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## **Transactions of the Wisconsin State Agricultural Society, proceedings of the state agricultural convention, held in February, 1883, dairymen's association, and other valuable papers. Vol. XXI 1882/188...**

Wisconsin State Agricultural Society  
Madison, Wisconsin: Democrat Printing Company, State Printers,  
1882/1883

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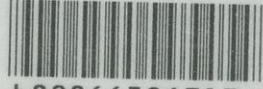
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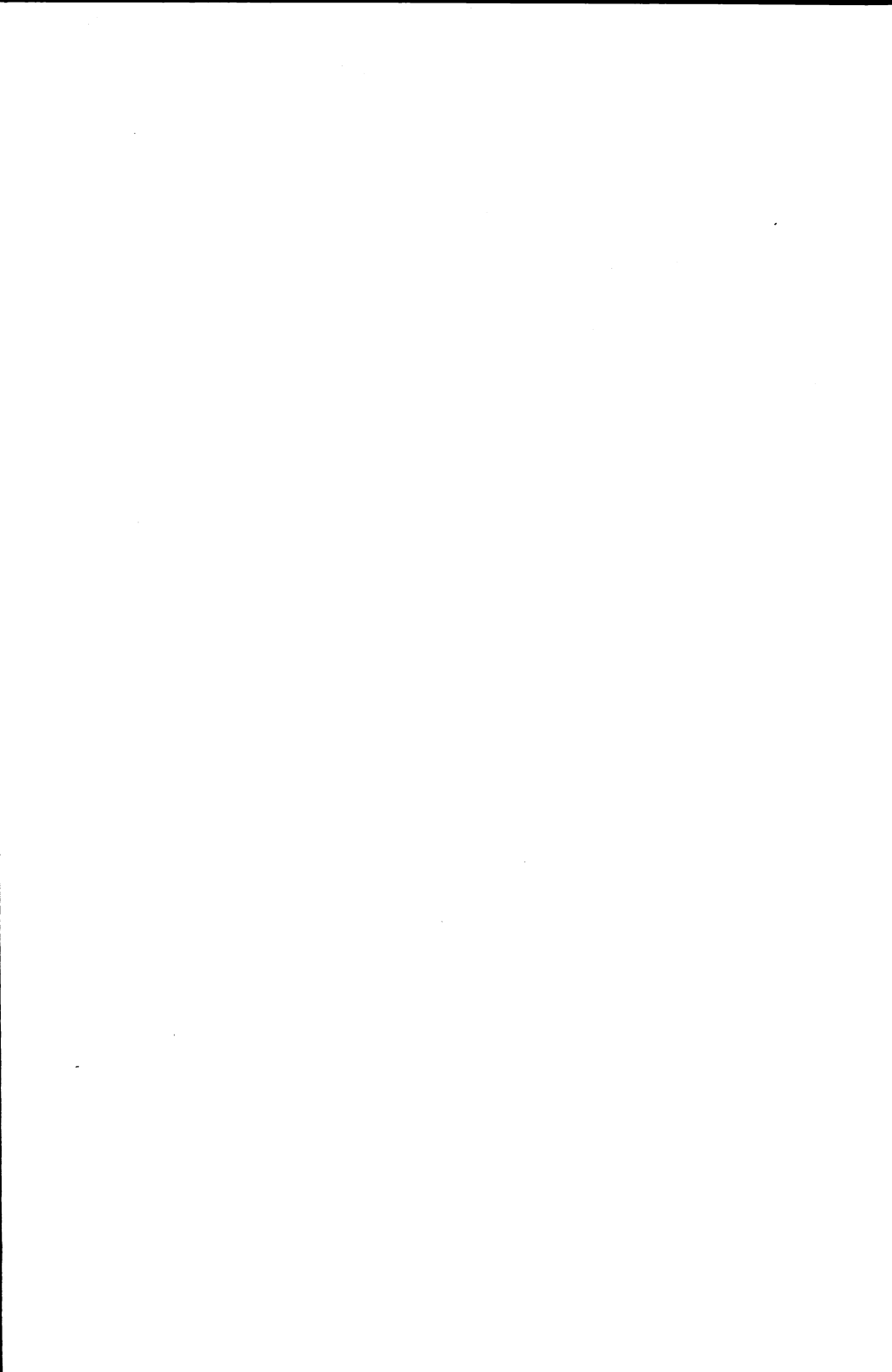
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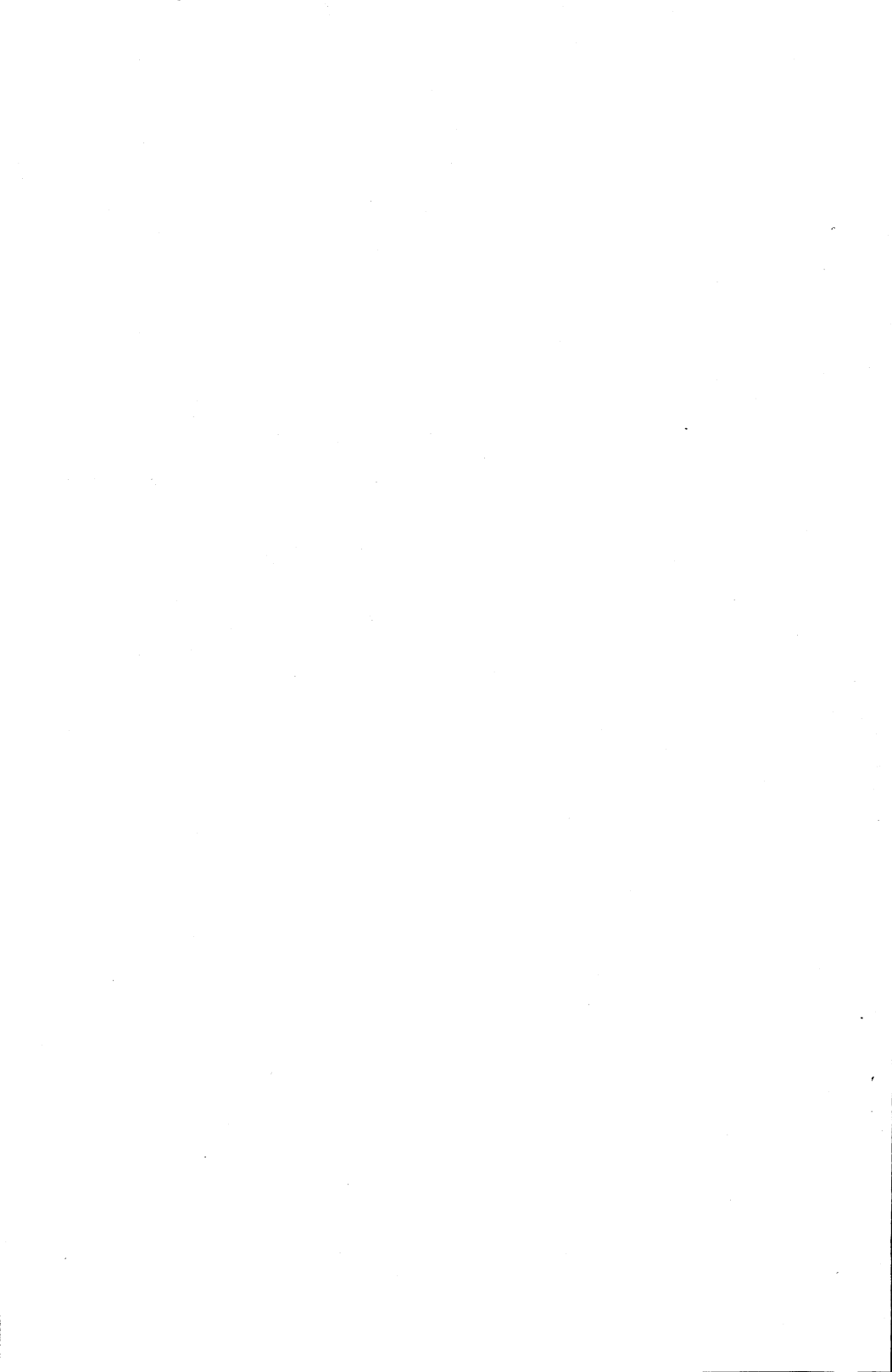


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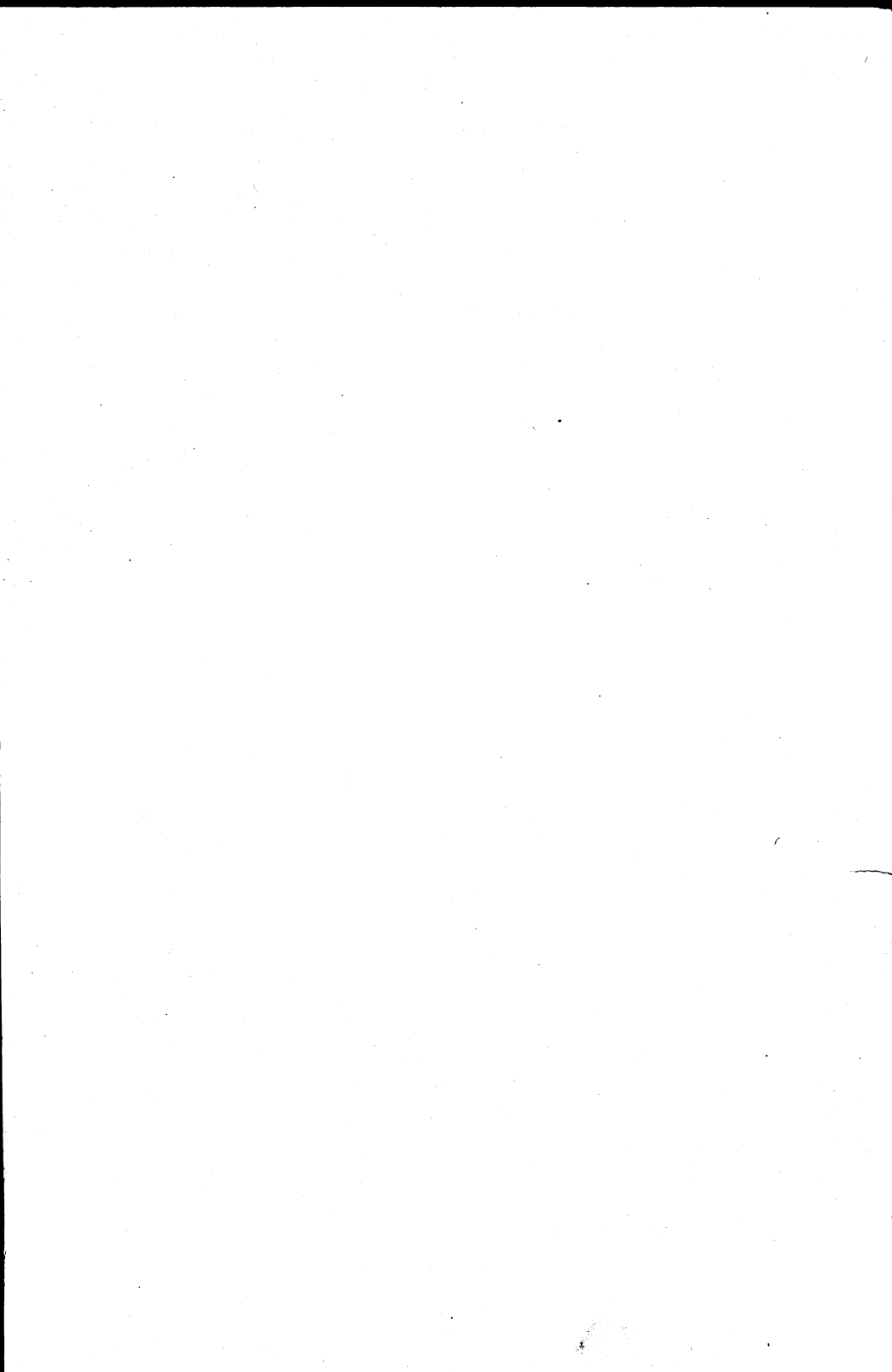


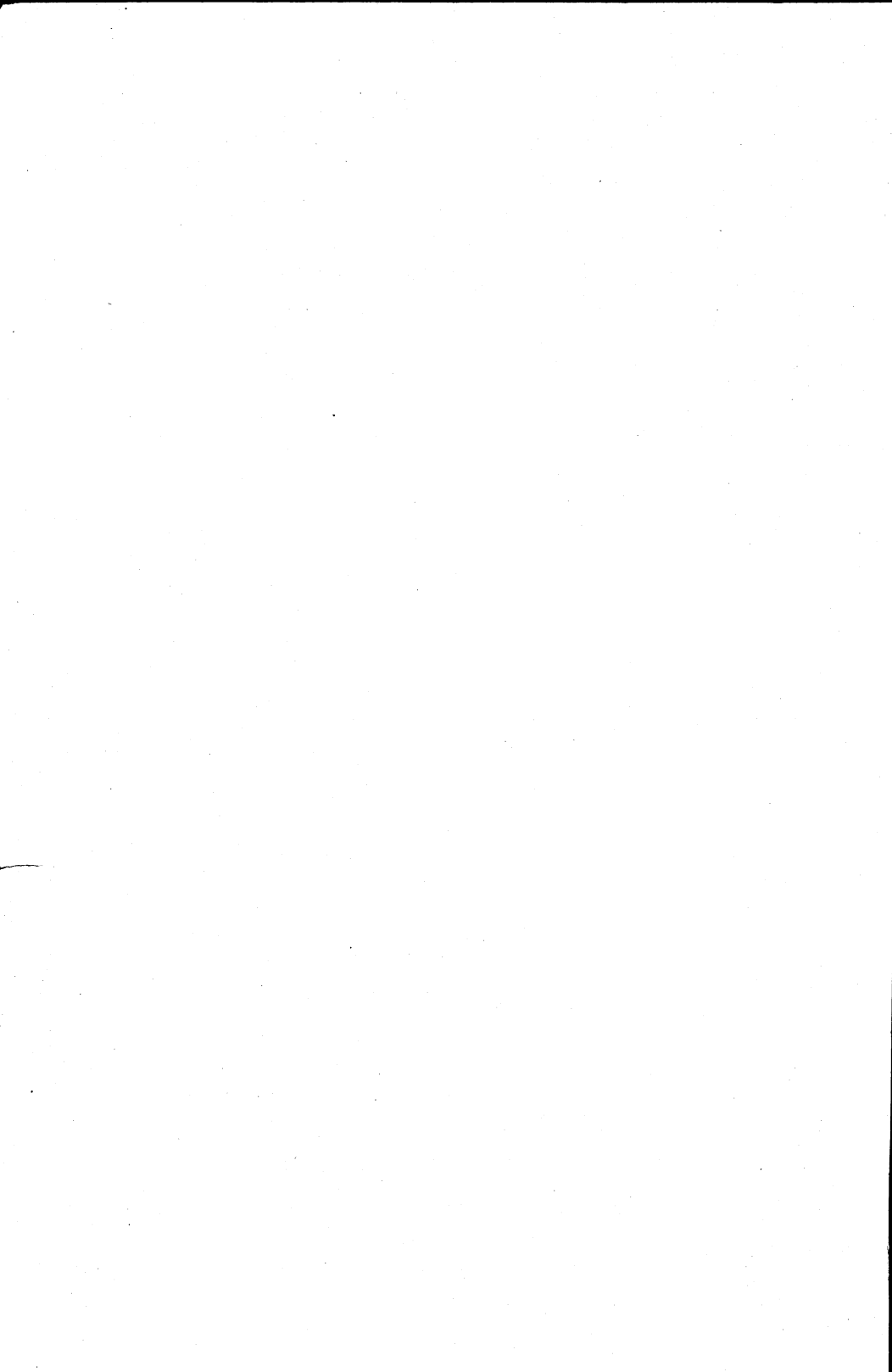


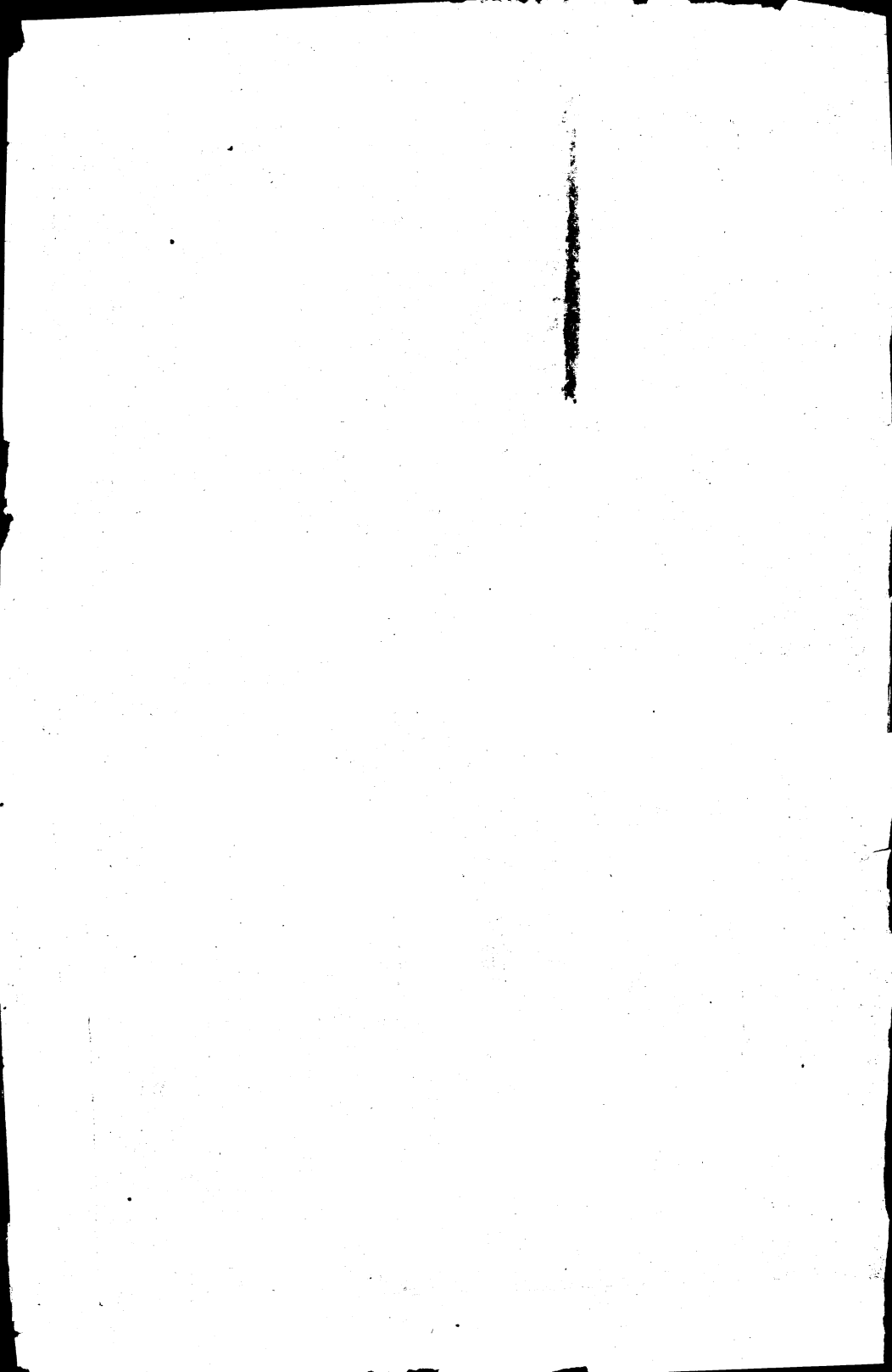














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TRANSACTIONS  
OF THE  
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State Agricultural Society,

PROCEEDINGS OF THE STATE AGRICULTURAL CONVENTION,  
HELD IN FEBRUARY, 1883, DAIRYMEN'S ASSOCIATION,  
AND OTHER VALUABLE PAPERS.

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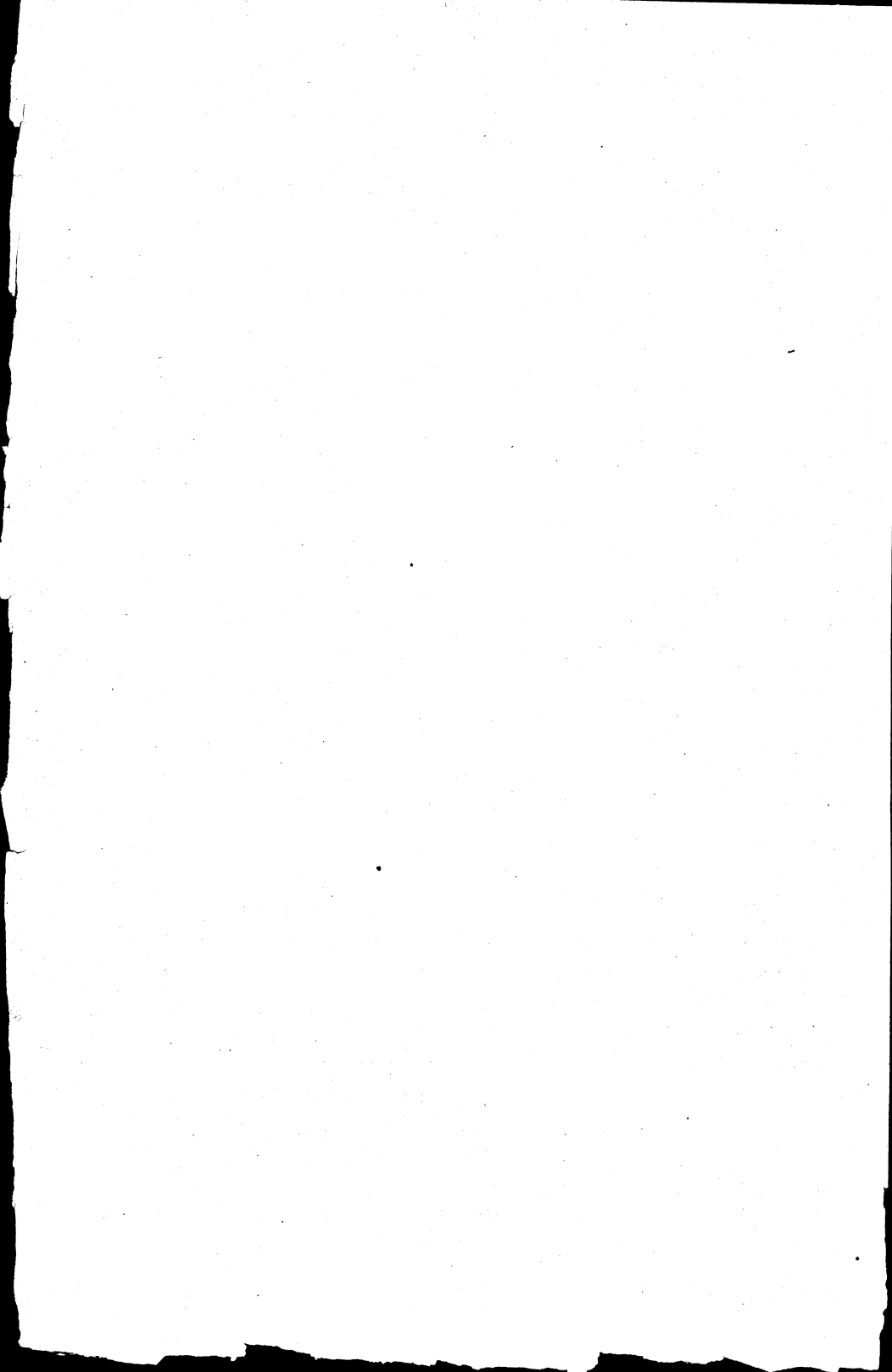
VOL. XXI.—1882-83.

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*PREPARED BY CLINTON BABBITT, SECRETARY.*



MADISON, WIS.:  
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1884.



## TABLE OF CONTENTS.

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	<i>Page.</i>
Officers, Constitution, By-laws, Members and Mortuary.....	v-xix
Minutes of Society and Executive Board.....	xix-14
Exhibition of 1882, address of President Fratt .....	15-30
Address by Gov. J. M. Rusk .....	30-23
List of Premiums awarded .....	33-60
Agricultural Convention, address by President Fratt.....	61-69
Address by Prof. W. J. Beale.....	69-94
Tariff, Its Effect upon Agriculture.....	95-109
Discussion .....	110-151
Labor a Pre-Necessity to Mental Development, by A. A. Arnold..	151-157
Discussion .....	157-171
Protection, by Hiram Naber.....	172-181
Agricultural Colleges — Discussion .....	181-230
Tobacco Culture in Wisconsin, by Dr. S. L. Lord .....	230-236
Discussion .....	237-243
Economy and Savings Institutions, by Hon S. T. Merrill.....	243-261
The Industrial Relations of our Birds, by Prof. F. H. King.....	261-269
Discussion .....	270-271
How Dairy Interests Grow, by Hon. John Luchsinger.....	271-276
Labor in its Relation to Progressive Agriculture, by J. C. Stickney	276-281
Discussion .....	281-287
Bee Keeping, by Dr. J. W. Vance.....	287-295
Discussion.....	295-301
Industrial Education, by Aaron Broughton.....	301-307
Discussion.....	308-311
Management of University Farm, by Hon. I. C. Sloan.....	311-317
Discussion.....	317-320
Ensilage—Discussion .....	320-332
The American Farmer, by Prof. W. J. Burbank .....	332-346
Highly Bred American Trotting stock, by Randolph Huntington.	346-390
Discussion.....	390-395
A Granger Who Wants Cold Facts—Discussion .....	396-398
Amber Cane—Defecation and Evaporation, by Wm. Frazier, at meeting of Wisconsin Cane Growers.....	399-403



Address of Hon. James Hill at Barron County Fair .....	403-420
Principles of Breeding, by J. H. Sanders.....	420-435
Our Dairy Interest, by T. D. Curtis.....	435-446
The Farmer's Garden, by J. M. Smith.....	446-453
Remarks on the Physiology of Breeding, by S. L. Goodale.....	454-474

# OFFICERS OF THE SOCIETY, 1883.

---

## BOARD OF AGRICULTURE.

*President,*

N. D. FRATT, RACINE.

*Vice-Presidents,*

*First Congressional District* — Dr. C. L. MARTIN, JANESVILLE.

*Second Congressional District* — H. D. HITT, OAKFIELD.

*Third Congressional District* — R. B. OGILVIE, MADISON.

*Fourth Congressional District* — D. T. PILGRIM, WEST GRANVILLE.

*Fifth Congressional District* — J. M. SMITH, GREEN BAY.

*Sixth Congressional District* — EDGAR STILSON, OSHKOSH.

*Seventh Congressional District* — J. W. WOOD, BARABOO.

*Eighth Congressional District* — J. S. DORE, NEILLSVILLE.

*Ninth Congressional District* — S. L. NASON, NASONVILLE.

*Secretary,*

CLINTON BABBITT, БЕЛОIT.

*P. O. Address.*

(Wisconsin State Agricultural Rooms,)

MADISON.

*Treasurer,*

CYRUS MINER, JANESVILLE.

*Additional Members of the Executive Committee,*

W. H. MORRISON, ELKHORN.

A. O. FOX, OREGON.

T. L. NEWTON, BEAVER DAM.

J. O. EATON, LODI.

A. A. ARNOLD, GALESVILLE.

J. T. KINGSTON, MADISON.

J. S. STICKNEY, WAUWATOSA.

# CONSTITUTION.

---

## ARTICLE I.

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

This Society shall be known as the "Wisconsin State Agricultural Society." Its object 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 a 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.

## 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 especially 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 agricul-

tural 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 economical 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 offices 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 matters 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 incidental 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 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. Reports 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 at 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.	Bradley, C. T. ....	Milwaukee.
Adams, L. L. ....	Stoner's Pr'irie	Braley, A. B. ....	Madison.
Alexander, O. ....	Milwaukee.	Brazen, Benj. ....	Wauwatosa.
Allen, J. W. ....	Janesville.	Brichener, G. H. .	Sheboygan F's
Allen, W. C. ....	Delavan.	Brabazon, J. R. .	Delavan.
Allen, H. M. ....	Evansville.	Brockway, E. P. .	Milwaukee.
Allis, Edward P. .	Milwaukee.	Brodhead, E. H. .	Milwaukee.
Anderson, Matt. .	Pine Bluff.	Brown, Jas. J. ....	Madison.
Angell, R. R. ....	Janesville.	Brown, J. A. ....	Milwaukee.
Angell, W. H. ....	Sun Prairie.	Brown, Frank G. .	Madison.
Atkins, Albert R. .	Milwaukee.	Bruce, A. T. ....	Milwaukee.
Atwood, David. .	Madison.	Bryan, John. ....	Cross Plains.
Atwood, Wm. T. .	Portland, Org.	Bryant, F. H. ....	Madison.
Atwood, R. J. ....	Madison.	Bryant, D. D. ....	Madison.
Armour, P. D. ....	Milwaukee.	Bryant, G. E. ....	Madison.
Armstrong, L. G. .	Boscobel.	Bryant, G. E., Jr.	Madison.
Arnold, J. M. ....	Milwaukee.	Bull, Stephen. . .	Racine.
Arnold, A. A. ....	Galesville.	Bullard, James. .	Evansville.
Aspinwall, D. M. .	Farmington.	Bump, N. P. ....	Janesville.
Babbitt, Clinton .	Beloit.	Bunker, Geo. ....	Madison.
Babbitt, D. H. ....	Janesville.	Burgess, J. M. ....	Janesville.
Bacon, I. P. ....	Waunakee.	Bush, Samuel . . .	Milwaukee.
Bacon, W. D. ....	Waukesha.	Button, Henry H. .	Milwaukee.
Bailey, A. P. ....	Oshkosh.	Burnham, A., Jr. .	Milwaukee.
Bailey, M. T. ....	Madison.	Burnham, J. L. . .	Milwaukee.
Barlass, Andrew .	Emerald Gr've	Burnham, Miles . .	Bl'ng Pr. Minn
Barlass, David. .	Emerald Gr've	Byrne, John A. . .	Madison.
Barrows, E. S. . .	Chicago.	Brand, F. C. G. . .	Milwaukee.
Baxter, Geo. ....	Windsor.	Carey, Ed. A. ....	Fond du Lac.
Bates, A. C. ....	Janesville.	Camp, H. H. ....	Milwaukee.
Bement, E. R. ....	Oregon.	Cantwell, M. J. . .	Madison.
Bemis, Jervis. . .	Footville.	Capron, Geo. ....	Boston, Mass.
Benedict, J. D. . .	Bristol.	Carleton, W. D. . .	Sun Prairie.
Benedict, S. G. . .	Providence, R. I.	Carpenter, J. A. . .	Waukesha.
Benedict, W. G. . .	Milwaukee.	Carpenter, J. E. . .	Windsor.
Benson, S. W. ....	Bloomfield.	Carpenter, J. H. . .	Madison.
Biglow, F. G. ....	Milwaukee.	Carpenter, S. D. . .	Carthage, Mo.
Bird, I. W. ....	Jefferson.	Carr, N. B. ....	Madison.
Bird, T. E. ....	Madison.	Carr, Joseph S. . .	Eau Claire.
Bishop, J. C. ....	Fond du Lac.	Carter, A. M. ....	Johnstown.
Black, John. ....	Milwaukee.	Carver, P. S. ....	Delavan.
Blair, F. J. ....	Milwaukee.	Cary, J. ....	Milwaukee.
Blanchar, Willard.	Madison.	Case, J. I. ....	Racine.
Bostwick, J. M. . .	Janesville.	Clark, C. H. ....	Madison.
Bostwick, R. M. . .	Janesville.	Clark, D. J. ....	Milwaukee.
Bonnell, James. . .	Milwaukee.	Chandler, J. C. . .	Madison.
Bonnell, L. ....	New York City.	Chandler S. ....	Milwaukee.
Boorse, Henry. . .	Granville.	Chapman, T. A. . .	Milwaukee.
Boyce, A. A. ....	Lodi.	Chase Enoch. ....	Milwaukee.
Boyd, R. B. ....	Milwaukee.	Chase, H. ....	Milwaukee.
Bowman, J. M. ....	Madison.	Cheney, Rufus. . .	Evanston, Ill.
		Chipman, A. ....	Sun Prairie.
		Children, E. ....	E. Dubuque, Ill
		Chipman, C. R. . .	Waunakee.

Names.	Residence.	Names.	Residence.
Clark, C. R.....	Madison.	Dodge, H. S. ....	Milwaukee.
Church, Wm. A....	Milwaukee.	Doolittle, W. J..	Janesville.
Clapp, G. W.....	Oregon.	Dore, J. S.....	Neillsville.
Clark, C. M.....	Whitewater.	Doris, John.....	Milwaukee.
Clark, Lewis.....	Beloit.	Dorn, M. M.....	Madison.
Cochrane, John...	Waupun.	Dousman, T. C..	Dousman.
Coggswell, A. W...	Brookfield.	Dow, O. P.....	Palmyra.
Colby, Charles....	Janesville.	Drakely, S.....	Madison.
Coleman, W. W....	Milwaukee.	Dunlap, S.....	Token Creek.
Colman, Ed.....	Fond du Lac.	Durkee, H.....	Kenosha.
Colladay, Wm. M..	Stoughton.	Dutcher, J. A....	Milwaukee.
Colton, John B....	Madison.	Dwinnell, J. B...	Lodi.
Cooper, E. J. ....	Des Moines, Ia.	Eaton, J. O.....	Lodi.
Cornell, James....	Oakfield.	Echlin, J. C. ....	Janesville.
Cornwell, H. H....	Verona.	Egerton, E. W..	Milwaukee.
Corrigan, John....	Cedarburg.	Elderkin, Ed....	Elkhorn.
Cottrill, J. P. C....	Milwaukee.	Elliott, E.....	Lone Rock.
Cottrill, W. H....	Appleton.	Elliott, Joseph T.	Racine.
Cottrill, C. M....	Milwaukee.	Ellis, J. A.....	Chicago.
Crampton, N. B...	Madison.	Ellsworth, O.....	Milwaukee.
Crawford, J. B....	De Smet, Dak.	Ellsworth, L.....	Milwaukee.
Crawl, John.....	Center.	Ellsworth, W. J..	Madison.
Crilly, John J....	Milwaukee.	Elmore, A. E....	Green Bay.
Crocker, Hans....	Milwaukee.	Elmore, R. P....	Milwaukee.
Crosby, J. B.....	Janesville.	Eldred, John....	Milwaukee.
Crossett, B. F....	Janesville.	Elson, Charles...	Milwaukee.
Culver, Caleb E...	Shopiere.	Emmons, N. J....	Milwaukee.
Cummings, Wm....	Fitchburg.	Enos, Elihu.....	Waukesha.
Curtis, F. C.....	Rocky Run.	Esterly, Geo. W..	Whitewater.
Curtis, D. W.....	Fort Atkinson.	Farnsworth, J. H.	Fond du Lac.
Curtis, Dexter....	Madison.	Farwell, L. J....	Chicago.
Cutting, J. W....	Harmony.	Fenn, G. W.....	Janesville.
Coon, H. C.....	Albion.	Ferguson, D.....	Milwaukee.
Dexter, W. W.....	Janesville.	Ferguson, Benj..	Fox Lake.
Dahlman, Anthony.	Milwaukee.	Fernly, Jno.....	La Grange.
Dahlman, John....	Milwaukee.	Field, Martin....	Mukwanago.
Dann, Obed.....	Chicago.	Field, W. W.....	Odebolt, Ia.
Danks, E. P.....	Stoughton.	Fifield, L.....	Chicago.
Daniels, W. W....	Madison.	Fifield, D. E....	Janesville.
Darling, K. A.....	Fond du Lac.	Fifield, E. G....	Janesville.
Darwin, A. G.....	Brooklyn, N. Y.	Finch, Lorin....	Bradford.
Daubner, Geo. H...	Brookfield, C.	Firmin, F. H....	Madison.
Davidson, Adam...	Verona.	Fisher, C. C.....	Center.
Davis, N. P.....	Pierceville.	Fisher, Elijah...	Newark.
Davis, W.....	Center.	Fisher, Seth....	Center.
Dean, E. B.....	Madison.	Fitch, D.....	Madison.
Dean, John S.....	Madison.	Fitch, W. F.....	Madison.
De Hart, J. L.....	West Lima.	Fitch, W. G.....	Milwaukee.
De La Matyr, W. A.	Middleton.	Fitzgerald, R. P..	Milwaukee.
Delaplaine, G. P...	Madison.	Fletcher, John...	Springfield.
De Mor, A. B.....	Chicago.	Flint, Jr., J. G..	Milwaukee.
Dewey, Nelson....	Cassville.	Folds, Geo. H....	Sioux Falls.
De Wolf, E.....	Fitchburg, Mas.	Foot, E. A.....	Footville.
Devoe, A. B.....	McFarland.	Foot, H. E.....	Milwaukee.
Dickerman, J. A...	Verona.	Ford, J. C.....	Madison.
Dickson, J. P....	Janesville.	Fowler, James S.	Milwaukee.
Dodge, J. E.....	Lancaster.	Fox, A. O.....	Oregon.

Names.	Residence.	Names.	Residence.
Fratt, N. D.....	Racine.	Hawes, W. N.....	East Middleton
Frank, A. S.....	Madison.	Hayes, A. J.....	Milwaukee.
Frank, Geo. R.....	Boscobel.	Hazelton, Geo. C.	Boscobel.
Frankfurth, Wm...	Milwaukee.	Hazen, Chester...	Ladoga.
Freeman, C. F.....	Milwaukee.	Hempsted, H. N...	Milwaukee.
Friedman, Ignatius.	Milwaukee.	Hicks, J. H.....	Oshkosh.
French, Jonathan...	Madison.	Hibbard, W. D...	Milwaukee.
Fuller, M. E.....	Madison.	Hibbard, Wm. B...	Milwaukee.
Fuller, F. D.....	Madison.	Higby, A. T.....	Stoughton.
Fuller, E. M.....	Madison.	Hill, H. J.....	Madison.
Furiong, Thos. T....	Chicago.	Hill, J. W. P.....	Belleville.
Furlong, John.....	Milwaukee.	Hill, Robert.....	Chicago.
		Hitt, H. D.....	Oakfield.
Gammons, Warren.	Middleton.	Helmer, A. M.....	Waukesha.
Gaylord, Aug.....	New York City	Hinckley, B. R...	Summit.
Gernon, George.....	Madison.	Hodson, C. N.....	Janesville.
Gibbs, Chas. R.....	Whitewater.	Hoyt, F. E.....	Rochester.
Gilbert, Thomas....	Oregon.	Hoeflinger, Carl..	Wausau.
Giles, H. H.....	Madison.	Hogan, Gilbert...	Janesville.
Gilman, H.....	Burke.	Holister, R. M....	Janesville.
Goodenow, H. D....	Madison.	Holmes, A. M.....	Milwaukee.
Goodrich, Ezra....	Milton.	Holton, Edward D	Milwaukee.
Goodrich, G.....	Whitesville.	Hoven, Matt.....	Madison.
Grady, F. M.....	Fitchburg.	Hopkins, B. B.....	Milwaukee.
Graham, Alex.....	Cedar Falls, Ia.	Hopkins, E. E.....	Milwaukee.
Grant, Albert.....	Milwaukee.	Hoskins, J. W....	Milwaukee.
Graves, R. T.....	Ripon.	Hoskins, Alfred..	Janesville.
Graves, S. W.....	Rutland.	Hoyt, J. W.....	Madison.
Green, Geo. G.....	Milwaukee.	Hurlbut, E.....	Oconomowoc.
Green, Richard....	Middleton.	Hume, Wm.....	Oshkosh.
Green, N. S.....	Milford.	Hutchins, C. A...	Fond du Lac.
Greenleaf, E. B....	Milwaukee.	Hutson, J. S.....	Stoughton.
Greenman, C. H....	Dov'r Cen., Min	Hudson, John....	Madison.
Greenman, H. D....	Milwaukee.	Huntly, D.....	Appleton.
Gregory, J. C.....	Madison.	Hyde, Edwin.....	Milwaukee.
Grinnell, J. G.....	Adams.		
Grubb, W. S.....	Baraboo.	Ilsley, Chas. F....	Milwaukee.
Gurnee, J. D.....	Madison.	Inbush, J. H.....	Milwaukee.
		Ingram, A. C....	New York.
Haight, Nicholas...	Madison.	Jacobs, William..	Madison.
Haight, J. M.....	Sacram'nto Cal	Jackman, Hiram.	Chicago.
Hall, Augustus....	Janesville.	Jeffery, Geo.....	Milwaukee.
Hallock, Youngs...	Middleton.	Jenks, S. R.....	Madison.
Hall, H. P.....	Boston.	Johnston, W. A...	Galesville.
Hall, S. H.....	Madison.	Jenkins, J. C.....	Janesville.
Hanchett, A. M....	Milwaukee.	Jerdee, L. P.....	Madison.
Hancock, Brad....	Chicago.	Jerdee, M. P.....	Madison.
Hanks, A. S.....	Milwaukee.	Johnson, John, Jr	Madison.
Hammond, L. M....	Janesville.	Johnson, M. B....	Janesville.
Hammond, E. S....	Fond du Lac.	Johnson, Joseph..	Hartland.
Harrington N. M...	Delavan.	Johnston, John V.	Milwaukee.
Harris, Jas.....	Janesville.	Johnson, John A.	Madison.
Harvey J. N.....	Kn'xville, Tenn	Johnston, Hugh L	Milwaukee.
Hasbrouck, W.....	Eau Claire.	Johnson, John....	Milwaukee.
Hastings, S. D.....	Madison.	Jones, E. D.....	Bjorn, Dak.
Hausman, Jos.....	Madison.	Jones, C. H.....	Sun Prairie.
Hawes, J. T.....	Wil'w Lake, Da	Jones, John N....	Madison.

Names.	Residence.	Names.	Residence.
Kellogg, Geo J . . . . .	Janesville.	Martin, A. C. . . . .	Ashton.
Keiwert, Emil. . . . .	Milwaukee.	Martin, C. L. . . . .	Janesville.
Kent, A. C. . . . .	Janesville.	Martin, Nathaniel.	Mouroe.
Kershaw, C. J. . . . .	Milwaukee.	Mason, Geo. A. . . . .	Madison.
Keyes, E. W. . . . .	Madison.	Mathews, A. R. . . . .	Milwaukee.
Kimball, M. G. . . . .	Sheboygan.	Maxson, O. T. . . . .	Waukegan.
Kingsley, Geo. P. . . . .	Springfield.	May, A. C. . . . .	Milwaukee.
Kingston, J. T. . . . .	Necedah.	Mayhew, F. L. . . . .	Milwaukee.
Kiser, W. C. . . . .	Tetonka, D. T.	Mayhew, J. L. . . . .	Milwaukee.
Kiser, J. C. . . . .	Oregon.	McCarty, F. D. . . . .	San Francisco.
Klauber, Samuel . . . . .	Madison.	McComber, S. D. . . . .	New Lisbon.
Knight, E. . . . .	Myrtle, Dakota	McConnell, Wm. N.	Dartford.
Kneeland, James. . . . .	Milwaukee.	McConnell, T. J. . . . .	Madison.
Knowles, Geo P . . . . .	Fond du Lac.	McCormick, J. G. . . . .	Madison.
Knowles, Geo . . . . .	Milwaukee.	McDermott, Wm . . . . .	Fond du Lac.
Knapp, G. A. . . . .	Fond du Lac.	Alloa.	
Knapp, J. G. . . . .	Tampa, Florida	McDonald, A. . . . .	Fond du Lac.
Knapp, Wm. A. . . . .	Fond du Lac.	McDonald, J. S. . . . .	Madison.
Koss, Rudolph. . . . .	Milwaukee.	McDougal, G. W. . . . .	Oconomowoc.
		McDowell, H. C. . . . .	Milwaukee.
		McGeogh, P. . . . .	Madison.
		McKenna, Martin.	Madison.
Ladd, M. L. . . . .	Mendota, Ill.	McLaren, Wm. P.	Milwaukee.
Lamb, F. J. . . . .	Madison.	McNeill, David . . . . .	Stoughton.
Landauer, Max . . . . .	Milwaukee.	McPherson, J. P. . . . .	Springdale.
Lapham, Henry . . . . .	Summit.	Merrill, Alf. . . . .	Madison.
Larkin, B. F. . . . .	Madison.	Merrill, S. S. . . . .	Milwaukee.
Larkin, C. H. . . . .	Milwaukee.	Millett, Chas. O. . . . .	Beloit.
Larkin, Daniel . . . . .	Madison.	Mills, Simeon. . . . .	Madison.
Larkin, Wm . . . . .	Madison.	Miner, Cyrus . . . . .	Janesville.
Lawrence, W. A. . . . .	Janesville.	Miner, John B. . . . .	Milwaukee.
Lawton, J. G. . . . .	De Pere.	Mitchell, Alex . . . . .	Milwaukee.
Lazier, Ed. . . . .	Madison.	Mitchell, J. L. . . . .	Milwaukee.
Learned, J. M. . . . .	California.	Morse, B. F. . . . .	Fond du Lac.
Leidersdorf, B. . . . .	Milwaukee.	Morden, E. . . . .	Madison.
Leitch, W. T. . . . .	Brooklyn, N. Y.	Morehouse, L. H. . . . .	Milwaukee.
Leitch, W. T., Jr. . . . .	Vienna.	Morrison, W. H. . . . .	Elkhorn.
Lester, Waterman. . . . .	Janesville.	Mosely, J. E. . . . .	Madison.
Lewis, John L. . . . .	Madison.	Mullen, James . . . . .	Milwaukee.
Lindsay, E. J. . . . .	Milwaukee.	Murray, Geo . . . . .	Racine.
Lloyd, Lewis. . . . .	Cambria.	Nason, S. L. . . . .	Nasonville.
Lockin, John . . . . .	Pueblo, Col.	Nash, C. D. . . . .	Milwaukee.
Lockwood, John. . . . .	Milwaukee.	Nazro, John. . . . .	Chicago.
Ludington, H . . . . .	Milwaukee.	Needham, E. G. . . . .	Elm Grove.
Ludington, James. . . . .	Milwaukee.	Newcomb, S. B. . . . .	Cold Spring.
Ludlow, A. . . . .	Monroe.	Newcomb, Ephr'm	Oregon.
Lucy, O. K. . . . .	Columbus.	Newton, J. S. . . . .	Verona.
Lyman, H. . . . .	Dakota.	Nicholas, L. T. . . . .	Janesville.
Lynch, T. M. . . . .	Janesville.	Norris, C. W. . . . .	Milwaukee.
Lynde, W. P. . . . .	Milwaukee.	Novell, W. A. . . . .	Milwaukee.
Lysaght, Wm . . . . .	Monroe.	Nelson, C. B. . . . .	Madison.
		Newton, T. L. . . . .	Beaver Dam.
Mann, J. E. . . . .	Sun Prairie.	Ober, R. P. . . . .	Milwaukee.
Main, Alexander H. . . . .	Madison.	Ogilvie, Robert . . . . .	Madison.
Mann, A. L. . . . .	Madison.	Olcott, J. B. . . . .	Oshkosh.
Mann, Henry . . . . .	Sun Prairie.	Oliver, Joseph B. . . . .	Milwaukee.
Mann, Curtis. . . . .	Oconomowoc.	Olney, C. W. . . . .	La Cygne, Kan.
Manwaring, Wm. . . . .	Black Earth.	Orr, G. H. . . . .	Verona.
Marshall, Samuel. . . . .	Milwaukee.	Ott, Geo. V. . . . .	Madison.

Names.	Residence.	Names.	Residence.
Page, H. M. ....	Baraboo.	Robbins, J. V. ....	New York.
Palmer, H. L. ....	Milwaukee.	Rodgers, Lawr'nce	Westport.
Palmer, J. Y. ....	Oregon.	Roe, J. P. ....	Franklin.
Palmer, O. M. ....	Oregon.	Rogers, C. H. ....	Milwaukee.
Palmer, Henry ....	Oregon.	Rodgers, D. J. ....	Milwaukee.
Park, Wm. J. ....	Madison.	Rogers, J. S. ....	Burlington.
Parker, C. H. ....	Beloit.	Rogers, Anson. ....	Janesville.
Parmley, Ira. ....	Center.	Rogers, H. G. ....	Milwaukee.
Parsons, P. B. ....	Denver, Ccl.	Ross, James. ....	Madison.
Paul, John H. ....	Genesee.	Rowe, Richard W.	Madison.
Partridge, J. S. ....	Whitewater.	Rowe, W. E. ....	Arena.
Patten, L. F. ....	Janesville.	Ruggles, J. D. ....	San Francisco.
Patton, Jas. E. ....	Milwaukee.	Ryder, James K. .	Waterloo.
Paul, Geo. H. ....	Milwaukee.		
Payne, Wm. ....	Janesville.	Sage, E. C. ....	Faultkon, D. T.
Payne, H. C. ....	Milwaukee.	Salisbury, R. W. .	Fitchburg.
Peffer, G. P. ....	Pewaukee.	Salisbury, D. F. .	Fitchburg.
Pember, R. T. ....	Janesville.	Sanderson, Edw. .	Milwaukee.
Perkins, P. M. ....	Burlington.	Sanderson, R. B. .	Madison.
Perrine, L. W. ....	Janesville.	Sarles, John H. . .	Boscobel.
Perry, B. F. ....	Madison.	Schute, Charles. .	Milwaukee.
Pfister, Guido. ....	Milwaukee.	Schutt, U. ....	Janesville.
Phelps, A. Warren. .	Milwaukee.	Seville, James. . .	Lodi.
Pier, C. K. ....	Merrill.	Sexton, W. F. ....	Milwaukee.
Pierce, C. L. ....	Milwaukee.	Simmons, C. J. . .	Monroe.
Pilgrim, D. T. ....	West Granville	Sinclair, Jeff. ....	Milwaukee.
Pinney, S. U. ....	Madison.	Sharp, J. W. ....	Iowa.
Plankington, John. .	Milwaukee.	Shaw, J. B. ....	Milwaukee.
Plumb, J. C. ....	Milton.	Sheldon, A. H. . .	Janesville.
Plumb, T. D. ....	Madison.	Sheldon, D. G. . .	Madison.
Plummer, B. C. ....	Wausau.	Sheldon, S. L. ....	Madison.
Pond, Samuel A. . .	Janesville.	Shepard, C. ....	Milwaukee.
Porter, Wm. H. ....	Marshall.	Sherman, George. .	La Prairie.
Porter, G. E. ....	Eau Claire.	Sherman, J. M. . .	Burnett.
Power, D. G. ....	Milwaukee.	Sherwood, J. C. . .	Dartford.
Powers, W. J. ....	Black Earth.	Shipman, S. V. . .	Chicago.
Pratt, E. E. ....	Chicago.	Skelley, Charles. .	Janesville.
Pres. St. Peter's Val.		Skinner, Geo. J. . .	Sioux F'ls, D. T.
Farmers' Club. ....	Springfield.	Skinner, E. W. . .	Sioux City, Ia.
Pritchard, P. M. ....	Fitchburg.	Sloan, I. C. ....	Madison.
Pratt, Orris. ....	Spring Prairie.	Slocum, G. A. ....	Chicago.
		Smith, Winfield. .	Milwaukee.
Ray, Charles. ....	Milwaukee.	Smith, Angus. ....	Milwaukee.
Raymond, S. O. ....	Geneva.	Smith, Adam. ....	Madison.
Riordan, Chas. ....	Oshkosh.	Smith, J. B. ....	Milwaukee.
Reed, Harrison. ....	Jacksonv'l, Fla	Smith, S. W. ....	Janesville.
Ressigue, A. C. ....	Janesville.	Smith, H. L. ....	Janesville.
Reynolds, Thos. ....	Madison.	Smith, M. C. ....	Janesville.
Reynolds, John. ....	Kenosha.	Smith, S. B. ....	Verona.
Rexford, J. D. ....	Janesville.	Smith, J. Maurice.	Chicago.
Rice, E. M. ....	Whitewater.	Smith, J. M. ....	Green Bay.
Richards, Richard. .	Racine.	Snell, H. ....	Madison.
Richardson, D. ....	Middleton.	Spaulding, Wm. . .	Janesville.
Richardson, Jas. ....	Buffalo, N. Y. .	Stickney, J. S. . .	Wauwatosa.
Richardson, R. J. ....	Janesville.	Spencer, James C. .	Milwaukee.
Richardson, H. ....	Janesville.	Spencer, R. C. ....	Milwaukee.
Richmond, A. ....	Whitewater.	Squier, Thomas H. .	Waterloo.
Riebsam, C. R. ....	Madison.	Stannard, A. C. . .	Milton.

Names.	Residence.	Names.	Residence.
Stark, Chas. A. ....	Milwaukee.	Vilas, Wm. F. ....	Madison.
Steele, Chester. ....	Milwaukee.		
Stevenson, Isaac. ....	Marinette.		
Stevens, Geo. C. ....	Milwaukee.	Ward, A. J. ....	Madison.
Steensland, H. ....	Madison.	Waggstaff, S. ....	Oshkosh.
Stewart, C. R. ....	Karson, Minn.	Wackerhagen, E.	Racine.
Stewart, G. H. ....	Col. Sp'gs, Col.	Wait, J. B. ....	Waitsville.
Stilson, Edgar. ....	Oshkosh.	Warren, Albert. ...	Madison.
Stilson, Adelbert. ...	Oshkosh.	Warren, J. H. ....	Albany.
St. John, J. W. ....	Janesville.	Webster, James ..	Danville.
Stockman, John. ....	Milton Junct'n.	Webb, James A. ...	Janesville.
Stone, Gustavus. ....	Beloit.	Welch, W. ....	Madison.
Storm, Wm. ....	Madison.	Wells, Daniel L. ...	Milwaukee.
Stowe, La Fayette. ...	Sun Prairie.	Werner, John ....	Sauk.
Street, Richard. ....	Waukesha.	West, Henry ....	Madison.
Sutherland, C. ....	Syene.	West, S. C. ....	Milwaukee.
Swain, Wm. W. ....	Madison.	West, Henry M. ...	Milwaukee.
		Whaling, J. W. M.	Waukesha.
Tallman, W. H. ....	Janesville.	Wheeler, Geo. F. ...	Milwaukee.
Taylor, E. T. ....	Mukwanago.	Wheeler, Guy ....	La Prairie.
Taylor, W. R. ....	Cottage Grove.	Wheeler, L. A. ...	Milwaukee.
Tenney, H. A. ....	Madison.	Wheeler, W. G. ...	Janesville.
Tenney, D. K. ....	Madison.	Wheelwright, J. ...	Middleton.
Tenney, Samuel. ....	Hartland.	Whitney, W. F. ...	Milwaukee.
Terwilliger, Jas. ....	Syene.	Wicks, Thomas. ...	Milwaukee.
Thorson, John. ....	Milwaukee.	Wight, O. W. ....	Milwaukee.
Tibbits, Geo. M. ....	Milwaukee.	Wightman, H. ...	Black Earth.
Tierney, K. ....	California.	Wilcox, C. T. ....	Janesville.
Thompson, W. H. ...	Chicago.	Wilkins, A. W. ...	Milwaukee.
Thorp, J. G. ....	Eau Claire.	Wiley, O. S. ....	Ben'n Har. Mch
Todd, J. G. ....	Janesville.	Williams, C. H. ...	Baraboo.
Tolford, J. W. ....	Neillsville.	Williams, D. ....	Darien.
Torgerson, Lars. ....	Madison.	Williams, Daniel.	Summit.
Torrey, R. D. ....	Oshkosh.	Williams, G. G. ...	Whitewater.
Townley, John. ....	Moundville.	Williams, J. P. ...	Janesville.
Treat, R. B. ....	Chicago.	Williams, Randall	Janesville.
Treat, George E. ....	Milwaukee.	Williams, S. B. ...	Madison.
Twining, M. S. ....	Broadhead.	Wilson, Wm. ....	Westport.
		Wilson, Zebina. ...	Palmyra.
Van Brunt, W. A. ...	Horicon.	Wood, J. W. ....	Baraboo.
Van Cott, Albert B.	Madison.	Wootton, Robert.	Madison.
Van Etta, Jacob. ....	Madison.	Worthington, B. M.	Madison.
Van Kirk, N. ....	Milwaukee.	Wright, D. H. ....	Madison.
Van Schaick, J. W.	Milwaukee.	Wright, Geo. ....	Mt. Horeb.
Van Slyke, N. B. ...	Madison.	Wright, J. S. ....	Emerald Grove
Vaughan, O. A. ....	Lodi.	Wright, Josiah T.	Janesville.
Viall, Andrus. ....	Madison.	Wylie, Geo. W. ...	Elkhorn.
Vilas, Chas. H. ....	Cleveland, O.		
Vilas, L. M. ....	Eau Claire.	Zweitusch, Otto. .	Milwaukee.

