village, and nearly every city resident, can have and *should* have at least one grape vine growing, not only to "sit under," but to eat the fruit of. Wherever there is, within reach of some sunshine, a bit of ground a foot or two wide and three or more feet long, there a vine may be planted, and trained for a long distance, on a fence, up the dwelling, on a trellis, or up a post. Its abundant green foliage is always grateful to the eye, especially among city walls, and its clusters of cooling, pleasant fruit need no advocate. The grape vine is one of the most uncomplaining, unfastidious and care-rewarding of plants. Keep standing water away from its feet, give it something to eat to make stems, leaves and fruit of, with some sunlight for part of the day, and it will go to work and keep at it as long as you live. No food suits it better than a lot of bones, coarsely or finely broken,

or whole ones, if there be enough of them, mixed in with the soil. It will fasten a net-work of roots or rootlets upon every bit of bone, and extract nutriment as long as there is a particle of it left. All the training it will need you can give in a few minutes before breakfast or after tea, once or twice a month. It will *pay* in pleasure, in foliage, in fruit.

Order the vine soon; it can come or go anywhere, by mail; choose the place; as soon as the frost is well out of the ground, dig it up a foot or more deep; mix in the soil a peck or more of crushed bones for each vine; those from the butcher broken up with a hammer or ax-head will answer. When the vine arrives, expose its roots as little as possible to the air; make a hole, set it as deep as it grew before; spread its roots out well each way; cover them with earth, and moisten if needed. That's all until you need to train its shooting stems. All the above is a very simple matter. Reader, if you have not done so, take our advice and plant, at least, ONE grape vine *this* spring—better two, three, a dozen of them, if you have ground; plant at least one, whether you live on Fifth Avenue or in the "wilds of Oregon." You will thank us for the exhortation not very long hence. The Concord variety, better than almost any other, will grow almost everywhere. The Delaware, Creveling, and Eumelan, are excellent among other good and reliable kinds.









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