MORTUARY.

Isaac Adams.	J. B. Cross.	Orrin Guernsey.
Chauncy Abbott.	Satterlee Clark.	R. E. Gillett.
Chas. D. Atwood.	L. S. Curtis.	H. D. Greenman.
J. W. Ayers.	Seymour Curtis.	Peter Houstan.
Wm. W. Brown.	N. W. Dean.	J. A. Helfenstein.
Timothy Brown.	G. L. Davis.	P. B. Hill.
James Barry.	John Davis.	L. J. Hobart.
Fred. Bemis.	S. B. Davis.	David Holt.
Wm. G. Beecroft.	S. S. Dagget.	W. H. Hiner.
George Barnes.	M. L. Daggett.	L. P. Harvey.
A. A. Bennett.	E. P. Doty.	B. F. Hopkins.
H. M. Billings.	J. B. Dousman.	J. C. Hopkins.
C. M. Bliss.	Chas Durkee.	Wheldon Hughes.
Perry Bostwick.	Andrew Dunn.	John W. Hunt.
W. A. Briard.	Wm. Dunn.	E. Hulbert.
B. F. Brown.	E. W. Drury.	Sol Hutson.
H. D. Barron.	Abel Dunning.	N. W. Harrington.
J. B. Bowen.	S. S. Fisher.	Robert Hodge.
Guy Carter.	Sidney Foote.	A. G. Hanford.
Wm. Casar.	Jacob Fowle.	E. H. Janssen.
C. M. Campbell.	E. Fairbanks.	Paul Juneau.
C. B. Chapman.	S. B. Grant.	H. C. Jacobs.
John Child.	Samuel Green.	J. C. Johnson.
W. W. Church.	Anthony Green.	John Kimball.
D. R. Coit.	Eleazer Grover.	W. J. Kershaw.
B. F. Catlin.	Joseph Goodrich.	Moses Kneeland.
A. J. Craig.	G. Goodrich.	S. P. Kingsley.
L. F. Kellogg.	Andrew Proudfit.	M. J. Thomas.
L. H. Kellogg.	D. J. Powrs.	Ole Thompson.
A. C. Kent.	B. Pinckney.	B. Throop.
Thos. H. Little.	John Reynolds.	Wm. H. True.
J. A. Lapham.	M. Reynolds.	A. H. Terry.
James R. Larkin.	Herbert Reed.	James Utter.
J. B. Mosier.	J. O. Rezer.	L. B. Vilas.
J. H. B. Matts.	John Rodermund.	Henry Vilas.
Clinton Matterson.	N. C. Rowley.	A. H. Van Norstrand.
E. D. Masters.	Simon Ruble.	E. B. Wolcott.
Samuel Morse.	Jas. H. Rogers.	J. F. Willard.
And. McColough.	R. Roddis.	Dennis Worthington.
Alex. McGregor.	Harvey Russell.	Charles Weed.
E. F. Mabie.	Wm. B. Slaughter.	C. L. Williams.
John B. Macy.	Jas. Sullivan.	Wm. A. White.
O. F. Maxon.	Geo. B. Smith.	A. White.
Alex. McBride.	Frank Scollan.	T. L. Whittlesey.
A. S. McDill.	L. Sexton.	H. O. Wilson.
David McKinna.	M. Spaulding.	N. A. Wright.
Wm. A. Mears.	A. C. Shipman.	Wm. R. Warren.
Ira Miltmore.	Kellogg Sexton.	Jas. Webster.
G. F. Moseley.	J. M. Sherman.	S. G. Williams.
D. S. Morse.	Joseph Spaulding.	Geo. Worthington.
B. F. Nott.	Geo. C. Stevens.	J. F. Woolley.
George Paddock.	Amaziah Sherman.	Martin Webster.
George Paine.	S. B. Scott.	Wm. A. Wheeler.
W. F. Porter.	W. E. Smith.	J. E. Young.
David Post.	H. P. Strong.	J. Cory.
John W. Park.	Dr. W. Thompson.	A. H. West.
Herbert Lewis.	Geo. H. Slaughter.	W. H. Fox.

MINUTES  
OF THE  
STATE AGRICULTURAL SOCIETY.

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FEBRUARY MEETING.

STATE AGRICULTURAL ROOMS,  
MADISON, February 5, 1883.

The executive board of the Wisconsin State Agricultural Society, met in the room of the Society at the capitol, at 7 P. M., as required by law. President N. D. Fratt in the chair. Quorum present.

On motion of A. A. Arnold, it was unanimously voted to take a recess until eight o'clock P. M., February 5th.

The meeting was called to order by Hon. N. D. Fratt, President.

Present—C. L. Martin, A. A. Arnold, J. W. Wood, J. O. Eaton, D. T. Pilgrim, R. B. Ogilvie, Clinton Babbitt, J. M. Smith, T. L. Newton.

Mr. Hitt sent his report, which was read to the board.

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STATE AGRICULTURAL ROOMS,  
MADISON, February 6, 1883.

9 A. M. The executive board of the Wisconsin State Agricultural Society were called to order by President Fratt. The following answered to the call of the roll:

C. L. Martin, D. T. Pilgrim, J. O. Eaton, R. B. Ogilvie, Clinton Babbitt, T. L. Newton, J. W. Wood, A. A. Arnold, S. L. Nason.

Rule of Entry, Article 11, was amended so as to read: "No



article or animal entered for exhibition may be removed from the grounds until 3 o'clock P. M. of Friday, except by written permission of the President or Secretary of the Society."

In Rules of Inspection it was moved by Mr. Eaton that judges shall report themselves to the superintendent of the department in which they are to serve. Carried.

Mr. Arnold offers the following as a substitute in General Rules for No. 7, which by unanimous vote was adopted:

7. No premium shall be awarded to animals shown in the breeding classes, unless accompanied by a certificate of the owner or breeder that they have produced or begotten young within two years previous to date of exhibition.

It was unanimously voted that the following rule of entry be added: The entry fee in all cases shall accompany the entry or entries made, except when the exhibitor be a life member. No officer of the Society shall compete for a premium in the department over which he is superintendent.

On motion of Dr. Martin, the board adjourned until 9 A. M., Tuesday morning.

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STATE AGRICULTURAL ROOMS,

MADISON, Feb. 7, 1883.

9 A. M. The board was called to order by the President, N. D. Pratt. The following members were present:

C. L. Martin, D. T. Pilgrim, J. O. Eaton, R. B. Ogilvie, J. W. Wood, J. S. Dore, A. A. Arnold, S. L. Nason, T. L. Newton, Clinton Babbitt.

On motion of Dr. Martin it was voted that in department A, class 2, that qualifications in weight be struck out.

J. W. Wood offers that two classes be made in class 2, and that the words Norman and Clyde mares be added to the class.

The regular business of the Board transacted, and premium list revised as appears and published for 1883. Board then adjourned until 1:30 P. M.

MADISON, February 7, 1883.

The adjourned meeting of the Executive Board met at 1:30 P. M., in the Agricultural rooms, President N. D. Fratt in the chair. Quorum present.

J. O. Eaton presented a resolution that a committee of five be appointed by the president, consisting of the president, secretary, and three others, to locate next fair, which was adopted.

Mr. J. S. Dore submitted to the Board the proposition between J. O. Eaton and J. S. Dore to change positions in relation to the office of the Superintendent of Gates and that of marshal, which was agreed to.

Superintendents of departments were appointed as follows:

DEPARTMENT A — HORSES.

Superintendent — R. B. Ogilvie, Madison.

DEPARTMENT B — CATTLE.

Superintendent — A. A. Arnold, Galesville.

DEPARTMENT C — SHEEP.

Superintendent — Edgar Stilson, Oshkosh.

DEPARTMENT D — SWINE.

Superintendent — Edgar Stilson, Oshkosh.

DEPARTMENT E — POULTRY.

Superintendent — J. S. Stickney, Wauwatosa.

DEPARTMENT F — AGRICULTURE.

Superintendent — Dr. C. L. Martin, Janesville.

DEPARTMENT G — FRUITS AND FLOWERS.

Superintendent — D. T. Pilgrim, West Granville.

DEPARTMENT H — MACHINERY.

Superintendent — T. L. Newton, Beaver Dam.

DEPARTMENT I — MANUFACTURES.

Superintendent — H. D. Hitt, Oakfield.

DEPARTMENT K — FINE ARTS.

Superintendent — J. W. Wood, Baraboo.

The following resolution was offered by R. B. Ogilvie, which was adopted:

DEPARTMENT C — CLASS 17.

“Pure bred Spanish or American Merinos, standard authority as to purity of breeding, in all class being that adopted by the Vermont, New York and Wisconsin associations.”

A. A. Arnold moved that the committee be instructed to report within one month from date, at what place the next fair shall be held. Carried.

The committee of location to consist of the following:

N. D. Fratt, Clinton Babbitt, Dr. C. L. Martin, T. L. Newton, A. A. Arnold.

On motion of J. S. Dore, the Wisconsin State Agricultural Society was located, to be held in the second week of September.

Mr. Bailey, mayor of Eau Claire, was introduced by the president, and presented a proposition for the locating of the fair at Eau Claire.

The subject of the location of the state fair was postponed until 1:30 P. M., Thursday.

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MADISON, Feb. 8, 1883.

The locating committee of the state fair met a large delegation of the citizens of Eau Claire, who presented the claims of that city, as a suitable location for the state fair of 1883, and invited them to visit their city.

The meeting then adjourned.

TWENTY-FIRST ANNUAL REPORT  
OF THE  
SECRETARY  
OF THE  
STATE AGRICULTURAL SOCIETY.

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To His Excellency, JEREMIAH M. RUSK,

*Governor of Wisconsin:*

The broad and liberal views expressed by you in your last annual message to the Legislature of our State, and your recommendations therein contained relative to the "Wisconsin State Agricultural Society," makes the honor as its representative a pleasure, to submit to your consideration our annual report for the year 1882-1883.

CLINTON BABBITT,

*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 their office in Fond du Lac, Monday evening, September 11th. Present, President Fratt, Vice Presidents C. L. Martin, A. A. Boyce, John H. McDonald, John S. Dore, J. T. Kingston, Treasurer Miner, and Messrs. Babbitt, Arnold, Wood and Secretary 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.

The board met on each evening during the fair, adjusted all matters of difference which arose, giving such directions as were important.

On Wednesday evening, at meeting of the board, at which a quorum was present, it was moved by Clinton Babbitt, "that the lease or permission heretofore given Joseph Beshner by this society to keep or run a refreshment stand upon the fair grounds be, and the same is, hereby revoked, and that he be excluded from the grounds, and his goods and effects removed therefrom; and that a notice be served upon said Joseph Beshner of the revocation of his said lease." Which was adopted.

On motion of Mr. Eli Stilson, voted, that the gate keepers and police be directed to prevent any beer or liquors from being carried into the fair grounds by supply wagons.

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## SOCIETY MEETINGS.

### ELECTION OF OFFICERS.

FOND DU LAC, September 14, 1882.

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 Common Council rooms in the city of Fond du Lac, at 8 o'clock P. M., to elect officers for 1883. President Fratt in the chair. The president said the society was convened for the purpose of electing officers for 1883, and other constitutional work.

Hon. Hamilton Richardson, of Rock county, moved that the society proceed to ballot for president, treasurer and secretary in the order named.

Which motion prevailed.

On motion, the chair appointed Hamilton Richardson, H. D. Hitt and J. W. Wood, tellers. Result of ballot: Whole number of votes cast, fifty-six; necessary to a choice, twenty-seven; of which number N. D. Fratt, of Racine had forty-six; scattering, ten.

On motion, N. D. Fratt was declared unanimously elected president of the society for the year A. D. 1883.

Cyrus Miner receiving all votes cast, was declared unanimously elected treasurer of the society for the year A. D. 1883.

#### BALLOT FOR SECRETARY.

Whole number of votes cast, sixty-three; necessary to a choice, thirty-two; of which number Clinton Babbitt, of Beloit, received forty-two, and W. H. Morrison, of Elkhorn, twenty-one; and Mr. Clinton Babbitt was declared elected secretary of the society for the year 1883.

Dr. Wm. H. Fox, of Oregon, moved that a committee of ten (one from the state at large, to be appointed by the President, and one from each congressional district of the state, to be appointed by the members from each district represented), be raised for the purpose of nominating the balance of the officers for the year 1883.

Which motion prevailed.

The following committee was appointed:

From the State at Large — Dr. Wm. H. Fox.

1st Congressional District — Hamilton Richardson.

2d Congressional District — George E. Bryant.

3d Congressional District — B. R. Hinckley.

4th Congressional District — D. T. Pilgrim.

5th Congressional District — J. M. Smith.

6th Congressional District — J. B. Olcott.

7th Congressional District — J. T. Kingston.

8th Congressional District — J. S. Dore.

Ninth District not represented.

The committee having performed their duty, reported the following as vice-presidents for the year A. D. 1883:

C. L. Martin — 1st District.

H. D. Hitt — 2d District.

R. B. Ogilvie — 3d District.

D. T. Pilgrim — 4th District.

J. M. Smith — 5th District.

Edgar Stilson — 6th District.

J. W. Wood — 7th District.

J. S. Dore — 8th District.

S. L. Nason — 9th District.

And the following as additional members of the Executive Board:

W. H. Morrison, A. O. Fox, T. L. Newton, J. O. Eaton, A. A. Arnold, J. T. Kingston, and J. S. Stickney, who were, on motion, severally elected.

On motion, adjourned.

#### FRIDAY EVENING, September 15th.

Board met; quorum present; President in chair. Accounts and bills were presented and audited, and the secretary directed to draw warrants on the treasurer for full payment of claims and premiums.

On motion, board adjourned until Saturday morning at eight o'clock.

#### SATURDAY, September 16, 1882, 8 o'clock A. M.

Board met; President N. D. Fratt in chair.

Mr. Hitt asked if the board intended to hold him to his promise to give the Society \$100, made at February meeting. After some discussion, Mr. Miner moved "that the board take no action upon the alleged promise of Mr. Hitt to pay the Society one hundred dollars." Carried.

Vice-President C. L. Martin moved that in view of the prospect of the society not having sufficient funds to pay their liabilities, that the president, treasurer and secretary

be authorized to make a loan or loans sufficient to meet the indebtedness, and to mortgage any property of the society to secure the payment of the same. Carried.

Adjourned.

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### DECEMBER MEETING.

STATE AGRICULTURAL ROOMS,

December 5, 1882.

As provided by the by-laws and pursuant to published notice, the Executive Board met in their rooms in the capitol, December 5, 1882. 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 5, 1882, and which may be found in the volume of transactions for 1882-83, 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, and affirmed.

On motion, Dr. John H. Warren, George E. Bryant and Clinton Babbitt, were elected delegates to the National Agricultural Convention, called by Commissioner Loring, in January, 1883, at Washington, D. C.

On motion, adjourned.

GEORGE E. BRYANT,

*Secretary.*

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### ANNUAL MEETING.

STATE AGRICULTURAL ROOMS,

December 6, 1882.

As required by the constitution, the Wisconsin State Agricultural Society met in their rooms in the capitol at 9 o'clock A. M., President N. D. Fratt in the chair. Quorum present.

Cyrus Miner, the treasurer, presented his annual report, showing the financial condition of the society for the fiscal year ending December 5, 1882, bearing the approval of the executive board.



## TREASURER'S REPORT.

*For the year ending December 5, 1882.*

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 5th, 1882.

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

GENTLEMEN—I hand you, herewith, report showing the financial transactions of your society for the year ending December 5th, 1882.

Respectfully submitted,

CYRUS MINER,

*Treasurer.*

### RECEIPTS.

Balance from 1881.....	\$376 21	.....
Amount from entry fees.....	1,264 46	.....
Amount from rent of ground.....	802 06	.....
Amount from sale of tickets.....	9,233 75	.....
Amount from loan.....	2,600 00	.....
Amount from membership.....	160 00	.....
Amount from advertising.....	100 00	.....
Amount from sale of lumber.....	13 06	.....
Amount from sale of forage.....	69 61	.....
Special premium of R. B. Ogilvie, Madison.....	100 00	.....
	\$14,719 15	.....

### DISBURSEMENTS.

Paid Secretary's warrant.....	\$14,223 16	.....
Paid dinner tickets.....	190 00	.....
Paid orders of 1881.....	129 99	.....
Cash on hand.....	176 00	.....
	\$14,719 15	.....

WARRANTS ISSUED.

7

NUMBER OF WARRANTS ISSUED FOR THE YEAR ENDING  
DECEMBER 5, 1882.

No.	To whom, and for what issued.	Amount.
1	Miner, Cyrus, expenses.....	\$13 25
2	Boyce, A. A., expenses.....	5 00
3	Bagley, H. A., prem.....	7 00
4	Gillott, Wm., witness fees.....	10 56
5	Stooks, A. C., prem.....	3 00
6	Lewis, Mrs. G. W., prem.....	2 00
7	Bross, Chas. E., telegraph.....	85
8	Strong, H. P., prem.....	50 00
9	Booth, W. A., express.....	2 50
10	Dodd, H. B., express.....	2 50
11	Handcolt, express.....	18 84
12	Banks & Broman, express.....	1 80
13	Smith, C. L., advertising.....	3 50
14	Hazen, C., prem.....	7 68
15	Dodd, H. B., express.....	1 15
16	Crissman, J., prem.....	6 00
17	Weldon, G. W., prem.....	3 84
18	Kellogg, G. G., prem.....	12 00
19	Buel, G., prem.....	10 00
20	Seifert & S., diplomas.....	20 00
21	Friday, H., prem.....	5 00
22	Davidson, A. L., prem.....	35 00
23	Democrat Co., printing.....	9 00
24	Dodd, H. B., express.....	55
25	Vilas & Bryant, attorney.....	3 00
26	Swanson, T., rep. stamp.....	1 75
27	Booth, W. A., express.....	90
28	Racine Plate Co., prem.....	441 15
29	Dodd, H. B., express.....	75
30	Slaughter, B. C., clerk.....	19 00
31	Dodd, H. B., express.....	2 20
32	Booth, W. A., express.....	1 20
33	Dawson, C. D., freight.....	5 12
34	Bookhaven, S., rep. flags.....	2 00
35	Booth, W. A., express.....	1 30
36	Davidson, A. L., reporter.....	60 00
37	Anderson, W., clerk.....	20 00
38	Dean, E. B., clerk.....	20 00
39	Swift, H., advertising.....	9 00
40	Bryant, Geo. E., secretary salary.....	450 00
41	Dean, E. B., clerk.....	14 00
42	Dean, E. B., clerk.....	38 00
43	Davidson, A. L., reporter.....	40 00
44	U. S. mint, medals.....	28 25
45	Dodd, H. B., express.....	2 05
46	Baker, J. C., expenses.....	38 00
47	Howard, T. J.....	5 00
48	Lovel, S.....	15 00
49	Swanson, Geo., lumber.....	13 00
50	Poor, W. J., goods.....	10 00
51	Dean, E. B., clerk.....	4 00
52	Slaughter, B. C., clerk.....	30 00
53	Memhard, F., express.....	12 15
54	Pierce, A. J., sundries.....	15 00
55	Pierce, A. J., sundries.....	10 00
56	Dodd, H. B., express.....	2 90
57	Slaughter, B. C., clerk.....	40 00

No.	To whom and for what issued.	Amount.
58	Parker, F. E., telegraph	\$ 40
59	Pierce, A. J., machinery department	5 00
60	Danforth, C., land	33 60
61	Twilbert, M., labor	3 00
62	Myer, C. J. L., lumber	461 07
63	Warren, J. H., assistant superintendent swine	8 00
64	Church, W., post bills	44 75
65	Warner, A., gate attendance	17 50
66	Wyler, Geo. W., assistant marshal	20 00
67	Stoddard, J., assistant superintendent horse	32 00
68	Morrison, W. H., superintendent poultry	24 00
69	Morrison, W. H., expenses	12 00
70	Jewell, J. S., police	9 00
71	Dams, G. L., police	1 50
72	Waterman, E., police	6 00
73	McDougal, Geo. W., assistant superintendent ground	31 50
74	Bernard, J. B., police	8 00
75	Dore, J. S., marshal	33 55
76	Crippen, D., assistant marshal	20 00
77	Kingston, J. T., assistant superintendent	20 00
78	Williams, D., clerk	21 00
79	Brooks, Geo., police	16 00
80	Void	
81	Brazeo, A., assistant superintendent cattle	31 50
82	Bonning, S. B., police	4 00
83	Leaff, W. B., assistant superintendent forage	22 50
84	Putnam, police	14 00
85	Peterson, A., police	6 00
86	Arnold, A. A., superintendent cattle	24 00
87	Davidson, L., police	8 00
88	Hudson, C. D., police	8 00
89	Johnson, H. R., police	10 00
90	Lichyoung, L., police	8 00
91	Belmer, F., police	3 00
92	Oneida Board	66 40
93	Wood, G., assistant marshal	30 00
94	Wood, A., police	10 00
95	Lee, G. A., police	8 00
96	Brabazen, J. B., assistant superintendent, poultry	15 00
97	Krimerly, A., water watch	6 00
98	Kinnersal, watch	2 00
99	Kinnerly, J. A., police	4 00
100	Frederick, H., police	8 00
101	Raymond, Wm., police	8 00
102	Murphy, W., police	7 00
103	Euer, F., police	3 50
104	Hoard, Julia, ladies' attendant	10 00
105	Jeffries, W., gate attendant	17 50
106	Bruger, clerk	10 00
107	Bomwell, J., police	7 00
108	Stanton, J., police	7 00
109	Hall, A. H., goods	96
110	Dunning, J. E., amphitheater	12 00
111	Howe, W., police	8 00
112	Peffer, Geo., attendant	4 00
113	Boyd, A. A., supt. forage	36 00
114	Boyd, A. A., board meeting	5 00
115	Roderwell, J., police	6 50
116	Flannagan, W., police	8 00
117	Sickle, D., care water	14 00
118	Baker, J. W., assistant farm products	21 00
119	Carpenter, L., prem.	60 00

WARRANTS ISSUED.

9

No.	To whom and for what issued.	Amount.
120	Litter & Mitchell, goods .....	\$ 46
121	Thuring, J. L., printing.....	3 00
122	Thomas, Mrs., clerk.....	20 00
123	Read, Wm., prem.....	65 50
124	Smith, R. H., prem.....	26 00
125	Pierce, E. E., assistant superintendent horse.....	21 00
126	Peffer, G. P., prem.....	74 00
127	Williams, R. D., prem.....	5 00
128	Taylor, C., prem.....	11 00
129	Perry, Eli, prem.....	18 00
130	Eells, H., prem.....	6 00
131	Marvis, W., prem.....	7 00
132	Janes, A. K., assistant superintendent fine arts.....	42 00
133	Roberts, R. C., prem.....	19 00
134	Morse, Mrs., prem.....	37 00
135	Wovel, Mrs., prem.....	3 00
136	Rengrose, G. W., prem.....	75 00
137	Fratt, N. D., president expenses.....	61 70
138	Fratt, N. D., president expenses.....	84 10
139	Wagner, W., goods.....	1 30
140	McKinney, H. D., prem.....	197 00
141	McKinney, H. D., prem.....	19 20
142	Johnson, D., prem.....	280 00
143	Harwood, E. N., prem.....	10 00
144	Stoddard, C. C., assistant superintendent horse.....	31 50
145	McKinney, H. D., assistant superintendent horse.....	10 00
146	Babbitt, C., superintendent horse.....	31 00
147	Johnson, J. C., prem.....	25 00
148	Fuller, F., prem.....	24 00
149	Peffer, Kate, clerk.....	12 00
150	Woodward, J. L., prem.....	22 00
151	Clark, prem.....	40 00
152	Martin, C. L., superintendent agriculture.....	24 00
153	McGee, Wm., assistant superintendent forage.....	27 00
154	McFarland, labor.....	26 00
155	Stokes, G. H., police.....	6 00
156	Raymond, A., police.....	8 00
157	Baldwin, M. A., police.....	8 00
158	Monsor, W., prem.....	120 00
159	Roberts, R. R., police.....	10 00
160	Hill, J., labor.....	10 00
161	Lesstleyoung, carpenter.....	8 00
162	Meigs, O. D., water man.....	10 00
163	Atwood, M., police.....	15 00
164	Wood, W. P., police.....	10 00
165	Hart, S. J., prem.....	33 00
166	Hart, E., prem.....	5 00
167	Marthers, J., police.....	8 00
168	Quick, W. J., prem.....	22 00
169	Quick, E., prem.....	35 00
170	Clark, D. J., assistant keeper manufacturing department..	31 50
171	Green, M. B., prem.....	27 00
172	Snifer, G. W., prem.....	4 00
173	Butler, Mrs. M., prem.....	2 00
174	Carnell, J., prem.....	7 00
175	Ablard, Wm., prem.....	8 00
176	Hatch, D., prem.....	25 00
177	Bullman, H., prem.....	5 00
178	La Duke, P., police.....	4 50
179	Lorilard, Mrs. C. L., prem.....	6 00
180	Pilgrim, D. T., superintendent horticulture.....	36 00
181	Pilgrim, —, sundries.....	8 50

No.	To whom and for what issued.	Amount.
182	Burns, F., police.....	\$6 00
183	Jeffrey, Geo., police.....	10 00
184	Pilgrim, D. L., assistant superintendent horticulture.....	24 50
185	Howe, N., prem.....	22 00
186	Orvis, J., prem.....	2 00
187	Wookey, S. H., prem.....	8 00
188	Hart, M. S., police.....	8 00
189	Wood, J. W., prem.....	14 00
190	Frail, Ida, prem.....	4 00
191	Wheeler, Flora B., assistant art hall.....	10 00
192	Sherman, A., assistant agricultural hall.....	15 00
193	Mason, T., prem.....	2 00
194	Coffin, M. J., prem.....	2 00
195	Rogers, G. E., prem.....	5 00
196	Bryant, Mrs. W., prem.....	4 00
197	Warthing, Mrs. T., prem.....	2 00
198	Dick, A., prem.....	2 00
199	Waters, J. E., police.....	10 00
200	Lind Bros., prem.....	7 00
201	Carter, S. M., prem.....	2 00
202	Wood, J. W., prem.....	5 00
203	Norton, S. J., prem.....	2 00
204	St. Jar, E., prem.....	12 00
205	Robinson, C. L., prem.....	1 00
206	Galispee, J., police.....	9 00
207	Galispee, J., police.....	1 00
208	Meekin, F. H., prem.....	10 00
209	Shaffer, Ella, assistant in art hall.....	8 00
210	Woodward, J. S., prem.....	1 00
211	Hiner, Mrs. W., prem.....	20 00
212	Norton, H. E., prem.....	25 00
213	Norton, E. D., prem.....	1 00
214	King, Mary, board band.....	50 00
215	Lewis, Geo., prem.....	3 00
216	Dodd, P., watchman.....	14 00
217	Lewis, Carrie, prem.....	9 50
218	Griffith, A. Q., prem.....	15 00
219	Moore & Gillett, prem.....	10 00
220	Moore & Gillett, prem.....	150 00
221	Tilson, L.....	89 40
222	Shing, H., lumber.....	85 96
223	Shing, H., dinner tickets.....	4 33
224	Joiner, S. H. & C. E., prem.....	207 00
225	Austin, C. L., prem.....	62 00
226	Decker, A. J., sugar experiment.....	32 25
227	Mihills, Mrs. D., prem.....	2 00
228	Pompell, J. R., prem.....	43 00
229	Raven, S. C., work.....	16 00
230	Raven, S. C., assistant amphitheater.....	177 50
231	Diener, J., prem.....	12 00
232	Norton, L. W., prem.....	2 00
233	Chadbourne, C., prem.....	15 00
234	Barber, G. E., police.....	6 00
235	Miller, N., dinner tickets.....	8 00
236	Busons, F. F., assistant forage.....	20 00
237	Huggins, N. J., carting.....	1 00
238	Lasselyoung, police.....	2 00
239	Morrison, Jessie, prem.....	2 00
240	Zinke Bro., feed.....	74 45
241	Dallas, J. W., prem.....	15 00
242	Laltier, L., prem.....	11 00
243	Benton, C., fuel.....	33 47

WARRANTS ISSUED.

11

No.	To whom and for what issued.	Amount.
244	W. U. Telegraph Co.....	\$2 33
245	Dawles, C. B., prem.....	6 00
246	Doustan, W. N., prem.....	20 00
247	Button, C. L., prem.....	27 75
248	Hallowell, C., prem.....	3 00
249	Hoyt, F. C., prem.....	12 00
250	Cocorant, T., pump water.....	15 00
251	Ross, R. W., prem.....	25 00
252	Pettibone, C. A., dinner tickets.....	2 33
253	Matthews, J., labor.....	4 00
254	White, B., prem.....	15 00
255	Nickel, F., prem.....	5 00
256	Bullis & Rollins, livery.....	7 00
257	Paine, A., livery.....	41 00
258	Bechner, J., labor.....	13 00
259	Huges & Otis, hardware.....	23 22
260	Fox, F. N., prem.....	11 00
261	Post W. H., rent of furniture.....	11 50
262	Johnson, J., whitewash.....	5 00
263	Barber, W. H., police.....	2 00
264	Wilde, Mrs. W., prem.....	10 00
265	Flower, C. W., envelopes.....	65
266	DeGroat & Co., machinery department.....	3 85
267	Caley, D. E., brooms.....	1 65
268	Stenberg, prem.....	15 00
269	Sreleven, Libbie, prem.....	4 00
270	Stannard, H., goods.....	7 20
271	Payne, A., livery.....	3 00
272	Babcock, Mrs. D., prem.....	6 00
273	Baker, J. E., machinery power.....	105 00
274	Baker, J. E., machinery power.....	20 00
275	Ray, Mrs. H. J., prem.....	2 00
276	Roberts, Mrs. D., prem.....	1 00
277	Brooks, Mrs. J. A., prem.....	4 00
278	Giddings, Mrs. D. C., prem.....	13 00
279	Giddings, D. E., prem.....	10 00
280	Gilbert, J. E., prem.....	4 00
281	Stanard, H., prem.....	30 75
282	Stannard, H., assistant secretary.....	52 50
283	Guild, S. S., prem.....	2 50
284	Guild, S. S., police.....	4 00
285	Campbell, H. J., prem.....	3 00
286	Farnsworth, J. H., prem.....	7 00
287	La Belle, Wagon Works, prem.....	16 00
288	Maran, clerk.....	24 00
289	Kaufman, C., hay.....	233 75
290	Hitt, H. D., superintendent manufacturing hall.....	40 00
291	Hitt, C. T., assistant superintendent manufacturing hall ..	7 50
292	Coleman, E., prem.....	5 00
293	Peck, J. C., prem.....	7 14
294	Wilkes & Dann, prem.....	4 00
295	Calking, C., carting.....	5 50
296	Parsons, J. R., prem.....	7 14
297	Westcott, M., prem.....	7 14
298	Hitzie, E., prem.....	53 00
299	Hoven & Galloway, lumber.....	15 93
300	Kent, Mrs. E., prem.....	3 00
301	Pierce, A. J., sundries.....	25 00
302	Fox, A. C., prem.....	189 00
303	Farmer, Wm., prem.....	7 00
304	Stokes, G. H., prem.....	1 50
305	Angel, C. G., prem.....	38 00

No.	To whom and for what issued,	Amount.
306	Hemming, Mrs. J., prem	\$90 00
307	Clum, A. J., prem	7 00
308	Flower, C. U., prem	12 00
309	Hiestand, U. D., prem	22 00
310	Hiestand, U. D., clerk	2 00
311	Houtman, C., dinner tickets	1 00
312	Michigan Stove Co., prem	5 00
313	Roberts, H. G., prem	4 00
314	Church, Wm., printing	9 00
315	O'Malley, J., prem	96 00
316	Harrington, C. F., prem	15 00
317	Speecher, J., prem	65 00
318	Pierce, A. J., assistant superintendent machinery	53 75
319	Harrison, F. W., printing	6 00
320	Gilbert, J. O., prem	15 00
321	Wood, J. W., superintendent fine arts	62 00
322	Campbell, J. S., prem	7 14
323	Stuart, J. A., prem	7 14
324	Palmer, E. W., prem	11 00
325	Owen, J. E., prem	51 00
326	Tourtellote, M., prem	40 00
327	Roberts, Jennie, prem	5 00
328	Roberts, E. G., prem	43 50
329	Gregory, J. C., attorney	75 00
330	Vilas & Bryant, attorneys	100 00
331	Baker, G. W., labor	10 00
332	Baker, G. W., police	8 00
333	Dodd, H. B., express	13 00
334	Purdy, J., post bills	1 00
335	Angel, C. E., prem	3 00
336	Price & Williams, prem	7 00
337	Buel, D. A., prem	7 00
338	Llyod, E. C., prem	2 00
339	Flood, P., prem	4 00
340	Brabazan, J. D., prem	93 00
341	Parsons, H. D., prem	12 00
342	C. & N. W. R. R., freight	43 88
343	Thomas, W. N., prem	6 00
344	Whipple, W. W., prem	7 00
345	Whipple, W. W., prem	8 33
346	Deland, A. D., prem	3 89
347	Deland, A. D., prem	3 25
348	Calkins & Watrous, printing	50 00
349	Phipps, W. A., prem	27 00
350	Kenniment, R., prem	5 00
351	McCormick, prem	10 00
352	Galbraith Bros., prem	195 00
353	Storm, W., goods	2 05
354	Storm, W., carpenter	17 00
355	Storm, W., carpenter	5 00
356	O'Neal, C. J., labor	16 00
357	Stewart, J. B., prem	73 50
358	Stewart, J. B., prem	1 50
359	Viol, A., police	12 00
360	Clark, J., prem	2 00
361	Bosford, W. B., posters	400 00
362	Welch, Wm., labor	10 00
363	Welch, Wm., labor	6 00
364	Kinder, T. G., prem	4 00
365	Bryant, Geo. E., prem	20 00
366	Booth, W. A., express	1 00
367	Loan and interest	2,036 63

## WARRANTS ISSUED.

13

No.	To whom and for what issued.	Amount.
368	Morse, J. W., prem.	\$106 00
369	Morse & Son, prem.	60 00
370	Fields, E. B., clerk.	12 00
371	Lock, —, prem.	7 14
372	Dening, E. B., clerk.	40 00
373	Hopson, W. W., prem.	9 00
374	Pratt, W. A., prem.	95 00
375	Kellogg, Geo. G., prem.	25 00
376	James, E. D., prem.	7 14
377	Rausler, J. C., prem.	10 00
378	Pilgrim, D. T., prem.	74 00
379	Poor, M. J., goods.	1 80
380	Swanson, T., clerk.	16 00
381	McClifford, Wm., prem.	21 00
382	Kellogg, Gertrude, prem.	3 00
383	Kellogg, Edith, prem.	5 00
384	Heimstreet, E. B., prem.	10 00
385	Rhodes, T. W., prem.	7 00
386	Tripp, J. J., prem.	4 00
387	Durand, H. G., prem.	275 00
388	Bamford, H. J., prem.	7 14
389	King, J., police.	5 00
390	Schneider, F., police.	8 00
391	Little, Thomas, prem.	60 00
392	Smith, Emily T., prem.	12 50
393	Stewart, J. H., prem.	2 00
394	Frich, J., prem.	7 14
395	Atwood, David, printing.	27 50
396	Kan, G. G., prem.	5 00
397	Newton, J., prem.	85 00
398	Little, Thomas, prem.	20 00
399	Parkhurst, V. T., clerk.	16 00
400	Ormiston & Jardine, prem.	190 00
401	Russell, G. C., police.	4 50
402	Wagstaff, S. W., gate attendant.	17 50
403	Alcott, J. B., gate attendant.	7 00
404	Hawkins, J. H., police.	10 00
405	Zentu, F., gate attendant.	17 50
406	Atwood, Chas., treasury clerk.	21 00
407	Heimstreet, E. B., treasury clerk.	21 00
408	Main, A. H., assistant treasurer.	32 00
409	Main, A. H., sundries.	3 20
410	Main, A. E., treasury clerk.	17 50
411	Stillson, Eli, superintendent gates.	20 60
412	O'Brien, J. E., gate attendant.	17 50
413	Smith, H. A., treasury clerk.	21 00
414	Brownell, I. C., treasury clerk.	21 00
415	Miner, Cyrus, treasurer.	24 00
416	Miner, Cyrus, expenses and sundries.	80 96
417	Fontain Barbary, prem.	4 00
418	Campbell, A. J., prem.	127 50
419	Potts & Son, prem.	439 00
420	Jeffrie, G., prem.	61 00
421	Slaughter, B. C., prem.	35 00
422	Slaughter, B. C., clerk.	17 00
423	Cook, C., prem.	69 00
424	Anthony, C., prem.	7 00
425	Dorn, M. M., livery.	1 50
426	Cook, Geo. B., engraving.	9 45
427	Pepper, Nellie, prem.	23 00
428	Dodd, B., express.	90
429	Ingalls, P. G., prem.	7 14



No.	<i>To whom and for what issued.</i>	<i>Amount.</i>
430	French, H. J., prem.....	\$15 00
431	Currie, J., prem.....	15 00
432	Lafferty, J., prem.....	1 00.
433	Palmer, N. N., prem.....	45 00
434	Sylvester, J., prem.....	2 00
435	Buchanan, D., prem.....	35 00
436	Dore, J. C., board meeting.....	12 70
437	Arnold, A. A., board meeting.....	16 76
438	Arnold, A. A., committee meeting.....	18 75
439	Parkurst, S., clerk.....	16 00
440	Parkurst, S., clerk.....	7 00
441	Parkurst, S., clerk.....	5 00
442	Thomas, E. E., labor on track.....	10 00
443	Shattuck, H., hotel bill.....	19 50
444	Bryant, Etta, clerk.....	20 00
445	Bryant, F. H., clerk.....	12 00
446	Babbitt, C., superintendent horse.....	5 00
447	Ogilvie, R. J., goods.....	12 71
448	Ogilvie, R. B., goods.....	100 00
449	Gordon, C. Z., prem.....	5 00
450	Hawse, G. W., prem.....	50 00
451	Eldridge, C. A., prem.....	100 00
452	Morse, J., prem.....	100 00
	Paid orders 1881.....	129 99
Orders 216, 227, 430, 434, 435, 436, 437, 438, 439, 441, 444, 446, 449 not presented at date of this report.....		<u>\$159 21</u>

On motion, the chair appointed T. E. Bird, Cassius B. Nelson and Ed. Lazier a committee to examine said report and compare the same with the books of the secretary and the vouchers therefor.

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

MADISON, December 6, 1882.

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 orders drawn and find them correct.

T. E. BIRD,  
CASSIUS B. NELSON,  
ED. LAZIER.

On motion of E. B. Dean, Jr., the report was adopted.

On motion of M. M. Dorn, adjourned.

GEORGE E. BRYANT,  
*Secretary.*

# EXHIBITION OF 1882.

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## OPENING ADDRESS.

By Hon. N. D. FRATT, President.

*Fellow Members of the Wisconsin State Agricultural Society, Ladies and Gentlemen:* It is my pleasant duty, as president of the Wisconsin State Agricultural Society, to extend to you all an earnest and cordial welcome to this the twenty-ninth annual exhibition of this society.

Insensible should I be, and far from realizing the importance of this great aggregation of thoughtful, active, and enterprising men, and the momentous and varied interests which have brought them together, did I not in some degree rise to the occasion, and feel a peculiar pleasure and pride in being one with them, and in being permitted to lay before them, in an humble way, a few thoughts concerning their welfare and success as agriculturalists.

We come from all parts of this great state. We represent all its varied industries. While the nations of Europe are in imminent peril of war, with its destructions and desolations, we are here to further all the arts which conduce to peace and prosperity. We come rejoicing in the present, and hopeful for the future.

Notwithstanding the capricious character of the season, with its spring delayed, cold summer and frequent storms, the crops are generally good, and all our interests are fairly prosperous.

We come with thankful hearts, and with minds wide awake to profit by all we see which concerns our respective pursuits. This is with us a time of enjoyment and also of profit. The men around me are not the men who can see this vast display of everything which it is their business to produce, and then go to their homes without carrying with

them new ideas and knowledge of facts which will amply repay them for all the time and money spent. We will not enter into detail, but will state the truth, that here the dairyman, the grain-grower, the stock-raiser, can see the best results. Each in his line, can learn new processes, observe the working of the best implements, and compare the best that he can accomplish with the best that can be done anywhere on the face of the earth. Then as the wise man Solomon says, "as iron sharpeneth iron, so the countenance of a man sharpeneth the face of his friend." Then may we not rely upon the sharpening process being carried on to a considerable extent on this occasion. •

I have in time past had something to say about the dignity of the farmer's vocation, as compared with that of other classes. And in times when the tendency is to glorify all that pertains to wealth, to the "Almighty Dollar," it may be well to again recur to this subject. Ralph Waldo Emerson, in a letter to Carlyle, gives utterance to what I believe to be an almost universal sentiment, rooted deeply in the heart of humanity. First, speaking of life in the cities, he says: "I always seem to suffer from loss of faith on entering cities. They are great conspiracies. The parties are all masquers who have taken mutual oaths of silence not to betray each other's secrets, and each to keep the other's madness in countenance. You can scarce drive any craft here that does not seem a subornation of the treason." Then he continues, "I believe in the spade and an acre of good ground. Whoso cuts a straight path to his own bread, by the help of God, in the sun and rain, and in the sprouting of the grain, seems to me an universal workman. He solves the problem of life not for one, but for all men of sound body." We retain this, our inherited tendency to become tillers of the soil, ever since we inherited it from Father Adam. Others may go farther back for ancestors than we do, and may boast other hereditary traits, but this seems far enough for us. And the tendency is not an ignoble one. As a result of it, our endeavors are constantly to make the earth again a garden.

“ A happy rural seat of various view,  
 Groves whose rich trees swept odorous gums and balm.  
 Others whose fruit, burnished with golden rind,  
 Hung aimable.       \*       \*       \*       \*  
 Betwixt them lawns and level downs and flocks,  
 Grazing the tender herb were interposed.”       \*

Our efforts are to restore and enjoy the delights of that primeval condition before the sad mistake of our great agricultural progenitor was made, which compelled our association with, and made us the prey of sharpers, vagabonds, and deceivers of all sorts in the other professions, who take advantage of us in our honesty and simplicity.

We hear a great deal said about esthetics now-a-days, and we hear much about Oscar Wilde and his mission to this country to teach our citizens esthetics. We do not hear of his being called upon to visit the rural districts. His labors have been confined exclusively to the cities, where is most need of his instructions. His mission has been to teach these denizens of the cities, shut in from all the ennobling influences of the country, the use of the beautiful, especially the beautiful in art, and how needful this is, we find by the slightest observation.

The merchant leaves his close pent house in the morning, and makes his hurried way by the shortest course to his closer, dingier office. There in perplexing cares he spends the day. Day after day he follows the same dull round, and so his life passes. The lawyer, the judge, the prisoner, the teacher, the scholar, the doctor, the preacher, and most classes of artisans are alike secluded from the reviving influences of Nature. Let us rejoice in anything which will alleviate their unhappy condition. Although we, as farmers, are more favorably situated than others, we must show that we know a good thing when it presents itself, and possibly esthetics may a little concern us also. We may be so accustomed to the good things attendant upon our calling that we may cease to value them as we should. Esthetics is the science of the beautiful. We must not confound esthetics with metaphysics. Metaphysics is defined by a Scotchman after this manner: “When ye see twa men talking, and ane

does na ken what the ither means, and the ither does na rightly ken himsel, that's metaphysics, Sandy."

Now this is not exactly the case with esthetics, although many conceptions of its application may be quite as absurd. Whatever tends to develop a taste for the beautiful, or cause delight in it, pertains to esthetics. Then we may well consider a little the esthetics of farming. The farmer's life is one long association with the beautiful in nature, from the cradle to the grave. The scenes surrounding him have ever been the inspiration of the poet's song. Homer and Virgil, Chaucer and Milton, and all the greater and lesser poets through all the ages have delighted to picture the felicities of rural life. The farmer's boy rises with the lark and is happy as he, and he sings or whistles his glee. The bright gleaming lights upon the trees, the quick motion of the ever busy birds, the glistening dew on the grass, the tender greys of the morning mists in the distance, and the freshness and pureness of the air makes mere living just a delight to him. In the same beautiful living nature around him the farmer goes forth to his labor, and he looks over his broad acres so full of hope for him. In the spring he looks over the freshly plowed, sweet, brown earth so soon to be covered with the tender sprouting corn, and sees, in anticipation, the waving wealth of fodder soon to be, and the golden store of grain to follow, and sees before him actually present spreading fields of oats, wheat and waving grassy meadows all his own, all beautiful in the morning light, and his heart swells with joy and thankfulness — or it ought to, to think he is allowed thus to work with the Almighty in making the world so beautiful, at the same time that he is providing for his own and other's sustenance. Here is the science of esthetics made practical on a large scale. The farmer is favored thus to think and thus to work, and the enjoyment is enhanced by the remembrance of the necessary labor past. This glimpse of the amenities of the farmer's life is but a glimpse of that which is continually offered to him through all the varying life of the ever varying year.

I once knew an old physician, whose residence was in the city but whose practice was in the country, and who had a keen delight in the beautiful in nature, who said that he

could conceive no greater happiness than to be a farmer, and look down from an eminence on the broad backs of his fine cattle ranging in the meadows below him. In leaving this theme we must in fairness admit that the farmer's life has also its disadvantages. But who will tell me of a calling that has less.

It is a matter of great satisfaction to us that esthetics are more and more considered in the farmer's household. The wife and daughters are gradually becoming emancipated from the slavish life of the olden time; are better educated, and have more of the real accomplishments and refinements which go to make an enjoyable home. The piano and organ have superceded the spinning wheel, and the imitation of the buzzing wheel is now more often produced by the deftly moving fingers on the key board, much to the father's delight after the day's labor, than by the monotonous drone of the wearisome instrument itself. And we would no more exchange instruments now than we would exchange the clicking mower for the slow moving scythe. The sewing machine and numerous other devices for lightening the labor of the household, which cannot be here specified, but which are none the less efficient, have made possible the adornment of the home, both indoors and out. All improvements in the practice of agriculture, by which labor is lightened and larger results obtained, comes from increase of knowledge. The avocations are so various and so intimately connected with natural processes, which are the subject matter of most of the sciences, that he, of all others, should be a many-sided and generally educated man. He must to some extent realize the ideal of Lord Bacon, and "make all departments of knowledge his province."

Here is scope for high ambition and the greatest ability. Others may have a special field of labor. The theologian, the chemist, the physiologist, and all the various classes of scientists, seem to find it to be their interest to pursue their individual studies, greatly to the exclusion of others. They become very acute and observant, each in one direction. Certain faculties are developed, but others "lie bed-ridden in the dormitory of the soul." They become one-sided creatures. Some of their noblest powers are so neglected that

## WISCONSIN STATE AGRICULTURAL SOCIETY.

gotten, and are as though they were not. Yet various classes of workers and thinkers, and many surveyors for the wide-awake, educated farmer; "g fish to his net." Especially is this the case with those who follow the so-called natural sciences; each brings constantly his quota of knowledge and lays it before the progressive agriculturist. The microscopist looks through his glass at the infinitely small; he is interested, instructed and delighted, but what we consider the practical value of his researches rests with the practical agriculturist. The farmer, with all his faculties alert, should range over the whole field of knowledge, and should appropriate "here a little, and there a little," the results of the whole army of scientific explorers. "When an emperor builds he employs an army of carters." Noble indeed are the votaries of science, and not less noble because their science is the capital of the agriculturist. One of the chief blessings of our vocation is that it *does* so *require* a general and harmonious development of all our powers. We are far short of our duty in this culture, but we are waking to the truth that our greatest success is to be found in this direction. *We must know more.*

Knowledge is science, and in these days science means success. Success is practical science; in other words, science put in practice. The time has gone by when it would do to follow the practice of our fathers. Our fathers' practice was often mal-practice, and the result of ignorance. The world moves, and if we do not move with it, the fault does not lie with the world, nor with its Maker, but in our own dear selves. Now in order that we may be abreast of our times, and be progressive, we must know what is going on in the world. We must be reading men. "Reading makes the full man." There is a world of trash written now-a-days, and trashy people will read it. But we must discriminate. We must read that chiefly which bears upon our business. Our reading should be in some degree general, but we must bring to its selection the best judgment we have and supplement it by the judgment of those on whom we can depend. Our object being to get that information which will most help us in our business, it is obvious that as our business is

to provide for and wait upon natural processes in the growth and development of life in the animal and plant, our first reliance is the sciences which treat of these processes, namely: physiology, both animal and vegetable; nutrition, with the elemental constituents of food and stimulants necessary for all the forms of life in which we have to deal. This, of course, includes everything relating to manures, both general and specific. The nature of soils and adaptability of climate and soils to products. He should also understand entomology sufficiently to distinguish friends from foes.

We are constantly, through ignorance, destroying our best friends among the birds and insects, as the old gentleman with the potato beetles, who said he had "killed all the large bugs and most of the small ones." The small ones being the insect called the lady bug—a true bug—who spends all his time in consuming the eggs of the Colorado beetle. Indeed, no science comes amiss to the farmer; but alas! alas! for the needed time to acquire it, and now it is an impossibility for the average farmer, situated as he is, to get that knowledge which seems a real necessity to him.

In such case he must simply get along without it, as he is obliged to get along without that money capital, which he knows he could use so well, and which is denied him.

But the facilities for getting agricultural knowledge are now so great, compared with those of the past, that there can be no excuse for the ignorance of the past enshrouding the present. Let us look at a few of these facilities: First, the agricultural journal; every farmer should have his journal. By this he has brought to him regularly and frequently information of all new discoveries and improvements in tools, seeds, stock, the dairy, and in all things pertaining to his business. The orchard, the garden, and the household, are always remembered, and poor indeed is that journal, which is not frequently enriched with selections from papers emanating from the first minds in the profession on subjects of greatest importance, scientifically and of course practically treated.

I once knew two farmers living side by side, on land of precisely the same character. Neither of them had advan-



tage of early education. They were men of about the same mental calibre, but one was willing to learn, and the other did not need to learn. One took an agricultural paper of wide circulation and great practical value; the other did not. One drew from the city great quantities of manure, which could be had not unfrequently for the hauling; the other said that when his land became so poor as to need manure he would sell it—and he did sell it. One had, in a very favorable year, a field with thirty-six bushels of wheat to the acre; the other, the same year, in a field of the same soil, divided from the other only by a board fence, had eleven bushels to the acre. One generally had good crops and prospered; the other was always behind, and generally a failure. The one assured me that his agricultural paper showed him how little he knew, and was a constant help to him; the other would shift his quid from one cheek to the other, roll his eyes to the clouds, look ponderously solemn, and vent wisdom which always transcended the occasion.

I will next notice agricultural schools and colleges. These are of recent establishment in this country, and are designed to afford to the youthful and prospective agriculturist a thorough course of the theory and practice of his profession in all its various branches. Truth compels us to state that these institutions, in some instances, have not fulfilled the anticipations of their well-wishers. Let us hope that these shortcomings are incident to the novelty of the enterprise and to lack of experience in the management; gladly acknowledging that this is not universally the case, and that in many ways they promise well for the profession. These institutions are certainly valuable because of the papers furnished by the professors to the world, treating in an able manner all the topics of the times which are of greatest interest and importance, and for the valuable experiments which are constantly and carefully conducted upon all the varied practice of farming.

Next, I would notice the value of the knowledge gained by the individual farmer through the years from his own practical experience. "Experience teaches," says the proverb, and although it has been said, "that some are ignorant in spite of experience," yet proverbs are proverbs be-

cause they have so much of truth that the multitude can always see it. So we know that "experience teaches."

Some fools, however, are so dense that they can not learn even by experience; and there are others, who apply their experience not to the present, or to forestall the future, when alone it would be useful, but only to the past. Experience is with such as the "stern lights of a ship, which irradiate only the track which has been passed over." But we must gather and apply the knowledge gained by our individual experience in the past, to practice of the present and the future. Sometimes the experience has been sad, for a cherished idea has proved a costly failure; sometimes the reverse, for the profit has been direct. But in either case there is profit if wisely applied, for the strongest plume in wisdom's opinion, "is the memory of the past folly."

I suppose there is no one of us who has not felt the need of some record of these experiences, other than his memory. Literary men are accustomed to use a sort of commonplace book or book of reference, which they find of great value to them. I ask your pardon for calling your attention to a device of this kind, but do it because it seems calculated to be of special service to the farmer. It is a blank book to be used for reference and record. The book is called "Index rerum," or "Index of things." It is ruled with a wide margin on the left side of each page. This margin is to contain the name of any subject or thing you wish to make a note of, and the name thus written is your guide to your note. On the upper left hand corners of the pages you will place the letters of the alphabet—as capitals—and in the centre of the upper part of the pages the first five vowels, a, e, i, o, u. Each letter of the alphabet has two pages to each of the vowels, and of course, each letter has ten pages. When you wish to make a note concerning anything you will need afterwards, place the principal word or name of the subject in the margin under the first letter in this word and the first vowel in it. Thus you wish to note something concerning wheat; you turn to W and the vowel e, because W is the first letter, and e is the first vowel; you then write your word "wheat" in the margin, and your note or reference directly opposite. This is the whole of it. If you have read

anything you would like to be able to refer to whenever you wished, you write your subject in the margin under its proper capital letter and vowel, and your reference to the book or paper in which it may be found. Such an index, kept through many years, would be of inestimable value to the possessor, and would increase in value and usefulness as the years went by.

Having considered thus briefly agricultural science as the basis of successful practice, and some of the means of attaining it, let us now look at science as exemplified in the farming of to-day, and first, chemistry. Before the time of Sir Humphrey Davy all agricultural practice was, to a very great extent, empirical, being without scientific basis. Now, organic chemistry has shown how plants and animals are constituted, how it underlies their physiological conditions, the constituent elements of animal and plant food, the needed elements of soil, and how they should be supplied when they are lacking. Analytical and organic chemical science are now applied to agriculture in a thousand different ways, and gives the educated farmer an almost perfect control of results in the growth of his crops and stock, while the ignorant farmer is left subject to all the chances and changes of the moon and the weather, as much as ever were his forefathers.

I will merely allude to the present benefits derived by the farmer from the science of Meteorology. Our knowledge of the coming weather anticipated twenty-four hours, is at least as serviceable to us as to any. This science is but in its infancy, but in its results is already the admiration of the world. Microscopy is also but in its beginning, but its service to agriculture has already passed beyond calculation.

Every plant has its peculiar microscopic enemy; and many of the most useful plants are most subject to the attacks, not of one but of many varieties of these minute hosts. Some of these are animal, others are vegetable organisms. The culture of the vine has almost been destroyed in the best vine districts of France by a species of root louse, the *Phylloxera Vastatrix*. This insect has also appeared in California. It is a species of coccus, and nearly every one of our valuable plants has its peculiar coccus. The silk

growing interest of France was nearly destroyed a few years since by a parasite upon the larva of the silk worm moth. The losses amounted to millions upon millions of dollars and great suffering among those employed, before M. Pasteur, by his microscopic researches, found the true cause and suggested the remedy. The microscopists have lately demonstrated that the old farmer-notion that the barberry is connected with the rust on wheat and oats, is an important truth. The fungus which destroys the foliage of the barberry one year, throws its spores, which germinate as *rust* on the cereals the year next succeeding. The rust of the wheat and oats produces the germs which will take hold of the barberry of next year, and this alternate generation is a necessity to the life of the rust plant. The mildew or oideum on the grape-vine is also made known to us by the labor of the microscopist. So wonderfully varied are the myriads of our minute enemies, so widespread and destructive to agriculture all over the land, that we can hardly even glance at the subject in its magnitude; yet we see enough to show us that the science of microscopy is an absolute necessity to the welfare of the agriculturist.

The science of the entomologist is also a necessity to the successful farmer. The labors of the "government bug-hunters," as they are sometimes ignorantly called, are more apparently and directly beneficial than those of the microscopist, because the evils they deal with are so constantly met with, and are so open to the observation of all. These evils infest all that we grow, threaten every stage of growth, and destroy that which we think we have perfectly secured. Our orchards, our field products, and our live stock are constantly the prey of destructive and ever busy myriads of insects. The entomologists, with an admirable devotion to science, are always studying and putting on record for us the nature and habits of these pests, and giving us the most practical suggestions to enable us to circumvent and destroy them.

To give us a present realization in a slight degree of our obligation to this science, let us think for a moment of the succession of the insect enemies of the apple. The leaf-roller, in the earliest unfolding of the leaf; the aphides next,

and continuing through the season, producing from the union of one pair, by what is called *partheno genesis*, eleven successive generations of productive females; the canker worm, the tent caterpillar, all these and more for the foliage than the *coccus* or bark louse for the branches and twigs; the borer for the trunks, and the codling moth for the growing and perfected fruit; and you have a bare enumeration of some of the ills the poor apple tree is heir to. Then think that all these must be met and conquered, and you will realize more perfectly the value of that science, which tells us just how to do it.

This science is now more generally applied to the benefit of the farm than ever before, and we now begin to estimate justly the services of Packard and Harris, Le Cont, Glover, Le Baron, Riley and the late and lamented Walsh. The national and state governments have, of late, so appreciated the relation of entomology to agriculture that we have now an exponent of the science attached to the national department of agriculture, at Washington, and several serving individual states. The science of breeding for the improvement of animals and seeds must not be overlooked. Wonderful is the perfection and beauty of our live stock as seen on these grounds, and to be seen by thousands all over the state. How great the care, how determined the persistence, how clear the judgment, even approaching genius which have been called into action to produce the results which we see and admire. It must needs be that mistakes are made, although the general tendency has been to improve upon the importations of fine stock received. It would seem that the chief error has been in following too much certain peculiarities which seem characteristic of the noted strains, but which are neither essential, nor even important—following a fashion—rather than keeping in view *always real* improvement—improvement in constitution, in form, in period of maturity, in power, action, or profitable development of flesh for the butcher, or milk for the dairy.

Notwithstanding all these applications of science to agricultural operations, in nothing is it shown to better advantage than in its devices of labor-saving implement.

Heavy labor, unremitting toil, takes away the spirit and

energy which are the birth-right of every man. It destroys, in a degree, the sensibilities, and reduces the free, aspiring soul to the level of the beast of burden. Shakespeare perceived this when he made Hamlet say, "'Tis e'en so, Horatio, the hand of little employment hath the daintier sense." We will not pass in review the host of valuable machines which science has given us to lighten labor during the past twenty years. Every one can do it for himself here on these grounds. Although there is no place in this world for an idle farmer, and we may work the same number of hours that our fathers worked, yet how much of the heavy, wearing toil is lifted from us during the hours in which we work? These implements and machines, the results of American ingenuity, have been introduced to all parts of the world. They not only alleviate labor there as here, but they have given food to hungry millions. Our "machines for sowing and drilling, and harvesting, and threshing grain, have given fine wheaten bread to the people who before could get little besides bread made of inferior flour of rye, oats and barley, or that made in part from potatoes or chestnuts." To them is also sent, and for us a market is made for a vast amount of machine-dried fruits and vegetables. These articles are so superior to those before common, that they are a great blessing both to them and to us. As an instance of the great variety of labor now performed by one man with a machine lately improved, mention may be made of an attachment lately devised for all self-binding reapers.

It is said to be a contrivance for receiving a certain number of sheaves as soon as bound, carrying them along in the swath to the proper distance, then moving them to the stubble side of the swath, and finally dropping them in the form of a perfect shock.

When reapers were first introduced, a driver, a raker, and sometimes five binders were needed, and one man to put into shock — eight men in all to the one machine. Now, with the binding and shocking attachments, the driver alone can do the work.

In concluding this very slight review of the application of science to agriculture, what could be more appropriate than a reference to that grand display of engineering

and mechanical science which is shown in our extensive system of railways. Science has aided every process of agricultural labor, has contributed to the development of all our products, and finally has cheaply and rapidly taken all to their appropriate markets, distributing them over the habitable globe.

I cannot forbear to quote for you in this connection a passage from an eloquent tribute to the work performed by our railroads, uttered by the late Hon. Byron Paine: "They are the great highways of the world, along which the gigantic currents of trade and travel pour; highways, compared with which the most magnificent highways of antiquity dwindle into insignificance. They have done more to stimulate the industry, reward the labor, and promote the general prosperity, than any other and perhaps than *all* other causes combined. \* \* \* They bring to our doors the productions of the earth, they enable us to anticipate and protract the season, they enable the inhabitants of each clime to enjoy the pleasures and luxuries of all, they scatter the productions of the press and literature broadcast through the country with amazing rapidity. \* \* \* They promote the pleasures of social life and of friendship. They bring the skilled physician swiftly from a distance to attend the sick and the wounded, and enable the absent friend to be present at the bedside of the dying."

While railroads are thus beneficent servitors of all mankind, our great farming interest is the *giant* which in turn gives wealth and power and life to our railroads, our factories and all other material interests. The importance of the farmer outranks all other productive classes. A late writer and statistician of eminent reputation, has lately estimated the wealth of the United States to be in 1880, \$50,000,000,000; that of France, \$37,200,000,000; and that of the United Kingdom of Great Britain and Ireland at \$44,100,000,000. The wealth of the American people is according to M. Mulhall's estimate made up as follows:

Railways .....	\$5,020,000,000
Farms .....	9,615,000,000
Cattle .....	1,820,000,000
Manufactures .....	5,655,000,000
Houses .....	13,360,000,000
Furniture .....	5,220,000,000
Forests, mines and canals .....	2,793,000,000
Bullion .....	720,000,000
Shipping .....	315,000,000
Public works, etc. ....	5,252,000,000
Grand total .....	<u>\$49,770,000,000</u>

Mr. Mulhall also estimates the value of farm products for the year 1880, at \$1,995,000,000.

The Boston *Advertiser* says the wheat crop of this year will bring in \$600,000,000, and the corn crop \$100,000,000, and all other farm products, exclusive of cattle, which are enumerated separately, \$1,000,000,000. Mr. Mulhall estimates the farm products at a fraction above twenty per cent. of the value of the farms. A similar estimate for the present year would make the farms to be valued not less than \$20,000,000,000. The value of the farms of the United States, apart from the permanent improvement attached to them, is equal to the combined values of the railways and manufactures. Mr. Mulhall further tells us that in 1840 Great Britain possessed five times the wealth owned by the United States, and that while the wealth of the former country has only doubled within the past four decades, that of our own country has increased twelve fold. He points out that since 1870 the value of the railroads of the United States has increased at the rate of nearly \$1,000,000 a day, Sundays excepted. He shows that while the population has only trebled since 1840, the growth of agricultural interests has increased five fold. That in the year 1830 our imports were \$71,000,000; exports, \$74,000,000, and amount of commerce to one inhabitant \$11.00. In 1880 our imports were \$668,000,000; exports, \$836,000,000, amounting to \$30.00 per each inhabitant.

Thus everything pertaining to material advancement has been wonderfully and steadily prosperous, and the same causes—immigration, the development of the railroad system, the operation of the Homestead law, and the consequent opening of immense tracts of the most fertile lands in the world to agriculture, only in increased ratio, gives assurances



of continued and increasing growth and wealth. Our state must certainly share in the general prosperity. For the present prosperity, I need only say, "look around you." The *present* exhibition, in all its departments, is the evidence of *this* prosperity; none but a prosperous people could make an exhibition like the one we see here to-day, and must be its own eulogy. In the live stock department, in the agricultural department, in the horticultural department, in fine art hall, in manufacturers' hall, and last, but perhaps greater than any other, the department of machinery, we have a combined exhibition which has probably never before been equalled in this or any other state.

Thanking you for your kind attention, and again bidding you welcome, I now declare this, the twenty-ninth annual exhibition of the Wisconsin State Agricultural Society, open to all people; it is yours to enjoy.

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#### ADDRESS AT FAIR, 1882.

By GOV. JEREMIAH M. RUSK.

I congratulate you upon the exceptionally happy auspices under which you assemble. Good husbandry, with favoring rains and winds and sunshine, have crowned the yearly labor of the farmer with a bountiful harvest. Prosperity reigns in the farmhouses of Wisconsin, and when prosperity visits the farmhouse, it visits the merchant, the artisan, the carrier by land and by sea—indeed every department of industry and commerce. I think, sometimes, that dazzled by the accumulated wealth of the cities, men are apt to forget the primary source of wealth—the relation which agriculture sustains to the business of the world. In the brilliancy of the object they lose sight of the cause.

Agriculture is the foundation of the business and prosperity of the whole country. When the toil of the farmer is utterly lost; when after planting, and tending and waiting, the harvest time brings no harvest to him, every industry and every interest instantly feels it. How completely a series of crop failures, or even of short crops paralyzes the business of

the country! So a series of good crops stimulates every business, and revives every drooping industry; the railroad lines lengthen, the rolling mills are busy, the iron mine, the saw mill, the lumber camps, are all scenes of activity and every instrument of commerce is in use. The hum of machinery is the natural accompaniment to the songs of the harvest field.

The daily published telegram from the money center of the world is an unconscious daily tribute to agriculture and the farmer, as the prime factor in commerce. They note and chronicle every frost, every rain, every hostile insect as carefully as the physician does the symptoms of his patient. Stocks go up and down with the varying reports as to wheat and corn.

The Wall street gambler who never heard the meadow lark in the field, reads with as eager interest the news from the grain fields, as one fearing for a friend would read the casualties of a battle.

But such tribute is temporary and compulsory. It springs from selfishness mostly, and the crop assured, indifference to agriculture proclaims itself too often in an undue levy upon the crops for carriage, and in other ways which I have not time to mention.

With the growth of the country, its increased prosperity and the multiplied and splendid educational facilities, our colleges, universities, academies and other institutions of learning, are filling up with ambitious farmer boys, vigorous in body and mind, bent upon acquiring knowledge. This is well. They make good students and scholars; but I have feared that too many of them rather disdainfully turn from farm life to the professions as being a step higher. I would like to impress upon such young men that they are mistaken in this. There is in a true sense no "step higher" from the calm, thoughtful, healthful, independent life of the intelligent farmer. I would have such ponder over the relation which the farmer sustains to the world, in the light of these truthful and beautiful words of Emerson:

"The glory of the farmer is, that in the division of labor, it is his part to create; all trade rests at last upon his primitive activity. He stands close to nature; he obtains from

the earth the bread and meats, the food which was not he causes to be. The first farmer was the first man, and all historic *nobility* rests on the possession and use of land. \* \* \* He has great trusts confided in him. In the great household of nature the farmer stands at the door of the bread room and weighs each loaf."

I do not depreciate the professions, or the walks of commerce with their possibilities and ambitions; but I would have no young man underestimate the nobility and scope and possibilities of the farmer's life. It, too, is filled with magnificent possibilities. The wise farmer lays science and all knowledge under tribute.

"Who are the farmer's servants? Geology and chemistry, the quarry of the air, the water of the brook, the lightning of the cloud, the casting of the worm, the plow of the frost."

Remember, ambitious farmer boy, that there is no element in the highest and most perfect education that ill befits the farmer's life.

That the professions have offered an easier and more certain opportunity for political preferment is abundantly shown by the roster of the legislators, state and national, and of public officers. But I fancy the time is close upon us when legislation affecting the interests of agriculture will be considered from the standpoint of agriculture, by legislators who are agriculturists. When the interests of farmers will be looked after in congress and in the legislature to a greater extent by farmers than in the past.

The "Farmer in Politics" cannot have too much culture, and education and learning. The true interest of agriculture can be subserved without prejudice to the true interest of any other business or industry. To be able to strike the golden mean, and with moderation and intelligence to protect the interest of agriculture, with perfect justice at the same time to every other interest, is as well worthy the patient study and thought of the farmer, as of the professional man.

Among the farmer's earliest lessons to his boy should be, the real dignity, independence and responsibility of the farmer's life in itself, and in relation to society and the business of the world.

# PREMIUMS AWARDED.

## DEPARTMENT A — HORSES.

### CLASS 1 — *Roadsters.*

Best stallion 4 years old and over, 10 exhibits, John C. Johnson, Madison .....	\$25 00
Second best, H. P. Strong, Beloit .....	15 00
Best stallion 3 years old and under 4, 3 exhibits, H. P. Strong, Beloit .....	25 00
Second best, F. H. Meekin, Fond du Lac .....	10 00
Best stallion 2 years old and under 3, 2 exhibits, David Johnson, Jefferson .....	15 00
Second best, David Johnson, Jefferson .....	10 00
Best stallion 1 year old and under 2, 1 exhibit, W. J. Quick, Lamartine .....	10 00
Best brood mare, 4 years old and over, with foal by her side, 1 exhibit, R. A. McCormick, Fond du Lac—no award.	
Best filly 3 years old and under 4, 2 exhibits, J. D. Gilbert, Fond du Lac .....	15 00
Second best, H. C. Moore, Fond du Lac .....	10 00
Best filly 2 years old and under 3, 5 exhibits, H. P. Strong, Beloit .....	15 00
Second best, C. D. Dewing, Beloit .....	10 00
Best filly 1 year old and under 2, 3 exhibits, E. R. Powers, Fond du Lac, 2 entries. R. Milkins, Fond du Lac—no award.	
Best sucking filly foal, 1 exhibit, R. A. McCormick, Fond du Lac—no award.	
Best stallion and 5 of his colts at 4 years or under, 1 exhibit, H. P. Strong, Beloit .....	25 00

### CLASS 2 — *Horses for all work.*

Best stallion 4 years old and over, 11 exhibits, John Currie .....	\$15 00
Second best, Wm. Morris, Manchester .....	7 00
Best stallion 4 years old and over, weighing less than 1,400 pounds, 2 exhibits, C. F. Harrington, Madison .....	15 00
Second best, J. Anthony .....	7 00
Best stallion 3 years old and under 4, less than 1,400 pounds, 4 exhibits, R. H. Smith, Waupun .....	12 00
Second best, R. H. Smith, Waupun .....	6 00
Best stallion 2 years old and under 3, 4 exhibits, R. H. Smith, Waupun .....	8 00
Second best, R. O. Roberts, Cambria .....	4 00
Best stallion 1 year old and under 2, 1 exhibit, C. G. Raw, Dotyville .....	5 00
Best sucking stallion foal, 2 entries, Peter Flood, Eaton .....	4 00

Best brood mare 4 years and over with foal by her side, 6 exhibits, H. O. French, Oak Center.....	\$15 00
Second best, C. Taylor, Waupun.....	7 00
Best filly 3 years old and under 4, 6 exhibits, Eugene St. Mary, Byron.....	12 00
Second best, Horace Eells, Waupun.....	6 00
Best filly 2 years old and under 3, 3 exhibits, Eli Perry, Waupun..	8 00
Second best, Eli Perry, Waupun.....	4 00
Best filly 1 year old and under 2, 3 exhibits, R. T. Williams, Ran- dolph.....	5 00
Second best, F. J. Norton, Fond du Lac.....	2 00
Best sucking filly foal, 2 exhibits, C. Taylor, Waupun.....	4 00
Second best, John H. Stewart, Ripon.....	2 00

CLASS 3 — *American highly-bred trotting stock, with pedigree,  
3 exhibits.*

Best stallion of any age, 3 exhibits, H. P. Strong, Beloit, Diploma.
Best span of stallions, driven double and owned by one party, 2 ex- hibits, H. P. Strong, Beloit, Grand Silver Medal.
Best stallion and 5 of his colts, 1 exhibit, H. P. Strong, Beloit, Grand Silver Medal.

CLASS 4 — *Draft horses, pure bred.*

Best stallion, 4 years old and over, 7 exhibits, Galbraith Brothers, Janesville.....	\$25 00
Second best, Eli Perry, Waupun.....	15 00
Best Clydesdale stallion, 3 years old and under 4, 3 exhibits, Galbraith Brothers, Janesville.....	25 00
Second best, Galbraith Brothers, Janesville.....	10 00
Best stallion, 2 years old or under 3, 4 exhibits, Galbraith Brothers, Janesville.....	20 00
Best filly, 3 years old and under 4, 2 exhibits, R. O. Roberts, Cambria.	15 00
Best filly, 2 years old and under 3, 3 exhibits, Galbraith Brothers, Janesville.....	15 00
Best stallion and 5 of his get, 2 exhibits, R. O. Roberts, Cambria..	40 00
Second best, Eli Perry, Waupun.....	20 00

CLASS 5 — *Matched horses and mares.*

Best pair carriage horses or mares not less than 15½ hands, 6 ex- hibits, A. Custard, Waupaca.....	\$20 00
Best pair roadsters, 16 exhibits, M. P. Carpenter, Fond du Lac....	20 00
Second best, Goodnow & Armstrong, Madison.....	10 00
Best pair farm horses, 10 exhibits, Wm. Adams, Fond du Lac.....	20 00
Second best, H. J. French, Oak Center.....	10 00

CLASS 6 — *Gelding or mares for single harness and thor-  
oughbreds.*

Best gentlemen's roadster for single harness, 4 years old and over, 30 exhibits, H. D. McKinney, Janesville.....	\$20 00
Second best, S. A. Martin, Fond du Lac.....	10 00
Best thoroughbred mare, any age, to be shown by bridles, 2 exhib- its, C. Loftus Martin, Janesville.....	15 00

*Sweepstakes.*

Best display of herds of any breeds by individuals or firms, merit rather than numbers considered, 4 exhibits, Galbraith Brothers, Janesville..... \$100 00

## DEPARTMENT B — CATTLE.

CLASS 8 — *Short-horns.*

Best bull, 4 years old and over, 1 exhibit, M. Van Dorsten, Banner.	\$20 00
Best bull, 3 years old and under 4, 2 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	20 00
Second best, Benjamin White, Fond du Lac.	15 00
Best bull, 2 years old and under 3, 2 exhibits, D. Buchanan, Rio.	20 00
Second best, John Sprecher, Madison.	15 00
Best bull, one year old and under 2, 3 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	15 00
Second best, W. A. Phipps, Fond du Lac.	10 00
Best bull calf, over 6 and under 12 months old, 3 exhibits, D. Buchanan, Rio.	10 00
Second best, J. H. Potts and Sons, Jacksonville, Ill.	5 00
Best bull calf, under 6 months old, 2 exhibits, John Sprecher, Madison.	10 00
Second best, W. A. Phipps, Fond du Lac.	5 00
Best cow, 4 years old and over, 4 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	25 00
Second best, John Sprecher.	15 00
Best cow, 3 years old and under 4, 2 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	25 00
Second best, J. H. Potts & Sons, Jacksonville, Ill.	15 00
Best heifer 2 years old and under 3, 3 exhibits, John Sprecher, Madison.	20 00
Second best, J. H. Potts & Sons, Jacksonville, Ill.	10 00
Best heifer 1 year old and under 2, 2 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	15 00
Second best, J. H. Potts & Sons, Jacksonville, Ill.	10 00
Best heifer calf over 6 and under 12 months, 4 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	10 00
Second best, D. Buchanan, Rio.	5 00
Best heifer calf under 6 months old, 2 exhibits, R. McCormic, Fond du Lac.	10 00
Second best, John Sprecher, Madison.	5 00

CLASS 9 — *Jerseys.*

Best bull 3 years old and over, 1 exhibit, H. S. Durand, Racine.	\$20 00
Best bull 2 years old and under 3, 4 exhibits, H. S. Durand, Racine	20 00
Second best, A. Armstrong, London.	10 00
Best bull 1 year old and under 2, 2 exhibits, H. S. Durand, Racine	15 00
Second best, N. N. Palmer, Brodhead.	10 00
Best bull calf over 6 and under 12 months old, 4 exhibits, H. S. Durand, Racine.	10 00
Second best, George E. Bryant, Madison.	5 00
Best bull calf under 6 months old, 3 exhibits, H. S. Durand, Racine.	10 00
Second best, H. S. Durand, Racine.	5 00

Best cow 4 years old and over, 6 exhibits, H. S. Durand, Racine. . . .	\$25 00
Second best, H. S. Durand, Racine. . . . .	15 00
Best cow 3 years old and under 4, 3 exhibits, H. S. Durand, Racine	25 00
Second best, H. S. Durand, Racine . . . . .	15 00
Best heifer 2 years old and under 3, 4 exhibits, H. S. Durand, Ra- cine. . . . .	20 00
Second best, H. S. Durand, Racine. . . . .	10 00
Best heifer 1 year old and under 2, 8 exhibits, H. S. Durand, Racine	15 00
Second best, H. S. Durand, Racine . . . . .	10 00
Best heifer calf over 6 and under 12 months old, 4 exhibits, Geo. E. Bryant, Madison . . . . .	10 00
Second best, N. M. Palmer, Brodhead. . . . .	5 00
Best heifer calf under 6 months old, 10 exhibits, H. S. Durand, Racine . . . . .	10 00

CLASS 10 — *Ayrshires.*

Best bull 3 years old and over, 1 exhibit, Ormston & Jardine, Cuba, N. Y. . . . .	\$10 00
Best bull 2 years old and under 3, 1 exhibit, Ormston & Jardine, Cuba, N. Y. . . . .	20 00
Best bull 1 year old and under 2, 2 exhibits, A. E. Nuton, Oakfield	15 00
Second best, Ormston & Jardine, Cuba, N. Y. . . . .	10 00
Best bull calf under 6 months old, 2 exhibits, Ormston & Jardine, Cuba, N. Y. . . . .	10 00
Second best, Ormston & Jardine, Cuba, N. Y. . . . .	5 00
Best cow 3 years old and over, 6 exhibits, Ormston & Jardine, Cu- ba, N. Y. . . . .	10 00
Second best, Ormston & Jardine, Cuba, N. Y. . . . .	5 00
Best heifer 2 years old and under 3, 2 exhibits, Ormstead & Jardine, Cuba, N. Y. . . . .	15 00
Best heifer 1 year old and under 2, 1 exhibit, Ormstead & Jardine, Cuba, N. Y. . . . .	15 00
Best heifer calf over 6 and under 12 months old, 2 exhibits, Orm- stead & Jardine, Cuba, N. Y. . . . .	10 00
Second best, Ormstead & Jardine, Cuba, N. Y. . . . .	5 00
Best heifer under 6 months old, 2 exhibits, Ormstead & Jardine, Cuba, N. Y. . . . .	10 00
Second best, Ormstead & Jardine, Cuba, N. Y. . . . .	5 00

CLASS 11 — *Devons.*

Best bull 3 years old and over, 1 exhibit, J. W. Morse & Sons. . . .	\$20 00
Best bull 2 years old and under 3, 2 exhibits, J. S. Newton, Verona.	20 00
Second best, J. W. Morse & Sons. . . . .	10 00
Best bull, 1 year old and under 2, 1 exhibit, Morse & Sons. . . . .	15 00
Best bull calf, over 6 and under 12 months old, 1 exhibit, J. W. Morse & Sons . . . . .	10 00
Best bull calf, under 6 months old, 3 exhibits, J. S. Newton, Verona.	10 00
Second best, J. S. Newton, Verona. . . . .	5 00
Best cow, 3 months old and over, 4 exhibits, J. W. Morse & Sons, Verona . . . . .	15 00
Second best, J. S. Newton, Verona. . . . .	10 00
Best heifer, 1 year old and under 2, 4 exhibits, J. W. Morse & Sons, Verona. . . . .	15 00
Second best, J. W. Morse & Sons, Verona. . . . .	10 00
Best heifer calf, over 6 and under 12 months old, 1 exhibit, J. W. Morse & Sons, Verona. . . . .	10 00
Best heifer calf, under 6 months old, 5 exhibits, J. S. Newton. Verona . . . . .	10 00
Second best, J. W. Morse & Sons, Verona. . . . .	5 00

CLASS 12 — *Galloways and Polled Angus.*

Best bull, 3 years old and over, 1 exhibit, Wm. Wonser, Ostburg..	\$20 00
Best bull calf, under 12 months old, 2 exhibits, William Wonser, Ostburg.....	10 00
Second best, Wm. Wonser, Ostburg.....	5 00
Best cow, 3 years old and over, 2 exhibits, Wm. Wonser, Ostburg..	15 00
Second best, Wm. Wonser, Ostburg.....	10 00
Best heifer 2 years old and under 3, Wm. Wonser, Ostburg.....	15 00
Best heifer 1 year old and under 2, 2 exhibits, Wm. Wonser, Ostburg.....	15 00
Second best, Wm. Wonser, Ostburg.....	10 00
Best heifer calf under 12 months old Wm. Wonser, Ostburg.....	10 00

CLASS 14 — *Holsteins.*

Best bull 3 years old and over, 4 exhibits, W. A. Pratt, Elgin, Ill.....	\$20 00
Second best, Gillet & Moore.....	10 00
Best bull 2 years old and under 3, Elwood A. Quick, Lamartine...	20 00
Best bull 1 year old and under 2, 4 exhibits, W. A. Pratt, Elgin, Ill.....	15 00
Second best, Gillet & Moore.....	10 00
Best bull calf under 12 months old, 8 exhibits, Gillet & Moore....	10 00
Second best, H. D. Parsons.....	5 00
Best cow 3 years old and over, 9 exhibits, Gillet & Moore.....	15 00
Second best, W. A. Pratt, Elgin, Ill.....	10 00
Best heifer 2 years old and under 3, 4 exhibits, J. D. Griffith & Son, Fond du Lac.....	15 00
Second best, Gillet & Moore.....	10 00
Best heifer 1 year old and under 2, 7 exhibits, Elwood A. Quick, Lamartine.....	15 00
Second best, Gillet & Moore.....	10 00
Best heifer calf under 12 months old, 7 exhibits, Gillet & Moore..	15 00
Second best, Gillet & Moore.....	10 00
Best bull and 4 cows or heifers over 2 years old, 3 exhibits, W. N. Pratt, Elgin, Ill.....	50 00
Second best, Gillet & Moor.....	30 00

CLASS 16 — *Herds.*

Best bull and 4 cows or heifers over 2 years old, "short horns," J. W. Potts, Jacksonville, Ill.....	\$60 00
Best bull and 4 cows or heifers over 2 years old, "Jerseys," 2 exhibits, H. S. Durand, Racine.....	50 00
Second best, N. N. Palmer, Brodhead.....	30 00
Best bull and 4 cows or heifers over 2 yrs old, "Ayrshires," Ormston & Jardine, Cuba, N. Y.....	50 00
Best bull and 4 cows or heifers over 2 years old, "Devons," 2 exhibits, J. W. Morse & Sons, Verona.....	50 00
Second best, J. S. Newton, Verona.....	30 00

*Sweepstakes.*

Best bull and 4 heifers under 2 years old, 6 exhibits, J. H. Potts & Sons, Jacksonville, Ill.....	\$60 00
Second best, Gillet & Moore.....	40 00



Best bull calf and 4 heifer calves bred and owned by exhibitor, 3 exhibits, J. H. Moore & Sons .....	\$30 00
Second best, H. S. Durand, Racine .....	20 00
Best bull and 3 of his get, 5 exhibits, Ormston & Jardine.....	25 00
Best cow and 3 of her calves, J. H. Potts & Sons, Jacksonville, Ill.	25 00
Best display of cattle of any breed by individual or firm, merit considered, 5 exhibits, J. H. Potts & Sons, Jacksonville, Ill.	100 00
Special premium by Prairie Farmer Publishing Co., Chicago, 1 exhibit, George E. Bryant, Madison, silver set.	
Special premium offered by Keenan & Hancock, stock brokers, Union Stock Yards, Chicago, Illinois.....	25 00

## DEPARTMENT C—SHEEP.

CLASS 17—*American Merinos.*

Best buck, 5 years old and over, 4 exhibits, O. Cook, Whitewater..	\$12 00
Second best, O. Cook, Whitewater.....	7 00
Best buck, 1 year old and under 2, 5 exhibits, O. Cook, Whitewater.	12 00
Second best, O. Cook, Whitewater.....	7 00
Best pen of 3 buck lambs, 1 exhibit A. & P. Humbert, Caldwell's Prairie.....	7 00
Best pen of 3 ewes, 2 years old and over, 4 exhibits, O. Cook, Whitewater.....	12 00
Second best, O. Cook, Whitewater.....	7 00
Best pen of 3 ewes, 1 year old and under 2, 3 exhibits, O. Cook, Whitewater.....	12 00
Second best, A. & P. Humbert, Caldwell's Prairie.....	7 00
Best pen of 3 ewe lambs, 1 exhibit, A. & P. Humbert, Caldwell's Prairie.....	7 00
Best buck and 5 ewe lambs (winners of above excluded), C. & P. Humbert, Caldwell's Prairie.....	15 00

CLASS 18—*Long wool.*

Best buck, 2 years old and over, 2 exhibits, Joseph O'Malley Waunakee.....	\$12 00
Second best, Joseph O'Malley, Waunakee.....	7 00
Best buck 1 year old and under 2, 2 exhibits, J. O'Malley, Waunakee.	12 00
Second best, J. O'Malley, Waunakee .....	7 00
Best pen of 3 buck lambs, 2 exhibits, J. O'Malley, Waunakee .....	7 00
Second best, J. O'Malley, Waunakee .....	3 00
Best pen of 3 ewes, 2 years old and over, 2 exhibits, Joseph O'Malley, Waunakee.....	7 00
Second best, J. O'Malley, Waunakee.....	3 00
Best pen of 3 ewes 1 year old and under 2, 2 exhibits, J. O'Malley.	12 00
Second best, J. O'Malley.....	7 00
Best pen of 3 ewe lambs, 2 exhibits, J. O'Malley.....	7 00
Second best, J. O'Malley.....	3 00

CLASS 19—*Southdowns.*

Best buck 2 years old and over, J. H. Potts & Sons.....	\$12 00
Best buck 1 year old and under 2, J. H. Potts & Sons.....	12 00
Best pen of 3 buck lambs, J. H. Potts & Sons.....	7 00

Best pen of 3 ewes 2 years old and over, J. H. Potts & Sons.....	\$12 00
Second best, J. H. Potts & Sons.....	7 00
Best pen of 3 ewes 1 year old and under 2, 2 exhibits, J. H. Potts & Sons.....	12 00
Second best, J. H. Potts & Sons.....	7 00
Best pen of 3 ewe lambs, J. H. Potts & Sons.....	7 00
Second best, J. H. Potts & Sons.....	3 00
Best buck and 5 ewes (winners of above excluded) no award.....	

CLASS 21 — *Downs, not Southdowns.*

Best buck 2 years old and over, A. O. Fox, Oregon.....	\$12 00
Best buck 1 year old and under 2, A. O. Fox, Oregon.....	12 00
Second best, A. O. Fox, Oregon.....	7 00
Best pen of 3 buck lambs, A. O. Fox, Oregon.....	7 00
Second best, A. O. Fox, Oregon.....	3 00
Best pen of 3 ewes 2 years old and over, A. O. Fox, Oregon.....	12 00
Second best, A. O. Fox, Oregon.....	7 00
Best pen of 3 ewes 1 year old and under 2, A. O. Fox, Oregon....	12 00
Second best, A. O. Fox, Oregon.....	7 00
Best pen of 3 ewe lambs, A. O. Fox, Oregon.....	7 00
Second best, A. O. Fox, Oregon.....	3 00
Best rack of five ewes (winners of above excluded), A. O. Fox, Oregon.....	15 00

*Sweepstakes.*

Best 3 fat wethers 2 years old and over, H. Meekin, Fond du Lac..	\$10 00
Best 3 fat wethers 1 year old and under 2, A. O. Fox, Oregon. ...	10 00
Best display of sheep of any breed by individuals or firms, merit considered, A. O. Fox, Oregon.....	100 00

## DEPARTMENT D — SWINE.

CLASS 21 — *Large breeds — Poland China.*

Best boar 2 years old and over, E. J. Austin, Beloit.....	\$12 00
Second best, J. T. Hart, Rosendale.....	7 00
Best boar 1 year old and under 2, E. J. Austin, Beloit.....	7 00
Best breeding sow 2 years old and over, E. J. Austin, Beloit.....	12 00
Second best, J. T. Hart, Rosendale.....	7 00
Best breeding sow 1 year old and under 2, W. J. Quick, Lamar-tine.....	7 00
Second best, J. T. Hart, Rosendale.....	3 00
Best breeding sow with litter of sucking pigs, not less than 4, W. A. Phipps, Fond du Lac.....	12 00
Second best, J. T. Hart, Rosendale.....	7 00
Best boar pig over 6 months and under 12, H. D. Parsons, Fond du Lac.....	6 00
Second best, E. J. Austin, Beloit.....	3 00
Best sow pig over 6 months and under 12 months old, 6 exhibits, E. J. Austin, Beloit.....	6 00
Second best, J. T. Hart Rosendale.....	3 00
Best boar pig under 6 months old, E. J. Austin, Beloit.....	6 00
Second best, E. J. Austin, Beloit.....	3 00
Best sow pig under 6 months old, E. J. Austin, Beloit.....	6 00
Second best, E. J. Austin, Beloit.....	3 00

CLASS 22 — *Large breeds — Chester White and others.*

Best breeding sow 1 year old and under 2. No awards.	
Best boar pig over 6 months old and under 12, M. B. Green.....	\$6 00
Second best, J. T. Hart, Rosendale.....	3 00
Best sow pig over 6 months old and under 12, M. B. Green, Oshkosh.....	6 00
Second best, J. T. Hart, Rosendale.....	3 00
Best boar pig under 6 months old, J. W. Morse & Sons, Verona...	6 00
Second best, M. B. Green.....	3 00
Best sow pig under 6 months old, M. B. Green.....	6 00
Second best, M. B. Green.....	3 00

CLASS 23 — *Middle breeds — including Berkshires.*

Best boar 2 years old and over, J. E. Owens, Brooklyn.....	\$12 00
Best breeding sow with litter of sucking pigs not less than 4, J. E. Owens, Brooklyn.....	12 00
Second best, F. E. Hoyt, Fond du Lac.....	7 00
Best boar pig over 6 months and under 1 year old, J. E. Owens, Brooklyn.....	6 00
Second best, J. E. Owens, Brooklyn.....	3 00
Best boar pig under 6 months old, J. E. Owens.....	6 00
Second best, J. E. Owens.....	3 00

CLASS 24 — *Small breeds, including Essex, Suffolk and others.*

Best boar 2 years old and over, S. H. & C. E. Joiner, Rochester..	\$12 00
Second best, S. H. & C. E. Joiner, Rochester.....	7 00
Best boar 1 year old and under 2, S. H. & C. E. Joiner, Rochester	7 00
Second best, S. H. & C. E. Joiner, Rochester...	3 00
Best breeding sow 2 years old and over, 5 exhibits, S. H. & C. E. Joiner, Rochester.....	12 00
Second best, S. H. & C. E. Joiner, Rochester.....	7 00
Best breeding sow 1 year old and under 2, S. H. & C. E. Joiner, Rochester.....	7 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00
Best breeding sow with litter of sucking pigs, not less than 4, S. H. & C. E. Joiner, Rochester.....	12 00
Best boar pig over 6 months and under 1 year old, S. H. & C. E. Joiner, Rochester.....	6 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00
Best sow pig over 6 months and under 1 year old, S. H. & C. E. Joiner, Rochester.....	6 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00
Best sow pig under 6 months old, S. H. & C. E. Joiner, Rochester	6 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00
Best boar pig under 6 months old, S. H. & C. E. Joiner, Rochester.....	6 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00
Best sow pig under 6 months old, S. H. & C. E. Joiner, Rochester	6 00
Second best, S. H. & C. E. Joiner, Rochester.....	3 00

*Sweepstakes.*

Best display of swine of any breed by individual or firm, S. H. & C. E. Joiner, Rochester.....	\$100 00
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## DEPARTMENT E — POULTRY.

CLASS 25 — *Asiatics.*

Trio of Light Brahma fowls, J. R. Brabazan, Delavan .....	\$2 50
Second best, Ephram Wilson, Lake Mills .....	1 50
Best trio of Light Brahma chicks, E. G. Roberts, Fort Atkinson ..	2 00
Second best, J. R. Brabazan .....	1 00
Best trio Dark Brahma fowls, E. G. Roberts .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Dark Brahma chicks, E. G. Roberts .....	2 00
Second best, J. R. Brabazan .....	1 00
Best trio Buff Cochin fowls, E. G. Roberts .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Buff Cochin chicks, J. R. Brabazan .....	2 00
Second best, Ephram Wilson .....	1 00
Best trio Partridge Cochin fowls, J. R. Brabazan .....	2 50
Second best, Ephram Wilson .....	1 50
Best trio Partridge Cochin chicks, J. R. Brabazan .....	2 00
Best trio White Cochin fowls, Ephram Wilson .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio White Cochin chicks, J. R. Brabazan .....	2 00
Best trio American Dominique fowls, J. R. Brabazan .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio American Dominique chicks, J. R. Brabazan .....	2 00
Best trio Plymouth Rock fowls, J. R. Brabazan .....	2 50
Second best, E. G. Roberts .....	1 50
Best trio Plymouth Rock chicks, E. G. Roberts .....	2 00
Second best, J. R. Brabazan .....	1 00
Best trio Dorking fowls, E. G. Roberts .....	2 50
Best trio Black Spanish (white faces) fowls, Ephram Wilson .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Black Spanish chicks, E. G. Roberts .....	2 00
Second best, J. R. Brabazan .....	1 00
Best trio White Leghorn fowls, J. R. Brabazan .....	2 50
Best trio White Leghorn chicks, F. Nickel .....	2 00
Second best, J. R. Brabazan .....	1 00
Best trio Brown Leghorn fowls, J. R. Brabazan .....	2 50
Second best, E. G. Roberts .....	1 50
Best trio Brown Leghorn chicks, E. G. Roberts .....	2 00
Second best, E. G. Roberts .....	1 00
Best trio Black Hamburg fowls, J. R. Brabazan .....	2 50
Best trio Silver Spangled Hamburg fowls, E. G. Roberts .....	2 50
Second best, Ephram Wilson .....	1 50
Best trio Silver Spangled Hamburg chicks, E. G. Roberts .....	2 00
Best trio Silver Spangled or Penciled Hamburg fowls, Ephram Wilson .....	2 50
Best trio Houdan fowls, J. R. Brabazan .....	2 50
Best trio Houdan chicks, J. R. Brabazan .....	2 00
Best trio Black Polish, white crest fowls, J. R. Brabazan ..	2 50
Best trio Black Polish chicks, J. R. Brabazan .....	2 00
Second best, J. R. Brabazan .....	1 00
Best trio Silver Polish fowls, E. G. Roberts .....	2 50
Second best, Ephram Wilson .....	1 50
Best trio Silver Polish chicks, E. G. Roberts .....	2 50
Second best, E. Wilson .....	1 50
Best trio Golden Polish fowls, J. R. Brabazan .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Silver Polish chicks, E. G. Roberts .....	2 00
Second best, E. G. Roberts .....	1 00
Best trio Golden Polish fowls, J. R. Brabazan .....	2 50
Second best, J. R. Brabazan .....	1 50

Best trio Golden Polish chicks, J. R. Brabazan .....	\$2 00
Best trio Golden Seabright fowls, J. R. Brabazan .....	2 50
Best trio Golden Seabright chicks, J. R. Brabazan .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Silver Dorkings, J. R. Brabazan .....	2 50
Best trio of any other variety of fowls, J. R. Brabazan .....	2 50
Second best, Ephram Wilson .....	1 50
Best trio of any other variety of chicks, J. R. Brabazan .....	2 50
Second best, J. R. Brabazan .....	1 50
Best pair Brown Red fowls, Ephram Wilson .....	2 50
Best trio Brown Red chicks, Ephram Wilson .....	2 50
Second best, G. H. Stokes .....	1 50
Best trio Black-breasted Red Game, fowls, E. G. Roberts .....	2 50
Second best, J. R. Brabazan .....	1 50
Best trio Black-breasted Red Game chicks, J. R. Brabazan .....	2 00
Second best, E. G. Roberts .....	1 00
Best pair Pyle fowls, Ephram Wilson .....	2 50
Second best, E. G. Roberts .....	1 50
Best pair Game fowls, any other variety, Ephram Wilson .....	2 50
Second best, S. S. Guile .....	1 50
Best pair Game chicks, any other variety, E. G. Roberts .....	2 00
Second best, S. S. Guile .....	1 00
Best pair Bronze Turkey fowls, Ephram Wilson .....	2 50
Second best, J. R. Brabazan .....	1 50
Best pair Bronze Turkey chicks, J. R. Brabazan .....	2 00
Second best, Ephram Wilson .....	1 00
Best pair common Turkey fowls, Ephram Wilson .....	2 00
Second best, J. R. Brabazan .....	1 00
Best pair common Turkey chicks, J. R. Brabazan .....	1 50
Second best, P. L. Robertson .....	1 00
Best pair of Geese, J. R. Brabazan .....	2 00
Second best, E. D. Norton .....	1 00
Best pair Aylesbury Ducks, J. R. Brabazan .....	2 00
Second best J. R. Brabazan .....	1 00
Best pair Rouen Ducks, J. R. Brabazan .....	2 00
Second best, J. R. Brabazan .....	1 00
Best pair Muscovy Ducks, J. R. Brabazan .....	2 00
Best pair Cayuga Ducks, J. R. Brabazan .....	2 00
Best and greatest variety of poultry shown by one person, J. R. Brabazan .....	5 00
Best exhibition of fancy Pigeons, E. G. Roberts .....	5 00
Best show of Rabbits, F. Nickel .....	3 00
Best and greatest variety of Pigeons and Rabbits, J. R. Brabazan ..	3 00

*Miscellaneous, not on list.*

Best pair Pekin Ducks, C. F. Harrington, Madison .....	
Second best pair Pekin Ducks, W. A. Phipps .....	

DEPARTMENT F— AGRICULTURE.

CLASS 26 — *Field products.*

Best sample spring wheat (Rio Grande or China Tea), 1 exhibit, D. T. Pilgrim, West Granville .....	\$5 00
Best sample spring wheat (fife), 3 exhibits, C. E. Angell, Oshkosh ..	5 00
Second best, D. T. Pilgrim, West Granville .....	3 00
Best sample of any other variety spring wheat, 8 exhibits, D. T. Pilgrim .....	5 00
Second best, C. E. Angell .....	3 00

Best sample white winter wheat, 4 exhibits, D. T. Pilgrim.....	\$5 00
Second best, Wm. McClelland, Berlin.....	3 00
Best sample red winter wheat, 6 exhibits, James Caswell, Oakfield.	5 00
Second best, C. B. Dawley, Plymouth.....	3 00
Best sample Clauson wheat, 2 exhibits, D. T. Pilgrim.....	5 00
Second best, C. E. Angell.....	3 00
Best sample rye, 6 exhibits, Elijah Hart, Rosendale.....	5 00
Second best, Wm. R. Thomas, Watertown.....	3 00
Best sample white oats, 7 exhibits, Wm. McClelland.....	5 00
Second best, Wm. McClelland.....	3 00
Best sample Schonen oats, 2 exhibits, D. T. Pilgrim.....	5 00
Second best, C. E. Angell.....	3 00
Best sample black oats, 1 exhibit, D. T. Pilgrim.....	5 00
Best sample barley, 7 exhibits, C. E. Angell.....	5 00
Second best, B. Taylor, Fond du Lac.....	3 00
Best sample buckwheat, 3 exhibits, C. E. Angell.....	4 00
Second best, C. E. Angell.....	2 00
Best sample flax seed, 4 exhibits, D. T. Pilgrim.....	5 00
Second best, M. W. Hopson.....	3 00
Best sample timothy seed, 5 exhibits, C. E. Angell.....	5 00
Second best, D. T. Pilgrim.....	3 00
Best sample clover seed, 6 exhibits, D. T. Pilgrim.....	5 00
Second best, D. T. Pilgrim.....	3 00
Best field peas, 3 exhibits, C. E. Angell.....	5 00
Second best, L. L. Mason, Masonville.....	3 00
Best sample field beans, 6 exhibits, Wm. Aflard, South Byrne.....	5 00
Second best, C. E. Angell.....	3 00
Best sample Dent corn (white) 3 exhibits, Wm. McClelland.....	5 00
Second best, George Lewis.....	3 00
Best sample dent corn, yellow, no award.	
Best sample flint corn, yellow, 2 exhibits, Wm. McClelland.....	5 00
Second best, C. E. Angell.....	3 00
Best six pumpkins, no award.	
Best exhibit of field products grown in the state, including not less than 5 varieties of cereal grain, not less than 12 varieties in all, each sample being free to compete for the foregoing individual prizes, both quality and number to be considered, and being not less in quantity than above specified, 2 entries, D. T. Pilgrim.....	25 00
Second best, C. E. Angell.....	15 00

CLASS 27 — *Garden and vegetable produce.*

Best exhibit of Early Rose potatoes, 12 exhibits, Herbert Reynolds, Byron.....	\$3 00
Second best, L. W. Norton, Fond du Lac.....	2 00
Best sample potatoes (Beauty of Hebron), 14 exhibits, B. J. Gilbert, Fond du Lac.....	3 00
Second best, E. Harntze, Fond du Lac.....	2 00
Best exhibit of any other variety of early potatoes, 19 exhibits, S. H. Mookey, Oakfield.....	3 00
Second best, Henry Bullman, Waupun.....	2 00
Best exhibit of Snow Flake potatoes, 10 exhibits, Wm. R. Tannar, Watertown.....	3 00
Second best, Geo. W. Ringrose, Wauwatosa.....	2 00
Best exhibit Peachblow potatoes, 6 exhibits, Wm. Ahlord, South Byron.....	3 00
Second best, Jas. Caswell, Oakfield.....	2 00
Best exhibit of any other variety of late potatoes, 22 exhibits, S. H. Mookey, Oakfield.....	3 00
Second best, S. H. Mookey.....	2 00
Best 4 quarts Lima beans, shelled, 2 exhibits, E. Harntze.....	2 00

Best exhibit turnip beets, 7 exhibits, Leon Lallier.....	\$3 00
Second best, Robt. Kinniment.....	2 00
Best long blood beets, 6 exhibits, L. Lallier.....	3 00
Second best, J. W. Wood, Baraboo.....	2 00
Best Mangel Wurzel, 11 exhibits, S. L. Mason, Masonville.....	3 00
Second best, Jno. Clark, Fond du Lac.....	2 00
Best Westerfield onions, 6 exhibits, Geo. W. Ringrose, Wauwata- tosa.....	3 00
Second best, J. W. Wood, Baraboo.....	2 00
Best Yellow Danverse onions, 11 exhibits, Geo. W. Ringrose.....	3 00
Second best, A. & P. Humbert.....	2 00
Best any other variety of onions, 10 exhibits, J. W. Wood, Bara- boo.....	3 00
Second best, J. W. Wood, Baraboo.....	2 00
Best Drumhead Cabbage, 3 entries, Henry Bellman, Waupun.....	3 00
Second best, Leon Lallier.....	2 00
Best 3 Winnigstadt cabbages, 4 exhibits, Geo. W. Ringrose.....	3 00
Second best, E. Harntze.....	2 00
Best long orange carrots, 6 exhibits, Geo. W. Ringrose.....	3 00
Second best, J. W. Wood.....	2 00
Best horn carrots, 8 exhibits, Geo. W. Ringrose.....	3 00
Second best, P. Humbert.....	2 00
Best head cauliflower, Geo. W. Ringrose.....	3 00
Second best, E. Harntze.....	2 00
Best ten head celery, 5 exhibits, Charles Hornwald.....	3 00
Second best, E. Harntze.....	2 00
Best 12 ears early sweet corn, 6 exhibits, Geo. W. Ringrose.....	3 00
Best 12 ears late sweet corn, J. H. Farnsworth.....	2 00
Best sample of egg plant, E. Harntze.....	3 00
Best 6 nutmeg melons, no award.	
Best parsnips, 6 exhibits, E. Harntze.....	3 00
Second best, J. W. Wood.....	2 00
Best 12 large red peppers, M. W. Hopson.....	2 00
Second best, E. Harntze.....	1 00
Best peck vegetable oysters, 5 exhibits, M. W. Hopson.....	2 00
Second best, E. Harntze.....	1 00
Best 6 Hubbard squashes, Leon Lallier.....	3 00
Second best, G. W. Ringrose.....	2 00
Largest squash of any variety, 4 exhibits, J. W. Wood.....	3 00
Second best, Henry Friday.....	2 00
Best 12 tomatoes, 11 exhibits, Robt. Kinnement.....	3 00
Second best, M. W. Hopson.....	2 00
Best flat turnips, Geo. W. Ringrose.....	3 00
Best rutabagas, P. Humbert.....	3 00
Second best, Geo. W. Ringrose.....	2 00
Exhibition by professionals, grown in the state by exhibitor, includ- ing not less than 5 varieties of vegetables, nor less than 12 varieties in all, both quality and number of varieties to be considered, 4 exhibitors, E. Harntze, Fond du Lac.....	10 00

CLASS 28 — *Products of flouring mill, dairy and apiary.*

Best barrel winter wheat flour, 3 exhibits, Otto Puhlmann, Ply- mouth.....	\$15 00
Second best, Zinke Brothers, Fond du Lac.....	10 00
Best barrel of spring wheat flour, 6 exhibits, Zinke Brothers, Fond du Lac.....	15 00
Second best, Elmer & Cook, Fond du Lac.....	10 00

For each exhibit of 3 cheese, or not less than 150 pounds, made at any time and awarded 40 points and over in a scale of 50 points or perfection, shall be designated "Grade No. 1," and draw a pro rata share of \$100; *provided, etc.* Twenty-two exhibits, pro-rated among following:

M. Wescott, Eden.  
 J. C. Peck, Peebles.  
 E. B. Parsons, Rosendale.  
 James Campbell, Byron.  
 Kittie Hadcock, Ladoga.  
 H. K. Loomis, Sheboygan Falls.  
 E. P. Ingals, Johnson's Creek.  
 James A. Stratz, Woodhull.  
 H. J. Bamford, Plymouth.  
 John Freck, Rhine.  
 A. B. Deland, Sheboygan Falls.  
 Fred. Locke, Howard's Grove.

Best exhibit of Farm Dairy Cheese, Schweitzer and Limburger, 2 exhibits, E. D. Jones, Fond du Lac .....	\$10 00
Second best, Bristol & Orvis, Oakfield .....	5 00
Sweepstake premium awarded to exhibit of 150 lbs. of cheese that marks the highest on the above scale of points, <i>Provided, etc.</i> , John Freck, Rhine, Wis .....	25 00

### Creamery Butter.

For each exhibit not less than 100 lbs., made at any time, and awarded 40 points or over in a scale of 50 points or perfection shall be designated "Gilt Edge," and draw a pro rata share of \$100. Pro-rated among the following:

T. W. Rhodes, Weyauwega.  
 W. W. Whipple, Eldorado Mills.  
 H. K. Loomis, Sheboygan Falls.  
 Mather Bros, Sheboygan Falls.  
 Price & Williams, Cambria.

Best roll print or package not less than 20 pounds, 5 exhibits, D. Geddings, Fond du Lac .....	\$10 00
Second best, Ed. Coleman, Fond du Lac .....	5 00
Sweepstakes premium on best exhibit of 100 pounds of butter, T. W. Rhodes, Weyauwega.]	
Best sample of 10 pounds of honey in the best marketable shape, 9 exhibits, J. H. Pease, Fond du Lac .....	5 00
Second best, A. W. Schoultze, Fond du Lac .....	3 00
Best practical bee hive, A. W. Schoultze .....	5 00
Second best, A. W. Schoultze .....	2 00
Best extracted honey, 5 exhibits, M. W. Hopson .....	3 00
Second best, A. W. Schoultze .....	1 00
Best Italian bees, A. W. Schoultze .....	5 00
Second best, A. W. Schoultze .....	3 00
Best 10 pounds maple sugar, Jas. Caswell .....	5 00
Best gallon of maple syrup, J. B. Duncan .....	5 00
Best gallon Amber Cane syrup, A. J. Decker, Fond du Lac .....	5 00
Second best, A. J. Decker, Fond du Lac .....	3 00
Best 5 pounds of sugar made from Amber Cane, 2 exhibits, A. J. Decker, Fond du Lac .....	5 00

### CLASS 29 — Household products.

Best loaf of graham bread, 7 exhibits, Mrs. W. Wilkie, Fond du Lac .....	\$3 00
Best loaf of white bread, hop yeast, 7 exhibits, Mrs. W. Wilkie, Fond du Lac .....	3 00
Best loaf of white bread, milk rising, Mrs. H. S. Ray .....	3 00
Best loaf of Indian bread, Mrs. L. W. Clark .....	3 00
Best sponge cake, 5 exhibits, Mrs. W. Wilkie .....	2 00



Best pound cake, Emily T. Smith, Green Bay.....	S. P. and	\$2 00
Best jelly cake, Mrs. L. W. Clark.....	S. P. and	2 00
Best chocolate cake, Mrs. L. W. Clark.....	S. P. and	2 00
Best cocoanut cake, Miss Emily T. Smith, Green Bay.....	S. P. and	2 00
Best and largest exhibition of household products, Miss Emily T. Smith, Green Bay.....	Silver medal.	
Best canned peaches, Mrs. L. W. Clark.....	S. P. and	2 00
Best canned plums, 6 exhibits, Mrs. H. J. Ray.....	S. P. and	2 00
Best canned currants, Mrs. L. W. Clark.....	S. P. and	2 00
Best canned tomatoes, Mrs. H. J. Ray.....	S. P. and	2 00
Best canned gooseberries, Mrs. H. J. Ray.....	S. P. and	2 00
Best canned raspberries, Mrs. W. L. Higby.....	S. P. and	2 00
Best canned strawberries, Mrs. L. W. Clark.....	S. P. and	2 00
Best canned grapes, Mrs. H. J. Ray.....	S. P. and	2 00
Best canned blackberries, Mrs. L. W. Clark.....	S. P. and	2 00
Best canned pears, Mrs. H. J. Ray.....	S. P. and	2 00
Best canned Hyslop or Transcendent crab apples, Mrs. Carry Phipps.....	S. P. and	2 00
Best plum jelly, Mrs. H. J. Ray.....		2 00
Best currant jelly, 7 exhibits, Mrs. H. J. Ray.....	S. P. and	2 00
Best red rasperry jelly, Mrs. L. W. Clark.....		2 00
Best crab apple jelly, 4 exhibits, Mrs. H. J. Ray.....		2 00
Best marmalade, 9 exhibits, Mrs. L. W. Clark.....		2 00
Best cucumber pickles, Mrs. H. J. Ray.....		2 00
Best mangoes, Mrs. L. W. Clark.....		2 00
Best red cabbage pickles, Mrs. L. W. Clark.....		2 00
Best cauliflower pickles, E. Harntze.....		2 00
Best onion pickles, Mrs. L. W. Clark.....		2 00
Best mixed pickles, E. Harntze.....		2 00
Best pickled peaches, Mrs. H. J. Ray.....		2 00
Best pickled apples, Mrs. L. W. Clark.....		2 00
Best apple butter, J. R. Brabazan.....		2 00
Best raspberry jam, Mrs. L. W. Clark.....		2 00
Best blackberry jam, Mrs. H. J. Ray.....		2 00
Best tomato catsup, Mrs. H. J. Ray.....		2 00
Best and largest exhibition of canned fruits, etc., in glass jars, Mrs. H. J. Ray.....	S. P. and	5 00

*Special Premium by Higgins & Co.*

For best lot of butter, salted with Higgins' Eureka salt, Wm. M. McConnell, Dartford.

DEPARTMENT G—FRUITS AND FLOWERS.

*CLASS 30—Fruits by professional cultivators.*

Best and greatest display of varieties of apples not to exceed 20, 3 or more specimens, Geo. E. Pepper, Pewaukee.....	\$10 00
Second best, Wm. Reed, North Prairie.....	7 50
Third best, Geo. J. Kellogg, Janesville.....	5 00
Best 10 varieties apples adapted to the northwest, 3 specimens each, G. J. Kellogg, Janesville.....	7 00
Second best, Wm. Reed, North Prairie.....	5 00
Third best, Geo. P. Pepper.....	3 00
Apples, best 5 varieties adapted to northwest, 3 specimens each, Geo. P. Pepper.....	3 00
Second best, Wm. Reed.....	2 00
Third best, Geo. J. Kellogg.....	1 00

Apples, largest variety of winter, not exceeding 10 specimens each, Wm. Reed .....	\$5 00
Second best, Geo. J. Kellogg .....	3 00
Third best, Geo. P. Pepper .....	2 00
Apples, best 5 varieties winter, 3 specimens each, Geo. J. Kellogg ..	5 00
Second best, Wm. Reed .....	3 00
Third best, Geo. P. Pepper .....	2 00
Apples, best 10 varieties of large and showy, 3 specimens, Geo. J. Kellogg .....	5 00
Second best, Geo. P. Pepper .....	3 00
Third best, Wm. Reed .....	2 00
Largest apple, Geo. J. Kellogg .....	1 00
Heaviest apple, Geo. J. Kellogg .....	1 00
Apples, best plate of Plumb Cider, Geo. P. Pepper .....	1 00
Apples, best plate of Haas, Geo. P. Pepper .....	1 00
Apples, best plate of Fameuse, Geo. P. Pepper .....	1 00
Apples, best plate of Walbridge, Geo. J. Kellogg .....	1 00
Apples, best plate of Utter, Wm. Reed .....	1 00
Apples, best plate of Westerfield Seek-no-further, Wm. Reed .....	1 00
Apples, best plate of Tallman Sweet, Geo. P. Pepper .....	1 00
Apples, best plate of St. Lawrence, Geo. J. Kellogg .....	1 00
Apples, best plate of Duchess of Oldenburg, Geo. P. Pepper .....	1 00
Apples, best plate of Willow Twig, Geo. J. Kellogg .....	1 00
Apples, best plate of Wealthy, Geo. P. Pepper .....	1 00
Pears, best display of varieties, George P. Pepper .....	5 00
Second best, Wm. Reed .....	3 00
Pears, best 3 varieties, George P. Pepper .....	2 00
Pears, best Flemish Beauty, George P. Pepper .....	2 00
Pears, best plate of Beurse d'Anjon, George P. Pepper .....	1 00
Pears, best plate of Clapp's Favorite .....	1 00
Plums, best variety, Geo. P. Pepper .....	3 00
Second best, Wm. Reed .....	2 00
Plums, best 3 varieties, Geo. P. Pepper .....	2 00
Plums, best collection of native, Geo. P. Pepper .....	1 00
Plums, best plate of natives, Geo. P. Pepper .....	1 00

CLASS 31 — *Grapes.*

Grapes, best display of varieties, Wm. Reed .....	\$10 00
Second best, George P. Pepper .....	7 00
Third best, Geo. J. Kellogg .....	5 00
Grapes, best 10 varieties, 3 specimens, Wm. Reed .....	5 00
Second best, Geo. P. Pepper .....	3 00
Grapes, best 5 varieties, 3 specimens, Wm. Reed .....	10 00
Second best, Geo. P. Pepper .....	7 00
Third best, Geo. J. Kellogg .....	5 00
Grapes, best single variety, 3 specimens, Wm. Reed .....	2 00
Second best, Geo. P. Pepper .....	1 00
Grapes, best 3 bunches of Concord on one cane, Wm. Reed .....	2 00
Grapes, best 3 bunches of Delaware on one cane, Wm. Reed .....	2 00
Second best, Geo. P. Pepper .....	1 00
Grapes, best 3 bunches Wordens on one cane, Geo. P. Pepper .....	2 00
Second best, Geo. J. Kellogg .....	1 00
Grapes, best 3 bunches Wilder on one cane, Wm. Reed .....	2 00
Grapes, best single variety, quality to rule, Geo. H. Pepper .....	3 00
Second best, Wm. Reed .....	2 00
Crab apples, best and greatest variety named, Geo. P. Pepper .....	3 00
Second best, Wm. Reed .....	2 00
Third best, Geo. J. Kellogg .....	1 00
Crab apples, best plate of Hyslop, Geo. J. Kellogg .....	1 00
Crab apples, best plate of Transcendent, Wm. Reed .....	3 00
Crab apples, best plate of Whitney, No. 20, Geo. P. Pepper .....	1 00

Crab apples, best seedling, Geo. P. Pepper.....	1 00
Best collection of fruit of all kinds, Geo. P. Pepper.....	7 00
Second best, Wm. Reed .....	5 00
Third best, Geo. J. Kellogg.....	3 00

CLASS 32 — *Fruit by non-professional cultivators.*

Apples, best display of varieties not exceeding 20, 3 specimens, Geo. Jeffrey, Milwaukee.....	\$10 00
Second best, D. T. Pilgrim, West Granville .....	7 00
Third best, E. W. Palmer, Madison.....	5 00
Apples, best 10 varieties adapted to N. W., 3 specimens, J. L. Woodward, Oconomowoc.....	7 00
Second best, Geo. Jeffrey, Milwaukee .....	5 00
Third best, E. W. Palmer, Madison .....	3 00
Apples, best show of 10 varieties of large and showy, 3 specimens, Geo. Jeffrey.....	5 00
Second best, E. W. Palmer.....	3 00
Third best, C. B. Dawley.....	2 00
Best 5 varieties adapted to N. W., 3 specimens, J. L. Woodward.	3 00
Second best, Geo. Jeffrey.....	2 00
Third best, E. W. Palmer.....	1 00
Apples, largest variety of winter, not to exceed 10, 3 specimens, Geo. Jeffrey.....	5 00
Second best, C. B. Dawley.....	3 00
Third best, E. W. Palmer.....	2 00
Apples, best 5 varieties of winter, 3 specimens, J. L. Woodward... ..	3 00
Second best, E. W. Palmer .....	2 00
Third best, Geo. Jeffrey .....	1 00
Apples, best plate of Haas, Jas. Orvis.....	1 00
Apples, best plate of Walbridge, E. W. Palmer.....	1 00
Apples, best plate of Utter, J. L. Woodward.....	1 00
Apples, best Westfield Seek-no-further, E. W. Palmer .....	1 00
Apples, best plate of Tallman Sweetings, E. W. Palmer.....	1 00
Apples, best plate of Duchess of Oldenburg, 14 exhibits, J. B. Gilbert .....	1 00
Apples, best plate of Willow Twig, E. W. Palmer.....	1 00
Apples, best plate of Pewaukee, Jas. Orvis.....	1 00
Apples, best plate of Fameuse, J. L. Woodward .....	1 00
Pears, best display of varieties, Geo. Jeffrey.....	5 00
Second best, D. T. Pilgrim.....	3 00
Third best, V. Lowe.....	2 00
Pears, best 3 varieties, D. T. Pilgrim.....	2 00
Second best, Geo. Jeffrey.....	1 00
Pears, best Flemish Beauty, Jas. Sylvester.....	2 00
Second best, Jas. Lafferty.....	1 00
Pears, best plate of Beurre d'Anjon, Geo. Jeffrey.....	1 00
Pears, best plate of Clapp's Favorite, Geo. Jeffrey.....	1 00
Plums, best variety, D. T. Pilgrim.....	2 00
Second best, Geo. Jeffrey.....	1 00
Plums, best 3 varieties, D. T. Pilgrim.....	2 00
Second best, Geo. Jeffrey .....	1 00
Plums, best collection of native, D. T. Pilgrim.....	2 00
Plums, best plate of native, D. T. Pilgrim .....	1 00

CLASS 33 — *Fruit by non-professional cultivators.*

Grapes, best display of varieties, 5 specimens, V. Lowe.....	\$10 00
Second best, La Belle Wagon Works.....	7 00
Third best, J. H. Farnsworth.....	5 00
Grapes, best 10 varieties, 3 specimens, La Belle Wagon Works.....	5 00
Second best, V. Lowe.....	3 00
Third best, J. H. Farnsworth.....	2 00

Grapes, best 5 varieties, 3 specimens, La Belle Wagon Works .....	\$3 00
Second best, V. Lowe .....	2 00
Third best, J. H. Farnsworth .....	1 00
Grapes, best single variety, 3 specimens, J. H. Farnsworth .....	2 00
Second best La Belle Wagon Works .....	1 00
Grapes, best 3 bunches of Concord on one cane, Geo. Jeffrey .....	2 00
Second best, V. Lowe .....	1 00
Grapes, best 3 bunches of Delaware on one cane, Geo. Jeffrey .....	2 00
Second best, V. Lowe .....	1 00
Grapes, best 3 bunches of Worden on one cane, V. Lowe .....	2 00
Grapes, best 3 bunches Wilders on one cane, Geo. Jeffrey .....	2 00
Second best, V. Lowe .....	1 00
Grapes, best single variety, quality to rule, J. H. Farnsworth .....	3 00
Second best, V. Lowe .....	2 00
Apples, greatest and best variety named, J. L. Woodward .....	3 00
Second best, Geo. Jeffrey .....	2 00
Third best, D. T. Pilgrim .....	1 00
Apples, crab, best plate of Hyslop, J. L. Woodward .....	1 00
Apples, crab, best plate of Transcendent, J. L. Woodward .....	1 00
Apples, crab, best plate of Whitney No. 20, Geo. Jeffrey .....	1 00
Apples, crab, best plate of Seedlings, J. L. Woodward .....	1 00
Best collection of fruit of all kinds, sweepstakes, Geo. Jeffrey .....	7 00
Second best, D. T. Pilgrim .....	5 00
Third best, Geo. W. Ringrose .....	2 00

CLASS 36 — *Flowers by professional cultivators.*

Best artistically arranged floral design, E. Harntze, Fond du Lac ..	\$5 00
Second best, Geo. W. Ringrose .....	3 00
Most tastefully arranged basket of flowers, E. Harntze .....	3 00
Second best, Geo. W. Ringrose .....	2 00
Best pair flat table bouquets, E. Harntze .....	2 00
Second best, Geo. W. Ringrose .....	1 00
Best bouquet everlasting flowers, George W. Ringrose .....	3 00
Second best, H. G. Roberts .....	2 00
Best 10 named dahlias, E. Harntze .....	2 00
Second best, H. G. Roberts .....	1 00
Best display of roses, Geo. W. Ringrose .....	3 00
Best 5 named varieties of roses, E. Harntze .....	3 00
Best display of verbenas, E. Harntze .....	2 00
Best show of pansies, Geo. W. Ringrose .....	1 00
Best show of double petunias, E. Harntze .....	1 00
Best show of gladiolas, Geo. W. Ringrose .....	2 00
Second best, E. Harntze .....	1 00
Best show of tube roses, E. Haentze .....	1 00
Second best, Geo. W. Ringrose .....	50
Best show of greenhouse plants, not more than 100 nor less than 50 varieties, E. Harntze .....	7 50
Second best, Geo. W. Ringrose .....	5 00
Best 20 varieties of greenhouse plants in bloom, E. Harntze .....	3 00
Second best, Geo. W. Ringrose .....	2 00
Best 10 geraniums, Geo. W. Ringrose .....	3 00
Second best, E. Harntze .....	2 00
Best 6 fuchsias, Geo. W. Ringrose .....	2 00
Second best, E. Harntze .....	1 00
Best display of flowers of all kinds grown by exhibitor, Geo. W. Ringrose .....	5 00
Best display of ornamental foliage plants, not more than 15 varie- ties, Geo. W. Ringrose .....	3 00
Second best, E. Harntze .....	2 00

CLASS 37—*Flowers by non-professional cultivators.*

Most artistically arranged floral design, Miss Carrie Lewis.....	\$5 00
Second best, Gertrude A. Kellogg.....	3 00
Third best, Mrs. G. D. Geddings.....	2 00
Most tasteful collection of cut flowers, Miss Emily T. Smith.....	4 00
Second best, Miss Nellie Peffer.....	3 00
Third best, Miss Carrie Lewis.....	2 00
Best pyramidal bouquet, Miss Nellie Peffer.....	3 00
Most tastefully arranged basket of flowers, Nellie Peffer.....	3 00
Second best, Mrs. W. N. Hiner.....	2 00
Best pair round bouquets, Nellie Peffer.....	2 00
Second best, Carrie Lewis.....	1 00
Best pair of flat table bouquets, Nellie Peffer.....	2 00
Best bouquet of everlasting flowers, Emily T. Smith.....	2 00
Best display of dahlias, not more than 20 varieties, J. W. Wood, Baraboo.....	2 00
Second best, Nellie Peffer.....	1 00
Best 10 named dahlias, John Diener.....	2 00
Second best, J. W. Wood.....	1 00
Best display of roses, Edith A. Kellogg.....	3 00
Best 5 named varieties of roses, Edith A. Kellogg.....	2 00
Best display of verbenas, Jno. Diener.....	2 00
Best 10 named verbenas, Emily T. Smith.....	2 00
Second best, Jno. Diener.....	1 00
Best show of asters in quality and variety, Mrs. D. G. Geddings... Second best, Jno. Diener.....	2 00 1 00
Best show of perennial phlox, Nellie Peffer.....	1 00
Best show of pansies, Nellie Peffer.....	1 00
Second best, Carrie Lewis.....	50
Best show of dianthus (pink), Jno. Diener.....	1 00
Second best, Emily T. Smith.....	50
Best show of Gladiolas, Nellie Peffer.....	2 00
Second best, J. R. Brabazan.....	1 00
Best show of phlox drummondii, Mrs. D. G. Geddings.....	1 00
Second best, Emily T. Smith.....	50
Best show of tube roses, Jno. Diener.....	1 00
Best show of stocks, Jno. Diener.....	1 00
Best show of balsams, Mrs. D. Babcock.....	1 00
Second best, Emily T. Smith.....	50
Best show of green-house plants, not less than 25 nor more than 50 varieties, Mrs. D. G. Geddings.....	5 00
Best 10 varieties of green-house plants in bloom, Mrs. D. G. Ged- dings.....	3 00 3 00
Best 10 geraniums, John Diener.....	3 00
Best display of flowers raised by exhibitor, Nellie Peffer.....	5 00
Second best, Emily T. Smith.....	3 00
Best show of ornamental foliage plants, not more than 10 varieties, Miss Carrie Lewis.....	3 00
Second best, Mrs. Geddings.....	2 00

## DEPARTMENT H—MACHINERY.

Mr. A. J. Pierce, assistant superintendent, makes favorable mention of the following articles:

- S. L. Sheldon, Madison, Wis.—  
1 Meadow King Mower,  
1 Gregg Light Reaper,  
1 Wm. Anson Wood Mower,  
1 Wm. Anson Wood Reaper.
- S. Pennock & Sons Co., Fort Wayne, Ind.—  
1 Road Machine,  
1 Matchless Scraper.
- Adriance, Platt & Co., New York City—  
A New Line,  
2 Adriance Reapers,  
1 Adriance Mower.
- A. O. Thayer, Portage City—  
Workman Seeders,  
1 Workman Patent Reversible Harrow and Smoother,  
1 Common Steel Tooth Harrow.
- Geo. Esterly, Whitewater, Wis.—  
1 Twine Binding Harvester, very meritorious.
- J. N. March, Fond du Lac—  
1 Power Feed Cutter,  
1 Hand Feed Cutter,  
1 Feed Grinder,  
1 Fanning Mill,  
1 Corn Crusher and Grinder,  
1 Sulky Cultivator.
- Wm. Deering, Chicago—  
1 Deering Twine Binder,  
1 Deering Reaper,  
1 Deering Mower,  
1 Warrior Mower.
- Warder, Bushnell & Glessner, Chicago—  
1 Champion Twine Binder,  
1 Light Reaper, center cut,  
1 Light Reaper, single cut,  
1 Combined Reaper and Mower,  
1 Front Cut Light New Mower,  
1 Rear Cut Light New Mower.
- Beadle & Kelly, Troy, Ohio—  
1 Corn Horse Planter,  
1 Sulky Horse Rake.
- J. M. Boyd—  
1 Chester Hay Fork,  
1 Chester Hay Carrier.
- J. W. Stoddard & Co., Dayton, Ohio—  
1 Broadcast Seeder and Cultivator,  
1 Seed Drill and Cultivator,  
2 Sulky Hay Rakes.

South Bend Iron Works, South Bend, Ind.—  
1 Sulky Plow.

Powell & Douglass, Waukegan, Ill.—  
1 Wind Mill,  
A variety of Pumps.

E. C. Sherwin, Brandon, Wis.—  
1 Field Roller.

R. H. Stockman, Milton, Wis.—  
1 U. S. Star Wind Mill.

C. Aultman & Co., Canton, Ohio—  
1 Traction Engine, "Monitor,"  
1 Separator, new model,  
1 Buckeye Twine Binder,  
1 Buckeye Table Rake Reaper,  
1 Buckeye Mower,  
1 Canton Reaper.

W. H. Knapp, Fond du Lac, Wis.—  
Common Harrows.

D. M. Osborn & Co., Auburn, N. Y.—  
1 Self Binding Harvester,  
1 Single Reaper,  
1 Combined Reaper,  
2 Light Mowers.

C. W. Robertson, Fond du Lac, Wis.—  
1 Grapple Hay Fork.

McLean & Haas, Fond du Lac, Wis.—  
1 Harrow.

Silberzahn & Young, West Bend—  
1 Champion Feed Cutter,  
1 Improved Feed Cutter,  
1 Pioneer Feed Mill,  
1 Triple Geared Horse Power.

J. H. Brewer, Waupun—  
1 Buckeye Drill,  
1 Buckeye Seeder,  
1 Buckeye Spring Toothed Harrow,  
1 Corn Plow—Sulky,  
1 Cider Mill.

John Austin, Chicago, 91 Seely Ave.—  
1 Austin Rotary Plow.

Birdsell Manufacturing Co., South Bend, Ind.—  
1 Clover Huller and Cleaner.

John P. Manny, Rockford, Ill.—  
1 Single J. P. Manny Reaper,  
1 Single J. P. Manny Mower.

C. B. Buechner, Fond du Lac—  
1 Combined Reaper,  
1 Single Reaper,  
1 Knowlton Mower,  
1 Riding Cultivator,  
1 Hay Rake,  
1 Two Horse Hay Rake,  
1 Walking Cultivator,  
1 Rake.

Walter A. Wood, Chicago, Ill.—

- 1 Mower,
- 1 Single Reaper,
- 1 Harvester with Twine Binder.

Althouse. Wheeler & Co., Waupun, Wis.—

- 1 Wind Mill.

J. S. Rowell, Beaver Dam—

- 1 Tiger Seeder.

Fond du Lac Plow Works —

- 2 Stubble Plows, variety of Turf and Stubble Plows and Sod Plows,
- 1 Railroad Plow,
- 1 Brush Breaker Plow.

Fuller & Johnson Manufacturing Co., Madison, Wis.—

- 1 Riding Cultivator,
- 1 Bonanza Sulky Rake,
- 1 Barlow Corn Planter,
- 1 Turf and Stubble Plow,
- 1 Farm Breaking Plow.

McCormick Harvesting Machine Co., Chicago —

- 1 Harvester and Twine Binder,
- 1 Combined Imperial Reaper and Mower,
- 1 Single Reaper,
- 1 Light Iron Mower.

D. S. Morgan, a fine line of Reapers and Mowers, and well exhibited.

Henry Bloedel, Fond du Lac —

- 1 Combined Seeder and Cultivator,
- 1 Corn Cultivator,
- 1 Wheel Cultivator,
- 1 Sulky Corn Cultivator.

S. L. Sheldon, Madison, Wis. —

- 1 Esterly Harvester, new and good,
- 1 Twine Binder,
- 1 Meadow King Mower,
- 1 Anson Wood Mower,
- 1 Anson Wood Reaper,
- 1 Gregg Reaper.

Johnson & Field, Racine —

- 1 Farm Fanning Mill,
- 1 Warehouse Fanning Mill.

Van Brunt, Davis & Co, Horicon —

- 1 Broadcast Seeder and Cultivator,
- 1 Seed Drill.

Gesley Bros., Beloit —

- 1 Corn Sulky Plow,
- 1 Sulky Plow,
- 1 Stirring Wood Beam Plow,
- 1 Steel Beam Plow.

Furst & Bradley Mfg. Co., Chicago, Ill.—

- A fine line of Walking Plows,
- 1 Sulky Plow,
- 1 Combined Cultivator,
- 1 Walking Cultivator,
- 1 Hand Dump Sulky Rake,
- 1 Adjustable Harrow.



Moline Plow Co., Moline, Ill.—

A good display of plows, including Sulky and Shovel Plows; also Cultivators of fine make-up.

J. H. Palmer, Lodi, Wis.—

1 Wind Mill and Motor Power,  
Wind Mill Attachment for mills,  
Pipe Lifter for deep wells, very meritorious,  
Oiling Device for oiling from the ground, all very meritorious.

Philip Ditter —

1 Farm Wagon,

Geo. C. Huson —

1 Cider Press and Apple Grater,  
1 Cider Mill.

S. Freeman & Son, Racine —

1 Centennial Fanning Mill.

J. W. Sohn, Ridge Cultivator Works, Hamilton, Ohio —

1 Grass and Grain Cultivator,  
1 One-horse Corn Mill,  
1 Ridge Cultivator.

Syracuse Plow Co., Syracuse, N. Y.—

A fine lot of Plows for general purposes.

Bovee Bros., Richland Center, Wis.—

1 Hay Rake and Loader.

Russell & Co., Milwaukee, Wis.—

1 Saw Mill,  
1 Thresher,  
1 Traction Engine, fine working machine.

J. S. Green, Albion, Dane Co., Wis.—

1 Harrow.

W. P. West, Fond du Lac, Wis.—

John Deere's Moline Plows.

McDonald Manufacturing Co., Fond du Lac, Wis.—

2 Grain Separators,  
1 Portable Engine.

Peerless Reaper Co., 230 East Water St., Milwaukee, Wis.—

1 Single Reaper,  
1 Cord Binder,  
1 Peerless Mower,  
1 Single Front Cut Mower,  
1 Sulky Corn Cultivator,  
1 Sulky Seed Attachment,  
1 Walking Cultivator,  
1 Sulky Hay Rake,  
And Randall Disc Harrows.

J. P. Phillips, Milwaukee —

1 Victor Clover Huller, did some fine threshing on the ground,  
received the praise of many for fine work,  
1 Hollingsworth Rake,  
1 Reindeer Rake,  
1 Surprise Rake,  
1 Taylor Rake—1-horse,  
1 Taylor Rake—4-horse,  
1 Red Bird Rake,  
1 Rundel Combined Carrier,  
1 Double Harpoon Fork,  
1 Walker Fork,  
1 Rundel Fork. Fine display.

- G. J. Susan, Fond du Lac —  
 1 Hay, Straw and Cornstalk Cutter,  
 1 Corn Sheller,  
 1 Cider Mill,  
 1 Hay Tedder,  
 1 Mower,  
 1 Reaper,  
 1 Thresher,  
 1 Engine.
- J. Hines, Fond du Lac —  
 1 Steam Separator,  
 1 Steam Thresher, Minnesota Chief.
- William Berry, Fond du Lac —  
 1 Stump and Grub Puller.
- George Bristol, Reedsburg —  
 1 Farm Gate.
- Jas. Little & Sons, Menasha —  
 3 Globe Feed Cutters.
- The Wheel and Seeder Co., Fond du Lac —  
 1 Grain Drill,  
 1 Combined Broadcast,  
 1 Seeder and Cultivator.
- Deere, Mansure & Co., Moline, Ill. —  
 1 Deere Rotary Corn Planter,  
 1 Check Rower.
- Rawson Manufacturing Co., Milwaukee —  
 1 Reaper,  
 1 Front Cut Mower.
- J. I. Case, Racine, Wis.  
 1 16-inch Clipper Sulky Plow,  
 1 16-inch 84 M. Plow, with Castor Coulter,  
 1 16-inch 64 M. Plow,  
 1 16-inch 74 M. Plow,  
 1 16-inch 83 M. Plow,  
 1 16-inch 83 G. M. Plow, with Reversible Coulter,  
 1 16-inch 34 G. M. Plow,  
 1 16-inch 34½ G. M. Plow,  
 1 14-inch Timber Plow,  
 1 4 Shovel Riding Corn Cultivator,  
 1 4 Shovel Walking Corn Cultivator,  
 1 Adjustable Harrow, 60 tooth,  
 1 Eureka Harrow, 45 tooth.  
 A beautiful exhibit.
- Briggs, Enoch & Co., Hartford, Ill. —  
 1 Sulky Plow,  
 1 Corn Planter,  
 1 Corn Cultivator,  
 1 Check Rower,  
 1 Iron Beam Plow,  
 1 Wood Beam Plow,  
 1 Castor Coulter.
- Farmers' Friend Manufacturing Co., Dayton, Ohio —  
 1 Corn Planter.
- Emerson, Talcott & Co., Rockford, Ill. —  
 1 Single Reaper,  
 1 Combined Reaper,  
 1 Riding Cultivator,  
 1 Corn Planter.

- Challenge Wind Mill Co., Batavia, Ill.—  
1 Wind Mill.
- J. H. Thomas & Sons, Springfield, Ohio—  
1 Thomas Sulky Rake,  
1 Champion Self-Dumping Rake,  
1 Mudgett Hay Feeder.
- Johnson & Fields, Racine—  
1 Wave House Fanning Mill.
- R. Elwood Manufacturing Co., Sycamore, Ill.—  
1 Combined Cultivator,  
1 Veteran Self-Discharging Rake,  
1 Barrel Cart, very meritorious.
- Janesville Machine Company—  
1 Crown Reaper,  
1 Crown Mower,  
1 Prairie Seeder,  
1 Leader Drill.
- J. W. Marsh, Fond du Lac—  
A fine display of Sulky Plows and Cultivators.
- O. C. Vaughn, Jefferson, Wis.—  
1 Jefferson Corn Cultivator.
- Shorn Wire Hedge Co., 1521 Clinton St., Chicago, F. E. Hoyt, Agent—  
A fine showing of nine varieties of Fence Wire, galvanized and  
painted.  
1 Barbed Wire Farm Gate.

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## DEPARTMENT I—MANUFACTURES.

### CLASS 39—*Stone-cutters' work and other building material.*

Best sample of brick, E. G. Roberts, Fort Atkinson.....	\$2 00
Best sample of fire brick, L. C. Mattison .....	2 00
Best drain tile, H. J. Campbell.....	3 00
Broker Bros. meritorious.....	
Best 4 window blinds.....	5 00
Best 4 window sash, O. C. Stanberg, Fond du Lac.....	5 00
Best 4 doors, O. C. Stanberg, Fond du Lac.....	5 00

### CLASS 40—*Metallurgic products.*

Best steel wire, Wilkie & Dana .....	\$2 00
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### CLASS 41—*Cooking stoves for wood.*

Michigan Stove Co., by C. Hartman, Fond du Lac ...	\$5 00
Best cooking range for families, J. R. Smith.....	5 00
Best ornamental parlor stove, John Ring, Fond du Lac.....	5 00
Best display of stoves, Michigan Stove Co., by C. Hartman, Fond du Lac.....	Grand Silver Medal

Best sample of fire grates, A. B. Taylor, Fond du Lac.....	\$3 00
Best steel hammers in variety, Wilkie & Dana.....	2 00
Best horse shoes in variety, E. C. Lloyd, Janesville.....	2 00
Best display of shelf hardware, Wilkie & Dana, Fond du Lac, Grand Silver Medal.	

CLASS 42—*Silver, brittania and crockery ware.*

Best and largest display of gold and silver electroplating, G. Scherzinger, Fond du Lac.....	Grand Silver Medal.
Best collection of glass, China and earthen ware, Knicks & Han- nagan, Fond du Lac.....	Grand Silver Medal.

## CLASS 43.

Best display of dentistry, H. T. Sacket, Fond du Lac.....	Silver Medal.
Skill in dental work, H. T. Sacket.....	Silver Medal.

CLASS 44—*Chemical manufacture.*

Best sample of carbonate of lead, E. B. Heimstreet, Janesville....	\$3 00
Best sample of oxide of zinc, E. B. Heimstreet.....	3 00
Best sample of mineral paint, Huber Bros.....	2 00
Best yeast cakes, N. W. Yeast Co., Fond du Lac.....	2 00
Best fancy soap, Huber Bros.....	2 00
Best potash, E. B. Heimstreet.....	2 00
Best bi-carbonate of potash, E. B. Heimstreet.....	2 00
Best show of perfumery, Huber Bros.....	Diploma

CLASS 45—*Carriages, wagon work, etc.*

Best double carriage, 12 exhibits, Ehlers & Ditter.....	S. P. and \$10 00
Best double top carriage, 9 exhibits, S. H. Benjamin, Milwaukee.	10 00
Best single top buggy, 11 exhibits, A. J. Wolf.....	10 00
Best single open buggy, 7 exhibits, J. L. Clark & Son.....	10 00
Best trotting wagon, 4 exhibits, Wm. Servis.....	10 00
Best phaeton, 5 exhibits, Wm. Servis, Sheboygan Falls.....	10 00
Best double sleigh, 5 exhibits, McLean & Haas.....	10 00
Best single sleigh, 7 exhibits, Wm. Servis.....	5 00
Best common farm wagon, 7 exhibits, B. F. & H. L. Sweet, Fond du Lac.....	5 00
Best fancy lumber wagon, La Belle Wagon Works.....	5 00
Best 3 spring and 3 seated wagon, Fond du Lac Spring Wagon Co.	5 00
Best display of hubs, spokes, felloes and other wagon work, Webster Manufacturing Co., Menasha.....	5 00

CLASS 46—*Cabinet-ware, cooperage, willow-ware, house  
building, etc.*

W. H. Post, Fond du Lac.....	Silver Medal
Best chamber set, H. H. Post, Fond du Lac.....	Silver Medal
Best center table, Henry Eckle, Fond du Lac.....	\$5 00
Best book case, Edson & Son.....	5 00
Best lady's work stand, Edson & Son.....	5 00

CLASS 47 — *Leather and leather manufactures.*

Best carriage harness, Jas. Kremer, Fond du Lac .....	\$10 00
Best wagon harness, C. A. Faustnor .....	5 00
Best single harness, C. A. Faustnor .....	5 00
Best 4 horse collars, Jas. Kremer .....	3 00
Best and largest exhibition of sewed boots and shoes, one pair of each style, manufactured in this state, Verne & Schalle, Silver Medal and	10 00

CLASS 48 — *Paper, printing and book-binding.*

Best specimen of print paper in variety, exhibited by manufacturer, A. H. Hall, Fond du Lac .....	Diploma
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CLASS 49 — *Textile fabrics, clothing, etc.*

Best exhibition of woolen fabrics manufactured in the state, exhib- ited by the manufacturer, John E. Sullivan, Fond du Lac .....	\$20 00
Best suit of men's clothing, J. E. Sullivan .....	10 00
Best suit of boys' clothing, J. E. Sullivan .....	5 00
Best exhibition of gents' hats and caps, F. N. Fox .....	5 00
Best 6 buckskin gloves, F. N. Fox .....	3 00
Best 6 buck mittens, F. N. Fox .....	3 00

## DEPARTMENT K — FINE ARTS.

CLASS 50 — *Music and musical instruments and sewing ma-  
chines.*

No awards.

CLASS 51 — *Works of art.*

Best painting in oil, 17 exhibits, Jas. R. Stuart, Madison .....	\$10 00
Second best, Mrs. D. A. Beal .....	5 00
Best original landscape in oil, work of exhibitor, 12 exhibits, Jas. R. Stuart, Madison .....	10 00
Second best, Mrs. Walter Wilde, Fond du Lac .....	5 00
Best painting of a horse from life, Jas. R. Stuart .....	10 00
Best painting of a cow from life, Jas. R. Pompelly, Fond du Lac ..	10 00
Best painting of a sheep from life, Jas. R. Stuart .....	7 00
Best painting of historical landscape in oil, Jas. R. Stuart .....	10 00
Second best, Mrs. Nathan Parker .....	5 00
Best specimen of bird painting in water colors, Mrs. C. W. Flower, Fond du Lac .....	4 00
Best crayon from photograph, G. E. Rogers, Fond du Lac .....	5 00
Best marine painting in oil, J. C. Ruggles, Fond du Lac .....	10 00
Second best, Miss Jennie Roberts .....	5 00
Best portrait in water colors, Jas. R. Pompelly .....	5 00
Best portrait in India ink, J. R. Pompelly .....	10 00
Second best, J. W. Dillon .....	5 00
Best placque painting in oil, Mrs. W. H. Hiner .....	3 00
Best collection of China painting, Mrs. W. H. Hiner .....	5 00

Best single piece of China painting, Mrs. Dared Babcock.....	\$3 00
Best water color painting on silk, Mrs. C. W. Flower, Fond du Lac	3 00
Best oil painting on silk or satin, 16 exhibits, Mrs. Ed. Kent.....	3 00
Best panel painting in oil, Mrs. W. Wilde.....	3 00
Best pencil drawing, Mrs. Walter Wilde.....	3 00
Best crayon drawing by exhibitor, Jas. R. Stuart.....	2 00
Best collection of paintings, water colors, Jas. R. Pompelly.....	15 00
Second best, Mrs. C. W. Flower.....	5 00
Best collection of oil painting, not less than 15 pieces, J. R. Stuart..	25 00
Second best, Mrs. W. H. Hiner.....	10 00
Best India ink photograph, C. Chadbourne.....	5 00
Best steel engraving, Mrs. David Babcock.....	3 00
Best collection of photographs and other sun pictures, by exhibitor.	
C. C. Chadbourne.....	10 00
Best collection of photographic copies of oil paintings, Lind Bros.	5 00
Best landscape photograph, Lind Bros.....	2 00
Best collection of stereoscopic views Wisconsin natural scenery, J.	
W. Dillon.....	10 00

CLASS 52 — *Needle, shell and wax work.*

Best sample of plain and fancy sewing, etc., Miss Minnie Lowell..	\$2 00
Best fancy knitting work, Miss S. M. Carter.....	2 00
Best cotton tidy, Mrs. M. N. Trall.....	1 00
Best worsted tidy, Gertrude A. Kellogg.....	1 00
Best worsted embroidery, Allie Durand.....	1 00
Best needlework or floss embroidery. No award.	
Best silk embroidery, Miss Hattie Sawyer.....	2 00
Best embroidered chair covers, upholstered, Miss Jessie Morrison..	2 00
Best ottoman covers, upholstered, Miss Jessie Morrison.....	2 00
Best sofa cushion, upholstered, Gertrude A. Kellogg.....	2 00
Best agricultural wreath, Mrs. Thomas Worthing.....	2 00
Best hand braidwork. No award.	
Best sample of work in wax, Mrs. Susanna P. Kremer.....	1 00
Best work in feathers, Miss Jessie Loyd, Oakfield.....	1 00
Best shell-work, H. G. Roberts.....	1 00
Best bead-work, Mrs. Dorlin Mihills.....	2 00
Best exhibition of hair-work, S. M. Carter.....	2 00
Best lamp mat, Mrs. D. Babcock.....	1 00
Best toilet set, Miss Jessie Morrison.....	2 00
Best Afghan, Mrs. Geo. P. Knowles.....	2 00
Best honiton lace, work of exhibitor, Mrs. J. W. Dillon.....	3 00
Best exhibition of any other kind of lace, Mrs. Dorlin Mihills....	3 00
Best Applique embroidery, Mrs. D. Babcock.....	2 00
Best set of embroidered underclothes, Mrs. M. N. Trall.....	2 00
Best picture embroidery, Miss Jessie Morrison.....	2 00
Best exhibition in this entire class, Miss Jessie Morrison.....	10 00
Second best, Mrs. M. N. Trall.....	Diploma
Best Kensington embroidery, Miss Jessie Morrison.....	\$2 00
Best etching on silk, satin and linen. No award.	
Best Maeranic lace, Miss Allie Durand.....	2 00
Best specimen of lambrequin, Mrs. W. L. Higbee.....	2 00
Best specimen of bleached ferns, etc., Mrs. August Carstens.....	2 00
Best table scarf, Miss Jessie Morrison.....	2 00
Best pillow shams, Mrs. Geo. P. Knowles.....	2 00
Best specimen of darned lace, Miss H. E. Johnson.....	2 00
Best specimen of spatter work, Miss H. E. Johnson.....	2 00
Best specimen of plain sewing, Miss Clark (five years old), Fond	
du Lac.....	1 00
Best landscape penciling, Miss Jennie Roberts.....	1 00
Best specimen still life penciling, John W. Decker.....	1 00

CLASS 53—*Domestic manufacture.*

Best kersey blanket, Mrs. C. L. Loveland.....	\$4 00
Best rug of any material, Mrs. W. Bryant.....	4 00
Second best, Miss Jessie Morrison.....	2 00
Best fifteen yards of rag carpet, Barbara Fountain.....	4 00
Second best, Thos. Mason.....	2 00
Best woolen stockings, Mrs. H. J. Ray.....	2 00
Best woolen socks, Mrs. C. L. Loveland.....	2 00
Best woolen mittens, Mrs. M. J. Coffin.....	2 00
Best white quilt, hand made, Mrs. J. Burke.....	4 00
Second best, Mrs. Thos. Worthing.....	2 00
Best silk quilt, Miss Ida Trail, Rosendale.....	4 00
Best log cabin quilt, not silk, Mrs. H. J. Ray.....	4 00
Second best, Mrs. M. E. Crippin.....	2 00
Best silk log cabin quilt, Mrs. G. W. Swift.....	4 00
Second best, Mrs. D. A. Beal.....	2 00
Best patch-work quilt, Mrs. Maggie Butler.....	2 00
Best knit counterpane, Miss Libbie Treleven.....	4 00
Second best, Adam Dick.....	2 00
Best wrought counterpane, Mrs. T. G. Kinder.....	4 00
Second best, Miss S. M. Carter.....	2 00
Best worsted scarf, A. J. Clum.....	3 00
Best exhibition of taste and skill in cutting and making ladies' dresses by other than professional manufacturers, Mrs. H. L. Hatch, Fond du Lac.....	10 00
Best specimen of darning. No award.	
Best and greatest variety of articles of millinery, C. J. Pettibone, Fond du Lac.....	10 00
Best ladies' cloak, domestic manufacture, Alice J. Clum.....	4 00

CLASS 54—*Natural history.*

Best collection of Wisconsin clays for brick and tile with sample of manufacture, S. C. Matterson, Campbell's Fort, Wis.....	\$5 00
Best samples of clay for paint, S. C. Matterson.....	Diploma
Best collection of the peats of Wisconsin, S. C. Matterson.....	Diploma
Best collection illustrating the birds of Wisconsin, Delos Hatch, Oak Centre.....	\$25 00
Best collection of the insects of Wisconsin, R. W. Bass, Fond du Lac.....	25 00
Miscellaneous articles not in list.	

STATE

AGRICULTURAL AND HORTICULTURAL

CONVENTION,

*Held at Madison, February 5 to 9, 1883, under the auspices of the State  
Agricultural and State Horticultural Societies.*

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MONDAY, February 5, 1883.

Executive Board of the Wisconsin State Agricultural Society met in the rooms of the society at the capitol, at 7 P. M., as required by law, when the regular business of the meeting was transacted, and the changes in general regulations relating to the fair that appear in the catalogue of 1883, were made.

On February 6th, the board convened and revised the premium list. It was resolved to hold the annual fair during the second week of September, 1883.

At 7 P. M. the convention met, and President Fratt delivered the opening address, as follows:

*Members of the Wisconsin State Agricultural and Horticultural Societies, Ladies and Gentlemen:* It is a cause of devout thankfulness that many and rich blessings of a material kind have been given us to enjoy since last we met together. Generally speaking, the year has been one of very great prosperity. All our industrial interests have prospered, and labor has been rewarded with plenty. Of commerce and trade, both foreign and domestic, it may be said that they have thriven almost beyond precedent, and wealth has rolled in upon us in a golden stream. We have been at peace with all nations, and all nations have contributed of



their populations to people our unoccupied territory and help convert what was once a desert into fruitful fields, to build up thriving towns and cities farther on towards the great western sea, and to dispossess savage with civilized life in the far northwest. For all these things our thanks are due a kind Providence to whose orderings we are indebted for the unparalleled prosperity that gladdens us, and the wealth of outward blessings which we as a state and as individuals enjoy. Only the other day we stood among the hundreds of our people who had come together to exhibit in a competitive way, the products of their farms and shops, and to mingle congratulation and rejoicing at the close of a most fruitful season. In view of this goodly portion of the broad land given us for our inheritance, of the pleasant homes in which we live, of the prosperity that attends us in our every calling and pursuit, and our rapidly increasing means of improvement and wealth, we ought to be a very glad and grateful people. As great and notable causes of thankfulness, we might point to our many and great physical advantages and blessings. Perhaps no other portion of our highly favored country possesses such a wealth of

#### NATURAL RESOURCES

as this mighty valley of the Mississippi, of which our state forms a part—no other portion that can claim more and greater, and few so many and great facilities for trade and commerce.

Consider our mines of inexhaustible mineral wealth; our extensive forests of pine and oak; our openings and prairies with the richest and most productive soil in the world; our vast inland seas dotted with the white sails of a busy commerce; our broad rivers running to the ocean, and bearing the wealth that industry extracts from the bosom of the earth; our green hills, and cheerful valleys, and fruitful plains, *all* furnishing employment and homes and highways for honest labor in every legitimate calling and pursuit. These are the evidences, that the lines have fallen to us in pleasant places, and that a goodly heritage has been given us to enjoy. To this I may be permitted to add, that corrupt as any time may be, badly as affairs may be managed by

men in office, despite all financial crisis, there is with us a feeling of security. We have little or no fear that our possessions will be wrested from us, and therefore enjoy what we have without anxious thought for the morrow.

And there is this peculiarity of our social condition, that it is attended by a general diffusion of competence and of the means of prosperity. As every man is a sovereign, so he may live and enjoy as a sovereign. Hard times may occasionally overtake us, it is true; the clouds of adversity will gather now and then, and there will be financial storms and shipwreck. It is not given any of us to always sail on smooth seas, nor to dwell in the eternal sunshine; no doubt it is a wise ordination that storms should alternate with the calm, and that after a smooth path should come a steep and rugged hill-side to climb. No oaks are raised in a hot-house manner; all that is of real value grows out in the open air, takes the weather as it comes, frost and sunshine, snow, hail and rain—have to wrestle with all

#### THE WINDS OF HEAVEN,

and to bear the thousand fold wrenchings of blast and tempest; of none, therefore, may it be said, that they have nothing for which to be thankful; and none may justly complain that in the dispensation of mercies, or in the lavish bestowments of the Divine Hand, they have been overlooked. Always is there a supply for every man's necessities, and for real incurable poverty and wretchedness there is but little anywhere among us.

Continually we see men and families, rising from comparative indigence to competence, to wealth, to elegant living; from stint of even necessary things, to comfort, to luxury, to profusion. There is one bank that never fails, although it may now and then suspend payment. Its capital is the productive soil; its stockholders and depositors the independent farmers of the state; its dividends the fruits which fill the land with plenty and with wealth. Gentlemen, perhaps I magnify our high calling. I may call it a sacred calling. It bears the marks of a more than human appointment. Of even the digging of a ditch it may be said that there is a sort of divineness about it, and of the

mending of a garment, or the sweeping of a floor, that it is as sacred as the preaching of a sermon, for every sort of work or service into which men put the best that is in them, possesses a religious character. I can see, indeed, that a man may so employ himself in the affairs of life, may so pursue his calling or trade, as that it shall be little more than a drudgery and weariness to him, and going aside from the real intent in his occupation, carrying into it nothing of a right spirit, he shall get from it nothing of the discipline it was designed to furnish, and therefore shall be hindered rather than helped by it, dwarfed rather than greatened.

I have intimated that farming is of a sacred character, that it is really a divine appointment. To me it seems, therefore, strange that it should ever have been regarded as a low and disreputable calling, and be set down as among the drudgeries and unsacred things of the world. No fact can be plainer, than that with a fitness and relish for his occupation,

#### A FARMER

will not only achieve success in a material sense, and dignify and magnify his art or profession, but will greaten and glorify himself, and hold more intimate relations with all divine things.

It is not to be forgotten, we will not forget, that valuable as may be the helps furnished by the agricultural school, the discoveries of science, the results of experiment, and the labors of societies, the great body of farmers, the strong right arm of the state, must determine whether the superior interest we represent shall take high or low rank — shall be promoted or retarded. The noble calling they have chosen will go up or down, will go forward or backward, will be glorified by success or disgraced by failure, according as they are intelligent and progressive, or are content with the knowledge of their fathers and the blundering and hap-hazard methods of the past. In this brisk age they must be pushing forward or fall behind in the march. The world is moving, and they must move, or be distanced in the race. No doubt there is a large and growing appreciation of this in the minds of considerable numbers of our brethren, as seen in the evidences of enterprise, thrift, and the better knowledge put to better

use. But of the larger class, I fear it must be said, that the considerations just offered meet with only a blind recognition, and that while in instances there is a going forward, it is after a slovenly and wasteful fashion.

“Nature,” it has been said, “is exacting in her economy, nothing is wasted, but something added for the future supply of her vegetation. A plant grows at the expense of the air and soil, and when its life is ended, it in time returns to the earth a proper compensation for what it has given up with a grateful hospitality. Not so with the average husbandman. Not content with what the earth and air supply, he must have the very return which nature provides, with no equivalent for the future provision which the soil is called upon again and again to make good. By this system of

#### ROBBERY,

the equilibrium which nature has established is broken, and the harmony destroyed.” Reference is made also to another and kindred class of farmers, and we are by no means entirely destitute of their representatives, whose sole process is that of skinning their farm, or rather eviscerating them. They plunder them of all life and life-giving properties, and convert them at last into barren commons or patches of verdureless desert. Of this class, however, we have not very many. If we ever had them they have for the most part been hopefully converted, and of hardened impenitents there are only a few. Evidently these will eventually die out under the operations of the law of “the survival of the fittest.” It may be that they were intended for a wise and valuable purpose as “frightful examples,” of reckless and brainless farming, or are set as beacons of warning to any who might venture upon their foolish and ruinous ways.

If, as we hold, and it is widely conceded, the interest we are met to promote, is of paramount importance or out-ranks all other interests, then clearly it is our duty, as having it in charge, to labor for a broader and more out-spoken recognition of its claims, and to secure for it in the councils of the state and nation, the representation to which it is justly entitled. Whatever may

have been the fact in other days, it is not true to-day, that among our farmers there are no men of sufficient learning, ability, and all that goes to make up qualification, worthily and well to fill any place in the gift of the people. I do not mean that we should enter into mere scrambles for office, nor that we should seek representation in a spirit of antagonism to other interests, but only that we *unite* to secure for our great interest, in the use of right means, an equality of place and privilege, and therefore the right to representation in the persons of men who best know what are its requirements, and how best to speak in its behalf.

Farmers only can truly represent farmers, or the foremost industry of the state and the union; and it is to be added that we but do ourselves honor when we seek to put our representative men, who would dignify and grace any station, into places of legislative or administrative trust and responsibility. I hope there is no treason in this, and that I shall not be accused of undue partiality for a calling which glorifies me as an independent tiller of the soil.

Our thanks are due Governor Rusk for his clear and forcibly-worded recognition of

#### THE IMPORTANCE OF AGRICULTURE,

and of the high rank to which it should be elevated, not only by those who have adopted it as a profession, but by legislative encouragement and aid.

He says well that it is "the foremost industry in our state, and merits most considerate attention." Having said this, it was only legitimate that he should add, "the societies which have been organized for the advancement of the various branches of agriculture should be liberally sustained." His conception of the value of our society to the state, and of the help it has rendered in elevating an abased profession to the high rank it now holds, might, perhaps, have found expression in stronger and more adequate speech; and yet we heartily thank him for his distinguished appreciation of its worth, and for his cordial recommendation that there be accorded it the "encouragement which its importance demands." We take pleasure also in indorsing the opinion that "the time has arrived when means should be provided

for gathering accurate monthly crop and live stock reports during the growing season, and complete labor statistics, and their prompt circulation among the people." We have here an endorsement on the part of the Governor, of what I said one year ago, of the lack of system in making up the agricultural statistics of the state, and of the great benefit legislation would be to the farmers and business men, which should require a concise and uniform style of report. This we followed with the recommendation that, as a wise measure, looking to the increased efficiency and usefulness of the State Agricultural Society, all legislative appropriations in aid of county and district societies, be coupled with the requirement that the secretaries of all county and district societies make a report to the Secretary of the State Agricultural Society. Such report to embrace all

#### MATTERS OF INTEREST

in connection with their last annual exhibition, the condition of the crops in their respective counties and districts, the kinds of farming that predominate, viz.: grain growing, grazing, dairying, or what not, with a few figures worked in to show the ratio, of increase or decrease of products within a given time, each secretary to arrange his report as he may deem proper, giving any information of interest connected with the proceedings of his society during the past year, or copies of any papers or addresses read before it; the object of the report being to secure general information regarding the agricultural interest within the state; also that these county and district societies shall make an annual exhibition of the products of their respective counties and districts at the state fair, each county and district competing as a county or district with all the others; also that they be represented by one or more delegates in the agricultural convention convening at Madison in February of each year. It is very desirable that every county and district society in the state should be represented in said convention, and that their several reports be published in the annual transactions of our society. The importance of these requirements can scarcely be over-estimated. They would help to impart system to what is now loose and irreg-

ular, to unify effort, and to bind up all our local interests in one common bundle. And then it is to be considered, that while the state agricultural society, from first to last, has been instrumental in accomplishing great good in the way of disseminating valuable information on agricultural subjects, and awakening a very deep interest in all that relates to farming pursuits,

#### ITS POWER FOR GOOD,

for a larger and better work would be greatly enhanced, and its influence proportionately widened and strengthened. Were these requirements adopted, in a word it would be made far more efficient in promoting the vast interests committed to its charge. We quote these recommendations from an address of last year, not only as showing how closely they harmonize with the views of Governor Rusk, nor only for the purpose of reiterating what we then said, but that we may emphasize our words and urge attention anew to the very important subject to which they relate.

The recommendations adopted, and framed into wise law, there can be no need, in our judgment, for the Bureau of Agricultural Statistics suggested by the Governor, inasmuch as the purpose of such an instrumentality could be as well and far more economically served by one already in existence, and only requiring an enlargement of its powers, and a bettering of its equipment, through proper legislative enactments.

Let there be a provision of law that the statistical information with regard to crops, live stock, dairy products, labor, etc., shall be furnished by the secretaries of the county and district societies, to the secretary of the State Agricultural Society, by way of monthly reports during the growing season, and by him disseminated to the people at large, in such form as may be prescribed. This would be to

#### ELEVATE THE SOCIETY

now having in charge the agricultural interests of the state, into a Bureau of Agriculture. Its *secretary* the *commissioner* upon whom should devolve the duty of collecting *all* information of value to the farmers, the business men, and labor-

ers of every class. It would also add immensely to its importance as a central agent, and enable it to wield a far greater influence for good than now within its assigned sphere.

In the words of a distinguished gentleman, long since passed away, "What are you going to do about it?" Will you let the golden opportunity which now presents itself pass by unheeded, or, will you take decisive steps to at once place our *own* noble state of Wisconsin where she properly belongs — in the great front ranks of enterprise and progress, along with neighboring states — or, shall she continue to plod along in the old ruts? This is a question which, to my mind, has but one side to it, and should receive our immediate attention, and we therefore, earnestly invite the attention of the legislature to this important subject, and ask for early and favorable action upon the same.

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Hon. J. M. Smith — As my name comes next upon the programme, perhaps it is fitting that I give a word of explanation. We had hoped to have Prof. Beale, of the Michigan Agricultural College, with us in time to have his name upon the programme, but it was not ascertained that he could come until after the programme was printed. He is with us, and I have withdrawn my paper for the evening, because you can hear me at any time and you can only hear him occasionally. I take pleasure in introducing to you Prof. Beale.

Prof. Beale — *Mr. President and gentlemen* : It is with a little regret that I am to occupy the time this evening, because it displaces two or three others that I should have been glad to hear. The President, who has just read his report, has referred to some proposed changes in your laws with reference to agriculture. I am glad that he has done so. I am always interested in anything in advancement of agriculture. This winter there is a proposition coming up before our legislature which is somewhat in accordance with the suggestions of your President, to reorganize the duties of the State Board of Agriculture, and extend them, and supply them with more liberal means. We have in our state



a Bureau of Statistics, conducted by the secretary of state, who may be a farmer, but, more often, may not be, and who is changed every two years at any rate. We have a commission to look after diseases of cattle of various kinds, but they have not a cent to work with. We have some notion of trying to have introduced there some indication of approaching storms, rain or frost, and try to have done for the wheat and corn of the farmers of Michigan what the government has consented to do in Kentucky and Florida and other places for tobacco and cotton. We are trying to combine this matter of statistics and cattle and weather reports and other things with a liberal allowance for a State Experimental Station, and put them all in the hands of the State Board of Agriculture, under one head, to make them more efficient; and who should be entitled to some means for this purpose more than farmers?

I will venture a matter here which may seem out of place perhaps. I am one of the officers of the American Pomological Society. The policy of that society has been not to encourage exhibitions of fruit. At the last meeting held in Boston, a resolution was passed changing this rule and opening the door to everybody from every quarter to present exhibits. Silver and copper medals are to be awarded. I mention this that while you are holding your meeting some arrangement may be made for sending a fine exhibit, and also delegates, to that meeting, which will be held in Philadelphia, on the 12th of next September.

I am to speak this evening of some experiments that I have made at the Michigan Agricultural College, all made by myself except one or two that I may refer to. I have picked up the ideas for these experiments by meeting gatherings of farmers in going from place to place. I am always interested in their meetings. I never meet a company of farmers without getting something out of them. I expect to be fully as much benefited as they are by the meeting. We hold a good many farmers' institutes in Michigan. By going to them I pick up these ideas. I always fill up my note book and come back to my laboratory and class work in the summer full of these ideas which I pick up from the brightest farmers in the country. I have had but little money to use

for these experiments; in fact, no money was appropriated for these experiments until two years ago, when \$400 was allowed for such experiments, and some of that had to be employed for an assistant.

In making these experiments a good many more difficulties come up than you might suppose. Plants take their nourishment from the air and they are influenced by the clouds and the sun. They are also influenced by the temperature, which is always varying. They take but little nourishment from the soil. There are many things to be considered in making experiments, and it is not such an easy matter as many suppose. For instance, a question may come up as to whether a certain bird is beneficial or injurious to the community. We might think it would be easy to determine that by examining the contents of the stomach, but is a much more complex problem. The bird eats certain insects, but are the insects which it eats, all of them or most of them, injurious, or does the bird eat beneficial insects? If the bird did not devour those insects, would not the insects soon multiply and check those insects which are injurious? What does the bird live on at all seasons of the year? These and other things are to be taken into account in determining this one question. I have made a good many experiments in the last eight years upon the codling moth which infests our apples. The subject of the codling moth is a subject for a whole lecture, but I shall not dwell upon it. I have made experiments by catching them in a variety of ways by placing bands around the trees, and with some success. The bands that have been most successful are patented by a man by the name of Greenbaum in the state of New York. It is a strip of pasteboard about two inches wide bound with cotton flannel and wound around the trees and held fast in its place. I have tried paper and pasteboard and little strips of wood, but these bands catch more than all others.

Another way is to scatter Paris Green or London Purple, just as we would over potato tops, over our trees while the apples are small; while they are standing upright, or even when they are smaller than that. A very little of the Paris Green lodges in the blossom, and when the worm hatches

out it eats what is there first and is killed. We might suppose this would be dangerous, but a careful examination of the blossom ends of these apples has failed to show any traces of the poison. It should not be used late in the season, after the apple droops, but when used early it seems safe. This has been used in western New York with a good deal of success. I have made some experiments in killing weeds by beginning with a garden and carefully removing all weeds, not allowing them to go to seed, hoeing and cultivating, and if a weed escaped, digging it up and carrying it off. The result was, that the weeds decreased in two or three years so that in passing over two or three rods of the tract you could pick up all the weeds and carry them off with one hand. But I do not think this pays. If our gardens are carefully cultivated in respect to the plants, I do not think we need care so much about the weeds. It has been sometimes said that the common mole will eat anything but insects and worms. It is said that the teeth decide this matter, but scientific men sometimes come to wrong conclusions. Catching moles and confining them where they are shut away from everything else, I find that they will eat worms and insects well enough, but I find also that they will eat soft corn and peas, and potatoes and cherries, and such things without any difficulty whatever. That is proof beyond question that they eat those things, and many gardeners are of the same opinion from what they have seen of them. I began a few years ago burying seeds of some twenty different weeds in bottles, to see how long they might be kept. I dug some sandy soil from a piece that had never been plowed, about two feet below the surface, and used this soil in the bottles. The bottles, containing some twenty kinds of common weeds, were mixed with this soil. They were placed mouth down, so that no water could run into them. I shall test some next year and test some years hence, to see whether they are alive. Recent experiments have thrown a good deal of uncertainty on the long vitality which has been ascribed to numerous kinds of weeds. The acorns I planted a few years ago outside of these bottles I found last year were all rotten. They had been buried four years. There was not one alive.

I have made some experiments, and had my students make experiments, to see whether buggy peas would grow. Prof. Riley has stated within a few years that they will grow about as well as any. I have had my students at it for the last six or eight years. They find that on an average about twenty per cent. will grow, and they make weaker plants than others. In regard to the blossoming of seed corn, there is a difference between varieties, but in Michigan I find that the silk comes out about two days before any pollen is shed from the top of the stalk; in other words, I find that the silk is fertilized before pollen is shed from the top of the stalk. It is not always so, but in most cases I find it is so. The ear of corn is not fertilized by the same stalk, but by other stalks in the neighborhood. It is of some consequence to know, when we pick our seed corn, what have been its paternal ancestors, and whether the stalks growing in the vicinity are good. For that reason I recommend cutting out the poor stalks of corn before any pollen has been shed. Cut them out or pull the tops out, so that we may know both the paternal and maternal ancestors of our seed corn. It is the same with wheat. In selecting seed wheat from the fanning mill, there may be in the field stalks not two feet high, the head of which will contain two or three plump kernels, and at the fanning mill that would be selected out as seed. On the contrary, there may be stalks that have produced a hundred kernels, no larger, perhaps, than the kernels from the inferior specimen. I had rather have a moderate sized kernel from the stalk that has produced a hundred kernels than a large kernel from the stalk that has produced only a few kernels. The idea of selecting seed corn has been followed for some years by me with gratifying results. It has also been followed by several other persons. Dr. Sturtevant, now the director of the experiment station in New York, has bred up one of the best kinds of flint corn from Massachusetts, and he has followed up this plan for some years past.

Will potatoes mix in the hill, is a common question among farmers over the country. I have been told a great many times that they would, and I have heard a great many stories about it. Potatoes are sometimes mixed, I suppose, as we plant them. But granting that he plants only one

kind, and on digging them finds them of two or three qualities and perhaps varying a little in shape. Potatoes sometimes sport. We have what is called the white peach blow potato, which is said to have come from the pink peach blow potato, which lost its pink spots around the eyes. In horticulture, the gardener knows a great many sports that are propagated. I have seen a red and white peony coming from the same roots. So this mixing in the hill of potatoes, as it is called, I attributed to what may be called sports. I have tried the experiment of taking light and dark colored potatoes and cutting them in two and splitting the eyes and pushing them together as closely and nicely as I possibly could. I planted them in my garden and dug them with my own hands. In each hill I found both kinds of potatoes, but in no instance a mixed potato. There are people who say that sweet and sour apples have been reduced by splitting the buds and sticking them together. As a botanist would look at it, it produces a branch which partakes of the nature of both, but each apple would not be half sweet and half sour. I have never succeeded in grafting buds in this way, but there is a sort of sweet and sour apple known to horticulturists.

In 1877 I began testing seeds. The first station for testing seeds was established by Dr. Knobbe, of Saxony, in 1869. A little has been done in the same direction in several of the states within the past few years; probably as much has been done at the Michigan Agricultural College as anywhere. The adulterations of seeds which were discovered in Saxony were most ingenious in character, harmful in effect, and remarkable in amount. Various countries of Europe, including Great Britain, have enacted stringent laws to regulate the sale of seeds, and punish men who adulterated seeds in any way.

The more the subject was investigated the worse it looked and the more widespread it appeared to be.

One practice was to kill the seeds by boiling or baking. These were of some plant allied to the valuable one. For example, seeds of Charlock, which are worthless, were killed and assorted in sieves. The large ones were mixed with rutabagas and the small ones with turnips. In such

cases, all the seeds which grow are good, but those of dead adulterations will not tell any tales. The purchaser is deceived in the quantity he buys and in the amount of good seeds sown on a given space.

Old seeds, or seeds of another variety, are often dyed and used to adulterate good seeds of red clover or some other species. Sulphur smoking is frequently resorted to to renovate the appearance of worthless old grass seed. Some seeds are dressed with oil for a similar purpose. Experts are carrying on a regular business in doctoring seeds.

The seeds formerly sold even by the best seedsmen were more or less tampered with. Seedsmen were careful to adulterate their seeds about so much each year. If they did not, troublesome questions were likely to be asked.

In Germany, mills were engaged to grind up quartz, sift it and color it to resemble seeds of red clover, with which it was mixed. In 1869 it is estimated that 20,000 bushels of poor turnip seed was sown mixed with good seed. There was, and perhaps it still exists in England, an organized agreement among seedsmen to adulterate seeds to just such an extent. Pure, fresh seed they quote as "net seed," while dead seed they quote as "trio" or "three knocks." Cauliflower, in some instances, they agree to adulterate 40 to 50 per cent.

It cannot be expected that our Yankee seedsmen would remain very long behind our European friends in selling poor seed. As a people we do not like to be outdone. Many seeds are imported and sold in this country. Some are adulterated before they come here. Perhaps some of our seedsmen have learned to adulterate seeds. I do not know. We know that all the large dealers who have the best reputation sell some poor seeds — some seeds which are absolutely worthless.

In 1877 I began by testing the seeds where I most suspected the seeds were poor, that is, by buying the seeds sold at our different stores throughout the country. They were found very poor and unreliable. The results were published. At least three of the worst firms went out of the business soon after, or ceased to sell seeds in our state. The seeds still sold at our grocery stores in small packets are many of

them unreliable, and, if unreliable, are worthless. I find the greatest fraud exists in grass seeds, many of which are imported. Seeds of the commonest grasses, as timothy, orchard grass, June grass, red top, are generally very good, but seeds of perennial rye grass, the fescues, meadow fox tail, oat grass, twisted dog's tail, sweet vernal and others are very low in vitality, almost without exception. In some lots tested by me there were no seeds which would germinate. Grass seeds are not known by many persons. At one time a good dealer sent empty chaff of Bermuda grass, which often flowers but seldom seeds. At another time he sent samples of red top, or something like it, which had apparently been cooked. The seeds were all rotten. Even the Agricultural Department at Washington has sent out many very poor seeds.

The great importance of testing seeds to ascertain their vitality, purity, identity, freedom from foreign substances, has already been demonstrated by many persons. This is true of seeds which are home grown, and especially true of seeds which are obtained by purchase. In America, the subject can hardly yet be said to have been fairly started. People are just beginning to think of the subject, but have done very little. Once decided that it is important to test seed, the next step is how shall they be tested?

In making tests the fact must not be lost sight of that the finest looking seeds and those which show the greatest proportion of living seed may not be the most desirable for the field or garden. Much depends on the variety, the choicest strains of some kinds producing seeds of inferior appearance and vitality. One of the objects of my experiments was to consider some of the points in regard to the best mode of finding the vitality of a few kinds of seeds.

One of the most satisfactory methods for most seeds is to take layers of carpet paper, dampen one and place it upon a plate and count out the seeds and place another damp paper on top of that, and above all put something that shall prevent the upper paper from evaporating quite as rapidly as it otherwise would, and test the seeds in that way. I have used some porcelain plates made in Germany for the purpose. Some results which I shall give you were from tests

of seed which I had tested the year before at the Agricultural College. I knew the history of those seeds. The test was made on the same table and the seeds counted out by the same process. I assure you the test was fair so far as the mode was concerned. If the results were very unfavorable to the seeds we repeated the experiment and the summary of both results is given.

I purchased a small quantity of white wheat from a mill in Lansing. I found that it varied a good deal, but I hardly ever found that it germinated over eighty per cent. of good seed. It had been damaged in some way. I saved two kinds of wheat the next year, from our field — white wheat and red wheat. I found, on testing it in different temperatures and in different ways, that this good wheat varied less in germinating qualities than did the poor wheat. In other words, the good wheat would stand the most abuse. The comparatively poor wheat varied forty per cent. in the quantity that germinated. I found that it took red wheat longer to germinate than white wheat. I found also in testing seeds of squashes and pumpkins with seeds of cucumbers and watermelons, that the seeds of the squashes and pumpkins will germinate at a higher temperature than the seeds of the cucumber and watermelon. I found the best results when the maximum heat, for watermelons, had a portion of the day run up to 130 degrees or more. These experiments, however, need repeating, as I think I found that in testing these melons and cucumbers we were not likely to give them sufficient air. They are quite sensitive to being skut up in soil that has not a free circulation of air. I have tested some seeds at constant temperatures, but the experiments were not quite satisfactory, and I will not occupy time with them at present. I purchased all the kinds of seeds I could at our groceries and stores in Lansing and other portions of the state for two or three years. The seeds were sent there by the seedsmen in the winter and taken away in the spring. What they did with them I cannot say. They claimed to destroy them. I obtained seeds also from the different firms that sell seeds over the country—about fifteen of those firms. I did not order the seeds directly, but asked a friend to order them for me. All of these dealers brag of



their seeds as though nobody but themselves sold seeds that are fresh, yet they all hesitate about recommending their seeds, and give a very plausible reason. I do not wish to speak of this subject as throwing a slur upon all these seedsmen, but it is for our interest to know something about the seeds we plant. Probably these large dealers are about as careful in getting their seeds as they can be. A firm that has squash seeds raised for them and furnished them by the car load cannot be quite so particular about their seeds as a man who saves but a few and looks after all the particulars. Of course he can save them very much cheaper if he raises them in large quantities. I tested about thirty kinds of seeds from each dealer, and generally took the kinds of seeds that were most commonly used, the standard varieties. I got only the small packets. I did not in any case order them in bulk. It was some expense, and I got the small packets, such as the small gardeners would usually buy. I suppose if I were to order them in quantity I would get something better.

Mr. James M. Smith — It is a well known fact among market gardeners that large packets are better.

Prof. Beale — I purchased seeds of two firms where they were selling them by the bushel, and the result was somewhat better than with the packets, but I began where I most suspected poor results. I bought 30 samples of J. M. Thorborn & Co., of New York, who are very large dealers. None of them ran over 94 per cent., and that was American lettuce; the Queen onion, 4 per cent.; corn salad cabbage, 44 per cent.; McLean's advance pea, 18 per cent.; drumhead Savoy cabbage, 25 per cent.; fine Algiers cauliflower, 70 per cent.; early curled lettuce, 75 per cent.; yellow danvers onions, 29 per cent., etc. I have given in my report the temperatures in each case and the mode of testing, whether by damp paper or in porous saucers. They were tested by the side of the College grown seeds. We counted out the seeds in lots of 50, and sometimes 100, and sometimes repeated the experiment. From D. M. Ferry, who sells immense quantities of seeds in Michigan, I got seeds. One lot of seeds out of the lot averaged 100 per cent., the nutmeg melons. With early curled lettuce no seeds out of a hundred germinated.

Some ran up pretty well, some 50 per cent, etc. These were seeds ordered directly of the firm. Seeds of the same firm bought at groceries in Lansing ran a good deal lower. Out of them the long scarlet radish ran 30 per cent., the Hubbard squash, 73 per cent., with drumhead lettuce out of 100 seeds none germinated, and out of early prize lettuce none germinated, long scarlet radishes, again, 10 per cent., long orange carrot 22 per cent. Last year they were rather better than the year before.

B. K. Bliss & Sons were about the same as Ferry's, only a little poorer. Of early cracker onions and yellow danvers onions no seeds germinated. Of early China beans 100 per cent. germinated, thyme eleven per cent., summer savory three per cent., scarlet olive radishes twelve per cent., scarlet turnip radishes seventy per cent., short top radishes fourteen per cent. J. J. H. Gregory was about the same. Shakers' Seed company, Lebanon, N. Y., about the same. Peter Henderson very poor; early curled lettuce seventy-eight per cent., black seed lettuce ten per cent., yellow danvers onions three per cent., thyme twenty-one per cent., long scarlet radish five per cent. These seeds were bought directly of the firm by a friend for me to test. I tested seeds of David Landreth & Son, of Philadelphia. From the Detroit Seed Company I had but very few, and they have gone out of business. James Vick, of Rochester, was about like D. M. Ferry. The Department of Agriculture at Washington was about like the rest. Briggs & Bro. very poor. They have been bought out by Sibley & Co. Joseph Harris, of Rochester, about like the rest: Drumhead Savoy cabbage 3 per cent., Fotler's drumhead cabbage 35 per cent., yellow danvers onions 78 per cent. early tennis ball lettuce 71 per cent., imperial Brunswick cabbage 60 per cent.

Isaac Tillinghast, a market gardener of Pennsylvania, brags a good deal of his seeds: flat dutch cabbage 45 per cent., Malta lettuce 36 per cent., yellow danvers onions 84 per cent., early scarlet radishes 4 per cent., premium flat dutch cabbage 50 per cent. William Carson, of New York, is like the rest. Hiram Sibley: Yellow danvers onions, tested with test plates, 9½; same tested with porous saucers, 23; golden wax beans 100 per cent., nutmeg melons 100 per cent.,

Lee's immense hardy lettuce no seeds germinated out of 200, two tests being made. Of the College seeds tested the lowest was 80 per cent., which was nutmeg melon. Lee's mammoth lettuce and Ferry's mammoth curled lettuce and the white spine cucumber ran 100 per cent., and the red Weatherfield onion and the champion of England peas ran 99 per cent.

In 1881 the autumn was quite wet and before corn which was up in the crib was fairly dry there came a severe frost. Farmers many times are a little careless about saving seed corn and pick it from the crib, and in planting it sometimes without testing it they find very little comes up. I have here the report of twenty-four lots of corn sent in to me from various parts of Michigan by the farmers, which I tested with interesting results. In several lots of 100 seeds not one grew. In other instances five, and ten and twelve per cent. This is a matter of some interest to Michigan farmers at any rate, because we may have just such a season as we had two years ago, and the farmer of Michigan who picks his seed corn after a severe frost in the fall will find to his sorrow that he has planted poor seed. What shall be done if so many of these large seedsmen send such poor seed? A market gardener will not trust to poor seeds. He will test them carefully. He is in the business and will know by experience the seeds he uses in nearly all cases; but many farmers will purchase a few seeds, perhaps at the last pinch, going to the grocery and getting them. Instead of having these large seedsmen raise the seeds I think it would be better to have a large number of persons all over the country raise such seeds as they can raise well, and let them supply the farmers of their neighborhood or the members of their granges with the seeds that they know that they can raise well. They may cost two or three times as much, but what does the cost of the seed amount to if we fail to get seed that is just right.

Will seeds that have sprouted once sprout again? In the case of corn and oats and buckwheat there is no trouble in their sprouting several times. In the case of wheat, I found last year by sprouting white wheat and red wheat and buckwheat they ran about the same. One hundred kernels of Schumacher was sprouted and dried until a miller would say

it was dry enough to grind. Of these tested, the second time 100 per cent. germinated, the third time 90 per cent., the fourth time 87 per cent., and the fifth time 67 per cent., and the sixth time 8 per cent. This would lead me to conclude that if wheat had not grown very much it would be safe to sow it for seed, although it would be somewhat weakened. Buckwheat was a little better and corn about the same.

Mr. J. M. Smith—Is it possible to fertilize an ear of corn from its own blossom?

Prof. Beale—By covering up several ears of corn with a little paper sack thrown over it before the silk came out and saving the pollen from that stock, I have only succeeded out of half a dozen times in getting in one case a few kernels of corn, by using the pollen from the same stock. Corn is probably seldom self-fertilized.

In the case of grass seeds mixed together for lawn purposes, I examined a package and found that it consisted of 80.1 per cent. of June grass, 13.4 per cent. of English rye grass, and 6.2 per cent. of white clover, .3 per cent. timothy. The person who buys a package of that mixture pays an extraordinarily high price for the seed. It is better and cheaper to purchase just June grass.

#### PLATS OF GRASSES AND OTHER FORAGE PLANTS.

For the last six years I have had one or two hundred plats of grasses growing, which are very interesting, including Bermuda grass and sorghum halepense. We have tested our June grass side by side with two lots of genuine blue grass from Kentucky, and found it one and the same. I sent to a friend in Kentucky and asked him to go to two different seedsmen who knew that they had genuine Kentucky blue grass. I went to our hay mow and picked up the June grass with my own hands and planted it. They came up alike and grew alike and looked alike all the way through as every farmer says and every botanist says who sees them. I did not discover that the Kentucky seeds produced any better plants than those selected from our own hay mow. I am sorry that the Kentucky people have applied the name blue grass to it, because it is not as blue as a grass that is often found in the north.

## FEEDING SWEET VERNAL GRASS.

This grass is often recommended as a valuable grass for early pastures. A few experiments have been made. A young horse has been kept on dry feed for a long time. On May 24th, 1881, I cut a bunch of green *Poa pratensis*, June grass, and another of sweet vernal. The horse was first offered some of the June grass, which he ate. He was then offered some of the sweet vernal, which he ate at once. Then a bunch of June grass was placed on one side of his nose and some sweet vernal on the opposite side, when he took the June grass first. I reversed the bunches, when he again selected the June grass, which he finished, and then picked up the scattered fragments of the same from a dirty yard, after which he returned to the sweet vernal and ate that also.

On May 25th, one of my special students, W. C. Latta, made a similar experiment with samples of sweet vernal and meadow fox tail. Both were in flower and had been dried for several days. The cow rather preferred the meadow fox tail, but ate both readily. Another cow ate both alike. Another preferred the meadow fox tail and did not care for the sweet vernal. An Ayrshire cow ate both greedily, apparently without any preference. Two of the work horses of the farm department ate both alike, while a third horse preferred the meadow fox tail, but ate both readily. The cows had been in pasture for some time, while the horses had been kept on cut hay and grain.

## TESTING DARK COLORED CLOVER SEED.

The first test I made rather indicated that the dark clover seed was a little the best. The second showed that the light clover seeds were a little the best. If we should test a large number I doubt whether we should find any difference. It is found that in market the dark colored clover seed is the best. We planted two beds side by side, in one of which dark seeds only were sown, and in the other light seeds. At first we thought the dark colored seeds did a little the best, but after a while I could find no difference.

## DO BUMBLE BEES BENEFIT RED CLOVER.

For the past six years I have made experiments on this subject. The results were quite variable and unsatisfactory. Last season the experiments were made a little more carefully than usual, by covering up two fine bunches, side by side, of the first crop, apparently alike. They were covered with mosquito netting. Under the netting were placed at several times bumble bees, and they were seen to work on the clover. Before beginning the experiment all the heads that had blossomed were cut off, so that as they came into blossom they were all covered by this netting. On July 31st 50 ripe heads were selected from each plant and the seeds carefully shelled and counted. The fifty heads on the plant where the bumble bees were excluded yielded 25 seeds. The 50 on the plant where the bumble bees were inserted and seen to work under the netting yielded 94 seeds. I should not want to lay very much stress on that, did it not correspond very well with previous experiments. Bumble bees have been watched on numerous other plants, and they are generally found to exert a favorable influence. In the case of white clover, I found on eight heads that had been covered that they yielded five seeds, and eight heads that were not covered and which the honey bees had visited yielded 236 seeds, showing an immense difference in favor of those which the bees had worked on. The late Mr. Darwin arrived at some conclusions similar to these from numerous experiments that he made.

Bumble bees have been exported to Australia for the purpose of causing clover to seed more freely. I do not know what the results are yet. If the bumble bees do more good than harm we should not break up their nests. Bumble bees prefer to raise their colonies in old nests of meadow mice. It has been suggested that we should not keep many cats, nor allow hawks and foxes and dogs to catch these mice which make nests so necessary for the bumble bee to help fertilize our clover. We never can tell where scientific investigations are going to bring out something of interest to the farmer. The more the farmer understands of these things the more friendly he becomes toward all science.

I will refer next to an abstract of a paper which has been referred to in the *New York Tribune*: In examining fields of clover about our College premises I have been astonished to find them vary so much. I think plants in a field of clover vary as much as a field of Indian corn would if we planted all the kinds that grew in the state. For the past two years I have been studying hundreds of plants of red clover at all seasons and stages of growth. I have marked and saved seeds of some twenty plants which have shown the most distinct and widely differing peculiarities. I intend to plant them and see if we can improve them. I collected within about ten feet of each other some ripe heads of clover from five different plants looking much alike. I selected 50 heads from each plant. The seeds were shelled and counted. Fifty heads contained 1,260 seeds, 1,275, 1,460, 1,485 and 1,820 respectively. Between the two extremes is a difference of nearly one-third in the number of seeds. Mr. Troop selected a lot in another place, fifty heads of which contained 2,290 seeds, or nearly twice as much as the highest of those I have mentioned, showing that a single plant often varies considerably from another by the side of it.

I have hardly ever attended a farmers' convention where the question was not asked me, will wheat turn to chess? I have proceeded with this question as with a good many others, as a skeptic and not believing anything further than I had ascertained for certain. I have often had specimens in various condition sent me by farmers and wheat buyers. It is a very common thing to have a spike of wheat sent in with a little stalk and a few kernels of chess coming out of it. One was sent a few years ago by a member of the House of Representatives in Michigan. I carefully spread apart the chaff of the wheat and down below I found the end of a stalk of chess. I doubled it up and sent it back and told him just how he could find it out for himself. I preferred to have him see it rather than take my word for it. I have had numerous specimens. A former editor of the *Prairie Farmer* in Wisconsin sent me a stalk of chess about a foot and a half long, bearing a few kernels of chess at the top, and here were the roots of the plant, and fastened to one of those roots a kernel of wheat. To understand this I should

have to show you an illustration of how chess and wheat sprout. Wherever it sprouts an ascending axis starts up and is called the stem. Part of it may be under ground. In the other direction two or three or more fine roots start out that may run in every direction. Chess and wheat and corn all start in the same manner. I found this wheat kernel at the end of a chess root.

I placed the whole thing in a saucer of water, and in the morning the wheat kernel had floated away. In its growth probably the roots had pushed out in every direction, and one of them had gone into an old hull of wheat. I have pulled up chess on numerous hulls of oats, but I never supposed that turned to chess. I have also pulled up snail shells attached to chess, but I did not believe they turned to something that turned to chess.

A careful examination of the chaff of wheat has never failed to reveal the end of the branch of chess, yet there are many who maintain that they grow from the same head. I have sprouted chess and raised chess from chess. I went into the orchard last summer and pulled up several stools of chess in flower or past that condition. They were placed in water till the next day. A plant was washed under a pump until the roots were quite clean. The ends of the roots were cut off with shears after observing that there was nothing in the line of chess there. This shortened the size of the field for examination. In the first nine stools of chess thus examined the old kernel of chess was still attached to the lower end of the ascending axis, just where it should have been to produce the stool of chess. Possibly that all spontaneously originated in the soil, but I do not believe it did. In nine times out of ten I can find the old chess kernel if I find anything. In some cases I fail to find anything because in the freezing and thawing, and sometimes in the rough handling, we are likely to throw the kernel away.

#### ROOT PRUNING OF INDIAN CORN.

So far as I have made experiments, under the directions of Dr. Sturtevant, director of the New York Experimental Station, root pruning for several years in the manner he suggests, has seemed to damage corn more than benefit it.



If any one is interested they will find his method in the Board of Agriculture reports about 1879, I think.

I will refer now to experiments in crossing corn and foreign stock, which was suggested by the book of the late Mr. Darwin. I have repeated these experiments several times, with similar results to those of Mr. Darwin. The Gardeners Chronicle, which is one of the ablest weekly horticultural papers in Great Britian, says of the experiments, "The practical results will be a long time filtering into the minds of those who will be most benefited," that is, the farmers and gardeners.

The plan is to select for seed corn, for example, a kind that is grown perhaps fifty miles away, and which has grown perhaps five or six years in one locality. In alternate rows plant kernels taken from your own neighborhood. As soon as the tassels begin to show in all the rows of one lot pull them out, that all the kernels on the ears of those rows may certainly be crossed by pollen from the other rows. Save seeds thus crossed to plant the next year by the side of seeds of each parent. Seeds of one parent can be obtained from the rows not topped. Seeds of the other parent should be planted by themselves to get pure seeds of the same year. In the case of Indian corn one year the result in favor of the crossing was only ten per cent. Possibly that was accidental. In another case the advantage was 51 per cent., and last year 21 per cent. In crossing with black wax beans the result was as 236 to 100 in favor of the crossed stock. The removing of the tassels from the stalks has been found to cause the ears to grow larger than they otherwise would.

Mr. Kellogg—What proportion would be the benefit without pulling out the tassels, planting in alternate rows?

Prof. Beale—If we did not pull out any of the tops we should not be as certain about it, and probably would not arrive at as good results, because some of the stalks probably would be fertilized by the same stalk of corn. In the case of wheat there probably would not be the same difference, because wheat is self-fertilizing. In the case of corn we get no advantage the first year. The advantage comes the second year. Prof. Henry of the College Farm here, repeated

these experiments of crossing corn very much as I did, and with not so favorable results. All of these experiments need repeating. Even those made by Mr. Darwin did not indicate that the results were always favorable. The practical result is to get seeds that will freely mix by transferring pollen by insects or the wind, raised in different places and bring them together, and in that way mix the seed which raises your corn.

I have made some experiments in regard to the motion of roots. In planting black wax beans and Indian corn in a variety of places, I find that the roots will frequently grow out of the ground and apparently thrive there as well as in the soil. Primary roots frequently come out of the ground and grow, generally, however, trying to enter the ground again. In the case of lima beans planted with the eye up many never got their leaves above ground. Nine out of twenty-five planted in the garden with the eye uppermost sent in damp weather the root end of the stem with all the roots directly out of the ground, where they perished. Indian corn and lima beans in germinating do not, by any means, send all their roots or radicles below the surface of the ground. Roots and radicles often grow in the direction of least resistance.

I tested timber set as fence posts either end up. I selected thirteen kinds of timber and set one set in clay land and another in sandy land, and in some cases those set top end up lasted the longest, and in others those set the other way lasted the longest, and in several cases no perceptible difference was noticed, indicating that it makes no difference which end is set uppermost. I did not notice any difference between sand and clay as to the preservation of the posts. Those planted in sand were taken up one year before the others.

Mr. Kellogg — In regard to the application of poison to the codling moth, how is the poison prepared?

Prof. Beale — Just as you would for potatoes. About a table spoonful of Paris green to a pail full of water, mixed in, and poured with a force pump all over the tree, about as soon as the blossom falls, and afterwards once or twice a week.

Mr. Kellogg—How about arsenic?

Prof. Beale—That would probably do as well, but it remains in a soluble form, while Paris green soon forms an insoluble compound.

A Member—What would you recommend in regard to seed corn?

Prof. Beale—I would recommend saving it before frost appeared.

After describing some experiments which I have been interested in trying, and naming others which seem well worthy of trial, it may not be out of place to say a few words in reference to experiment stations. Within a few years these have become quite numerous in various countries of Europe. Almost every station differs in some respects from every other. This is owing to some peculiarities of the location or the bent of the mind of the director, or some of the board of control. To support a station costs some money, but this is freely given by the government and organizations of farmers. The stations are increasing in number and are considered good investments. The idea of experiment stations has crossed the Atlantic. Already we have them supported by state aid in Connecticut, New Jersey, Pennsylvania, Ohio, North Carolina, Vermont, Massachusetts and New York. In New York there are several stations. The stations spend from \$3,000 to \$8,000, or \$20,000 per year, and they are popular.

Many of the advocates for establishing agricultural colleges thought that the main object of such colleges should be for carrying on a model farm and making experiments. Most, and perhaps all, of the agricultural colleges give more or less attention to making experiments, but a large majority of them are embarrassed for want of means. All the money they can get is needed to erect buildings, purchase books, apparatus, live stock and implements, and to pay the salaries of the professors for teaching the students.

To impart an agricultural education now seems to be the main object of an agricultural college. At a college the time of the professors is too much interrupted with teaching and the management of routine work in the fields, gardens and orchards to spend much thought or energy in planning or car-

rying out valuable experiments. The complex relations of a faculty and students often make changes of professors quite frequent. This is very detrimental to making continuous experiments, and unless these are accurately made and often repeated, they have but little value. I have had some experience in this changing of places. Every professor has his own ideas of experiments. He much prefers to originate and carry out some of his own to completing those begun by another. This is seen in our Commissioners of Agriculture.

The notion seems to be gaining in popularity to have a station distinct from a college, though for several good reasons they are located at a college. The funds and management are distinct. It is good for the professors and their students to have a station very near or at the college. A college should make some experiments. I think our country is particularly fortunate in having such a variety of industrial colleges located in the several states. Most of them are proceeding without a model; all are striving to pursue the best way so far as their means will permit. In time errors will be eliminated and the best courses will be learned. In a few years we shall somewhere have a model agricultural college, and probably more than one; while others will dwindle, go down, or continue to pursue a course not very different from other colleges with literary courses.

The agricultural colleges as a whole are gaining ground. The probability is that before long each state will have one or more experimental stations, and they will be popular, and if well managed, will pay ample returns for the money invested. There will be less difficulty in managing a station than in running a college.

Teaching students is work to a great extent, out of sight of the farmers who never had such training. They do not comprehend it, but they can visit a station and read its reports and in this way find much that will interest them. A station need do but little to pay its way, and this little it seems easy to accomplish. A station will have a good effect on the farmers. It will set them to thinking and experimenting for themselves. It is a first-class educator and will help bounce them out of the ruts and strike their heads against new notions. It will have no respect for tradition

and will show the value of a scientific training. It will react in favor of our agricultural colleges. Without some systematic guide farmers will make slow progress in experimenting. Most of them lack the skill; few know what others have done in the same line or have means or inclination to make good experiments. The greatest demand for stations seems to arise in countries where land is costly and somewhat poor or run down, but even our newest and most fertile land fails to satisfy agriculture. Surely wherever there is a farm, a garden, an orchard, a vineyard, a lawn, a herd of cattle or a flock of sheep there is need of experimenting.

A manufacturer of a fertilizer finds it to his advantage to pay large salaries to one or more men and furnish apparatus to make experiments on raw materials and in learning to make the best and most economical combinations. Our manufacturers of paints, calicos, furniture and many other things find they cannot compete with the trade without employing the best men they can find at any cost to make experiments and good designs.

I need not take the time to tell what every one of you now believes, that in conducting his business, the successful farmer finds use for all the skill of his hands and the cunning of his brain. Shall we say that he has no use for experiments to help bring wealth out of the air, soil, dew and sunshine? There is abundant reason why every state should give handsome support to an experiment station.

In favoring stations we must not lose sight of the fact that many farmers are still ignorant of some of the most valuable discoveries already made. Neither can we pass over another important point that the *average farmer's greatest need is better business habits.*

Again, we may well give attention to some plans for combining to get the best prices for produce after it is ready to market. Shall we stand idly looking on with hands in our pockets, shall I say empty pockets, and see freight and commissions levied on our crops according to their size? If this is to be allowed, why strive to raise more than we raise at present?

In this matter of freights and commissions, we are happy

in having the earnest support of many merchants as well as producers.

American agriculture, in all departments, is steadily on the ascent, and likely to remain so; as the country becomes more thickly settled and land more valuable, competition will help make skill more essential to success. If we look at these points rightly we cannot fail to see that the farmer should continue to give more attention to his duty as a citizen. He must not give up in disgust the caucuses and political gatherings but stick by, rally his friends, and carry good men into office regardless of party. He must give more attention to education and co-operation in grange, alliance or club. This will also raise his social rank and help him wield a greater influence in the public affairs of our country.

With reference to several questions asked, Professor Beale replied substantially as follows:

What is the object of your agricultural college? People don't agree. Some think it should be to run a model farm and show boys how to become farmers, giving the instructions in the art or the manipulations, and nothing of the science. Some think the object is to run an experimental farm and laboratory. Some would only teach the students to become experimenters and nothing else. Some would teach the sciences and arts pertaining to agriculture and try to have the students go onto farms. Before starting agricultural schools the "wise ones" said that after educating a person to use his brains he would not go to farming. These men and the newspapers kept up this cry long after stubborn facts disproved the theory. A college president told Secretary W. I. Chamberlain, of Ohio, "Educate your sons and you'll *hatch ducks*. They'll swim away from the farm." He replied: "If a hen hatches ducks, then somebody has been putting ducks' eggs under her."

Agriculture is a peculiar business, not necessarily low, but often so considered even by farmers themselves, especially by those most ignorant and uncouth. Farmers are too often diffident, retired and ignorant. They are independent and conservative. They are not likely to be smitten with new notions, especially with new notions in reference to education — an agricultural education.

An agricultural education is not in accordance with the traditions of the fathers. Its value needs to be proved before it is accepted. Farmers' boys must be lured or baited to the agricultural school if they go at all. The college must take the initiative and seek the boys. The professors must seek the farmers at their homes, in the neighborhood gatherings, at the institute, grange, club or fair. The professors must make the acquaintance of the farmers, arouse their enthusiasm, and get the right side of the boys to get them to enlist as students. For the best success, this missionary work of the professors of a college *must* be an important part of their work. When once well awakened, and the college full of students and popular — as it surely will be — when the tide turns toward the agricultural college, this outside work will not be so essential.

Fortunately we have gone beyond the days of theories, so far as agricultural colleges are concerned. We now have schools without farms and schools with farms, in connection with a university and others alone. We have those where the students are compelled to labor and those whose labor is voluntary. We have schools of agriculture in manufacturing states and in agricultural states. When they were first started, there were many very plausible reasons given for connecting an agricultural college with a university. I need not repeat them here, but experience has shown that the arguments were not all of them good ones.

In California, the agricultural college is connected with the state university where the professor of agriculture believes in training experimenters and making experiments. He thinks that it is no part of their work to make educated farmers. But very few students attend the agricultural college.

Cornell university has one of the best equipped agricultural colleges in the United States, and yet there are less than thirty students of agriculture out of a total number of over four hundred. Yale College seldom draws more than from one to three students to its school of agriculture. Illinois Industrial University, in the midst of a fine farming country, has about 350 students, with about twenty in the agricultural department. Purdue University, in Indiana,

has a total of 203 students, with eleven in agriculture. The Bussey Institute of Harvard University has seven students. There are about 1,600 students in the university. Missouri University, out of 500 students, has twenty-one in agriculture. Minnesota is no better off. A similar statement could be said in reference to Nebraska, New Hampshire, Vermont, New Jersey and Kentucky. With reference to Ohio, Secretary Chamberlain says: "The land grants were made twenty years ago. The first decade was spent in deciding whether we should have an agricultural college or divide the grant among existing colleges. During the second decade our agricultural and mechanical college was established at Columbus. Its endowments are over a million dollars. It has perhaps the finest chemical, physical and mechanical laboratories in the west. It has a full dozen of professors, but, until about a year ago, it had but a single professor *for its entire agricultural half*. It numbers its students by the hundreds and its graduates in no inconsiderable numbers, but to this day it has never sent forth a *single agricultural graduate*. With bitter disappointment we ask, 'When shall the presence of graduates from this agricultural (?) college, all abroad in the neighborhoods of this, our goodly state, demonstrate the value of an agricultural education and cause farmers' sons to crowd to our state university for one?' At the present rate it would take a century or more."

The farmers of Kentucky are dissatisfied and are agitating the subject of separating the agricultural college from the university.

Iowa has a prosperous agricultural college—a separate institution—containing over two hundred students. Kansas agricultural college is popular and has 333 students. Maine has 102 students, Massachusetts has 118, Colorado is young and booming with about 100 students, Michigan has 216 students. Texas tried an agricultural college with a university, but it failed to draw students. When separated it has, including those in the mechanical department, 258 students. Mississippi tried the same experiment as that tried by Texas. It now has about 300 students in its separate white agricultural college.



As Secretary Chamberlain says, "Every college or university has its atmosphere, its genius, its traditions. Those of some colleges are towards theology, as of Williams and Oberlin. Of some toward literature, as Yale and Harvard. Of some toward science, as Cornell and Johns Hopkins. In like manner, I think we have a right to claim that the influences of all our agricultural colleges shall be decided *towards* and not *away from* agriculture."

"In Canada they failed in attempting to successfully unite the two and have started anew in separate colleges. In their noble university, which was well equipped, they attempted to attach an agricultural college. The officers in charge, after the trial, reported that 'The one word, *failure*, gives the history of all such arrangements. Agriculture is overshadowed by other studies; farming is elbowed out by other professions; agricultural students feel themselves of an inferior grade, the class a dwindling and unsuccessful affair. Stubborn facts refuse to sustain the theory that this department will work well in connection with a general literature course.'"\* For several years they have had an agricultural college separate from the university. During the past few years, report says, that they have been compelled to turn away two hundred or more students for want of room.

These experiments of the different modes of conducting our agricultural colleges teach us more than all the theories that can be brought forward from all sources.

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Gen. Bryant then announced that Gov. Rusk was giving a reception this evening in order that the farmers who came to the convention might call on him, and moved that the convention adjourn and the members call on the governor in a body.

Carried, and the convention adjourned.

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\* An address in 1880 by Prof. W. J. BEALE before the Connecticut Board of Agriculture.

## TARIFF; ITS EFFECT UPON AGRICULTURE.

Hon. MATT. ANDERSON.

This is a subject that will be discussed on the forum and through the press for some time to come, perhaps more than any other. It is a broad subject, one on which there is room for an honest difference of opinion. It is a subject that, perhaps, the average farmer has paid but little attention to; yet it is of the greatest importance, not only to the farmers, but also to the whole people, no matter what their occupation may be. Therefore, I will make no apology for introducing it before a farmer's convention, as I claim we should be well informed on all the great questions of the day, especially those upon which we may be called upon to express our opinion and decide by our votes.

I am aware that no matter what I may say on the subject of a tariff or free trade, there will be honest men to differ with me.

I have heard both sides of this question discussed by some of the ablest statesmen in this country. But most of the discussions, both through the newspapers and on the stump, have been of a partisan nature, intended to advance the interests of the party to which they belonged. I hope the views I have are not of that kind. I wish to give both sides of this question a fair and impartial consideration.

There are tariffs for protection, tariffs for revenue only, and prohibitory tariffs. The first may have duties too high or too low, but a tariff laid on imported goods that come in competition with home manufactures does protect, more or less, unless the home article can be produced cheaper than the imported can be sold. Therefore,

## A TARIFF FOR REVENUE ONLY IS A FALLACY,

unless it is laid upon that which is not produced in this country; such as tea, coffee, etc. A prohibitory tariff is one that taxes imports so high that it prevents importation. It, of course, would raise no revenue. I have heard farmers say: "I want free trade. No restriction on trade. Sell where I can sell the highest, and buy where I can buy the cheapest.

No tariffs! Universal free trade!" If such farmers are asked how money is to be raised to support the government, they will say if they say anything: "By taxation." Well, let these farmers examine this question of raising all the revenue by taxation. No internal revenue or import duties; for if we do not tax foreign products, why tax home products?

The total revenue raised last year was \$403,525,550, and of this amount \$220,410,735.75 were from customs. If this vast sum had to be raised by taxation, according to the constitution, each state would have to pay according to population, thus compelling the poorest to pay as much as the wealthiest, it would amount to about one and one-fourth million of dollars for each congressional district. Wisconsin would have to raise about \$11,000,000 in addition to the present taxes annually. One such tax as that would effectually cure all the free-trade farmers of their free-trade notions, as the farmer's property is in sight and he would have to pay the heaviest of this tax. They cannot hide their property from the assessor, as others can do.

But some may say, "We want whisky and tobacco taxed, as they are luxuries the taxation of which does not oppress the consumer." If we only raised the \$220,410,735, the amount received from customs, by a direct tax, Wisconsin would have to raise about \$700,000 to each congressional district, or in other words over \$6,500,000 in the state. Such a tax would be too heavy to be borne by the farmers and tax payers of this, or any other western state of equal population. It is said that we might as well pay this tax directly as indirectly. That would be good logic, if the farmers had to pay all the custom duties; but fortunately we have help to pay them from a large class that would pay little, if any, direct tax. Young men and professional men who wear fine imported broad cloth, and fine cassimeres, smoke Havana segars and drink imported wines and brandies pay more than the farmers do who wear clothing that was never cheaper in this country than now; and which is not regulated in price by tariff, but by competition of our manufacturers.

There is another class that contributes largely to the sup-

port of our national treasury. It is the ladies who wear fine imported silks, satins, laces, gloves and foreign millinery goods. They are able to pay, and do pay, heavily toward the support of our government. I might name others who assist us in various ways in raising revenue, but what I have said should be plain to every unprejudiced mind, that it is easier for the farmer to support the government by custom duties and by tax on distilled and malt liquors and tobacco, than by a tax on real and personal property. You may think I have only taken a selfish view of the subject. But if in being selfish in trying to save the farmers and other property holders from paying heavily increased taxes; if I can also show that by raising revenue by a fairly adjusted tariff, it not only benefits those engaged in agriculture but also every other class of working men, then I have a right to claim that it is just, honorable and wise to thus raise revenue to support our government, and at the same time protect the large class of men employed in manufactories from having to compete with the half-paid, half-fed laborers of Europe.

It is a fact well known to every intelligent farmer that our home market is the best and only reliable market, as the foreign demand and price for our produce depend upon the good or bad crops of Europe. When there is a good crop in Europe, the demand for our produce is small and prices low, as we have to compete with the cheap labor of Germany and Russia in the foreign markets. And, as 90 per cent. of all our agricultural products (excepting cotton and tobacco), find a market at home; therefore, whatever tends to build up this home market, it is certainly wise for us to encourage. When workmen have high wages and plenty of work, they are able to pay good prices for our flour, beef, pork, butter and cheese, and every product of the farm and garden. Farmers can compare the prices we have received during the last two years of good times and high wages, with those received when the country was over-run with tramps, wages low and employment scarce. Then every industry suffered, and men by tens of thousands lost the accumulations of a lifetime.

I may be told that free trade did not cause the disaster of 1873, as we then had the same tariff, substantially, as now. I am aware of all that, and believe that most of our well informed farmers know what was the cause; but I will not now discuss that question. But whatever was the cause, we know that if work had been as plenty and wages as high as now, no such suffering and bankruptcy could have occurred.

When wages are high and work plenty the country is prosperous.

But I think I am safe in saying that free trade or a very low tariff was the chief cause of the hard times from 1837 to 1840, and also of the general bankruptcy from 1857 to 1861.

I can recollect that the Whigs in the campaign of 1840 elected their President by promising the working men two dollars a day and roast beef if they elected "Tippecanoe and Tyler too," and they were elected by an overwhelming majority.

The protective tariff of 1842 revived every industry; but the low tariff of 1846 closed many of the iron works and other factories. As soon as our works were closed, our free trade English friends advanced the price of iron rails from \$50 per ton to \$80 per ton. Ever since that time I have believed that the best way to have cheap goods was to protect our manufacturers so as to prevent foreign capital and labor from driving them out of the business, and to keep our factories running in competition with theirs.

A revenue tariff, so adjusted as to protect home industry, I believe to be for the best interests of the farmers and all other occupations in this country.

Every farmer past middle age can recollect the hard times from 1857 to 1861; corn in Illinois sold for ten cents per bushel, and was burned for fuel; dressed pork, \$2 per hundred pounds; wages of hired men, \$12 a month, and clothing — such as farmers and their families wear — dearer than at present. This was under the low tariff of 1846, or an average duty of nineteen per cent.

President Filmore in his message to Congress, of December 2, 1851, said of the low tariff of 1846: "The value of our exports of bread-stuffs and provisions, which it was supposed

the incentive of a low tariff and large importations from abroad would have greatly augmented, has fallen from \$68,701,921 in 1847, to \$26,051,373 in 1850, and to \$21,848,653 in 1851, with a strong probability, amounting almost to a certainty, of a still further reduction in the current year. The policy which dictated a low rate of duties on foreign merchandise, it was thought by those who promoted and established it, would tend to benefit the farming population of the country, by increasing the demand and raising the price of agricultural products in foreign markets. The foregoing facts, however, seem to show incontestably that no such result has followed the adoption of this policy."

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I now call your attention to another message of the same President, a year later, at the second session of the Thirty-second Congress:

"In my first annual message to Congress I called your attention to what seemed to me some defects in the present tariff and recommended such modifications as in my judgment were best adapted to remedy its evils and promote the prosperity of the country. Nothing has since occurred to change my views on this important question.

"Without repeating the arguments contained in my former message in favor of discriminating protective duties, I deem it my duty to call your attention to one or two other considerations affecting this subject. The first is the effect of large importations of foreign goods upon our currency. Most of the gold of California, as fast as it is coined, finds its way directly to Europe in payment for goods purchased. In the second place, as our manufacturing establishments are broken down by competition with foreigners, the capital invested in them is lost, thousands of honest and industrious citizens are thrown out of employment, and the farmer, to that extent is deprived of a home market for the sale of his surplus produce. In the third place, the destruction of our manufactures leaves the foreigner without competition in our market."

I wish now to call attention to and read from the message of the last Democratic President, James Buchanan, at the first session of the 35th Congress (December 8, 1857):

“We have possessed all the elements of material wealth in rich abundance, and yet, notwithstanding all these advantages, our country, in its monetary interests, is at the present moment in a deplorable condition. In the midst of unsurpassed plenty in all the productions and in all the elements of national wealth, we find our manufactures suspended, our public works retarded, our private enterprises of different kinds abandoned, and thousands of useful laborers thrown out of employment and reduced to want. The revenue of the Government, which is chiefly derived from duties on imports from abroad, has been greatly reduced, while the appropriations made by Congress at its last session for the current fiscal year are very large in amount.

“Under these circumstances a loan may be required before the close of your present session; but this, although deeply to be regretted, would prove to be only a slight misfortune when compared with the suffering and distress prevailing among the people. With this the Government cannot fail deeply to sympathize, though it may be without the power to extend relief.”

That protection increases foreign commerce, both imports and exports is remarkably shown by twenty years' experience under the Morrill tariff, with its complements and improvements, as shown in the following table, compiled from the reports of the bureau of statistics, giving the total of all the imports and exports of merchandise of the United States in each fiscal year from 1861 to 1880:

Fiscal years ending June 30.	Net imports. Gold value.	Domestic exports. Gold value.	Total foreign trade. Gold value.
	Merchandise.	Merchandise.	Merchandise.
1861 .....	\$274, 656, 325	\$204, 899, 616	\$479, 555, 941
1862 .....	178, 330, 200	179, 644, 024	357, 974, 224
1863 .....	225, 375, 280	186, 003, 912	411, 379, 192
1864 .....	301, 113, 322	143, 504, 027	444, 617, 349
1865 .....	209, 656, 525	136, 940, 248	346, 596, 773
1866 .....	423, 470, 646	337, 518, 102	760, 988, 748
1867 .....	381, 041, 764	279, 786, 809	660, 828, 573
1868 .....	344, 873, 441	269, 389, 900	614, 263, 341
1869 .....	406, 555, 379	275, 166, 697	681, 722, 076

Fiscal years ending June 30.	Net imports. Gold value.	Domestic exports. Gold value.	Total foreign trade. Gold value.
	Merchandise.	Merchandise.	Merchandise.
1870 .....	\$419, 803, 113	\$376, 616, 473	\$796, 419, 586
1871 .....	505, 802, 414	428, 398, 908	934, 201, 322
1872 .....	610, 904, 622	428, 487, 131	1, 039, 391, 753
1873 .....	624, 689, 727	505, 033, 439	1, 129, 723, 166
1874 .....	550, 556, 723	569, 433, 421	1, 119, 990, 144
1875 .....	518, 846, 825	499, 284, 100	1, 018, 130, 925
1876 .....	445, 938, 766	525, 582, 247	971, 521, 013
1877 .....	438, 518, 130	589, 670, 224	1, 028, 188, 354
1878 .....	422, 895, 034	680, 709, 268	1, 103, 604, 302
1879 .....	433, 679, 124	698, 340, 790	1, 132, 019, 914
1880 .....	656, 198, 440	824, 106, 799	1, 480, 305, 239

For the year 1881 our exports were \$945,042,074. The foreign trade of 1861 was under the operation of the revenue tariff of 1857, with an average rate of duty of nineteen per cent. The foreign trade of 1881 was under a tariff, with an average rate of duty of forty-six and three-eighths per cent. This shows that under our present tariff, which is considered by some men as being too high, and that it raises too much revenue, yet our importations last year were larger than any previous year, amounting to \$724,639,574 of merchandise and \$42,472,390 in specie.

It will be seen that the high duties have not injured our foreign markets, for we exported last year of merchandise \$775,074,227, and of specie \$4,941,747.

In six years ending June 30, 1881, our exports of merchandise exceeded imports by over \$1,175,000,000, largely increasing our stock of gold, filling the pockets of the people with more than \$250,000,000, not found in the treasury or banks; making the return to specie payment easy. This refutes the free trade assertion that exports are dependent upon imports.

The pertinent question arises, shall we not, in the main, hold fast to the blessings we have? While we should not undervalue the foreign market, but cultivate and encourage it as much as possible, its insignificance is seen by the farmer, when compared with the home market; the one taking not less than ninety per cent. and the other not more than ten per cent. of its products, tobacco and cotton excluded.



Next to a fertile and productive soil, the farmer requires a market in which to dispose of his surplus produce. His money comes from his surplus crops. To derive the most from his crops he requires a certain and reliable market. The heaviest tax upon a farmer is that which he pays for getting his crops to market; therefore, the nearer the market the less the cost. The home market is nearer than a foreign market, hence less expensive, and being at home, is more certain and reliable. The foreign market is always uncertain, dependent upon foreign harvests, as well as other contingencies. If their harvest be bad, they want much to make up the deficiency; if it proves to be good they want but little. There are also other elements which affect the foreign market. Competition is one. Other nations are as ready as we to supply their wants, and if they can under-sell us, the foreigner buys of them, not of us.

It follows, then, that in the interest of agriculture everything should be done to stimulate and increase the home market. If protective duties tend to do this by building up manufactures, and giving employment to labor, then protection benefits the agriculturalist.

The farmer should be protected. Nothing should be left undone that would help to encourage him in his pursuits. Every possible aid should be extended him, to stimulate his efforts and enlarge his capacity to produce, and wherever a protective duty will help him, the state should impose it for his benefit.

The present tariff laws impose the following direct protective duties on agricultural products: rice, cleaned,  $2\frac{1}{2}$  cents per pound; wheat, 20 cents per bushel; Indian corn, 10 cents per bushel; oats, 10 cents per bushel; rye, 15 cents per bushel; barley, 15 cents per bushel; butter, 4 cents per pound; cheese, 4 cents per pound; potatoes, 15 cents per bushel; poultry, 10 per cent. in value; peas, from 10 to 20 per cent.; beans, from 10 to 20 per cent.; tobacco, unmanufactured, 35 cents per pound; unstemmed, 50 cents, in addition to a revenue duty of 24 cents per pound; sugar, from 2 to 4 cents per pound; on all kinds of live stock, except for breeding purposes, 20 per cent. Those for breeding purposes are admitted free. Beef and pork, 1 cent per pound; mutton, 10 per cent.; wool,

from 10 to 12 cents per pound, and from 10 to 12 per cent. added; and hay, 20 per cent.

This is as it should be. These duties tend to prevent Canada from furnishing New England with agricultural products, and as their proximity to the eastern states gives them great advantage over the western farmer, I hope our farmers will oppose any reciprocity treaty with Canada that will permit them to supply the eastern states with their products free of duty. Such a treaty is asked for by Canada, and the business men of all the lake cities are urging Congress to pass such a treaty.

For years England, through the Cobden Club, an institution representing the manufacturers of England, said to have two hundred members of Parliament and twelve members of the British Cabinet enrolled among its members, and fifty members in the United States having an office in Chicago and one in New York, have been sending their publications to this country to convince the farmers that we are unjustly taxed to support the manufactures of the eastern states. Fifty thousand of their publications were sent to this country last year.

Lord Derby, while presiding at a Cobden Club dinner, held in London last July, in commenting upon our system, says he regrets that it is protective; but asserts that sooner or later free trade must become a sectional question in the United States, and then goes on to say: "The western farmer will not always enjoy the notion of paying tribute to the eastern manufacturers." This is but one of the many utterances of a like nature by their statesmen and politicians, besides their books, pamphlets, and editorials are gotten up to array one section of our country against another; in other words, to use the language of Lord Derby, "to make the tariff a sectional question by arraying the western states against the eastern states, and the farmers against the manufacturers."

Would it not be just as well, and probably pay better in the end, if some of their work and zeal were directed toward alleviating and helping the poor and oppressed people of Ireland? There is here a wide field for labor, including their own agriculturalists.

When you hear political demagogues proclaiming free trade in the interest of the farmers, you may know that he has an "axe to grind," or is ignorant of our best interests; or, perhaps has been reading some of Mongredian's pamphlets, or of the Cobden Club literature.

The policy of a fairly adjusted tariff is to protect labor and industry. This is the American system, and under it the country has been prosperous.

Of manufactured commodities now used and consumed in this country, over ninety per cent. is manufactured at home and less than nine per cent. is made or imported from abroad. The value of the manufactured commodities during the fiscal year of 1880 is set down at \$6,500,000,000. During the same year we exported \$230,000,000 worth of manufactured commodities; that would leave our manufactured products consumed in this country for the year 1880, about \$6,270,000,000. During the same year we imported of manufactured commodities about \$450,000,000. Supposing that the whole of these were consumed here, it only forms about seven per cent. of the manufactured products used and consumed in the country. We have, then, the astounding facts, that of the manufactured commodities used in this country, less than eight per cent. are imported, and more than ninety-two per cent. are manufactured here.

How was it thirty years ago? It has been computed that of the manufactured commodities then used in this country 90 per cent. were made abroad, and only 10 per cent. were manufactured at home. And with this great change, and the large increase in the consumption of manufactured commodities since that period we have this additional result, namely, that nearly every kind of manufactured commodity is cheaper than it was thirty, or even twenty years ago.

The result to the farmer may be summed up as follows: Of the crops he raises — outside of tobacco and cotton — ninety per cent. is consumed at home, and he can buy all the manufactured commodities he requires for less than he could twenty-five years ago, before the present protective laws were enacted, and many of them even cheaper than they can be bought in a foreign market.

As one proof of this, you have only to look over the list of

exports of manufactured commodities. We are sending to foreign countries yearly, agricultural implements, including fanning mills, horse powers, mowers and reapers, plows, cultivators, forks, hoes, etc., carriages, carts, cotton goods, railroad cars, locomotives, steam engines, watches, clocks, glass and glassware, hats, caps, boots, shoes, wearing apparel, machinery, cutlery, edge tools, files, saws, firearms, nails, India rubber goods, jewelry, lamps, saddlery, harnesses, organs, piano-fortes, paper, stationery, printing presses, sewing machines, household goods, furniture, wood work, tinware and scales.

We also shipped last year one hundred and forty-eight million yards of cotton goods and nearly 400,000 clocks.

The above list contains much that the farmer has to buy, and certainly the protective tariff does not increase their price to us.

We have been told that there is a duty of \$27.00 per ton on steel rails, and we have to pay that much more than we would if there was no duty. The fallacy of this statement, like all others of a similar kind, is shown by the fact that steel rails are sold to-day for one-fourth the price that they were sold for before the passage of our present protective tariff.

The first steel rails were made in this country in 1868. Their current price was \$174.00 per ton. The price now is from \$42.00 to \$45.00 per ton. In the meantime our production has reached 1,188,000 tons for 1881, being greater than that of England by sixty thousand tons.

Had the United States continued to be dependent upon England for this article, will any one pretend to say that the price would have fallen so low?

It is claimed that we can buy what we produce cheaper elsewhere than at home. The preceding illustration ought to remove that impression, for however true it might be, when the prices in the foreign markets are compared with our own, what would be the condition of those markets, were an annual demand made upon them of one-half, or even one-fourth of our present production?

Other manufactories, such as cotton, wool, silk, etc., have increased with a like rapidity, and what is of peculiar inter-

est, they are springing up in great numbers in our own state, and throughout the west.

The protective system is a system of high wages. Its very purpose is the protection of the workingman. High wages means the circulation of money among the people. The circulation of money in a community tends to raise the workers in the social system, and give to them the advantages they are entitled to, and which they do not elsewhere enjoy to the same extent.

It is asserted that high wages produce a higher cost for the necessaries of life, and consequently that the working man is no better off here than in Europe. If so, why do they come here by the thousands yearly? Let anyone examine this question, and it will be found that the American working man's food is much cheaper, the substantial clothing which he uses costs no more, and that in the education of his children, in his associations and in his dwelling, he has great advantages over the working man of foreign lands; and that the frugal, prudent working man here invariably accumulates property and acquires a respectable social position. In free trade England it is said that many of their farm laborers rarely know the luxury of meat — not over sixteen ounces per week — and never expect to own a rood of soil.

In the British Almanac of 1881, it is stated that meat is eaten in Ireland by only fifty-nine per cent. of the farm laborers, and in quantity only four and one-half ounces per week.

That our protective system is beneficial to farmers and every other class of workers is shown by the great prosperity of this country — its increase in wealth and population, its immense development of the new states and territories. If, by free trade, we drive one-half or even one-fourth of those employed in manufactories into farming, we not only destroy much of our home market, but we make them competitors with us in producing food to export to foreign markets.

The absurd assertion is often made that the duty imposed by our tariff adds to the price, not only of imported goods, but also to our home products, the per cent. of duty on that class of goods. The absurdity of this oft-repeated fallacy will be seen if we calculate that the duty upon wheat of 20

cents per bushel would increase the value of our 500,000,000 bushels of wheat raised last year \$100,000,000; and upon the 1,600,000,000 bushels of corn raised last year, at 10 cents per bushel, \$160,000,000; and add 15 cents to the price of every bushel of rye and barley, and 10 cents on oats, and 20 per cent. to the value of live stock, 20 per cent. of hay, 40 per cent. on wool, 4 cents per pound on butter and cheese, and add the per cent. duty upon all the products of the farm and garden, and if it be true that it increases their price to the extent of the duty levied, the amount would be so large that it would astonish even a protectionist.

As I have not mentioned the duty on sugar, tobacco, cotton, hemp, flax, and seeds, it is safe to say that if we figure up our gains or increase in price of products, as the free traders figure for the manufacturers, our protection would add to the price of our produce about one billion of dollars annually.

But it is said that the price of the farmers' produce is regulated by the European markets. So is the price of foreign goods by the price of goods produced here; and the price of our manufactured goods is kept down by competition. For instance, there is a duty of 68 per cent. on carpets. Yet you can buy good, all wool ingrain carpets here in Madison for 75 cents per yard; deduct the tariff duty, and, according to the free trade logic, they could be sold for about 20 cents per yard. That is less than the wool costs. Again, the duty on clothing is from 56 to 75 per cent. I have seen a man's suit of heavy, all wool cassimere, well trimmed and well made, that was bought in Madison a few days ago for \$18. Now if we deduct 60 per cent. as the amount added to the price of this suit by the tariff, it could be sold, according to the free trade theory for \$7.20.

There is a duty of sixty-four per cent. on salt, yet fine salt is quoted in Chicago at one dollar per barrel, and in New York at one dollar and five cents. If the duty has increased the price sixty-four per cent. it could be sold without the duty for thirty-six cents per barrel. This would not pay for the barrel and freight from the salt works to Chicago. I could name a large number of articles on which the duty is from forty to sixty per cent. that do not cost one cent

more than if there was no duty upon them. (Of course the price of many articles is increased.)

In proof of the reduction of certain articles that are protected by a duty of fifty per cent. I will read the remarks of John Sherman, made in the United States Senate a few days ago.

“Prior to 1863 there was no white earthenware made in the United States, so that this might be properly spoken of as an infant industry. The best materials for this kind of manufacture were to be found in abundance in Texas, Missouri, Indiana, Ohio, Pennsylvania and other states, and, under the operation of the tariff and the high price of gold, an enormous industry for this kind of work has sprung up within the last twenty years. In East Liverpool, O., there were over 100 furnaces engaged in producing this beautiful ware, and he understood the production in New Jersey was large. The result was that the price of ordinary China ware had been reduced to one-half, and in some cases to one-third, what it was before. In glassware still more remarkable results had been achieved, mainly by the capital and ingenuity of a gentleman in Indiana. The price of ware had been greatly reduced, while in quality it was superior to French plate glass; such had been the results of home competition under the tariff. But now these industries were languishing, and in New Jersey and Ohio, and Indiana glass manufacture was struggling for existence.”

If the price of our manufactured and imported goods are increased by the present tariff 40 per cent., which is less than the average of the duties imposed, taking the estimate put upon our manufactured goods for the last year at \$6,500,000,000, and imports at \$500,000,000, in all seven billions, the increased value would be \$2,800,000,000. The amount is so enormous that it is too ridiculous for any sensible man to believe.

“My friend,” cried a western demagogue from the stump to a farmer in his audience, “do you know that these tariff monopolists make you pay six cents a yard more for the shirt on your back than you ought to pay?” “I suppose it must be so,” replies the farmer, “since you say it; but I can’t

quite understand how it can be, since I gave for it only five cents and a half a yard."

The question may be asked, "Why have a tariff if it does not increase the price of home made goods?" I answer that foreign goods sent here are to a large extent surplus, which the foreigner cannot sell in his own country at fair prices without breaking down his own market. They are sent here and sold by auction at forced prices to a large extent without profit, because it is better to incur a loss than to glut the home market.

Again, a large class of foreign goods are bought by luxurious and exclusive classes, without reference to their cost; their cost even enhancing their desirableness as a token of wealth on the part of the purchaser.

The fact is notorious, that these classes in our large cities will pay for foreign clothes, at a fashionable tailor, double the price for which equally handsome articles of domestic manufacture may be procured.

The import of foreign goods is therefore no test of their cheapness in the country of production.

In conclusion I wish to give a few of the many reasons that can be given why farmers should favor protection. It increases the price of our lands; gives a better market and higher prices for our produce. It gives higher wages to laborers.

Henry C. Carey, whose reputation is co-extensive with the world as a teacher of protection, has more than once asserted that protection is a universal remedy for all social evils. "Adopt it universally," he said, "and with the bettered condition of mankind, ignorance, intemperance and vice generally will disappear."

Under free trade, or a low tariff, the balance of trade will be against us, as it was from 1847 to 1860. Under the low tariff of 1846 nearly all the gold produced in California during that period was sent abroad, which might have been retained at home under a protective tariff, and thereby enriched the country to the amount of many billions of dollars; and with our factories and furnaces in full blast, and plenty of money, we would have been much better prepared to crush the most gigantic rebellion the world ever saw.



## DISCUSSION.

Mr. J. M. Fish, Springfield — I would like to ask the gentleman with his long list of exports, how it is that we can manufacture goods here and export them in the face of that pauper labor of the old country that he speaks of.

Mr. Anderson — I do not know that I am able to explain to the gentleman more than this, that we can manufacture cotton goods, of the kind I mention, as cheap as they can anywhere in the world, except on account of wages. There is another reason. When these goods are manufactured here, and we have a surplus, it is better for these manufacturers to ship that surplus of cotton goods, and even sell them at a loss in Europe than to glut our home market, and reduce the price. It would be the same with the farmer who, rather than glut the home market which takes ninety per cent. of his surplus, had better ship the surplus to Europe and sell at a loss the ten per cent. There are several reasons why we ought to have a protective tariff. In the first place, it is the easiest way to raise a revenue, and it costs nearly twice as much to build a factory in this country as it does in Europe. In the second place, coal which costs ninety cents a ton there, costs in this country four dollars a ton. Gas costs there ninety cents a thousand feet, and here it costs double. When we have a surplus on hand we must sell somewhere. If a farmer has a surplus on hand, if he cannot get a high price he will take a low price, and it is the same with a manufacturer. I do not say that we do not always ship them at a profit, because there are some kinds of goods that can be manufactured in this country cheaper than in the old country.

Mr. Ford — I would like to ask the gentleman if a manufacturer can afford to burn up twenty per cent. of his product and then make money, how it is that we need a tariff on that article?

Mr. Anderson — Under the tariff of 1846, the English imported iron into this country till they broke down our manufacturing. There were at one time only two rolling mills in this country running that manufactured railroad iron rails. Then they put up their price from forty to fifty dollars a

ton. If we have not a duty they can destroy our factories by their cheap labor and low interest and coal and gas, and then control the market, and make such prices as they choose as they always have done in every country, and make up their losses.

Mr. I. C. Sloan — I do not rise to discuss this subject, but simply to enter my protest against the doctrine which this paper contains. In my judgment it contains as large an amount of error and fallacy as it would be possible to condense into the same space. Stripped of the formula in which it is stated, the proposition is that a high rate of taxation will produce a state of great prosperity, and the higher the taxation the greater the prosperity. There was one part of the paper which seemed to argue that duties upon imports do not increase the prices of the articles upon which they are imposed. So far the paper was wholly opposed to the theory of protection. The fundamental idea of protection is that you shall impose such a rate of duty upon articles manufactured abroad as will increase the price of the same kind of articles which are manufactured in this country so that our own people can manufacture and sell them with profit. It is obvious that so far as the foreign article pays a duty that duty must come out of somebody. I know it is a controverted question between the advocates of free trade and protectionists, whether it is paid by the foreign manufacturer or by the home consumer or paid partly by each, but the object is to increase the price of the article so far as protection is concerned. If this is not accomplished then there is no protection.

It may not be true, as far as revenue is concerned, that the price must be increased, but so far as protection is involved in a tariff, the object is to increase the price of the article upon which the tariff duty is laid, in the American market. If it does increase the price of the articles, it is obvious the consumer first pays the increased price of all articles that are brought in from foreign countries. The argument of the protectionists is that we cannot manufacture here in this country in competition with the pauper labor of Europe unless we put the tariff so high that it will increase the price of the articles imported and also those manufactured

here so that we can afford to make them here. As I said, then the consumer pays the increased price on the foreign article; but, according to the speaker, that is a very trivial matter, because less than ten per cent. of the manufactured articles consumed in this country are imported, and if we only pay the increased price created by the tariff upon the articles that we import, which are only ten per cent. of what we consume, it would not be much. But a protective tariff is intended to, and does also increase the price of the other ninety per cent. of articles which are manufactured in this country, and while the farmer is paying two hundred and twenty millions of dollars to the government for the increased price of the ten per cent. imported, he is paying in the same ratio, the increased price of the ninety per cent. made here to the manufacturers of this country as a premium to manufacture the articles here, instead of buying them in foreign markets. I do not say that the tariff increases the price of articles manufactured in this country in all cases to the full amount of the tariff duty, for articles of special character may be selected on which the tariff increases the price very little, but as a whole the duties largely increase the prices of all articles manufactured in this country as well as those imported. If this were not so there would be no protection. What compensation is to be given? The farmer and every other consumer who pays this increased price for every thread of clothing he wears, or buys for his family, for every nail that is driven into his house or his fences, for every article he consumes in his household, for the materials of every agricultural implement he uses. He is taxed on every hand and for everything he uses or consumes. It is true this is a hidden taxation. It is the hand of iron in a glove of velvet, but it is nevertheless the worst and most extortionate species of taxation that can be imposed upon the people. Far better, and according to the argument of the speaker, ninety per cent. cheaper, would it be, to let the tax collector come directly to the door and take the amount which the government derives from the tariff.

What is the compensation for this immense amount of increased taxation? It is said it creates a home market for

the farmers' agricultural products! How much is that? We have, I believe, thirty-eight states, manufacturing under this high tariff, and the tariff has been exorbitantly high since 1863. It is a war tariff. It was a tariff imposed upon the people when they were struggling with a gigantic rebellion and turning in every direction for means to carry on the struggle. That tariff has continued from that time to the present, and manufactories have grown up under the high prices which that tariff has created in which are made almost every manufactured article used in the country, but I venture the assertion that the state of Wisconsin alone raises enough surplus produce to feed all the workmen that are engaged in all these increased manufactories that have grown up under this tariff, and to-day, if it were not for the foreign demand for your wheat and pork and beef and corn, the farmer would be in a bankrupt condition; wheat would be sold at fifty cents a bushel, and pork at two dollars and a half, and cattle at three dollars per hundred. It is the foreign laborer who takes it, and this doctrine of protection is not only a cut-throat doctrine at home, but it is destructive of the foreign market created for our agricultural produce by foreign laborers, because if we have to sell them our grain and shut out from our markets the products of their labor, we take away from them the means of purchasing, and hence the system will fall down of its own inconsistencies and incompatibilities. I did not want to have such a paper read in a convention of farmers without having a protest made against the doctrine, and I sum up my view upon it by saying that these protective duties are the worst and most pernicious species of taxation that can be imposed upon any people. They raise out of the farmer and mechanic a premium to pay the manufacturers, and the true theory of protection is to put the tariff so high as to wholly exclude foreign articles; the tendency of the home manufacturers is to combine and make the people pay any price they choose to ask for their products. I am not in favor of free trade until we get the war debt paid. I am in favor until then of raising a considerable revenue from a tariff, although it is the most expensive tax that the people

of a country could pay, still our necessities are such that we must pay it. If I had control of the tariff I would first make a free list and then fix a uniform rate per cent. upon every article that is imported, whether that should be twenty per cent. or thirty per cent. or forty per cent., according to the necessities of the government. I would not allow the agents of these special manufacturing interests to crowd the lobbies and waiting rooms of the houses of congress and get enormous advantages by which private fortunes are built up at an astonishing rate, and to an extent almost dangerous to the best interests of the country. Put a uniform rate on everything that is taxed of so much per cent. ad valorem, home valuation, and then we would have none of the unjust discrimination which characterizes our present tariff. I hope the common sense of the farmers of this state will enable them to see at once that they want to keep out of this boat of protection and advocate the reduction of the enormously high tariff which this country is suffering from now, as rapidly as it is possible to be done, and maintain the financial affairs of the government on a sound basis.

Mr. Sayre—I would like to ask a question. Pine lumber is taxed two dollars a thousand. Does that amount to a prohibitory tariff as far as the state of Wisconsin is concerned? If so, does the tariff increase the price of lumber that we buy along the lines of our railroads? In that case, to whom does the two dollars a thousand, or a portion of it go? Does it go to our lumber manufacturers in our northern woods, and if so, is it necessary that you and I pay two dollars or one dollar a thousand for pine lumber that comes to our own doors? Is not that part of the absurdity of this really absurd system of protection that the honorable gentleman has spoken of?

Mr. Anderson—I would like to say a few words in answer to Mr. Sloan. I did not intend to hit Mr. Sloan as being the gentleman who pointed to the farmer and asked him if he was not paying six cents a yard too much for his shirt, when in fact he paid only five cents and a half a yard for it. Facts are facts. Mr. Sloan says it increases the price of all our manufactured articles at home almost to the extent of the duty itself. If that were so, the amount consumed here

being about six billion dollars a year, it would about two billions and eight hundred millions year, with a tariff of forty per cent. Theories and facts are another. Mr. Sloan knows that of 1846 our exports of bread stuffs dwindled one millions of dollars in 1851. Under th tariff of forty-six per cent. our exports hundred and forty-five millions of dolla been prosperous under a high tariff a low tariff. In 1860 our bonds could r cent. and now they are at three pe

Under the low tariff the gold country, the farmers were poor, over fifty cents a day, and por hundred. The country has j tective tariff, and the only prosperous is to pay high wa Money will circulate thro circulates through your s prosperous when there is p will not be when the day as they are in F no man can bring them into a resp There is no use pay one cent m what the farr duty on ingr factures m first-class yard. I pet that and I of 18 und w

Amount to of dollars a are one thing under the tariff down to twenty- is high protective last year were nine rs. Our country has and it was not under a not be sold at twelve per cent. above par. was all shipped out of the working men could not get k was worth two dollars a prospered under the high pro- way to make the country pros- ges to all classes of workingmen. ough the country as the blood cir- stem and the country will be pros- enty of money in circulation, and it poor man is picking up his ten cents a Europe. No country can be prosperous, up his family and educate them and bring actable position in society on low wages. of theorizing on this question. You do not one for half, and perhaps for nine-tenths of ers use than you did before. There is 75 cents ain carpets. It is said that Philadelphia manu- ore carpets than all of England. You can buy a ingrain carpet in Madison to-day at 75 cents a paid in Philadelphia \$1.60 a yard for no better car- can be bought in Madison for 75 cents a yard to-day, bought that at the factory. That was under the low tariff of 1846. The farmers of Wisconsin have had better times er a high tariff than you had under the tariff of 1846 which bankrupted the whole country. Gold was shipped out of the country to pay for goods that should have been made at home and thus keep our gold here, and your currency would not pass out of your own state. You had to be shaved on the currency you carried every time you crossed

a state line. The best way to make the country prosperous is to have a protective tariff, and I would be in favor of a prohibitory tariff on many things we manufacture here. I do not thank England for buying our beef and pork. They would starve if they did not buy food of other countries. The theory that we cannot sell our produce if we do not buy their manufactured wares is absurd, because we never exported so much as we did last year; in 1851 we only exported \$21,000,000 worth of bread stuffs.

As the country has been prosperous under a high protective tariff and was bankrupt under a low tariff, or under a tariff for revenue only, I say let us hold on to what we have and what we know to be good. I know it is unpopular in Wisconsin for a man to advocate protection. I care not for popularity. I advocate what I believe is for the interest of every class of men, for the farmers as well as the manufacturers and workmen and day laborers. Put into your western states one-fourth of the men engaged in manufactories and you would make them competitors with you and bring down both to that extent. In place of being consumers of your products they would be working against you and selling in the market against you. Mr. Sloan says the intention was to add to the price of goods. I do not care what the intention was as long as it did not do it. Does any farmer believe we are paying a higher price for the kind of goods we export than we would if there was no duty on them? Do we pay any higher price than we would for reapers or mowers, or cotton goods, or watches or clocks, or clothing such as farmers wear, when we are manufacturing them and exporting them? We have seen the benefit of the high tariff. The whole country has been built up by it. There was never such a state of prosperity known before as under the present tariff, and there was never such a state of adversity known in this country as under the low tariff of 1846, and other low tariffs. I can recollect those times. I can recollect when they elected Tippecanoe and Tyler too on the promise of two dollars a day and roast beef to the workingman.

President Fratt — Did they get it?

Sen. Anderson — Yes, because they established a high protective tariff in 1842, and had good times until 1846, when it

was repealed, and from that time on we had much of the time hard times, although gold came in from California by the hundreds of millions of dollars. It passed out to pay for imported goods, and in 1860 we had no money even to crush the rebellion, few factories running, times were hard, the government could not borrow money at 12 per cent. It is my belief that if we had not had a protective tariff and kept the men all employed at high wages we never would have been able to raise money to have crushed that rebellion and paid so much of the national debt as we have paid.

Mr. Sloan says that in his judgment my paper contains a large amount of error and fallacy. I wish to say that his judgment conflicts with the judgment of leading men in the party to which he professes to belong, as the statistics in my paper have been taken from public documents and speeches of men standing high in his party. But the gentleman, with all his legal acumen, has failed to show a single error or fallacy in my paper.

As Mr. Sloan has passed his opinion so freely on my paper, I wish to give mine on his plan of laying a uniform ad valorem duty of twenty per cent. to thirty per cent., or forty per cent. upon every article imported, to raise a sufficient revenue to support the government. An ad valorem duty is perhaps the most objectionable on account of giving custom house officers a chance to be bribed to under-value goods. It is said that the bribery and corruption in this respect at the New York custom house is enormous. Most of our imports are taxed on a foreign valuation, which frequently leads to false invoices being made to defraud the revenue officers. My plan to raise a revenue would be to lay specific duties so far as practicable — so much per pound, per ton, or per yard. Ad valorem duties protect most when prices are high, and least when it is most needed — when prices are low. For instance, when wool is sixty cents per pound, forty per cent. would give us twenty-four cents per pound protection, but when wool is twenty cents per pound we would have only eight cents per pound duty. The same is true in regard to iron and all other goods imported. I would not have a uniform rate on every article. I want a low duty on the low-priced goods, which are bought by



working people, and a high duty upon fine goods, such as silks, satins, fine cloths, wines, brandies and jewelry—in a word, high duties on luxuries and a low duty on necessaries. I think if Mr. Sloan ever goes to Congress, he will have to take a lesson from some of the leaders of his party before he will be considered sound on the tariff question.

Mr. Martin—A friend of mine has just returned from Europe and he has brought three suits of clothes as nice as any man would wish to wear. They cost him in England \$14 a suit. They ask \$45 here for the same suit of clothes. Is it free trade that has done that?

Sen. Anderson—I have seen a fine suit of clothes bought in this city for \$18 and there was 75 per cent. duty on that kind of clothing.

Mr. Martin—That might be under peculiar circumstances or might be shoddy. These gentlemen know as well as you and I what clothing costs. You can get a suit of nice black clothing for \$45 and from that to \$55 and \$60. You can get the same suit made up in England for \$14 or \$15. What is it that makes the difference?

Sen. Anderson—Suppose you had no tailors here, would not England bring clothing here and put up the price as they did on iron?

Mr. Martin—Now don't go to iron. You spoke of tailors and clothiers and they show us what duty we pay. I have no objection to a duty on silks and velvets and wines, but I want ordinary, useful articles to come untaxed. Ask them why they charge so much, and they say it is the duty. We pay as much for duty as we do for the clothing in England.

Prof. Parkinson—I want to enter my protest against the address that has been read here to-day, or at least against the fallacies contained in it. Having been a farmer a good share of my life I feel an interest in farmers and farmers' work. It seems to me that the gentleman in reply to Mr. Sloan has answered himself. Duties laid upon imported goods are for the purpose of raising the price of goods manufactured in the importing country. If they do not do it there is no protection. If they do, the consumer has to pay the tax in the end. I do not care whether ten or ninety per cent. of our products are exported, if the tariff raises the

price of imported goods it raises the price also of like goods manufactured in the country and those who use both have to pay the tax. Whether the increase be less, equal to, or greater than the tariff is not vital to the question at issue. The consumer has to foot the bill finally, with compound interest added.

Sen. Anderson — In opposition to the opinion of the professor I will state that Mr. Bismarck, of Prussia, a gentleman who is considered to have some experience and understands things, says he favors a protective duty because the importer pays the duty at the line.

Prof. Parkinson — It seems to me that the gentleman has answered himself as far as that argument is concerned. The argument is a *felo de se*.

In citing Prince Bismarck, Sen. Anderson means either something or nothing. If he means anything it is to array Bismarck on the side of a protective duty, on the ground that the importer pays the tax once for all, and that the price is not enhanced. Bismarck knows, and the Senator knows, that the importer really does no such thing. They know that a protective tariff proper is laid for the very purpose of enhancing the price, and that if it fails of this, it fails of the very end for which it was enacted. A tariff which, like our own, is laid upon nearly four thousand articles, fails to protect at all in the highest sense, but it fails for a very different reason from that assigned above. Bismarck is literally right. The importer "pays the duty at the line." Who disputes it? But he knows, and everybody knows who stops to think, that the duty is charged up with interest to the consumer and that the price of every article that comes in competition may be advanced accordingly. Any argument to the contrary, I repeat, is self-destructive.

But I want to go back a moment to the beginning of the gentleman's paper. Some statements were made there which have been overlooked. They seemed to have an effect upon the audience when made and merit a little attention. We were told that our annual revenue from all sources amounts to some four hundred millions, and that something more than one half of it is collected from duties on imports. Three-fifths of it in round numbers is so col-

lected. Do you want to do away with the import duty, he asks, and have this tax levied directly upon you? But the constitution tells you, he says, that a direct tax must be levied according to population. Now there is just enough of truth here to deceive the unwary, but not enough, I feel sure, to have much effect upon this audience.

I want to say right here that every dollar necessary for the support of the government can be raised without affording any so-called protection whatever. And to accomplish this there is no necessity of doing away with import duties either. A strictly revenue tariff is entirely feasible. This I have attempted to show to the Senator more than once in conversation, and I think I was understood.

Sen. Anderson — How can you raise it?

Prof. Parkinson — Before answering that question I want to ask you what you mean by a direct tax in the connection in which you used it in the outset of your paper?

Sen. Anderson — I mean a direct tax laid on property, real and personal. A direct tax is laid on the people payable in gold and each state has to pay in proportion to population. Therefore a poor western state would pay as much as a rich state of the same population.

Prof. Parkinson — In other words a direct tax is a direct tax, which is just no answer at all. Are you not aware that the supreme court has decided that question and stated clearly what a direct tax is, in the constitutional sense? Let me ask you whether the late income tax was a direct or an indirect one?

Sen. Anderson — Not being a lawyer I do not know. I thought it was an indirect tax because it depended on the business a man was engaged in and the amount of his income.

Prof. Parkinson — It was levied on the people of the country was it not?

Sen. Anderson — I think a direct tax would be a tax levied on the state, and the state would have to pay according to population and that tax, paid in cash, would go into the national treasury. A tax on real and personal property is a direct tax.

Prof. Parkinson — I wanted to know if the gentleman understood what was meant by a direct tax, in the sense in

which that word is used in the constitution, and if he did, why he said that if we did not raise the tax for the support of the government through an import duty we would be obliged to tax the people of the country directly *according to population* in the state. He either did not understand a direct tax, or he knew that he was deceiving, one or the other. I do not think he meant to deceive. I think that he did not know what the courts have decided on this question.

The expression, "direct tax," is used in two senses — the one broad and general, the other narrow and specific. In the first sense it applies to a tax which, in the words of John Stuart Mill, is "demanded from the very persons who, it is intended or desired, should pay it," in distinction from the indirect tax which is "demanded from one person in the expectation and intention that he shall indemnify himself at the expense of another." In this broad sense the income tax and the ordinary property tax are direct, while excise and customs duties are indirect. The income tax has never been levied by the government "according to population," and many kinds of property tax need not be, as the supreme court has repeatedly held. But in the second and narrow sense, as used by the framers of the constitution, a direct tax is one on land or other real estate, and poll or capitation taxes. This is the well settled construction of the courts. Direct taxes in this sense only, must be proportioned to population. But to argue that if import duties should be discarded — a thing which no one advocates — our sole resort must be to direct taxation, leaving the expression undefined, is to be guilty of the fallacy of equivocation or of begging the question, or perhaps of both.

As I have said, we could not only collect four hundred millions, but more, without protecting a single industry. And why not? A protective tariff proper, and a revenue tariff proper, are antagonistic in their very nature. Protection is enjoyed only so far as we tend to keep competing goods out of the country, revenue is received only as they are allowed to come in. Both protection and revenue may be obtained under the the same tariff, but it is an extravagant way to reach either end. Revenue does not come

from a tariff by reason of its protective features, but in spite of them.

The present high rates of duty — averaging nearly 45 per cent.— were never necessary for revenue, and are an outrage upon the country. They were fastened upon us at the close of the war under the plea of necessity and have been continued by cunning manipulation. The Morrell tariff was born in deceit and has been perpetuated in iniquity.

The time has come when these duties should be lowered, and the people are rapidly coming to realize it. If we could have these discussions all over the country they would soon rise in their might and not petition for, but demand a change. I would not remove all protection at once, because it would disturb our industries unduly, but I would *begin* to remove it at once, and continue the process gradually and discreetly, until every vestige should disappear. Then the once protected and unprotected would alike soon bless the hand that removed the shackles and left commerce unfettered and free.

But how about the revenue for the support of the government? Lower the duties and the revenue need not be diminished. On many articles it would be greatly increased. Let a tariff be levied on all imported articles which we can never profitably raise or manufacture, and every dollar of the burden above the expense of collecting would go to the treasury. Let duties be laid also, as high as necessary, upon articles in the nature of luxuries and stimulants, offsetting these, to avoid protection, by an excise tax, as is now done in the case of wines, liquors and tobacco. If need be, a light tax could be continued upon other imports, balancing the same by a corresponding excise duty.

In short let the tariff be for revenue only, and the amount raised may be made to suit the demands of the government. The principle is plain. The details must be wrought out by wise legislation. And this will come of honest study, candid discussion, and careful experiment. No one expects a tariff upon a strict revenue basis to be launched upon the country at once. The vital point is that the people should come to recognize its correctness in principle, and should resolve to begin the work of securing its practical realization.

Great Britain's annual revenue is very nearly the same as ours, and yet she claims to collect it without protecting a single industry. We may be wise upon the whole in our day and generation, but there are some things in which we may yet learn of the mother country. Her tariff legislation is **not** faultless but it is far in advance of ours. She set her face against the policy of protection more than forty years ago, and almost every organ of public opinion in that country now approves of her course.

Protection, like slavery, grows with what it feeds upon. It begins in modesty and ends in arrogance—begins by begging assistance as a temporary loan, and ends by demanding it as a permanent legacy. Our own type of it is the the worst imaginable. It muddies the stream at one end and pollutes it at the other. It deceives the people, and corrupts their representatives. It flies in the face of justice, and outrages reason and common sense. This might be borne with more patience for awhile if it gave promise in itself of anything better. But what are the facts? The very interests which have been protected longest and most, are fighting hardest against a change. More than two centuries ago, forges and furnaces were springing up throughout New England and Pennsylvania, and the mother country was actually passing laws to check their growth! They had no need of protection then, their only need was not to be legislated against. But iron and other leading industries have now had protection for nearly a century and are still crying loudly for more. They were "infants" at the beginning, and by their own confession a hundred years of protection has failed to make of them anything but "infants" still. It is weak and cowardly to claim that such industries cannot stand alone, and worse than weak and cowardly to refuse to insist that they shall try. Industries suited to a soil and to its surroundings will spring up spontaneously, and need only to be let alone, but protection removes the only test by which it can ever be determined whether a business is self-sustaining or not. This is one of its worst features and is inherent in the system.

The gentleman is bold in arraying statistics. But these are a dangerous weapon unless handled with care. They

may be used on either side, and be very effective in the hands of the skillful. Like scripture texts they will deceive the very elect if properly manipulated. But I protest against this constant arguing from mere figures. This inductive method of reasoning has its proper place, but it gives great opportunity for sophistry. Just apply the gentleman's reasoning a little further. He compares the imports of this country in 1860 with the imports for 1880, and shows that they are more than twice as much as they were then. He argues from this that we have prospered by reason of a protective tariff. His argument runs thus: We have prospered in this country upon the whole; we have been under a protective tariff; therefore protection is the cause of our prosperity. That is one of the commonest fallacies in which we indulge, assigning that as a cause which is not a cause. Suppose I should say England has prospered under a free trade tariff for forty years; she never prospered before as she has during that time; therefore it is due to free trade. I would not argue thus unless I could show why free trade has been the cause.

Senator Anderson — Do you pretend to say that England is prosperous at the present time under free trade, and that the agriculturists are prosperous?

Prof. Parkinson — Yes sir, speaking generally, she is prosperous, and looking at the figures you give as evidence of prosperity your argument is answered. Her imports and exports have grown even more rapidly than our own. She has been under free trade and we under protection. We have prospered; we are going to prosper right along — that is, if we quit this open and shut policy in regard to the tariff, — but we have prospered and are going to prosper, not by reason of protection, but in spite of it. We are going to draw upon all these natural resources of the country which must enrich us, with protection or without it.

We are told that we must have protection when we are building up the industries of the country or we will be overrun with cheap goods from the old world. Suppose we apply that argument a little further. We are a world within ourselves, and afford an excellent illustration of free trade carried into practice. I say this country makes a world in

itself. Look at the number of states we have, and yet we are bound by the constitution to have absolute free trade among them. If this protective principle is a good one, if we are to force these industries in the country before we are ready for them, why not amend the constitution and put on a tariff between the states and build them up? Is there any reason in the nature of things why we should not trade freely with all the world if we trade freely between the states? There is none whatever. The difference of government matters not. I want to say a word in regard to this matter of lumber. I think if there is one feature in our present tariff more ridiculous than another, it is that which pertains to lumber. We are actually offering a premium on one hand for men to set out timber, and a premium on the other for them to destroy it. We are offering homesteads for growing forests in Dakota, and two dollars a thousand as a gratuity to the lumber kings for stripping the pine lands of Wisconsin and Michigan. Not farmers only, but every man, woman and child in the northwest is affected by this tariff on lumber. And the only plea in its defense is, that without it, we should be flooded with cheap lumber from Canada and this "infant industry" would languish! This duty of \$2 a thousand on lumber is so indefensible, that the national commission, appointed to revise the tariff, and manipulated in the interest of protection, has recommended its removal. But the lumber kings in congress and out of it say no, and they will be heard.

Farmers are told they ought not to complain, that they, too, are protected, just as though if a tariff were placed on everything all would be protected alike, and hence all should be happy. They tell you there is a duty on wheat and oats and beef and pork and even on potatoes. True enough, and it was an insult to the intelligent farmers of the northwest to place it there. The idea of protecting wheat and oats and barley in the Mississippi valley, or beef and bacon and hams in this great stock farm of the world is preposterous! They who framed the tariff know, and you know, that the farmers of this country have asked for no protection and need none — that all they ask is an open field and fair play. They who framed the tariff know, and you know,



that we are rapidly becoming the feeders of the world — that more than eighty per cent. of our exports are of products of the farm — that in the products I have mentioned, and many others, we have, practically, no competitors — that forming the bulk of our exports, their price is regulated by the foreign market, that any duty imposed for so-called protection has no effect upon it whatever, and that to impose it is but adding insult to injury. Then why is it done? For the purpose of deception — nothing more. Many a farmer, less intelligent than those here assembled, if told that his own products are protected, will rest content, and actually bless the hand that smites him. Not farmers only, but others are misled. These features of the tariff are mere chaff thrown out to deceive, and I regret to say they have in a large measure accomplished their purpose.

Mr. Anderson — When I read my paper I did not expect to have to defend it against lawyers and professors. But as the State University has been teaching free trade and using English authors on political economy, I do not wonder at the Professor's zeal in favor of free trade. Prof. Parkinson is better at asking questions than answering. When I ask him how he would raise enough revenue to support the government, he does not answer, but Yankee like, asks another question, and wants to know if I understood what was meant by a direct tax in the sense in which that word was used in the constitution. The constitution says: "No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken." But the Professor does not appear to be satisfied with what the framers of the constitution meant by the word "direct," but wishes us to take John Stuart Mill's definition of the word "direct," which he says is the broad sense of the word. While he says in the narrow sense, as used by the framers of the constitution, a direct tax is one laid upon land or other property. From this statement it seems as if the Professor has a better opinion of an English author than of the framers of the constitution, and would rather have you believe Mr. Mill's definition than that meant by the framers of the constitution.

John Stuart Mill is one of the pet authors of a text book

used at our State University to teach free trade to the students. As the Professor prefers English authors to such Americans as Carey, therefore it is not surprising that he prefers English goods to American, or that he is the ready champion of foreign labor and capital instead of protecting American labor and capital. When I ask if England is now prosperous, the Professor answers yes, and says that her exports and imports prove it. Yet we know that her imports are much larger than her exports, and that one-half of the poor workingmen in the British Isles cannot afford to eat meat once a day, that landlords have had to largely reduce rents, and that workingmen are coming to this country by the hundreds of thousands, and that in Glasgow (one of the best cities for the workingman in Scotland or England), John Bright says forty-one per cent. of the families occupy only one room. I defy any man to prove that the workingmen in any free trade country are as well housed, fed and clothed, or receive as good wages as they do in this country. The Professor says: "It is an insult to the farmers to tell them that their products are protected; that they need no protection." I would like to know if there is an intelligent farmer who will believe such bosh as that.

We farmers are selling wool at from fifteen to twenty-five cents per pound and have a protective duty of ten to twelve cents per pound, besides an ad valorem duty of from fifteen to twenty per cent. Yet the imports of foreign wool per annum amount to from 60,000,000 pounds to 100,000,000 pounds. There is imported from Canada from 8,000,000 to 12,000,000 of bushels of barley and malt every year. There are large numbers of sheep and lambs and other farm products sent weekly into the eastern markets from Canada, and if it was not for the duty of fifteen cents per bushel on potatoes, and twenty cents on wheat, Canada could supply New England cheaper than the west could, as their proximity to the eastern markets gives them great advantage over the farmers of the west. Four cents per pound duty on butter and cheese gives the dairymen a chance to supply our own markets.

I think it will be news to the wool growers of this country who own 50,000,000 of sheep, and are selling wool at such

low prices, to tell them they are insulted by being protected from the importation of wool from countries where there is no cost of wintering sheep. I will say that it is an insult to intelligent farmers to ask them to believe such sophistry.

The Professor sneers at the duty of fifteen cents a bushel on potatoes. I wonder if he knows that there have been hundreds of thousands of bushels imported this year, and is every year into this country.

The Professor says we can collect more than \$400,000,000 annually, without protecting a single industry. But he does not make this very clear—in fact he fails to tell us how it can be done, nor can it be done, unless you lay duty, as he says, on that which is produced here. Let us examine this point, for it is an important one; it should be understood by all. Is it better to have a duty on tea, coffee, spices and other articles that cannot be produced here? I say no, for the following reasons: Every cent collected from such articles is added to the price, as there is no competition from home production, to keep down the price, as there is in calicos and iron. If we collect \$50,000,000 from tea or coffee, we compel the consumer to pay every cent of it. But if we collect \$50,000,000 of cotton goods which are sold here as cheap if not cheaper than England would furnish them, if there were not one yard made here, it does not add one iota to the cost to the consumer. In the one case competition keeps the price down, in the other there is no competition. The oft-repeated assertion of Messrs. Sloan and Parkinson that the consumer pays the duty, is not true, except where there is no competition to keep down the price. Now, when I make a statement, I will try to prove it. (This is where a lawyer and a farmer differ in practice.)

I believe it is acknowledged by my opponents that twenty cents per bushel on wheat, fifteen cents on barley, rye and potatoes does not add anything to their price, and perhaps the same may be said about all our farm products. This may be all true, yet we have the advantage of selling in our own markets where others could supply them if it were not for the duty imposed. The same is true of much of the imports of manufactured goods. I have shown heretofore that woolen, cotton and iron goods are lower now than

they were under the revenue tariff from 1850 to 1860. It is perhaps true that you could buy a suit of clothes cheaper in England than here, but does that prove that if we had to depend upon England for all our clothing that after we paid the profits of the importer, the jobber and the retailer, that they would be cheaper? I think not. The Professor says, "there is no protection unless prices are raised." Is this true? There is 45 per cent. duty on calicos. Is the price of calico raised when you can buy it for five cents per yard? The protection consists in this, that it gives our manufacturers the privilege of supplying our own market instead of foreigners doing it at the same, or higher prices.

Perhaps I can make this more clear to those professional gentlemen by supposing that if there was as much danger of the old countries flooding this country with professors and lawyers as there is now with merchandise, and we should pass a law that before they were admitted to practice or teach, they should pay a high license (or tax), it might not add one cent to the Professor's salary or Mr. Sloan's fees, but it would protect them in giving them the work to do instead of a foreigner. It is the same protection that our tariff gives to our American mechanics. It gives them the work of supplying us with goods and wares instead of permitting foreigners to do it at the same, if not higher prices. I do not say that the price of some articles is not increased; but I do say that there is but little, if any, increase in the prices of such goods as farmers and working men have to purchase. If it is true that the consumer pays the duty, what a set of consummate

FOOLS MUST COMPOSE THE COBDEN CLUB,

for they certainly believe that the British manufacturer pays the duty, not we. If we paid it, why should they care how high we made it? But perhaps I have said enough on this question of who pays the duties. I will leave the Cobden Club and their allies, the American free traders, to fight it out. Our free traders say we pay; the club say they pay.

The Professor does not like my statistics. A professor of mathematics should not be afraid of figures unless he is

afraid of the truth as they do not lie, and all I give are official or from good authority. I will give some more from the bureau of statistics to show the increased production of our manufactories since this (terrible) tariff was passed that free traders say is ruining this country. In 1860 the value of our manufactures was \$1,885,861,676, in 1870 \$3,432,415,933, in 1880, \$5,369,578,191. The custom duties received in 1861 were \$39,038,269. For the year ending June 30, 1882, \$216,139,919. The total value of the products of agriculture for the year 1880 was \$3,600,000,000. Of manufactures, \$5,369,579,191. Subtracting the value of materials used in these manufactures, it would leave in round numbers \$2,000,000,000. This will show that manufacturing adds enormously to our national wealth. Another point I wish to notice. Does protection increase the wages of the working man, or are duties levied solely for the benefit of capitalists? If we are to believe the free traders, the only ones benefited are the owners of the factories. But every intelligent man should know that wages in this country will average from 40 to 75 per cent. higher than in Europe. This is a fact which no man who has any regard for the truth will deny.

There is one thing above all others that this discussion has brought out that pleases me. My opponents all claim that they are in favor of raising revenue enough from imports to support the government and pay off our national debt. So am I. This far we agree. We have a national debt of about \$1,800,000,000. If we raise a revenue to pay \$100,000,000 a year of the debt, and pay pensions and all other expenses, we cannot reduce the present revenue very much. I do not pretend to say that our present tariff is the best that can be framed, but I do say that our tariff should be so framed as to protect American labor, and at the same time to raise sufficient revenue.

There has been considerable said about a duty of two dollars per 1,000 feet on lumber. I agree with most farmers that rough lumber should be put on the free list. There is no duty on logs or square timber. I do not believe the duty adds to the price. The selling price is agreed upon every month by the lumber men in the lake cities, what they will charge for the next month. A few years ago lumber could

have been bought for one-third less than now, yet the production now is large, and therefore the tariff has not put up the price as the duty is the same now as it was when lumber was low. Professor Parkinson says to argue that if import duties should be discarded—a thing he says no one advocates—our sole resort must be to direct taxation, leaving the expression undefined, is to be guilty of fallacy or equivocation, or perhaps both. I did not say that a direct tax was the sole resort. But if a tax had to be laid to raise all the revenue, Wisconsin would have to pay \$11,000,000 annually.

When the Professor says no one advocates the discarding of import duties, I will not retaliate by using his *refined style of argument*. I will not say he is guilty of fallacy or equivocation, or both. But I will let others decide who equivocates, for out of his own mouth will I convict him. Speaking of the tariff he says: "*I would begin to remove it at once, and continue the process gradually and discreetly, until every vestige should disappear.*" If that does not mean that the collection of duties should be discarded, I ask in the name of common sense what does he mean? Mr. Sloan says, "it would be far better to have the collector come to your door and take the amount which the government derives from the tariff." The truth is, that there are thousands of free traders who advocate the abolition of all duties on imports. But they are more bold or honest in their advocacy of free trade than Messrs. Parkinson and Sloan, who appear to fear the effect or unpopularity of entire free trade and direct taxes. The Professor says that the farmers do not ask for protection. There is about as much truth in this as there is in some of his other assertions. He is, perhaps, ignorant of the great effort that the wool growers have made to be protected equally with the manufacturers of woollens. The whole question under discussion may be summed up thus: We have to raise money to carry on the government and pay its debts.

Which is the best way to raise the money to make it the least burdensome on the working people of this country (as capital is able to take care of itself)? I say, raise it by a duty on imports and a tax on distilled and malt liquors and tobacco. The free traders say, do away with all duties on

imports, as it will cost less to the people to raise the money by a tax. There is another class of half free traders and half revenue-tariff men, who say they want duties reduced, and that the reduction of duties will increase the revenue. They do not tell you that we would have to import double the amount of goods we now do to raise the same amount of revenue, if duties were lowered one-half. They do not tell you that importing such an amount of goods would glut the market, and close our factories, or else reduce the price of raw material and wages. The advocates of free trade are mostly non-producers, such as professors, lawyers, teachers, preachers, merchants, clerks and dudes, who wish to buy cheap goods, no matter whether the working man gets paid for his labor or not. So you farmers will have to decide whether you want the collector coming to your door, or have the revenue raised as now.

Mr. Micklejohn — These gentlemen may talk to an agricultural community till doomsday, and they cannot convince the people that a protective tariff is not what they want. I will defy them to go into the state of Iowa and get those people to vote any other way than for a protective tariff. We know it in the state of Wisconsin. We know it in the county of Fond du Lac, where everything is shipped to the iron mines and copper mines of the north. You know it, Mr. President, from even your own part of the state, the pork and chickens and everything else are all moved on to the north, to the iron mines. These protected manufactures bring the laborers close to us, and we farmers get the benefit of it. Now I do not know but I ought to move that the paper read be the sentiment of this society and of the agriculturists of the state of Wisconsin. We all know it is the sentiment.

Mr. Clark — I am not disposed to make a speech. I am not competent to discuss it and occupy your time on this subject. I am only a farmer and cannot discuss the subject scientifically, but I want to call your attention to some facts on the subject. I have had some ideas on this subject since Andrew Jackson was president. I am aware that the prices of many articles are regulated by supply and demand, although they may perhaps be influenced by the tariff as

Mr. Anderson says. He refers back to Tippecanoe times. I wish to refer to times back of that. I was farming in the Genesee Valley country in New York previous to that, under Jackson's administration, and I call them prosperous times, and then, if I am correct, they had a tariff for revenue only. Henry Clay said about that time that we could manufacture many articles as cheap or cheaper than they could in England. My recollection is that I paid six and a half cents for cotton goods at that time. Now the argument is that we could not have machinery and all these things without a protective tariff. I was raising wheat in those days and I could buy just as good a plow for five dollars as I can now for ten or fifteen, and I sold wheat for two dollars a bushel sometimes. Under Jackson's administration what did we do? We owed a debt that had been made previous to that. We did not destroy our shipping as has been done since. They shipped into this country.

Senator Anderson — Do you recollect that General Jackson favored a tariff, and that in 1828 the tariff was passed, and that we had hard times till that tariff was passed?

Mr. Clark — I recollect that General Jackson favored a tariff for revenue only, and under that tariff we paid off the debt that the United States owed and had forty millions of dollars in the treasury, and the question arose what they should do with it. It was recommended that it should be distributed among the states, according to population, and the different states received the money. I lived in the state of New York, and some twenty, or thirty or fifty thousand dollars came into the county I lived in. We did that without any particular protection on our goods. Now, considering the amount of machinery that the farmers have to buy, it is millions, and perhaps billions of dollars that the farmers of the western states, and from here to the Pacific coast, have to pay on the simple article of steel. We prospered without any of this tariff protection and had what machinery we wanted cheap.

Mr. Enos, Waukesha — Did you ever read General Jackson's letter to a man by the name of Coleman, in which he advocated a high protective tariff, and in which he advo-



cated the policy of protecting the manufacturer and the farmer side by side.

Mr. Clark—I do not recollect reading that letter, but I recollect I read some, as other farmers did, and I recollect the main features of that administration, and I saw the time and any person that will go to Tom Benton's "Thirty Years in the Senate," will find it so, that there was a tariff for revenue only in the beginning of his administration, and under that we paid off all the debt, so that the nation did not owe a dollar, and there was forty millions left to be distributed among the states.

Mr. Enos—I wish to correct my friend when he states that Andrew Jackson was opposed to a protective tariff. I want to have him refresh his recollection by that letter. The letter was written to a gentleman by the name of Coleman, I think, and in it he unequivocally planted himself upon a protective platform.

Mr. Clark—I did not intend when I started, to go into the particulars; I only wished to refer to the facts, but I state as a fact, and I believe that I am correct, that the debt was paid under a tariff for revenue only, and Jackson was president, and it was carried out.

Mr. Enos—The gentleman mistakes me. I wished to correct him in reference to his statement that Jackson was opposed to a protective tariff policy.

Mr. Clark—General Jackson might have been able to change his views perhaps the same as other folks.

Mr. Hoxie—With all deference to the opinions of all others, and granting to friend Anderson all the honesty of purpose that a man ever had, I beg leave to differ with him. Being a farmer, I have opinions of my own, not coming from any of the learned branches. My idea is that protection is legislation discriminating against labor and production in favor of capital. The question is, do we as farmers wish to carry out the idea and allow it to go to the world that we are in favor of legislation against labor and production in favor of capital? or are we upon the broad basis that capital and labor should equally bear their portion of the burden of government. A tariff for revenue carries out that idea exactly. Direct taxation is another kind of taxation discrimi-

nating against capital and against labor. If capital is to pay all the revenues of the government, labor is encouraged and is exempt only in proportion as it is represented in money. Now the fact is that all the wealth there is in this or any other country is the number of days' work there are in it. While this question of the tariff has divided parties, while it has made men that should have been friends enemies because they could not agree upon it, this country is bound to go on and prosper whether we have a high tariff or a low tariff, or no tariff at all. If you have a high protective tariff you discriminate against labor and production, and in favor of capital. You cannot get behind the other proposition either. If you make a direct tax on the capital of the country, my friend Anderson would say — how much? So much per capita. Can you sell a man? How will you get the money? Can you sell the paupers and get anything for them? No; it comes directly from capital. That is direct discrimination in favor of labor and against capital. So I, for one, am opposed to protection.

Mr. Ford — It seems to me that this convention is composed of practical men, and practical issues are what we want to arrive at. There is a very general fear of these theories of the free trade men. The scientific writers, with the exception of Mr. Carey, I believe, are all on the side of free trade, and, as Mr. Anderson says, other men that have been reading the writings of such men are in favor of free trade. I guess that is so. But after all we are practical men and want to come to practical conclusions. Now there is here, and throughout the country I think, quite a confusion about the effects of the tariff. There is an idea that however much, theoretically, it may be wrong, that practically it may be right. If you have a soap factory in your neighborhood you think it is such a good thing that you must protect soap, and if you have lumber districts in the north you must protect lumber; if you are raising wool you must protect wool; and, as Mr. Anderson has said, you must protect wheat, etc. There is an idea that we have stimulated our manufactures, and are now better off than we were before. Are we? Mr. Anderson cites the fact that in the progress of twenty years our exports have increased nearly 1,500 per cent. What do

our exports consist of? Largely of wheat and cotton and cattle and beef. How are we able to export these things in such quantities? It is owing to increased transportation. Our material for export has increased enormously. We have got to sell it somewhere. We export it. When I came west, nearly twenty-five years ago, a bushel of wheat was worth in Madison perhaps fifty cents. It was worth in New York a dollar. Now it is worth a dollar here, and it is worth perhaps one dollar and twenty cents there. What is that owing to? It is owing to railroads having been built all through the Mississippi Valley. It is owing to transportation on the lakes. It is owing to the competition between transportation on the lakes and by land having reduced freights. It is owing to the Erie Canal having been opened to free transportation.

There is a tariff of twenty per cent. on beef. Has it kept beef out of the United States? Has it prevented beef going to England? If Mr. Anderson's argument is good, we have raised up manufacturers here that are consuming our products. If we have done that, we have done it at the expense of England. We have diminished their production. We have diminished the amount of consumers there are there. So far we have diminished the amount of wheat we can send there. If those men were manufacturing our goods at one-half the price our men are, those mouths have to be fed as well as our mouths. There are just as many men that have got to manufacture, whether they are there or here. Now, the question is, had we better pay the great Pittsburg manufacturers a royalty of ten dollars on every ton of iron we use, on every nail, on every bit of material of that kind, or had we better get it where we can get it cheapest, and send our goods to pay for it. Suppose we carry this out and shut out every foreign article that is imported, build a wall around the United States. Then we are sufficient unto ourselves. Where is the market for our wheat and beef and pork? Where are farmers then? Farmers think because they get a tariff of twenty per cent. on wool, they are getting ahead of the manufacturers, and the manufacturers are taking it back out of them at forty-five per cent. It is so on everything. Take the lumber business. Was there ever a

more ridiculous and disgraceful and extravagant thing than the tariff on lumber? We are using up our pine forests so that in fifteen years they will be gone. What is the object of it? To keep out the cheap Canada lumber. The farmers want it for their sheds and fences, and they are probably paying to a few merchants, scattered along in Wisconsin and Michigan, five dollars a thousand for lumber? Why? To encourage home production.

What is home production? The destruction of our forests. If they can be preserved for fifteen years they will be worth twice what they are now. We are exporting here and getting a revenue, as Mr. Anderson says, of about two hundred and twenty million dollars from our imports, and he says that is eight per cent. of the total amount of our manufactures. Then the total amount of our manufactures is twelve and a half times our imports. Then if two hundred and twenty million dollars is the amount of our imports the amount of manufactured goods that the American people are consuming amounts to somewhere about thirty-five hundred million dollars. That is what the American people are paying out of their pockets. He says you cannot stand a tax of eleven million dollars in the state of Wisconsin. Divided up in the same way, in proportion to the population of the United States, and the state has in round numbers perhaps one thirty-fifth of the population of the United States, and you will get a hundred million dollars instead of eleven million, if it was going in that way; I do not say it does, but taking his reasoning, we would be paying a hundred million dollars on this tariff. The fact is it comes out of us secretly and we do not know it, as Mr. Sloan says. The manufacturer's hand is in your pocket when you are about your business. It is nonsense to talk about clothing or any other article being as cheap as it would be under free trade. The tariff is passed expressly to raise the price. See the dilemma Mr. Anderson puts himself in.

We are manufacturing but about eight per cent. of the manufactured goods we use. Eight per cent. is all that the tariff brings in, and we have this protective tariff covering the whole field of manufactures of every kind to keep out eight per cent. of goods. If it keeps out this eight per cent.

we are paying twelve and a half times two hundred and twenty million dollars for the luxury of that thing. If it does not keep out manufactured goods, and if the manufactured goods can be manufactured, goods can be manufactured at home less than that price, so that we are exporting them to England and South America and other countries, then it shows by so much that we do not need a tariff. Just as far as we can manufacture and export we do not need a tariff. According to Mr. Anderson, we are manufacturing 92 per cent. of all the goods we consume, and yet we have a tariff that covers all the goods we consume. Now if 92 per cent. can be manufactured without a tariff let us sweep away the tariff and have a little free trade at once. What do we mean by free trade? I am a free trader, but I am not in favor of direct taxation. Direct taxation is taxing just as we tax in the state, in proportion to a man's property or income. I believe in a revenue tariff with protection incidentally, but not regarding that really, but regarding the revenue first.

Tax whisky and tobacco, and tea and coffee. Tax things that cannot be manufactured here, and then we will get a revenue that will not cost the farmer a dollar, because every other thing that we can manufacture, every other thing that we want to use will come in free. We can make our revenue on that basis, and it will be on a free trade principle, to allow us to manufacture where we can manufacture cheaper and allow them to manufacture where they can manufacture cheaper than we can. What is the basis of commerce if it is not this? These men would shut off all commerce. We might as well have a Chinese wall about us. If England has the coal and iron and can manufacture at one-half the price these articles in spite of us, then let us buy of England and sell our beef and pork there. Would you not do that in your own private business? If we have the material, the iron and coal, cheaper than England has, capital will come here. I do not know of anything as sharp as capital. Capital will come here if it is cheaper to manufacture here. If it is cheaper to manufacture in India, it will go to there. It will go to the remotest parts of the earth. There is not anything that man wants more

than money. If manufactures can be carried on in Janesville, they will be carried on there and not in England. If we have iron up north we will have it in spite of the tariff. The whole success we have had in our own domestic manufactures has been in spite of the tariff. The argument that they bring up in favor of the tariff would cut off the eastern products, require us to put a wall by the Lake, because they have the capital, the cheap labor, and the experience in New England. Why should not we have a tariff in Wisconsin? No man will claim that.

What is the reason? Because we have advantages over England that she cannot compete with, because we have the lumber and iron and coal at our own doors. What is the result? In Chicago and Minneapolis and St. Paul and other places they are building up manufactures better than any they have in the east in spite of the cheap capital and labor they have in the east. Why? Because we have the cheap breadstuffs at our own doors and we have the brains to do it. Why will it not work anywhere just as well as here? Unhand the farmers and give them a chance with the rest. There is not an interest like the iron, or lumber or quinine interest or anything but is able to go to Washington and get its protection, and the farmers lie by and allow themselves to be tied and become serfs of these men and pay these duties. There are thousands of dollars piled up in the treasury that have come out of your honest labors. In the city of Pittsburg they have fifteen miles of solid iron rails built up by the tariff, that you have paid for untold millions of dollars. To-day there is not an interest but is consolidated and going by combination, except the farmers' interest. Then why should we not have a free chance with the rest of these people? I am a farmer myself, and I want to have a fair chance with the rest. I do not like to see those men go to Washington, half a dozen in the iron interest and one man in the quinine and two or three men in the cotton interest and control all the values in the United States and tell me what I shall have for everything I raise. I think it is preposterous. It is too late in the day. There is not a scientific writer, but Mr. Carey, who is not on the free trade side, and for the farmers of the Mississippi valley

to go back at this late day to the benighted theory of protection is more than I can comprehend.

Mr. Enos — I would like to ask the gentleman last on the floor whether it is his theory that the duty imposed on imports is so much added to the price of the article.

Mr. Ford — In the first instance it is.

Mr. Enos — I was not fortunate enough to arrive here in time to hear Mr. Anderson's address, in consequence of the train being behind its time, but from the discussion which has followed it I think his address was a sound one in my opinion. I have been a farmer for years in the state of Wisconsin; I am the son of a tanner and was educated to that trade. When I was a boy I was caught by the term free trade. It sounds pleasantly in the ear — free speech, free thought, free trade. When this matter was first brought to my attention, as a lad, I took the free trade side of the question, but the more I read the more dissatisfied I became with my position on that question. At that time I took occasion to read the history of this matter as far as the legislation of Great Britain was concerned. The question came to my mind, How is it that England is now advocating free trade? When I went into that history I found that 200 years ago every pound of iron used in England was imported from Russia and Sweden. That is my recollection. Do not understand me to state the exact year. It was somewhere from 150 to 200 years ago. What was done? The matter was called to the attention of the Parliament of England. A commission was raised to investigate the iron ore and the coal beds of the island. That commission in due time reported to Parliament, and on that report they passed an act levying a duty of one pound, equal to five dollars of our money, a ton upon manufactured iron. The result was that English capital began to be invested in the manufacture of iron. They began to open up the coal and iron beds of the island. As soon as they began to manufacture iron the Russian and Swedish iron masters flooded the market of Great Britain, and the result was that the capitalists who had invested money in the manufacture of iron on the island had to put out the fires in their furnaces. They went to Parliament and said, "Here, the Russian and Swedish iron masters

have had control of this market for a century or two centuries, and they propose to keep it; we cannot manufacture iron for the price at which they are willing to sell it; their establishments have been in operation for many years; we ask further protection." They got it. They continued to get it from year to year until the duty upon some of the most expensive articles amounted to about \$100 a ton. Those were the means that England used to establish that end. I am a free trade man when the time comes for it, and I am for a protective tariff as a means to that end.

Now I will answer the gentleman in reference to the duty upon an imported article being so much added to the cost. He has told us in eloquent words that we farmers are being taxed to support the bloated bondholder; that we are being taxed to support that fifteen miles of iron establishments at Pittsburg. Iron has been mentioned so often, let us take iron. Let us take a ton of Bessemer steel, for instance. Bessemer steel was made in England before it was made in this country. Our railroad men discovered that it was a good thing to have instead of the iron rail. They sent to England and imported the Bessemer rail, and when they first imported it, they paid the English manufacturer \$150 a ton for it. A duty of twenty-eight dollars was put upon the steel rail, or in that neighborhood.

Senator Anderson — I believe it was twenty-seven dollars.

Mr. Enos — The result was that American capital immediately began to be invested in the manufacture of steel rails. The tariff to-day upon those steel rails is the same as it was when it was first levied. To-day you can buy those same steel rails of the Pittsburg manufacturers for forty dollars a ton. Subtract from that the twenty-seven dollars duty. Does it really cost the railroad companies twenty-seven dollars a ton more than if there had been no duty levied? On the other hand, if there had been no duty imposed upon those steel rails, we should to-day be at the mercy of the English manufacturer, the same as the English people were at the mercy of the Russian and Swedish iron masters at an early day.

There is no greater fallacy in the world, and it is a wonder to me how anybody can be humbugged by the prop-



osition that a duty on imports is so much added to the cost of the article. It is true that it may be for a time, but after capital is invested and competition is invested it is not so. We are buying Bessemer steel to-day at thirty-eight dollars and forty dollars a ton, while if it were not for the protective tariff, we would be paying from \$130 to \$150 to-day.

Mr. Clark — I would like to ask you how long you would continue that enormous taxation, when we have fifteen or twenty miles of railroad iron in Pittsburg, and all the iron ore in this country that is necessary.

Mr. Enos — I have shown you that by a protective tariff we have reduced the price of steel rails from one hundred and thirty dollars to forty dollars a ton. Is that taxation? I would like to ask who pays that enormous difference between forty dollars and one hundred and thirty dollars a ton.

Mr. Clark — I ask you how long you would continue it?

Mr. Enos — Just as long as it is necessary to continue it to bring about such results as I have stated. The reason I am in favor of a protective tariff is that we will get it cheaper.

Mr. Ford — I want to say that the price of Bessemer steel has been reduced largely owing to a new invention. To-day they are getting these Bessemer steel rails from Canada for twenty-five dollars a ton and we are paying forty dollars.

Mr. Enos — I beg to state to the gentleman that he does not state the facts. British made steel rails are not laid down in Canada for twenty-five dollars a ton. I think you are laboring under a misapprehension. A ton of the ore that steel rails are made from lying in the earth is worth comparatively nothing. What makes the value of a ton of Bessemer steel rails is the labor that is put on them. It is the pounds of meat the laborer lives on and the pounds of hay and oats the horses eat. Who feeds these laborers? If they are located in England the American farmer has a small percentage of a chance to feed them. England takes none of our productions until the continental markets are drained, and then, when she cannot get enough to supply her, she calls on the United States.

It took England two hundred years to rise to a position where she could adopt free trade. I do not think it will

take us as long as that, because we are a faster people than the English. There are already some manufactured articles that we do not need protection on. They have been built up on the protective system, however, and the protective policy should be credited for them. I was going to ask this question: A ton of Bessemer steel cannot be produced for less than forty dollars and pay any profit. Thirty-five dollars of that value is put there by labor. Now who feeds those laborers? If it is made in England the farmers of Great Britian have the first chance. When they have exhausted their stock the manufacturers of Great Britian go to the continent and drain that market for breadstuffs. When they have done that they send across the Atlantic to us. What percentage of wheat raised in this country between 1860 and 1870 do you suppose found a foreign market? If my recollection serves me right it was only two per cent. It is more than that now, but not knowing that I was to discuss this question I have not referred to the figures recently. But who feeds the three million men employed in the manufacturing establishments of this country? It is the farmers of this country, and it gives them a home market; while if they were not engaged in manufacturing they would be competing with them. Another effect of the protective tariff is to invite foreign manufacturers to come here, bringing with them their capital and their artisans and their experience, so that we are now making saws and chisels and planing tools as cheaply as they can be imported from Great Britain. But I had no intention of taking so much time, and I apologize to you for it, because I know that there are those here who can defend the cause of American industry better than I can; so thanking you for your attention I will close.

Prof. Parkinson—I want to protest once for all against the sort of argument used by the gentleman in the latter part of his speech. Statistics are deceiving. You can array them on either side very easily. I was pleased with the gentleman's manner when he started out, and thought I should listen to him with a great deal of pleasure to the end, but when he got to indulging in that kind of logic I almost lost patience. There was never a greater fallacy than to

say that because steel rails were once \$150 a ton and are now \$40, there having been a duty of \$28 a ton, therefore the reduction in price is due to protection. All that is necessary to say in answer to this is, if you turn to Great Britain or any other country where steel rails are manufactured, you will find the same reduction, or greater, so that protection has nothing to do with it. In every manufacture we find the same thing. It is the natural consequence of the improvements in machinery. Prices have gone down in spite of the tariff, and what Mr. Ford states is true, that these rails are cheaper in Canada, and considerably cheaper than they are here. Prices have gone down in England and everywhere. The gentleman has gone back two hundred years and told us that England then got all her iron from Russia and Sweden. I am glad he mentioned that fact. It argues nothing. She might, perhaps with profit, gone on even longer getting her iron from that source, rather than to tax herself as she did to force up those industries. At any rate, England grew wiser, until every writer of note in that country now claims that free trade is the best policy. The gentleman says he believes in free trade as an end. I would like to ask how long he thinks we shall be in getting ready for it. The average taxation under the Hamilton tariff was 8 per cent. Now it is 40. How long at that rate will it take us to get ready for free trade?

Mr. Enos—Governments are for the protection of every interest, material and otherwise, that are governed. My answer to the question is, whenever any interest has reached that point that it can compete with any other manufacturing nation in the world without reducing the price of labor to a pauper standard, take off the protection.

Prof. Parkinson—I hope you all see the pertinence and pointedness of that answer. Now just figure up for yourselves when the end will be reached. As far as I know, there has never been an industry in this country since its organization that has said it was ready to have its protection removed. Whenever the question is agitated every protected industry is represented at Washington before the Ways and Means committee to preserve the tariff. Not one

has said it was ready to stand alone, and the tax has increased from 8 to 45 per cent.

Mr. Arnold — What is the reason the manufacturers desire to have the tariff kept up when they can manufacture articles as cheap in this country?

Prof. Parkinson — I do not know of anything that I would rather see permanently unloaded in this country than cheap goods. We can never have manufactures that will prevent our being occasionally so flooded, till we can teach them to stand alone. For nearly a hundred years these industries have been crying for protection, and they are now crying louder than ever. We put on a protective tariff in the beginning and have been protecting them ever since, and the average duty is now five times as great as it was under the Hamilton tariff. I would like to know how long it will be at that rate of progress(?) before they can stand alone. They tell us now that these infant industries that have been protected ever since the organization of the government will have to go out of business because they will be flooded with cheap iron from England unless they are protected, and yet here are manufactories that ought to be ready to compete with Great Britain, or any other nation. Three thousand miles of ocean stand as a natural protection to us, and it is disgraceful that we should confess that we are not now able to compete with any country on the globe.

I have lived nearly fifty years in Wisconsin, and I know something of the growth of industries here. My father used to ship wheat with ox teams from the lead mines to Milwaukee and sell it for seventy-five cents a bushel and sometimes for less. I know that the price has increased, but I know that it is not due to protection. Railroads have been built in this country and have brought all markets nearer, and they have been built in spite of protection. Protection has increased the price of iron and steel, which enter into their construction, and increase their cost and operation. You cannot show to the contrary. You can simply show that iron is cheaper now than it was a hundred years ago. It is cheaper in England and in every other country, and that argument amounts to nothing. The tariff has tended

to raise the price of it and was levied for that purpose. Iron enters into almost every other industry, and the tariff thus cripples it. We are now protecting over two thousand. Suppose we go on and protect all of them. What would it amount to? One thing now balances another. It is becoming a mere matter of finesse. You protect iron, and iron enters into railroads; it increases the cost of building and operating them, and that affects every farmer in the country who must help foot the bill by increased rates of transportation.

Mr. Enos — This matter of time has entered into this discussion, when we are going to reach the end. I would like to ask the gentleman if our forefathers, when they levied a protective tariff, and particularly the tariffs of 1816 and 1824, were wise in that legislation.

Prof. Parkinson — That is a disputed question and always has been. Many claim that we ought to have gone on in the beginning without protection, and no man can tell whether by such a course we would have been as well off to-day as we are, or not. There are strong arguments on both sides. Mr. Mill is inclined to favor the policy of a government protecting its infant industries for a little while. He threw out some remarks in that connection which have proved a sweet morsel under the tongues of protectionists, but are not pertinent to the question in hand. Suppose I should say it was better to protect them. That has nothing to do with the question whether protection is not now greater than it should be, or whether it should not now be gradually removed. You have not yet answered that question satisfactorily. I repeat, if it were 8 per cent. at the outset and is now 45, are we likely to get rid of it very soon?

Mr. Enos — When we have got a good thing we want to keep it.

Prof. Parkinson — There is the trouble. You have a great advantage in keeping this thing whether good or bad. That has been well illustrated. Protectionists are organized, and they intend to keep so, but the farmers and the unprotected generally, are not organized on this question. They have no representatives to champion their interests before the Ways and Means committee.

Mr. Enos — The men that gave us this good thing were the men that gave us the Declaration of Independence, the men who fought the war of the revolution, the men that formed the constitution of the United States. No American citizen has ever presumed their wisdom in that direction, and, until quite a recent date, there has been no attempt to impeach their wisdom upon the question of protective legislation.

Mr. Babbitt — I would like to ask whether those wise men bequeathed that gift to the farmers or to the manufacturers.

Mr. Enos — To the American people.

Prof. Parkinson — These men may have been wise, we are not discussing that question. Suppose we grant that they were wise at that time in imposing a low tariff to help these industries start. It is a matter of history that they told us then and have kept on telling us, in season and out of season, that it was only a temporary policy, only to be continued until these infant industries were put on their feet. None of them yet have said they were ready to stand alone, and I declare to you none of them ever will, at the rate we are going. When, oh when, shall we have enough of this good thing!

Mr. Anderson — I want to say to the farmers here that I am very well pleased to see these professors from the University come up here and take sides in favor of free trade. I am pleased to see lawyers come here and do so. They are the men that would be benefited, because they could get a suit of fine broadcloth cheaper under free trade than under the protective system. We pay them a large salary, and they do not perhaps have to raise any tax to support the government, but you put a tax of eleven million dollars on the property of the state of Wisconsin and it would come heavy on the farmers of the state. Their land cannot be hid, but these men's salaries can be hid. Greenbacks and bonds are not taxable. It is for the interest of these men who are not producers to have free trade, and they are not to blame for advocating it. Their books teach free trade, but the truth is if the consumers paid the duty, the Cobden Club of England would not be sending out their documents by thousands to convince us that we are doing ourselves an injury. It is the foreign manufacturers that are injured. The

Cobden Club, with their 200 members of the British Parliament and their honorary members all over the United States, with their offices in New York and Chicago, would not be here to convince us that we are injuring ourselves if they were benefited by it. Mr. Ford tells you that he is a farmer. He is an agriculturist. The difference is this: An agriculturist is a man who owns a farm and lives in the city and earns money there to spend on his farm. A farmer is a man who lives on his farm and does not have any money to spend.

I want to say to the farmers who are present that there is no free trade country on the globe that is as prosperous as we are. I want to say to the farmers of the United States that you could not prosper and have only one industry. You could not prosper and have the whole country raise all wheat or all corn. We must have a variety of industries. Free trade is a glorious thing for England. She has been building up her factories for hundreds of years until she has machinery enough to manufacture for the whole world if it was run to its full capacity, and it is to her interest to have free trade. It is a good doctrine for her to say, "Sell where you can sell the highest and buy where you can buy the cheapest," but for the United States it would be a ruinous doctrine. England can manufacture cheaper than anybody else. That is the reason she wants free trade. In 1846, when they found they had our cotton factories broken down, they combined and put down the price of cotton one-half and bankrupted most of the southern states, who had borrowed money on the cotton crop. It was the same way when they got our iron mills and furnaces closed up. Then they put up the price of iron from \$50 to \$80 a ton. Let me tell you that you are getting everything that the farmer wants for himself or his farm cheaper to-day than you did under the free trade tariff of 1846.

The country is prosperous, and last year the immigration into this country would make a state like Wisconsin. More than three millions of emigrants have come into the country within the last three years. Do not tell me that those men believe that this country is injured by protection, when they come here from a free trade country. Do not tell me that

our workmen in the factories are injured by the tariff, when every workman of any intelligence in those factories will tell you differently. They all understand their best interests, and they vote and work in favor of the tariff. Let me tell you that ninety per cent. of the grain market is at home, and that is what the farmer must depend upon. If you had to depend on the foreign market, you would not get the prices you are getting to-day. In Europe we come in competition with the foreign market, and the prices we get there are regulated by their crops. If they have a good crop, they want but little of us. If they have a poor crop, they want more. But if you have a home market, that is a steady thing, and you have no foreign competition in it. I did not argue to-day that the tariff of twenty cents a bushel raised the price of wheat, and I deny that corn is increased ten cents a bushel by the tariff, but I claim that Canada could furnish mutton and wool and various kinds of farm products much cheaper than we could in the west on account of her proximity to the New England states, and we ought to have a duty to protect us. I want the tariff laid on the luxuries, and as lightly as possible on the necessaries of life, but yet I want a tariff that will protect our industries and home manufacturers from the pauper labor of Europe. I do not want our working men to work as hard as they do there, and live as poorly as they do. No man can tell us that the working farmers in England and Ireland live as well as they do on the farms in this country. Some of them do not get meat to eat one day in the week, perhaps.

Mr. Babbitt — How much ought the farmers to increase the wages they pay their hired help?

Sen. Anderson — They have increased the wages until it is double what it is in Europe. Every country in Europe has a protective tariff. Germany and France are protecting, but England is not. She wants cheap food and high prices for her manufactures. I hope farmers will not listen to the sophistry of these men. Compel these men that you cannot collect anything of to pay something by way of revenue toward supporting the government. You cannot raise four hundred millions of dollars better than you collected it last year by taxes on tobacco and whisky and beer and imports.



Mr. Clark — I understood you to say that everything was cheaper.

Sen. Anderson — Yes, sir; it is cheaper than it was twenty-five years ago.

Mr. Clark — Didn't I tell you that I could buy a plow long before you can remember for half what it would cost now?

Sen. Anderson — Let me tell the gentleman from the Mohawk valley that he never saw a steel plow in those days. There was nothing but cast plows, and you can buy a cast iron plow to-day for five dollars. There was not a steel plow made in those days. I can recollect when the first steel plow was made.

Mr. Clark — I do not mean a steel plow. I mean a plow of equal quality.

Sen. Anderson — There was no plow of equal quality.

Mr. Clark — I mean I cannot buy a plow of as good quality for double that price.

Sen. Anderson — You can buy a cast plow as cheap as you could then. Under the present tariff you can buy for \$50 what under the free trade tariff you would have to pay \$100 for in farm machinery.

Mr. Clark — I do not know of any plow that ran any better than the plow I spoke of. I bought a plow in Batavia, Genesee county, N. Y., for five dollars, and there was no wood about it except the beam, and I could run that plow, if it did not strike a stone, one or two hundred rods without touching the handles.

Mr. E. Bennett, Oregon, Wis.— I have lived in that country, and I never saw a place where you could run two rods without striking a stone. I have plowed many a day. You fetch that plow here and put it on our prairie and how far would it run? You have not power enough to hold the old thing to the ground.

Mr. Ford — I came into this convention a farmer, I go out of it an agriculturalist. I have been sitting here in quite a judicial state of mind. Generally, after a case has been argued to a jury the judge sums up. I will elect myself judge and try to sum up. It seems to me that the arguments of the protectionists have all been answered except one from the gentleman from Waukesha. When he was asked for the prin-

ciples on which he would base his protectionist theories, he said, as I understood it, on the principles of George Washington Thomas Jefferson and the Declaration of Independence. It reminds me of an incident which occurred about the time of the organization of the republican party. Our old friend, Judge Orton, was making a speech in his grand style. He was a fine speaker. He was going in on general terms, when a cool-headed farmer got up and said he would like to ask a question. "Go ahead, sir, go ahead; any questions you ask I am ready to answer." "Mr. Orton," he said, "I would like to ask you what are the principles of the republican party?" Mr. Orton had never had such a question asked him before. He did not know what to think of it. He straightened back and rubbed the top of his head, and said he: "The principles of the republican party! The gentleman has the audacity to ask me what are the principles of the republican party! The principles of the republican party! Why, the gentleman has the audacity to ask me what are the principles of the republican party! Why, sir, they are the Declaration of Independence, the Constitution of the United States, and *E pluribus unum!*"

Mr. Enos — I accept the gentleman's amendment.

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## LABOR A PRE-NECESSITY TO MENTAL DEVELOPMENT.

By A. A. ARNOLD.

The abstract proposition that "labor is a necessity to mental development" is too self-evident to require demonstration. But the tendency of the age in this country among the American-born, and especially among farmers' sons seems to demand some reminders to stimulate us to greater contentment and more thoroughness.

From the time the youth is sent to school until he starts out in life the way is made easy, and the chances are, that with the aid of our modern text-books, money and the influence of friends, he will be turned out into the world with no thorough knowledge, and superficial in everything.

“So we go on, not so steadily, not so safely, not so wisely as we ought. We might be happier in the present if our capacities were more judiciously enlarged; and surer that the inheritance we, as a people, possess, would be handed down unimpaired to those coming after us.”

I heard a college student lately remark that there would be enough foreign born in this country for a long time to come to do all the manual labor, and that no high-spirited young man should squander his time at drudgery. This is only putting in plain English a sentiment that pervades society. That such a popular idea should prevail among the young is only the result of the constant slurs on labor made by the parents; holding up and praising all ways of getting a living that are extracted from the labor of others.

The truth is that many of the foreign born outstrip those born in this country who have had better educational advantages; and especially in the political arena, not alone by reason of the political pandering to this element, but for the solid reason that they manifest a condition of mind which impresses itself, and which is alone obtained by labor and deep meditation.

The early training of our most successful, and best developed men of all callings shows no factor so prominent as that of labor.

The silent biographies of earth's great ones are eloquent in praise of the farmer and the artisan, evidencing that in few exceptions, the children of genius are the sons of toil.

In the great business centers these are taking the lead; with the professions who but these rise above mediocrity?

Others sluff off and help fill the world with such as it may need but not such as should be praised.

All of these successful men have learned habits of industry from childhood. Many of the best developed men have learned this in their youth on the farm.

Grateful should they be that they had this early school, that developed their bodies and trained their minds so as to produce such results.

The modern way of stuffing knowledge into the young at the expense of originality, bodily development, the expansion of genius and at the sacrifice of wisdom, is much to be

deprecated, and is the natural sequence of this same popular idea of fitting the young to be parasites on the body politic.

Labor is not only the foundation of all wealth, but it is also the foundation of all knowledge; the developer of all wisdom.

To fill a boy full of vague ideas that he has not had time, nor the physical endurance to digest, is a crime, and misleads many a youth into the idea that he is wise because he has learned a great deal. He gets extravagant ideas of his ability, and is often a mortification to his best friends.

There is not so much difference in the amount of knowledge individuals possess as there is in their diversity of knowledge, and their power of utilizing what they do know so as to impress it upon others.

Labor seems to develop this faculty, and is the only thing that puts on the finishing stroke to this availability.

A good physical development must be obtained, time taken to digest and apply, as knowledge is gained, and to this end labor and a free intercourse with nature lend the most helpful hands.

Man is like a bladder in this, that he is worth only that which there is in him. If educated so as to have accumulated only that which is worthless, because he can not utilize it, then, like the bladder, he must be taken for what there is in him that can be made useful.

A hoe or an axe is not valuable alone for the easing of the arm, but chiefly for the perfection of the work a man is able to perform with it. So of text-books. The prime idea of school routine should be thoroughness and perfection of work; this means such an arrangement and use of the text-book that the pupil shall be made to use his brain,—if he has any. If he has little brain there is but little use in trying to fill it, and as little use of filling any brain without its proper training. It will be only like the bladder filled with air,—of no value. Many of our text-books attempt to make it so easy, that it is not fixed. There is no chance for mental labor; and without labor there is no mental development.

The mind may be filled with vague ideas; indeed, it may be full of definitions, and be able to demonstrate verbatim

difficult theorems and still there be no great amount of mental strength obtained.

A business education should be at the command of every American citizen, our common schools brought up to a higher standard, our public moneys used in that direction, and no higher education encouraged except as the seeker therefor manifests a capability and by perseverance and labor obtains it.

Were this policy pursued instead of the popular one of educating every boy for the professions, or for parasitical occupations, our people would be better and happier, if not richer.

Extremes are always wrong; so in this idea of giving every child a college course, thus unfitting many in their castes and habits for anything which they are by nature qualified for.

Quite a percentage of college graduates die in the poor house; large numbers are supported by the wealth or charity of their friends; many are in politics; in literary pursuits; in the professions, and a very few in business or on the farm. If a prosperous community could be made up of such, then all should have the college course.

There is no harm in possessing the culture of a college course; on the contrary there is great good and much satisfaction in it, to say the least; but the trouble is there is not enough of the practical accompanying it, which embodies physical as well as mental labor; or if there has been, it is co-extensive with the few physical and mental laborers who have made their mark in after life. With those who were educated by the charity of their friends, or the benevolence of the state, most of them are heard of no more after their last college oration is pronounced.

An eminent writer, in his article entitled "Criticism and Creation," speaking of Oxford, says: "For those on this side of graduation, whose manhood is harnessed into the duties of the place, what between the routine of work and the atmosphere of omni-present criticism, in which life is lived here, original production becomes almost an impossibility. Any one who may feel within him the stirring creative impulse, if he does not wish to have it frozen at its

source, must, before he can create, leave the air of academic circles." In all colleges there is a lack of that originality, which, alone, in after life, will make an impression.

If morality was co-extensive with literary attainments, then the present mania to shirk labor (in college and out) by all conceivable ways, including the most harmful one of using only the ideas of others, the popular ideas of a higher education for all would be less injurious.

It takes time to develop a child into a useful man, the same as it does a colt into a valuable and trusty horse. Training alone will not do it; it can't be well done in too short a space of time, nor by crowding labor on him too fast, nor too early. Our boys are men when in their teens.

The forcing theory pervades all society. If a youth is not up in his classes with his fellows, he is voted by all to be a dumhead, and thus he is discouraged, and others over-estimated.

The promising lad is one who cares not to consult a thermometer before going out; who would as lief be kissed by the north wind as by any girl in christendom; who would willingly exchange all the overcoats in the world for a pair of skates or a sled; who takes to the water like a duck; to the mud like an eel, and to the sun like an American citizen of African descent.

Thriftiness is not always indicative of the best mental development, but is a sure indicator of a certain degree of it; for without thought and laborious application no man is a financial success. These develop the mental faculties, and the mind is made thoroughly practical, capable of appropriating to every day all such means as are at hand.

Such a person is a good business man, and it is yet to be proved that it does not require a greater diversity of talent to be a good farmer or business man than it does to fill almost any other station in life.

"The man who succeeds is he who feels impelled by dire necessity to struggle; who feels that upon his success everything depends. Imbued with a sense of responsibility, he strives, and strives successfully. In fact he is successful in proportion as he has the sense of responsibility."

The prevailing sentiment seems to be that the theorist is

the man of brain. This is true in some instances, but with this theory there is also practicability.

Mental development is the result of sturdy, original thought and application, coupled with labor. It is the result of no stereotyped pumping into, nor can it be thus accomplished.

It is dependent as a national development on social relations, popular ideas, and the manner in which the cause of education is fostered by the state.

To make this strong, general and practical for the general welfare, I have long thought that if the popular ideas of labor could be modified so as to make it more fashionable for the young to work, and the public moneys were all bestowed upon the common schools alone, the general welfare would be enhanced.

The principles of popular government and free schools are based on the idea of the greatest good to the greatest number. The state is not able to give the entire population a college course, nor would it be advantageous, for reasons that are evident. That a good education, such as our common schools might be able to give, would be desirable and advantageous to the public no one doubts. So I maintain that a better policy would be for the state to make appropriations for school purposes to these alone, and compel every child, not demented, to be sent thereto for a definite period, or until he had made a certain advancement in his studies.

It is the popular idea that the highest education possible should be attained, not considering what the education should consist of.

Our state is full of children that are eager for knowledge, in many places where the people are poor, and if the common schools were as thick and maintained as long each year as they should be, the local taxes for the same would be unbearable; consequently they have school only for a few months in the year and the children are growing up to be men and women uneducated and not properly fitted to be citizens of a free republic.

Habits of mature thought and self-control are the result of the steady purpose bred of daily toil, and who so accessible to

these as the children of the poor, who alone now suffer from the want of educational advantages.

I have thrown these ideas together, not because we are all agreed, nor because the subject is most appropriate for a convention of this sort, but for your criticism and discussion, thinking that thereby we as farmers might be enabled to assist in correcting some of the errors in the public sentiment named.

I have done it also for the reason that while I believe in a higher education, and that no person that delights in it can be the worse for any mental training that he may have obtained either in college or otherwise, still I protest against its being done as it is much of the time at the expense of utility and practicability, thus unfitting instead of fitting for usefulness in after life.

I protest against the present popular idea (especially among teachers) of developing everything with or without labor, and no matter whether at the expense of the recipient or not.

I maintain that mental development is on the principle that if I own a dollar that will be of any real value to me, I must first earn it. So if I get an idea that will be of any real value to me or to the world, it must be the result of mental toil and mature thought; the result of personal exertion; and that the higher types, such as have made reputations that have been handed down to posterity and that will be known and revered in ages to come, are only the result of personal labor on the part of the possessor thereof and not the free gift of any save the god labor.

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DISCUSSION.

Mr. John W. Hinton, Milwaukee—Mr. President, and Ladies and Gentlemen: My friend is traveling on the same track that I have been traveling on for some time. I am not going to let him crowd me off, and I will not let him be crowded off if I can help it. I think on the road he is traveling we shall walk arm in arm. In illustration of one point that he made, and he made it well, I recollect reading in one of Samuel Smyles' works a very apt illustration of



the point he made. An English duke was traveling, going all over the British possessions, and he seemed to have a great deal more common sense than generally belongs to dukes. At every place he went to, the first request he made to the host with whom he stopped was to procure him some well posted person living there who could point out the peculiarities of the place. Being on a fair grounds in Australia the chaperon came up to the duke and said: "Does your grace see those four men standing over there?" "Yes," said he, "I do; what of them?" "Well," said he, "that one on the left hand side is a graduate of Cambridge, that one on the other side is a graduate of Oxford, and the very tall, fine looking man with a beautifully cultivated moustache is a graduate of Heidelberg, in Germany. They have all had very fine educations. They all brought here a great deal of money given them by their parents, and there they are." "Well," said the duke, "how about the little fellow in the knee breeches?" "Oh," said he, "he can not read or write, but he employs the other three to take care of his sheep. He is the richest man in the county, and they were nearly starving to death when at last he took them into his employ."

I hope you will all understand that I have nothing whatever to say against education, but fully agree with the sentiments of the gentleman who has just sat down. Now it is the boast, and the rightful boast of Americans, that no other country the world ever knew has so dotted the prairie, studded the hill-side and crowned the hill-top with the common school house. And it is because of the forefathers seeing the necessity of education that led to the establishment of the common school system of this country. But I challenge any lady or gentleman present to produce a line in the original discussions that ever contemplated anything beyond a common school education. We have run along until we have got where we are, and millions are expended until there exists a condition so ably put by Horace Greeley when he said there were twenty thousand young college graduates in New York who didn't know enough to get their living, and he said, "Go west, young men;" but as Mr. J. B. Grinnell, the founder of Grinnell College, said, when he read

that, he acted upon it, and established a very fine college there through his own efforts and the efforts of others. If you will look abroad through this land or any other, you will find that the great inventive geniuses are not college bred. When I was a boy I played among the works of the first locomotive that ever ran on an American railroad, and I remember George Stevenson, who first invented it, and there is not one of the twenty-six thousand locomotives that take their morning nip in the Atlantic and their evening draught in the Pacific, but whose shriek is a tribute to the genius of that man, but the college professors and the engineer corps refused him admittance to their body because he had not studied Latin. That is a historical fact. Who taught you to read the pathway of the skies? That celebrated, most wonderfully eloquent man, Rev. William Morley Punshon. I dare say some of you remember him. Turning around to a number of young men during his lecture, he told them that the world was made up of trifles, and pursued in a measure the same line of thought that our friend has done who has just sat down, and he gives them this illustration: "The falling apple, the floating log and the puffing and singing of a tea-kettle, all trifles, little bits of trifles; but when the brain exercises its originality on it what do you see? The falling apple taught Sir Isaac Newton the laws of gravitation, the floating log led Columbus to these shores, the singing of a tea-kettle gave the world the steam engine."

Some of you may have seen a picture of a little boy cocked up on a stool watching the jetting steam from a tea kettle, and the rise and fall of the lid, and at the door there are a couple of old Scotch women, and one says to the other: "He is a wee bit daft." That was Isaac Watts, studying out the steam system. I beg again to say to you that I am not decrying good education, but in all these great cases it has been the mind pursuing its original thought. I have never known a college to originate anything, though I have asked over and over again. Now take it in this country; go into any of our large cities and take the most successful merchants, and you will find they are men who have good, natural, deeply implanted, honest principles, from good mothers in their infancy, and good, sound advice from good, square fathers. I

do not say, if one is going into a profession, that the college is not a good place to go; by no means. But the mass of mankind, the men who have made the world, the men who have made railroads and farms and fences and houses and everything, how many college men can you find among them? How many do you know of among them? I am a warm respecter of farmers; I do not think a farmer is any better than any other man, by any means; but we certainly know this, and you may search all the libraries of the world through, and I do not think you will anywhere find the subject of farming so well, so ably and so truthfully put as by the grand old Duke of Sully, when he said, "Agriculture and pasture are the two great breasts of Nature, from which nations derive their nourishment." It is true, in no clap-trap sense, that the farmer feeds all. A good farmer wants educating in the duties pertaining to farm life. He has no need of college life. While I want to speak respectfully to this body of farmers, I want to say that I think some farmers I have known were among the biggest fools I was ever acquainted with, from the fact that their first aim, when they are rich enough, seems to be to shove their boys into college. They go there and become dissatisfied with the most honorable pursuit known to man, and they come back, as my friend has just said, to ultimately wind up in the poor house. I did not rise to make you an address, but the thoughts which my friend advanced struck me as being so sound that I have said a few words.

Prof. Parkinson — Mr. President, I do not rise to make a speech, but I am so constituted that I cannot sit with entire patience and listen to remarks made in such a strain as that just indulged in by the gentleman from Milwaukee. The paper under discussion is in many respects a good one, and I do not intend so much to take issue with the general sentiment therein expressed, as to protest against the unwarrantable construction which the gentleman last upon the floor has gone out of his way to put upon it. The paper expressed many wholesome truths and in a wholesome way. But it also indulged in some sophistry, and it is a curious fact that this alone was the part which the last speaker was so eager to seize upon, revamp, magnify and gloat over. To

his speech and to the miserable sophistries with which it is crowded, I wish particularly to call your attention. I may be looked upon as a sort of interested party, and not get full credit for anything I may say, but I want to protest again, as I tried to do at the tariff discussion this afternoon, against the sort of logic so much indulged in then, and so glaringly repeated to-night.

We are told in the paper, and the remark was caught up and repeated with unction by the speaker following, that there are many educated failures, and we are expected to draw the inference from these failures (what other object in citing them) that education of a higher character is largely worthless.

What does such reasoning amount to, if it deserve the name of reasoning at all? Look back over the history of this country. What sort of men have chiefly controlled its destiny, and been in the highest sense successful? Look over it now, when it does not present its most favorable aspect. Begin, if you please, with the president of the United States and follow down through the cabinet, both houses of congress, judges of the supreme and other courts, and look at men in the highest and most responsible positions. What proportion of these are educated men, and college educated too. The statistics upon this question are interesting and profitable. Educated failures are too often found—men who fail, however, not by reason or their education, but in spite of it, but the uneducated ones, certainly, we have always with us, and without number.

By taking the circuit of the globe the gentleman has been able to cite us to three college graduates in the wilds of Australia who were content to herd other men's sheep. The calling is in every way an honorable one, but he failed to cite us to the ten thousand comparatively uneducated men who are also following it, and to the hundred thousand others, who, by their sheer ignorance are unfitted to do so. The number of so-called liberally educated men in any country is small, while the number of those not so educated is comparatively very large. On the other hand, the per cent. of the former class who have been eminently successful is large,

while the per cent. of the latter is comparatively very small. Did the gentleman ever look at the matter in this light — which is the only logical way? Or did he ever seriously think of it at all? Or has he listened to and repeated this sort of stuff until he has really come to think there is something in it?

Properly construed, there was a world of philosophy in that advice of Horace Greeley, "Go west, young man, go west;" but there is also a world of nonsense in some other things, he has said, and we must be careful in drawing the line.

I ought perhaps to apologize for saying anything in reply to this feature of the gentleman's speech, for I have too much confidence in the intelligence of this audience to fear that they can be greatly influenced by it, and too much faith in the good sense of farmers generally, to believe that they will indorse it. The cause of higher education is not in special need of defenders, and it has no stauncher friends or reliable patrons than the broad-gauged intelligent farmers. No class of men really fear less that their sons will be injured by culture, or worry less as to whether they shall go back to the farm or seek other callings. They who fear the one, or worry about the other, are not such as are here assembled, but men of narrower gauge.

The common school is the college of the million, but it is greatly aided in its own work by the high schools, colleges and universities. The higher institutions would be crippled without the great feeders that lie beneath them, and the latter in turn would be sickly enough without the help and inspiration of something beyond. They all act and react upon each other.

We have heard a good deal to-night about the great inventors who have been self-made men. All men are in a large measure self-made, and must be so. But did it never occur to the gentleman, that, of the greatest discoverers and inventors of the world, many have been highly educated, and that those who were not, have been the very last to boast of the fact as of any advantage to them? But it is not the business of the college to turn out discoverers or inventors as such, but men of broad and generous culture,

fitted to follow their natural bent with advantage to themselves and profit to others. The energetic student will make his mark, the drone will remain such, whether sent to college or left upon the farm. Our higher institutions, by opening up new courses of study, are meeting more perfectly the demands of the age. We are not to underestimate their services. From them active, young men are passing out into every honorable business and profession. From this source come our best engineers, who are laying out the railroads and helping to build up the great industries of the country. Why, a son of your honored farmer President has just graduated from the University and stepped at once into a responsible and lucrative position with one of our great railway companies, and bids fair soon to rank among one of the very foremost engineers of the northwest. I never heard of any complaint that he did not return to the farm, or any fears expressed that either he himself or the farming interest would suffer by the choice. Scores of others might be named, sons of farmers and sons of business and professional men.

I feel a peculiar interest in this state and in its progress. I have been an eye witness to its growth from its territorial organization to the present time. Know something of its earlier struggles, and more recent triumphs. And know that much of its present high rank is due to its later broad and generous policy in educational matters. I ask you to look at our sister state of Michigan. What institution has she toward which she can turn with as much pride as to her University? It is doing more for the honor and reputation of that state than all her other public institutions combined. Ours may do as much for this state, and will, if treated with equal generosity. But this will never be done by acting in the spirit of the speech to which we have just listened.

A good deal has been said to night in praise of labor. To much cannot be said. But how many fallacies cluster about the use of that term! We are all laborers — all trying to do honorable service for which something may be demanded in return. But I protest against the idea that all labor must be done with the hands, or that such only is of any consid-

eration. Division of labor began with the race and grows with civilization. All could not be farmers if they would, and all would not be if they could. None would suffer so much by such a course as farmers themselves, for who else would there be to suffer? I also enter my protest against the notion that all genuine success in the world consists in heaping up its treasures. There was deep significance in the remark of Agassiz when he said "I haven't time to make money."

Mr. President, I beg pardon for occupying the time I have, but these discussions may always be made profitable, if conducted with frankness and candor.

Mr. Hinton — Some remark has been made here by the gentleman who has just spoken, which, although undoubtedly not intentionally unfair, might put a wrong impression upon the remarks of the gentleman who preceded me and myself. I would ask the privilege of two or three minutes. Casting aside the remarks that were made about Horace Greeley, I think that the Professor's selection of the President was one of the most unfortunate selections he could make. I claim one honor that no other man can claim in the United States, to have made the first campaign speech for Garfield and Arthur that was made in the country. I know a great deal about Mr. Garfield, and I want to tell you what he said, when 23 years of age, writing to a schoolma'am. He writes from Williams College in Massachusetts: "I find a great many brilliant minds here, but I find scarcely one that has any conceptions or correct ideas of the practical necessities for the practical duties of life. If I gain nothing else by the course, I shall rid myself of that reverential awe that some of us have been accustomed to feel for a man with more sheepskin than sense." The greatest man in Europe to-day, Prince Bismarck, when about to become prime minister, wrote to Mr. Disraeli, "I am going to try to save my country from the professors. I am trying to get rid of Prussia." Here is the University that crowns one of the happiest spots in the state, and the gentleman tells us they have actually produced one engineer, the son of our honored President. If he turns out as good a man as his father I shall be perfectly satisfied. If that is all the University has

turned out I am sorry for it. The gentleman dwelt with a great deal of force upon the wonderful results of agricultural instruction in the United States. I have found that this country does not average twelve bushels of wheat to the acre, and there is not another country in the world that does not average twenty. Another thing is, why force people on to the farm? I tell you it is the free traders that want to force them on to the farm. When you answer them and show that there are forty thousand men out of employment in the United States now they say, "Let them go to something else; let them go upon the land." If I had time I could show you that while farming is the most successful thing on this continent now there is nothing in such great danger. I hope to have an opportunity of showing it to you before I leave. There is nothing personal intended in this, but I say to you that what the gentleman who preceded me said was misinterpreted. We are not opposed to higher education. If I had had the money I should have sent my son to college.

Mr. Babbitt — There is a gentleman here whom I believe you would all like to hear speak upon this question. I will call upon Prof. Beale.

Prof. Beale — I have listened to the speakers on both sides of this question with perhaps as much interest as anyone here. I think they are merely looking at opposite sides of the shield. I think they are both right and both wrong to some extent. What has thrown so much discredit upon college education is the old-fashioned classical course of many years ago. This country is growing. We have seen the errors we were making, and since the rapid development of scientific work in this country we are introducing something more practical. We are seeing that while a student is attending his school or college and training his brain he ought to be seeing something and handling something, so that he shall train his eyes and his hands at the same time that he trains his brain. I think it is a serious mistake to send a man for several years to college and not have him do any manual work or use his hands in connection with his brain. We are learning to fit up laboratories at all our institutions. Our students are learning how to make machines and how



to hammer iron and turn wood, and this is all right. They are learning to do something in agriculture and horticulture. The work is yet in its infancy in many places, but it is going to turn out in the end a grand work. It is going to revolutionize many things in education in this country. They are fitting up tool shops in some places in connection with primary schools, and they are doing a good work in training the little fellows as well as the older ones. We are learning that it is a great mistake not to train the body as well as the mind; that we can only have a healthy mind in a healthy body.

The speakers on both sides have spoken a great deal of truth. At the close of the war it was found that the leaders on both sides were West Pointers. It was found that those men trained for special purposes were the leaders on both sides. If a college man fails it is noticed at once. The college men are but very few in numbers compared with the others. We have perhaps six millions of voters in the United States, and but a few thousand of them are college men. Every one of them that fails is set up as a shining example, whereas tens of thousands of those who did not go to college are failures and nobody thinks anything about it. The reason that so many inventors are uneducated men is the same as the reason that white sheep shear so much more than black ones; there are so many more of them. We could certainly, without much trouble, point to numerous examples of engineers and prominent men. What has Alexander Graham Bell done for this country? You will all admit he has made some marvelous inventions which may lead to some practical results. Agassiz, although you may say he was a fanatic in Natural History, was a warm friend to the farmer, and his lectures have given a great stimulus to the study of Natural History and the practical methods of teaching it throughout. Darwin has also done a good work in the old country which will do good in this country. I cannot think of all the good things I might say on this subject, so I will omit them.

Mr. Arnold—I do not like to be misunderstood on this question. I supposed I would be. I wrote the paper more for the purpose of discussion and awakening the public

mind on this subject than anything else. If you will notice the train of thought you will notice that the most I deprecate is the idea of stuffing everybody. The idea is impressed upon the minds of young men from the time they go to college till they leave, that they must fit themselves for some higher station in life than being a mechanic, or merchant, or farmer or plain business man. That is not altogether the fault of the professors. It is the fault of the farmers themselves. Our children are taught to believe that labor is dishonorable. We are educating our boys to be parasites on the body politic. We all know this. I have nothing to say against the college course, but I protest against trying to educate a fool. There is no use in spending money on such an object, and if you do educate him he is not as useful as he would be at manual labor. I deprecate higher education at the expense of the common school education. If we all had a good common school education we might be lavish and spend our public moneys for higher education, but, as I said in my paper, higher education will ordinarily be the result of personal exertion on the part of the student desirous of learning. I think no college professor should disagree with me in that, and I think there is nothing in the paper that any college professor should find any fault with.

Mr. Hinton — I beg to return particular thanks to the gentleman from Michigan. I think he is the most level-headed professor that I ever heard. I think the system he has outlined in a few words is one of the most sensible ever advanced. Nothing ever started in this country has achieved what the Cooper Institute in New York has, and when I listened to him a year ago last November, the old gentleman said something like what Professor Beale has said here. He educated young men for the practical and useful pursuits of life. I think what the gentleman has suggested as his course in Michigan is what Mr. Arnold and myself both think is the necessity.

Prof. Beale — One word more about educating the hand and brain together. It has been too common among farmers to brag about their horny handed sons of toil. I think the

time has gone when we should praise the labor too much. The more mind there is put in the better, and all the credit there is to the manual labor is the brain put in it. If you are going to brag of mere strength, the ox can beat you any time.

Prof. Parkinson — I think I agree in the main with the Professor from Michigan Agricultural College, and do not wish to be misunderstood in anything I may have said. We have heard something to-night about forcing young men to study the classics. I want to say that every one of the better colleges and universities of the country throws several courses open to their students. The substance of the classical course remains sinewy and strong, and the wisdom of these institutions has been shown, not in dropping it out, but in offering others alongside of it, and leaving their students free to pursue any, according as their ability or inclination may dictate. I would not send every boy to college, but I would discourage no one who aspired to go and had the will to work, through any fear of his being ruined by the process. Many a boy makes shipwreck of his college course, but the fault is not with the college, but with the boy himself, or with the training he has received at home and elsewhere before he reaches it.

High encomiums have been passed upon the common schools, and fears have been expressed that they may suffer. The common school is the college of the multitude and can never be supplanted. As I have said before, these schools and the higher institutions, act and react upon each other, and neither can be really successful without the other.

Look around you anywhere, and you will find, too, that the common school has no friends so tried and true, as they who warmly advocate and liberally support those schools that supplement it. Is it really true, as has been stated, that we are teaching our children to believe that labor is dishonorable, and educating our boys to be parasites upon the body politic? Is it not rather true, that they who believe this to be the result of our school system, lose sight of what labor is, and fail to realize what constitutes a parasite. It is the thinking men after all that take the lead everywhere — whether they hail from the college, the workshop or the

tented field. These are true laborers. It is not debasing to higher culture to make it subservient to practical and useful purposes; and there is no honorable calling in which the cultivated intellect ought not to succeed the best.

No nation was ever injured by too much culture, and none ever had less to fear in that direction than our own. I have not a word to say in defense of any mere stuffing process, but I want to say in conclusion that if a man becomes educated in any direction, whether of the head or hand, work must be done, and he must do it himself. You can assist him to a certain extent, but the main part of the work he himself must do.

Gen. Bryant—I think it is a great deal better to know something than it is to know nothing. I was very sorry to hear my friend Arnold say that he protested against the education of fools. Where is there any class of men that need educating as much as fools?

Mr. Hinton—Two or three examples were given us, and a challenge was thrown out to compare the educated and uneducated men in high places. Go back to the times of Henry Clay. Was he a collegiate? Look at Abraham Lincoln, tracing out with a stick the Declaration of Independence in the ashes of his poor old father's fires. Was he a collegiate? Look at Andrew Johnson, who could not read the name on the scissors with which he cut a cabbage from his customer's cloth till his wife taught him how to read. Take General Grant, scraping hides at Galena. I will admit that he went to a military school. No man that this or any other country has produced ever pronounced such an eulogy upon our common schools in distinction from colleges as Gen. Grant did in his Des Moines speech. Almost every president of this country has been a man who followed the original bent of his mind guided by a sense of right on one side and a determination not to do wrong on the other. If we had had such a man in the presidential chair at one time there would have been fewer empty sleeves to-day. I say the greatest presidents we have ever had were not collegiates, and I leave it with any man who is familiar with the history of his country.

Mr. Babbitt—I did not expect to speak upon any subject, and I am very sorry to feel that I am actually obliged to. I want to say to our friends that the time of two-forty is past. Two-ten-and-a-quarter now marks the time of Maud S. If we can get speed out of our horses by educating them, shall we deny the blessings of a free country to our sons? I desire to protest against the doctrine which this gentleman teaches. It will be but a very short time before your sons must go to the front, and you must well understand that if in the struggle of life they maintain their position they must be well fortified with a first-class education. Who are the men that control our destinies? They are men of clear brains, the sons of farmers in many instances, not always men who had the education that they desired and which they are sorry they did not have, but would they not have been better men if they had been finished up with the style of the present generation? Look at the improvements in machinery and everything that concerns us. The same principle applies to education. Fathers of Wisconsin, never let any such teaching as this withhold from your sons the privilege of going to the front as the advocates of liberty, freedom and American rights.

Mr. Phillips—The idea that Mr. Arnold has advanced is perfectly corroborated in what Mr. Babbitt has just said. They agree exactly. Mr. Arnold's idea was that in order to have the best results you must have labor with education. The gentleman refers to Maud S. There never was a horse in the world perhaps that was put to the labor that Maud S. has been put to to accomplish the results that she has. That was Mr. Arnold's idea, that you must have labor with education to secure the best results. These gentlemen are not far apart if they understand each other. Mr. Arnold is a farmer and perhaps he did not make it plain enough to these college gentlemen. He did not say you must not educate your sons in the University to make smart men of them, but he said the public money should be used for the common schools, and I believe a majority of the voters of Wisconsin to-day, if they could go to the polls and vote on that question, would back him up in it. After giving the boys a good common school education at the public expense, holding

school ten months in the year instead of five as at present, pick out the boys that show some signs of being smart men and either donate them money to go to school with or let them do as the best educated men in the country have done, teach school between times and educate themselves. Then they know what it is worth. If they had to work and earn it they would know how to apply it.

Mr. Hinton — The gentleman asks a pointed question and he has an undoubted right to the answer. Who are the great men that are controlling us? There are three. Vanderbilt and Gould control a great deal. Gould went to New York with a model of a patent mouse trap and worked his way along until he was worth seventy-three million dollars. A few weeks ago it took nearly every paper in Chicago to keep Mike McDonald, a man that I have been told cannot sign his name, from getting control of the state of Illinois. I do not justify anything of that kind, but I simply use it to illustrate. I advise you to read the article in the Atlantic Monthly on "Political Economy and Seventy-three Million Dollars." You will find there allusions to what natural ability, judgment and keen perceptive faculties can do for men who have never been inside a college. Now I will confirm absolutely what my friend says. I pointed out the same thing to three young men in New York at the tariff convention. I said to them: "There are twelve men standing there. The poorest of them is worth ten million dollars. Every one of them have expressed their regrets because they were not able to get an education in their youth." I have heard nothing from these gentlemen to show that they are antagonistic to giving young men an education. I am sure I am not. But I will say that if you keep on in this state as you are doing you will bankrupt it, and when the reaction takes place it will suffer. That is what I mean. It is for the benefit of the whole people, and particularly for the children of the poorer classes, that anything affecting the common schools be treated carefully and cautiously, so as not to get an ill-feeling toward it which will in the end become too powerful. That is what I understood from the gentleman's paper, and what I sought to corroborate. I think there is no disagreement between us on that.

## PROTECTION.

By HIRAM NABER, Shawano.

What is it?

Who are the protectors?

Who are the protected?

What has been the result of protection?

A widespread but wholly mistaken notion is prevailing among the mass of the people of our country at the present time, that protection to certain interests is given by a tariff or an import duty, only laid upon certain articles which are imported into the United States from foreign countries, and thereby protecting manufacturers making the same articles in our own country against competition from abroad, precisely to the amount of import duty thereon; or in other words, congress prescribes by law that certain articles shall pay a certain sum of money for the privilege of coming into our country, thereby increasing the price of such articles to the consumer, exactly as much as the price charged by the government for such entry. And whenever the price of an article, in the possession of one party is raised by legal measures or by natural causes, the same article in the possession of other parties (all other things being equal) is also advanced to the same extent; thus, articles manufactured in our country are advanced in price, and the consumer is compelled by law to pay for them precisely as much more as the government charges for import duty. This is called a "protective tariff," or in other words, a law which takes money from one man and gives it to the other.

The reason why the tariff question causes such general excitement is, that everybody wants money to be given to him by law; and nobody, except those who are not posted, wants money to be taken from him by law.

(An "irrepressible conflict" in which the "fittest will survive.")

No mistake could be greater, however, than to believe, that by tariff only, protection is given to the few lucky ones who enjoy a controlling influence in our law-making bodies.

Only a few other modes of protections can be described in the limited space of this paper.

The manufacturers of matches enjoy a protection quite different from protection by tariff. Congress has enacted, that parties only, who have money enough to purchase enormous amounts of internal revenue stamps at one time, shall have a discount (or profit) on the stamps alone, for which they can carry on the manufacture of matches and do well, without any profit on the matches themselves. To a poor man, who could otherwise make matches also, this profit on stamps is denied, hence, only very rich men can make matches, and the result of this protection of the rich man against competition by the poor man is, that the consumer has now to pay for a case of matches which cost about \$2.25 to make, the nice little sum of \$8.40.

A protection, far more disastrous to the welfare of the people, is the protection accorded to money. Whenever a war occurs in any country, the necessity, as the demand for money is thereby increased to a very great extent, and if that war is not foreseen by one or both parties, the supply of money on hand and available for war purposes, is often found to be only one dollar where a thousand or a hundred thousand is needed. Various means have been resorted to at various times by the various nations to supply the much needed money. The greatest war, in important results recorded in the history of men, is the thirty years war, and the various wars connected therewith or resulting therefrom.

The princes and the people of Germany, when they first rebelled against pope and emperor, the greatest known power in the then known world, were practically without money. Necessity and financial genius supplied the want, largely by selecting suitable sizes, mixtures and weight, of metal, generally with a small percentage of silver in it, and by stamping thereon something like this: This is a third, a quarter, a sixth, or some other fraction of some larger denomination of money, and by a suitable proclamation of the reigning prince, which took the place of our laws of the present day, these pieces of metal were made a full legal tender currency. This money was current, just as far, and no farther, than the victorious sword of the prince could



protect it. Yet it is an acknowledged fact, that without this money, the peace of Westphalia, which first recognized the principles on which our declaration of independence and our constitution are partly based, could not have resulted.

That our own great war of the rebellion terminated favorably, by the assistance of money, created far differently, and yet similarly, needs no further illustration here.

It is enough to state here, that the same kind of money, which is, and has been made instrumental in bringing about such great results in war, is equally, or more powerful, in bringing about results of peace.

Whenever a war is ended, the money used in carrying on the war is always in circulation, the supply of it is always as great as it was during the war, and as the demand for money is very much reduced, and the price of money is always regulated by the supply and demand, money must and does become cheaper after peace is declared, if it is let alone. The owners of money understand this fully, and after our war was over, they understood this well, and as a decline in the price of an article generally results in loss to the holder thereof, the large owners of money, after our war, applied to our government for protection against natural loss from decline in the price of money and obtained it (with a vengeance). The protection our money lords received from our law-making power, was of a widely different nature of that which the manufacturers enjoyed, but the results were the same, to-wit: Money was taken out of the pockets of the people, and put into the pockets of the money lords. The owners of money knew that there was only one mode of securing a permanently high price of their stock in trade, viz.: money, and that was by lessening the supply, and by securing control over the remainder, and thereby also securing a controlling influence on the demand. A great number of the enactments of congress from the war until 1874, made the money lords the absolute masters of the situation, and the unavoidable results followed in the most horrifying rapidity. The total loss to the people of the United States is estimated as nearly correct as such matters can be ascertained, at \$10,000,000,000, or about one-third of the entire value of the whole United States. Of this vast sum of money not more

than one-quarter went directly into the pockets of the parties thus protected, the remainder was lost by the decline of values, by litigations, collectors' fees, court expenses, and by the ruin generally attending a great panic. Besides the loss of money, ruin was brought upon untold thousands of families, suicides quadrupled, crimes increased at a fearful rate, our insane hospitals became too small, and Wisconsin passed a tramp law, but the Vanderbilts and the Goulds, the Mitchells and the Sawyers, piled millions upon millions, and a luxury unheard of in this heretofore so happy land, was developed among the protected classes. Anarchy and total ruin was averted by discussion of the financial situation, and in consequence, by an act of congress, forbidding a further reduction of the supply of the people's money.

About the time when the panic reached the crisis our pork (in dressed hogs) went begging in the market at  $2\frac{1}{2}$  and 3 cents per pound; the fine cheese of our lake shore counties went into the hands of moneyed men at  $4\frac{1}{2}$  and  $5\frac{1}{2}$  cents per pound; our wheat was sold at 60 and 90 cents per bushel; our calicos were sent to Manchester, in England, and there sold for  $3\frac{1}{2}$  to 4 cents per yard. A German house of Hamburg had three million kegs of our nails laid down at Baltimore for \$1.85 per keg, and had them shipped to Hamburg (Germany) for 15 cents per keg, which irritated American millionaires considerably, who shortly before bought nails by the million kegs for \$1.90 per keg. Then in the year (of our Lord ???) 1880, on the 6th day of September, the national bankers met at Saratoga, New York, and there concluded that their storing capacity for cheap goods was exhausted; that a further postponement of their promised results of resumption and their honest (?) money meant danger; that confidence must be restored; good times must be made; trade must be put into a flourishing condition; a general jubilee over the splendid results of honest money and resumption must be arranged over the whole United States; every newspaper, every (vile) pulpiter, every stump speaker must sound his trumpet in honor of the honest dollar; and the price of every article in the market must be doubled, tripled and quadrupled, in order that their over-

burdened store houses might be relieved to good advantage. All that was necessary to do for this purpose, and at this favorable time, was to increase the supply of money in circulation. They did it. The protection enjoyed by them enabled them to do it.

Three months from the day of the bankers' meeting, and from that time onward, our pork netted a clear 100 per cent. profit to the fortunate holders; our  $4\frac{1}{2}$  and  $5\frac{1}{2}$  cents cheese to the farmer, became a  $12\frac{1}{2}$  cents cheese in the hands of the protected money concerns. A clean million of dollars was made on this dairy product alone, by a few fortunates, but the dairymen of Sheboygan, Manitowoc, Calumet, Fond du Lac, and some adjoining counties, were minus that sum precisely. Wheat advanced from 50 to 75 per cent. and a few protected holders of 13,000,000 bushels, made more money out of that lot alone, than all the farmers of the whole state of Wisconsin made out of their entire wheat crops for four entire years! Our calicos came back from Manchester with a profit of 75 per cent. to the English capitalist, protected by American law-makers, at the expense of American weavers of calico. The German house of Hamburg sent back two million kegs of nails to America after keeping them three months, with a clear profit of six million dollars. (Had that H'inglishman, who yelled so loudly in favor of protection, been posted on the fact that German capitalists were protected by American laws as well as English money lenders, he might have "struck for higher wages" before he left his employers in Milwaukee, to bulldoze the Badgers.) About this time the "protected" allowed their favorite theory of "over-production" to "go to seed," but they carefully gathered the seed, and soon we shall see another promising crop of "over-production" in full bloom.

The "protected" doubled their millions and ordered their composers and trumpet-bearers to arrange a universal "glory! glory! hallelujah!" And the people — resolved themselves into a "mutual admiration society," adjudged the music excellent, and fell into the general chorus! John Sherman, Carl Schurz, Ed. Sanderson and company, declared the financial question settled, buried beneath the faintest hope of resurrection, but as prudent statesmen, they never neglected

to heap a few more shovels full of dirt on to its grave whenever the opportunity permitted. "Love feasts" were the order of the day!

But the most consummate diplomacy will come to grief, sometimes. In an unguarded moment the "protected" allowed a cat to jump out of their bag. It was a tom-cat!

About the time when President Hayes prepared to leave the White House, a bill passed the house of representatives which, among other things, substantially reduced the interest which the national bankers were to have on their securities for the issue of their money to three per cent. A ray of hope shot through our mighty land! Despairing faces were turned towards Washington, all over our country! Then came the stern ukase of the "sole autocrats" to the senate of the United States: "You must not concur." But the millionaire senators had to go home. A faint rumbling of discontent worked wonders among them, and to the greatest astonishment of all observers, the senate concurred in the house bill! Millions of bent down farmers were seen to straighten up in the full vigor of manhood! And now came poor Hayes' turn. The bankers said to him: "We have met you, and you are ours! You know your place — you must veto the bill!" But poor Hayes had to go home! He, too, heard the murmurs of rising manhood. He hesitated. The bankers were struck with awe. Desperate cases require desperate treatment! So thought the bankers. Forthwith they sent their *ultimatum*: Veto the bill, or we will ruin the country! And suiting their actions to their words, the bankers forthwith commenced to withdraw the supply of money. Electricity spread the dreadful news to the remotest corners of our wide domain with lightning rapidity. A full-grown panic was in deadly operation in a few hours' time! Millions of blanched faces in momentary expectation of losing their "all," were seen in the agony of fear, in all our public places throughout the land!

On Friday of the same week the horrors of another "Black Friday" were stopping the pulsations of the stoutest hearts, and money in the city of New York went up to *one and one-half per cent. per day!* Had another "Old Hickory"

been swung over the heads of the miscreant bankers from the White House, with the vow, "By the Eternal! I will hang you all!" a million of the stoutest men would have formed into line at once for immediate execution. But the miserable, fraudulent wretch, supposed to be the great head of the greatest nation of the world, bowed down in sackcloth and ashes before the omnipotence that owned him and *begged* it to spare the country. He vetoed the bill, and on Saturday of the same week, money went down again to a normal price.

The space of this paper will not permit recital of more protection cases, that number by hundreds of thousands. Let it suffice that all the "protected" stand united in solid phalanx, clamoring for more protection, which means: more money! From the pony saw-mill man who wants his lumber protected \$2.00 per 1,000 feet, and the rattle brained clergyman who wants Almighty God protected by an amendment to the constitution, up to the agent of the mighty foreign Jew banking house who wants his hundreds of millions of dollars protected against American genius. They all mean precisely the same, to-wit, more money into my pocket, more money out of the pockets of the industrial classes.

To the question: Who is the great protector that wields such wonderful and such alarming power? The answer may be readily given: it is the congress of the United States. This may be true in the main, but that there are other protectors, I will show hereafter. The next question that forces itself upon us is, what is our congress composed of? Who are these men we send there? The forty-fifth congress furnished a striking illustration to this question. In that body we found one hundred and ninety-eight bankers and bank stockholders, representing the interest of less than one out of each one thousand people, while the interest of six hundred and fifty of each one thousand people which constituted the agricultural population, had not a single representative.

The congress which has just expired, had a senate in which millionaires had a clear majority, and in the whole congress the money interest was represented by one hundred and sixty members, direct and indirect, and that great-

est of all interests, upon which it is said the welfare of our country is resting, was represented by nine farmers. To bodies thus composed, the power to protect one interest at the expense of the other is given, No rational being ought to be surprised that certain interests have protected themselves to the extent of giving themselves complete control of the vital powers that rule the country, as long as the system of protection by tariff or otherwise is recognized as permissible. Neither should our farmers be surprised that they are looked upon as the mudsills of the human society, very useful for the upper structures to rest upon in perfect ease and security, but never allowed to rise from the soil upon which they lie, so long as the farmers themselves allow interest antagonistic to their own, to exercise protection for themselves and against the farmers.

Like causes will always produce like effects. Greater or better protection to one class than to the other, will and must necessarily produce dissatisfaction in the other class. The best and wisest government on earth never has, nor never will be able to handle a protective tariff, or any other protective system, to the satisfaction of all, excepting where such a system becomes a necessity against a foreign enemy, and where patriotism or love of our own country will justify it. But wherever and whenever, one class is protected at the expense of the other, that other class will naturally look for other protectors. If that other protector can be obtained by a peaceable free ballot, the danger is not great. But whenever the conviction gains ground, that the will of the people is overridden by the power of man, the power of money, or any other power, then violence is the result.

The Bourbons of France protected certain classes at the expense of masses of the people. The result was, the Bourbons and the "protected" lost their heads. In our own country, the plea for that protection, which doubles the millions of the millionaires, is, that the laboring classes need such protection. And at the very time, while the advocates of our present system of protection, parade their "unconscious innocence" in soul stirring appeals, to keep up that protection for the poor laborer's sake, these very laborers are banding together in astounding numbers (said to be 875,000)

and are about ready to declare, that a Winchester rifle in the hands of every one of them, and a perfect organization are the only protectors that will protect them against protection.

Of course the protectionists will sneer at the laboring man, and will still more sneer at the idea that the laboring men have a clearer perception of the situation than their own newspapers and speakers sent out to advocate protection. But sneers do not convince.

The facts before us show millions piled upon millions, luxuries to a crime, overbearing intolerance, and an ever-growing desire to rule the whole country by the power of money on one side, and on the other side we see millions of workmen confronted by the positive, but stubborn fact, that fifteen years of hard labor, of earnest effort, of ceaseless toils of themselves not only, but of their beloved ones also, have not left one dollar in their pockets to provide for a rainy day, for the sick bed of their beloved, or for the comfort of old age. We see, also, on the other side 30,000,000 of farmers, possessed of the greatest natural agricultural advantages the world affords, assisted by the best scientific talent of civilization, and by the unparalleled American genius of invention, and we see this majority of all the American people confronted by the stubborn fact that the fruit of their labor and their thought, is not in their pockets but in the pockets of others. Any man or woman, trained or accustomed to hire his (or her) thinking and praying done, may find something in these irritating but equally positive facts that will induce them to take into consideration the all important question, *shall we or shall we not, hereafter learn to think and to pray for ourselves?*

The facts before us, and the questions arising from these facts, the American people will soon be called upon to decide, and upon which we should now commence to think for ourselves, may be summed up in the following. The fact before us is, one class of citizens has the money! the other has not! For the future, the question will not be, How did that one class get the money? The fact that they have it makes this question immaterial. But the question that will agitate the American people in the future will be, How can

that class, now minus the money, and the powers of money be satisfied? Can it be done by the true American mode of calm discussion and education, and consequently, by an equitable distribution of money and the powers of money, or will the possessing class yield to nothing but compulsion, and will the not possessing classes wait for the slow process of equitable adjustment?

To these questions I dare not venture an answer. Think for yourselves!

If but one man or one woman can be induced to think independently for himself or herself, the writer will consider himself richly rewarded for his effort, and to all who dare to think and to act independently, permit him to say,

I am yours.

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#### AGRICULTURAL COLLEGES.

Mr. Ford, on behalf of the committee to whom was referred the subject of the needs of the agricultural farm, reported the following resolutions:

First. That the recommendations of the governor, in his last message, concerning the experimental farm, be carried out by our legislature.

Second. That the bill introduced by Senator Kingston, concerning adding certain swamp lands to the agricultural fund, should become a law.

Third. That the statistics in the case show that agricultural colleges are more successful when separate from universities.

Mr. Ford — I suppose the convention would like to know something of the contents of the bill introduced by Senator Kingston. (The bill was here read as contained in another part of this report.) I just stepped into the office of the secretary of state to get the annual report of the commissioners of public lands, to show something of the condition of this drainage fund, and what it is that we are asking the legislature to give us. The secretary very kindly pointed out the tables. It seems that there are 507,445 acres yet undisposed of, of the normal school fund. The land we are asking the legislature to turn over to the agricultural college is 476,602 acres. Of the agricultural college lands, I believe there are about nineteen thousand acres yet unsold,



and the agricultural fund which is now in connection with the University fund amounts, by itself, to some \$274,000. The agricultural college fund proper, then, taking the money that is out at interest and being used already, together with the lands strictly belonging to the agricultural college, about eighteen thousand acres, would give the agricultural college, pure and simple, an endowment of about \$300,000, if it was appropriated separately to the agricultural college. The proceeds from the normal school fund, if changed from their present destination to the agricultural fund, would be the proceeds arising from the sale of 476,000 acres of land, as yet unsold. The land is estimated to range in value from fifty cents an acre to a dollar and a quarter. Probably it would be safe to say that the 476,000 acres would net a dollar an acre.

The report of the committee was accepted, and the question being on the adoption of the resolution, the following discussion occurred:

Mr. Ford—I suppose there will be no question about the first resolution, which asks the legislature to appropriate such sums of money as the governor has recommended, and as Professor Henry thinks necessary for the experimental station on the farm. If I am right in that, it would limit the discussion to the two last resolutions, one of which is to transfer the drainage fund now belonging to the normal school, to the agricultural college fund; the other is an expression of the opinion that agricultural colleges, separate and distinct from universities, are more useful than when combined.

The question was put on the first resolution, and it was adopted.

Mr. Arnold moved the adoption of the second resolution.

Mr. Johnson—I certainly have no objection to the disposition of this fund as far as giving it to the agricultural college is concerned, but only to the amount. I think if we recommend the passage of this bill of Mr. Kingston's, it will withhold a large portion of the money from the state that otherwise would come into the general fund after a while, by putting the land immediately on the market. The bill is something like this, that the lands shall be put on the market

at a minimum price of three dollars, and if not sold, shall be offered at a dollar and a quarter. If any gentleman will refer to the governor's message, he will see that a good many of these lands are recent selections. I have been told that there is a great deal of valuable timber on them. A bill is now pending in the legislature to withdraw these lands from market and give the governor authority to appoint a commission to appraise the same. For the last twenty years the lands of the state have been squandered in this way. I am a practical explorer. Speculators will go up and examine these lands thoroughly, and lands that are worth twenty dollars an acre, will be bought for a dollar and a quarter, and sometimes for fifty cents. When they come to the officers of the state, they are men with their eyes open dealing with men that are blind. I do not think it is good policy to recommend the adoption of that bill. As to the appropriation, I heartily endorse that.

Mr. Arnold—The bill referred to by the committee has nothing to say about the appraisal or value of lands. It is another bill that the gentleman has reference to.

Mr. Johnson—I understand the report to recommend the passage of the bill of Sen. Kingston, and I presumed that was the bill putting these lands on the market.

Mr. Ford—That the gentlemen of the convention may see that the normal schools are not being robbed and left paupers, I will give you the figures, from the last secretary's report, of the actual fund of the normal schools of the state. They have now on hand and bearing interest \$1,147,071.58, about double the total fund of the state university and agricultural college combined.

The second resolution was then adopted.

The question being on the adoption of the third resolution.

Mr. Broughton—It ought to read that it has been distinctly demonstrated that such connection is injurious, and that it has been distinctly demonstrated that it ought to be dissolved. The resolution is put too mild. The fact is that one has overshadowed the other so that they ought not to be kept together. It is plain and distinct to the knowledge of a great many that it is so. I would like to read what is said on the subject by one who has examined this subject

thoroughly. "In Mississippi, Texas, Michigan and other states, they have abandoned the practice of uniting an agricultural college with a university. They have started anew in a separate college." This was the experience of our friends in Canada. To their noble university, which was well equipped, they attempted to attach an agricultural college. After a trial, the officers reported that the one word "failure" gives the history of all such arrangements. "Agriculture is overshadowed by other studies. Farmers are elbowed out by other professions. Agricultural students feel themselves of an inferior grade—the class a dwindling and unsuccessful affair. Stubborn facts refuse to sustain the theory that this department will work well in connection with a general literary course."

In connection with that, I will give a few statistics of the number of students that each college had when they were connected together and when they were on an independent basis. Arkansas Industrial University, 300 students, 12 in the mechanic arts; University of California, 224 students, 13 agricultural students and 6 in the mechanic arts; South Carolina, 152 students, 6 in agriculture and 3 in the mechanic arts; Illinois, 352 students, 21 in agriculture and 41 in mechanic arts; Ohio, 330 students, 30 in agriculture and 50 in mechanic arts, etc.; Cornell University, 380 students, 24 in agriculture and 27 in mechanic arts; Wisconsin University, 367 students, 7 in agriculture and 15 in mechanics. In all those states, 2,659 students, 127 in agriculture and 200 in the mechanic arts. In Colorado, Massachusetts, Mississippi, Kansas and Michigan they are on an independent basis and there are 936 agricultural students and only 127 in the others. This is a report by Prof. Beale to the Board of Agriculture in Connecticut in regard to this same subject. Our State Grange has examined into the same subject, and this is what they say: "Where agriculture thrives, there we always find a prosperous people. It has always been so, and doubtless ever will be. This awakening thought in reference to our noble occupation leads to the establishment of schools of agriculture. The first were founded in Europe, and are not yet old, while the first in our own country are still young, and, on account of the inexperience of the founders of such

schools, the most of them are failures to accomplish the purpose intended. The result in our own state is no exception, and that success as well as failure is governed by fixed principles. If it is desired to make failure certain we should attempt to join together things that have no affinity; but if we desire to make success certain, we should join congenial elements. Then we shall be blessed with happy results. Had these principles been kept in view in the establishment of our college of agriculture and mechanic arts, the present subordinate condition of such college could have been foreseen.

“Another axiom is that each profession should be taught by those who practice it, and are the professors of such profession. Ecclesiastics should teach ecclesiastics, lawyers teach lawyers, mechanics teach mechanics, and farmers teach farmers.”

Here is a resolution adopted in regard to the subject:

*Resolved*, That all such connections be dissolved (the relations existing between the Agricultural College and the University), and placed on an independent foundation, where the teaching of agricultural science and mechanic arts is the paramount object. Also that all students that attend them under state auspices should be required to take either the agricultural or mechanic course.

Since ignorance in a contest with intelligence is sure to be beaten, now if a farmer desires to be beaten to a dead certainty he should be as ignorant as possible.

On the other hand, if they wish to be equal to other professions, they should be equal to or exceed them in intelligence, then their success is thereby forestalled. In order to carry out the last result, your committee submit the following resolutions:

*Resolved*, That the elementary principles of scientific agriculture should be introduced and taught as a permanent branch in the common schools of the country.

*Resolved*, That we recognize the fact that the disabilities placed on industry we as farmers are chiefly responsible for, inasmuch as they can exist only by our sufferance and can only be removed by a higher education of the farmer. While thought is inactive there will be no progress to free our toil from the drones who may neutralize the blessings of a most fruitful harvest, and with this danger always threatening our free institutions

based on equality of rights and privileges for all citizens, are swiftly moving to accomplish the destruction of equal rights. When the chief industry of the land is made the football of schemers and burdened with taxes varied in kind and ruinous in extent, it is time to qualify patience by the dignity of action.

Mr. Sloan — As at present advised, with the information I have, I should be opposed to the adoption of that resolution. I think it exceedingly unwise for men to act in the dark and without understanding the full scope of their action, and I confess that is the situation I am in, in regard to the plan proposed by the resolution. In the first place, I understand the object is to have, either in connection with the University or separately from it, an agricultural college. A college, as I understand the term, involves the teaching of the higher branches and the sciences. I do not understand what is meant by agricultural students in the sense in which the word is used in the pamphlet from which the gentleman read a resolution. Aside from the manual operation of carrying on a farm, such as reaping, and mowing, and binding, and digging potatoes, and husking corn, which does not involve any scientific education, it is a mere question of practice and experience. I am utterly at a loss to know what kind of an education a farmer wants different from a mechanic, or a business, or professional man. The more education a man gets in any walk of life the broader the mind becomes and the greater his capacity for thinking and dealing with the problems of life. What do you propose to teach in an agricultural college separate from the University of Wisconsin that is not taught in a better and more efficient way at the University than it can possibly be in any new institution? In the first place, the establishment of a college upon a new foundation in a new locality, with its corps of professors and teachers, with its necessary teachers, with all the appointments and all the apparatus and appliances necessary to a thorough course of teaching in what we call a college course, involves a very large expense. Such an institution, even with the funds here sought to be diverted to it, or appropriated to it, would be weak in its teaching force, and necessarily would be small and weak in its attendance. You would have a weak, struggling in-

stitution that would hardly command the respect of any man, and such I believe has been the result of the attempt of the great state of Illinois, containing three times the population that Wisconsin does to establish and support an agricultural college there.

Now I am in favor, as I said this forenoon, of having this agricultural farm and the experiment station, which we are all in favor of and which we voted a resolution for an appropriation for, put under a separate board of control, and that that board of control should be made up of the most intelligent and liberal minded farmers there are in the state, and they should devote time enough to mature some system which should be fixed and permanent for experiments in this work of agriculture which might be beneficial to the farming interests of the state. But in regard to other branches, take chemistry, which is a great aid in agriculture, but what farmer can become an accomplished and expert chemist and devote his time to analyzing his soil or his grain and manures on his own farm. That is to be done for the farmer at the experimental station when he wants information of that kind. Chemistry in its highest perfection is now taught with the corps of teachers we have at the University, as well as mechanics in all its branches, natural philosophy, mathematics, and everything that is useful to the farmer. I know that on the part of some farmers there is a spirit of narrow and bigoted jealousy, that they want to have everything exclusively in the hands of the farmer. It cannot be done. You see a farmer with natural strength of mind, but it will not change; educate him and he broadens out and takes a wide grasp of all sorts of business and all other avocations of life; and so with all others. From the information I possess, no greater or more fatal mistake could be made to the true farming interests of the state of Wisconsin, than to divert this experimental farm and the agricultural course connected with it from the University of the state of Wisconsin, and try to plant and foster a weak and struggling institution. Such an institution would never amount to anything in a practical way, and it never would be an institution that any of us farmers or anybody else could take any pride in. I hope this resolution will be postponed until we

have some report giving us some information what this distinct agricultural college proposes to do that cannot be done in a better and more thorough way in the University of the state of Wisconsin, in which the people of the state are beginning to take a great pride because it furnishes the means for as broad and as high an education as almost any man in the state desires.

Mr. Arnold — I would like to have the resolution read, and have the convention understand what the committee were trying to do when they drafted the resolution. (The resolution was then read.) I do not like to be misconstrued. We have no matured idea. We are not certain what it is best to do, but we simply resolve that the statistics in the case show that in those states where that course was pursued there was a larger attendance and they were probably more useful. This resolution was introduced by the committee for the reason that there seemed to be a public demand for it. Many of the farmers present indicated that they wished to discuss it. The resolution does not in itself contemplate any change. It does not force this convention to say that a change is necessary, but it simply says that the statistics show those facts. Farmers cannot have too broad ideas. We do not want to have narrow ideas about these things. One of the worst things in the world is for a farmer to be bigoted. The idea that a boy can have too much education is all nonsense. There is no education that he can obtain at any college or school that will be damaging to him. I am glad that this resolution has been introduced that there may be a correction of the public sentiment in this regard, and I think that the farmers are as much to blame for the sentiment that prevails as the professors in our colleges are. I apprehend that most farmers who are able to send their boys to college, point them to something higher than a farmer's life. We do not want to blame all this on the professor. They are only echoing our sentiments. If that is the popular sentiment, it accounts for the unpopularity and the non-attendance upon schools where the agricultural course and the college course are united. You will notice that in those states where they have the agricultural college separate and distinct they have a large attendance, but I

apprehend that in those states, such as Mississippi and Nebraska, they have a poor literary course. If that is the case, that may account for the attendance. We have not expressed any opinion as a committee but based the resolution on the statistics.

Mr. H. C. Adams — It seems to me that that resolution, as drawn, does not bring before this body the question we are anxious to discuss. It is simply made a question of statistics. In this form I should be obliged to vote in favor of the resolution, and I do not see, in view of the showing of the gentleman who first spoke on the question, how we can vote in any other way; but the question that is vital to us, and the question which caused the drafting of the resolutions is, whether it is possible and advisable to separate the agricultural department from the University. That is the question that is agitating the minds of the farmers. It seems to me that it would have been more proper for the committee to have brought in a resolution embodying some decided opinion on that point, than to have brought in a resolution which, it seems to me, does not bear directly on that question. So it seems to me, if I go into that question of the separation of the agricultural college from the University, I shall be wandering from the question contained in the resolution brought in by the committee.

Mr. Ford — The committee in presenting the resolution, simply desired to present it in such a shape as to bring the matter before the convention, without committing this convention at this time to any positive action. It is true there is a general sentiment among the farmers of the state, and it is felt by this convention, that the agricultural department is not doing the work it ought to do; upon the cause of it we are not agreed. Some say the farmers are to blame; that they do not believe in agricultural education, and do not send their sons there. I believe that is one great cause of it. The farmers themselves do not believe in this education, and they are largely to blame. As I had the pleasure of saying before this convention last year, I will guarantee that the farmers of the state have more sons in the state prison than in the agricultural college. They felt complimented by it, I see, and have pursued the same course since.



I think the fault is a great deal owing to the farmers. There is another cause. The farm is a very poor farm and a very inadequate farm. A third cause, and I quote this from observing men, who have thought that it had its effect, is, that the agricultural department is looked down upon and is whistled down the wind by the college of letters and the students in the regular course; that there is an atmosphere that is created there by which the attendance upon the agricultural college is diminished and kept under, and that until that institution is entirely separated, they cannot build up this *esprit de corps* and develop themselves as they would if the institution was entirely separate. That is the feeling. I do not say it is correct. There is a very general feeling among the farmers that that accounts for the students not being willing to go there, and not being willing to take the agricultural course. They point to the example of Michigan and Mississippi, and other states, and say that changes it. I profess myself not convinced yet, and not having a settled opinion upon the subject. We simply desired to open this question broadly, so that the friends of the University in its strictly educational features, and the friends of the agricultural college would have a fair, open discussion here. I am glad to see the president and the professors of the University here. I am sure there will be no prejudice on the part of the farmers here in considering any views they may have to present, and they will consider that they are presented from just as impartial a standpoint as any the farmers may have to present. It does seem to me that the question ought to be aired.

Mr. Plumb—I think it was very judicious in the committee to bring in the resolution in its present form, and it is in such a form that the president of the University can express his opinion upon it, and Prof. Henry, who is very much interested in this question. I would therefore call on Prof. Henry to express his views on this question.

Prof. Henry—This is a very difficult position to put me in, for while I have as positive an opinion on the subject as any person in this room, yet in my position as professor of agriculture, I represent a hired man who must do, as long as he is a hired man, what the employer tells him to, and it is

my business to "attend to my knitting," but at the same time I cannot help but have thoughts of my own. In regard to these statistics, it is true that the Colorado Agricultural College had fifty-five students. We may say, of course, they are poorly educated; possibly Colorado people will put up with poor education! Possibly those farmers will give their boys the poorest kind of a chance! In Michigan they have two hundred and twelve students. I do not think that Michigan farmers will admit that they are poorly educated. I do not think that the Governor of Michigan will admit that they are poorly provided for. The same is true of Mississippi. I wish to call the attention of these farmers to this fact. We generally suppose that the southern states are careless regarding educational matters. The State of Mississippi has just appropriated \$115,000 to her agricultural college. During the first year that they started there they turned away a hundred young men owing to lack of accommodation. They are now running with two hundred and seventy-five students. As near as I can come to his figures, the president of the college asked for \$90,000, and the legislature gave him \$115,000. Institutions that have started to run as agricultural colleges have made a failure where undertaken to introduce the classics. The University of Illinois commenced as an agricultural university, but they introduced the classics and they have never graduated above half a dozen students. In Ohio they started what they called an Agricultural and Classical College, near Cleveland. The street cars run out to it. It was not long before they found they were not doing much for agriculture, and they did not seem to care much about it. They got ashamed of their name, and changed it to Ohio State University, and now there is a feeling there somewhat similar to what there is in this state. They have never graduated a student. They are now trying to give agriculture a better impulse. In Illinois also they have taken a turn. A new regent has been appointed within a year or two who was supposed to be able to give the college more of an industrial turn.

We are suffering in the agricultural department at the University from what might be called dry rot. The thing has been getting worse for sixteen or seventeen years. I

think the University, aside from our agricultural department, is suffering in the estimation of our people to such an extent that the University officers could well afford to have the subject started, what to do to help them out of their trouble. We have, in the University, what ought to be a pride to our state. It ought to be the grandest institution in the land, and our people, instead of giving it blows and slaps and kicks, ought, every man of them, to stand up and fight for it with the same feeling he has when the honor of his mother is attacked. If there is dry rot we ought to remedy it. If there is gangrene, let us get at it, and make a strong institution up there on the hill. If separation is the best plan, let it come in such a way that the University will be benefited by it, and not hurt. I do not want any farmer to feel that he wants to take the agricultural college away to hurt the University. He ought to feel that he is going to help the University. Can we afford, as a state, to hurt our University? Look at the odium Minnesota has brought upon herself by her conduct in regard to her state University. If you call a young man from the east to go as professor in the University of Minnesota and he will not go there. He will say he does not want to be a professor in a state which will treat her University like that. Let us act more like Michigan. Let us get at this subject in a business-like way. Farmers, give a few days' time, if necessary; stay here and talk this matter up. Listen to what our president says. Be honest in your convictions. Do not be afraid of a few dollars. Where shall our agricultural college stand? Talk it over fairly as true citizens of a great state, and if it is better to separate, let us go away and make the University better. If we establish an agricultural college let us make Mississippi ashamed of herself. If we stay let us make the University so grand and so good that it will be the best place to be.

Mr. Adams then offered the following as a substitute for the third resolution:

*Resolved,* That it is the sense of this convention that the agricultural department should not be separated from the university.

Mr. Sloan—I move to amend that last resolution by re-

solving that it is the prudent course to first establish an experimental station and put the university farm under a separate board of control, and that separation be reserved for future consideration, till that experiment be tried.

Mr. Hoxie — I do not understand that any farmer present contemplates at the present time the separation of the agricultural college. I think that all the farmers want is to be convinced that the agricultural college in connection with the University is the best thing for the state that we can have. I think all honest farmers are agreed in that. They want to understand these questions fairly. I do not think there is an intelligent farmer in the state that would do anything to cripple our University. I think every intelligent farmer in the state takes pride in pointing to it. But if our agricultural department is not just what we desire, let us carefully and candidly consider this question before any one says "let us have separation." I do not think such a substitute as Mr. Sloan has offered would be of any use. I do not think any one wishes at the present time, with the present light we have on this question, to go in for separation. That is my opinion about this matter, and, as Prof. Henry says, I hope it will be considered honestly and fairly. This is an important question, and before we put ourselves on record as saying that they ought or ought not to be separated, we ought to consider the question carefully.

Mr. Ford — I do not see that the resolution offered by Mr. Adams does any good. The original resolution gives full opportunity to discuss all these questions. If we vote on that amendment it ends all the discussion. If we decide now that we should not separate them, what further is there to discuss?

Mr. Adams — That amendment is simply to bring the question fairly and squarely before the convention and not require an expression from this convention on a mere question of statistics. The question on the resolution is whether it is not better generally, as indicated by statistics, to have our agricultural departments separate from state universities. The proposition that we are interested in is whether it is better to have our agricultural department separate from

our University, and I offered that amendment in good faith in order to bring out a free and fair discussion of that point. As far as the amendment offered by Mr. Sloan is concerned, I would be very glad to accept it if it were not for one thing; it seems to me it is utterly impracticable to run an institution like the State University with two boards of control. It seems to me that there is friction enough already in that University in the faculty and board of regents, without introducing another nuisance by another board of regents. I do not mean to cast any reflections on the present board of regents, but the agricultural and literary departments there are interlocked in a certain measure, and I do not see how two boards of control can manage a single department. I had no desire to have the amendment pressed to a vote at once, but I desire a full discussion of it. No one desires to move the previous question nor shut off debate upon it.

Mr. Ford—The whole motive in the committee in reporting the resolution in the shape it is, was to crystallize, if possible, the sentiment of this convention, and it also considered and went on the supposition that in no case was this convention ready to take decisive action to-day on the question. Now the gentleman endeavors to precipitate this convention into giving a positive answer to the question. I am not thoroughly prepared for that, and I think that the question that Mr. Sloan has suggested is really the previous question, the one that ought to be discussed, and that is whether agricultural colleges ought to be established at all. I should like to hear from those who are better informed than I am whether they ought not to be strictly experiment stations. We ought to talk this matter over and get a little light on this subject.

Mr. Sloan—I have reduced my amendment to writing. It reads this way:

*Resolved*, That it is sufficient, at present, to establish an experiment station on the University farm, and to place the station and farm under a separate board of control, and that the question of separating the agricultural college from the University should be postponed for future consideration.

I think the present board of regents, by education and experience, are not fit to manage this experiment station

and farm, and, if they were, they have got all they ought to be called upon to do to manage the affairs of the University generally. Let us have a separate board of intelligent farmers and see what they can make out of this experiment station and farm, and then we will consider whether they ought to be separated.

Mr. Adams — I accept the amendment. I understood that the board he referred to was to control the agricultural college.

Mr. J. M. Smith — I would ask Mr. Sloan if he would have the funds separate if he had a separate board of control.

Mr. Sloan — My idea is that the act which establishes the separate board of control should itself provide what proportion of the agricultural college fund as it now exists and as we may hope to increase it by the act under the first resolution should be given to that board of control, so that there should be no clashing in the financial questions between the board of regents and the board of control; that would be fixed by the bill.

Mr. Broughton — I will move as a substitute for the amendment that the word *not* be stricken out.

Mr. Sloan — There is no *not* in the resolution to be stricken out.

President Bascom — In discussing this question, I think we ought in the first place to disabuse our minds of the idea that there has been any very especial fault on the part of any persons, either connected with the University or elsewhere, in reference to the difficulty in which we find ourselves involved concerning the agricultural fund. It is a difficulty that does not pertain to us alone, but exists almost everywhere where this fund has come into the possession of a state, to a greater or less degree. I wish to say that the University is not in any way misappropriating these funds which we call the agricultural fund, but which is set aside for a great variety of purposes besides agriculture. It is for the benefit of agriculture, mechanics, engineering, metallurgy, manufactures, architecture and commerce. If we had an agricultural institution already established, and it was prosperous as an agricultural institution, we might have some of these other industries come and drive a wedge

in it to try to split off some of it for their own purposes. If we take these purposes specified, the University is devoting to them to-day a larger sum of money than that derived from the agricultural fund. I have reckoned here, and these figures are approximately correct, that we are now devoting directly to agriculture, mechanics and engineering \$12,000. Those branches of instruction also are responsible for their portion of the expense of instruction in zoology, physiology, chemistry and all English branches and all linguistic branches, as far as those students take those branches. If we add to this \$12,000, the portion that properly belongs to them of this other work, the sum would be not less than \$17,000. When this question of agricultural colleges first came up in this country, I think the opinion of thoughtful and educational men was that it would be wiser to unite the agricultural and mechanical institutions with the literary institutions. Undoubtedly, opinion, in view of the facts, has somewhat altered on that point, but, none the less, there are very weighty reasons that remain for such a union. In the first place, if agricultural and mechanical colleges are to be separated from the literary colleges, a great deal of our expense must be duplicated. All buildings designed for giving instruction must be duplicated almost wholly. Libraries must be duplicated almost wholly. All physical apparatus and all cabinets must be duplicated almost wholly. A large share of the instruction must also be duplicated. It would follow that neither of the two institutions could have the same strength in all these respects without a very large increase of expense. I think it was that idea which prevailed in the minds of educational men prior to experience which inclined them to unite the two institutions. They felt that the public attention must be concentrated on one institution, and in that way more advantages and more wealth could be gathered about it and great expense could be readily saved. There has been a good deal in our experience to alter this opinion, but nevertheless I think our experience is as yet very narrow in reference to these agricultural and mechanical institutions. There are comparatively few of these institutions anywhere in the country that are a marked success. I can only cite three, and possibly four, and over against them

I could cite the fact that these institutions, whether they are with literary institutions or separate, are an object of ridicule, and that a great many farmers think that they are relatively failures as teaching agriculture.

I only bring this forward to show that our experience is as yet very limited, and that we should be guarded in using that experience, not alluding to it here as if it were established. One thing that has been alluded to here is the number of students to be found in these separate agricultural colleges. That on the face of it seems to have very considerable force, yet when we come to such a state as Massachusetts, which has a large number in its agricultural college, that institution gives very little satisfaction in that state. It gives exceedingly little satisfaction as an educational institution for agriculture and mechanics. This matter of numbers is exceedingly deceptive for this reason: If we were to build another university equivalent to this, at Eau Claire, by virtue of local relations simply, not because the university at Eau Claire would have any superiority over this, but simply by virtue of locality, it would gather in one hundred students at least, and if you were to cut that agricultural institution in two and put one part in one place and another part in another you will still get more, and if you divided it into four institutions by virtue of this local force you would still get more in numbers; but you take these four agricultural institutions scattered over the state and look at them in their power in reference to agriculture, and compare it with one institution and there would be no fair opportunity for a choice between them, and yet, in numbers, the four institutions would outnumber the one. A great many come to these agricultural institutions, when they are separate institutions, simply to get a general education, simply as the easiest means to get an education without any especial reference to using that education afterwards in connection with agriculture. The thirty-eight students that we have in this University do not stand for thirty-eight alone. They stand for quite a large number, because these thirty-eight students are now separated out from the great mass of students with a specific purpose, to devote themselves to agriculture and the mechanic arts. They are, as it were, the



choice thirty-eight out of one hundred fifty who are drifting in from local causes for general education and drifting out again.

If we were to take out of such an institution as the agricultural college of Iowa, thirty-eight of their best men that are set apart for a thorough and faithful course in agriculture, we should take the whole heart out of such an institution. You may be sure of that, and that the remaining students, although attached to an agricultural institution, would have very little power or force as adding to its value. Another point: As to affiliation, I think there is very little force in the argument that these institutions will not affiliate with each other. Every branch in such an institution is better for its affiliation with every other branch. Take, for instance, the instruction which I give in the University. President Abbott, at Michigan University, repeats that instruction. His line of instruction there is very nearly identical in many respects with the line of instruction which I give here. Now that I give that instruction in several colleges is no deterioration from its value. It is rather an addition to its value. And these young men who come from various walks in life and with various purposes, learn to get a breadth of thought, and they get a larger horizon of feeling in that way than they possibly can get if they are gathered by themselves, distinctively for what they are, to the exclusion of everything else that might easily affiliate with them.

Another argument has been urged here, that each profession should have strictly professional instruction. There is no difficulty in that regard in connection with the State University. Those to whom we give instruction in agriculture would be the precise men who would be likely to pass from the State University into an agricultural college, but those who are giving instruction in the agricultural college are the precise men that we strive to get into the State University when we are giving agriculture. The men are identical who are giving the instruction in the two institutions. But we do not come to this question as a new question, but as a policy which the state has pursued for a great length of time, which alters the case and should alter our

judgment very much. Whatever we might think of this question if the matter were a new one, it is a very difficult question as we have it now to consider. If this separation should be made, the smallest sum that could be set aside by the government for the erection of the necessary buildings, and that would be a very inadequate sum, would be \$200,000. It would demand the utmost economy to start an agricultural college with that sum. Science Hall alone cost more than \$160,000; with all its contents I think it would reach nearer \$200,000. Here the farm is to be purchased, all the buildings to be built, the apparatus to be gathered, the library to be collected, and \$200,000 is an exceedingly small sum for the first investment. Then if we take the \$17,000 which is realized now from the agricultural fund we should have to increase that by \$8,000, not to do things on a liberal scale, but on a narrow scale. If we had the one hundred students who would float in from locality and then add to that the fifty more of the same stamp we have in the University, to give them instruction, not equivalent to what they can now get in the University, but to give them such instruction that it would at all deserve to be called a college, we should require at least \$25,000 a year. In the meantime we should have taken from the University some \$17,000.

I know that you have no desire to cripple the University as a literary institution. A great many of the boys of the farmers are attending it as a literary institution. The farmers are just as much interested in the University as a literary institution as any class of citizens. So I take it that they have no desire to cripple it. But if that \$17,000 is taken out, it will require at least \$10,000 to replace that, and maintain their instruction. That would be \$18,000 a year to be secured at once from somewhere, for running these two institutions, and then from this time on the claims of these institutions would be nearly doubled right along. Each institution would come to the legislature calling for a degree of aid almost equal to the degree of aid which the University is now calling for. It would be unwise, with the very limited experience we have, to endanger the present University in behalf of what you are not certain to do — that is, to build up two other institutions that shall take its place.

Prof. Henry — I spoke fairly, I believe, for both sides of the question before, but I wish to put myself on record now as to my private opinion in the matter, First, as to students. Suppose we take the course that is advocated, what are we going to do about it? Have you any students when you get through this discussion? No. I do not believe there is a man in this convention who will rise and say that we will ever educate twenty-five farmers a year in that University, with its present management. There is not an agricultural institution in the United States connected with a literary institution, that has forty agricultural students on its list. Who is to blame? The doctors, or the ones who need the physician? I claim that when the colleges are properly conducted for the people, the people will respond. When people do not go to school, it is because the schools are not right. Look at our University here. A farmer's boy to go to the University here must have Algebra, Plane Geometry and Solid Geometry; he must have one year's German; he must have Natural Philosophy to enter. Where is the farmer's boy who can afford, with his limited means, to go two years to the city high schools, or your academies, to get ready to come and spend four years here. A farmer's boy cannot do that. The great trouble is, our colleges come from the old priests' schools.

President Bascom — Are you stating the requirements of admission to the University, or to the agricultural course?

Prof. Henry — There are a number of rounds in the ladder between our district schools and the University which the farmer's boy cannot touch. There is no means of the farmer's boy getting into the University except from the cities or an academy, and that is why they fail to come. In order to put in some of these rounds, what have you attempted to do? By consultation with President Bascom it was deemed best to make a lower course for farmer's sons, but there are no teachers who teach the branches which intervene; the regents make no provision for it. We have one student today who is going to the Madison high school and taking studies there in order that he may get into the University.

Mr. Sloan — What do you call a strictly agricultural course?

Prof. Henry — I should say, as far as it has been worked out, it would involve considerable of chemistry, considerable botany and entomology, more or less study of English, and some of mathematics; presumably land surveying.

Mr. Sloan — Are they not all taught in our high schools?

Prof. Henry — No, sir. Botany is taught very poorly, and chemistry usually not at all. The schools that have started in where the farmers' boys left off at home when about eighteen years old, have been successful. The ones that have attempted to run on the Harvard plan have been unsuccessful. If you farmers let the subject drop in this way, what are you going to do about it? You will have no agricultural schools if you keep on.

Mr. J. M. Smith — I want to ask President Bascom a question. If I understand you correctly you say that the agricultural school has already had more than its proportion of the funds of the University.

President Bascom — Yes, sir. You cannot bring it down to definite figures because it is too fine a division.

Mr. J. M. Smith — You said afterwards that in case of separation your University would require at least ten thousand dollars in addition to what remained to carry on the University.

President Bascom — Yes, sir, because you would have to duplicate a good deal. As to lowering the requirements, what advantage would there be in removing the institution somewhere else? That is a proper question to discuss. Nobody would object particularly to lowering the requirements if that is the trouble.

Prof. Henry — If the farmers are getting the right share of their money and they are satisfied with the results that is all right. If they are getting the proper share of their money educating the number they are, how much would it cost to educate a hundred boys?

Mr. J. M. Smith — The president did not answer my question.

President Bascom — For instance, I credited the botany to the agricultural fund. If we dismiss that professor we must replace him. We must have a professor of botany in the University. There is a large class of studies that we must

have any way whether the agricultural men are there or not. We have to teach there at any rate a portion of what is called agricultural education.

Mr. Ford — I think President Bascom has presented the argument in favor of the University as strongly as it can be presented, and there is a great deal of strength in it. The matter of the double expense, and the extra dignity and deficiency of instruction by having the whole corps present, as against a number of small institutions, no doubt has force, but it does not cover the whole question. The great reason why this agricultural college fund was given to the states was to educate the sons of farmers. Are you doing it? Confessedly you are not doing it here. Confessedly it is not done in the State University. Two hundred and seventy-four thousand dollars have been appropriated for this purpose, with enough to make an available fund of \$300,000 from the general government.

President Bascom — If the gentleman will allow me to call his attention to one point, that fund does not belong to agriculture exclusively, but to mechanics and engineering, and we are doing a large work in those directions, and if you get your agricultural fund separated you may be called on to split it again in behalf of these other interests.

Mr. Ford — I accept that, and it does not make any difference in my statement. I say that the arts naturally go with agriculture, and that where agriculture is taught the mechanics and the arts necessarily will be taught; so that that does not make any difference. I say further, that if we can succeed in giving our farmers' sons a liberal education, which will be at the same time practical, the consideration of the expense will be nothing. We can afford as farmers to give that whole sum of \$300,000 to the State University outright, and say "take it and God bless you and prosper!" And we can go on our way and take the money that we can get from this drainage fund and the fund we can raise by taxation and have our agricultural college.

Mr. Sloan — What warrant have you for saying that this fund was given for educating the sons of farmers? I understand it was given to educate everybody who intended to make farming a business. I do not think that farmers in

educating their children are an object of charity. They can educate them themselves. It is for laboring men and mechanics' sons, and everybody, who are willing to make farming a business and acquire a special education to enable them to do it efficiently.

Mr. Ford — I think the gentleman's point is not well taken. They are called agricultural funds and agricultural college lands. I think the farmers' interest was the great interest it had in consideration when congress made the grant. With all due deference to the gentleman's legal distinctions, I think it is nonsense to say that the main point was not to benefit the farming interests. What is it that we need above all other things? Is it not to elevate the agricultural class? What is it that we need in America? The great trouble is that the farmers are a class of serfs. I do not speak that in any sense of a demagogue. I say they are not educated. I say they go to their work like slaves and they go away from their work like slaves. They are not sufficiently educated to know how to farm it well. Any man who has been through the country knows that, and knows the necessity of raising the class to a class that are as well educated as the men of other professions in the cities. You say that the grant was not given for the benefit of the agricultural college; that it was given for the benefit of mechanics and that it was given for the University. President Bascom says that the agricultural college has had all the money it is entitled to and more. So far as it is going to these sciences which are a part of a liberal agricultural education that is true. But that is not the point. You have no agricultural students there. How many farmers are returned from the University who go back to actual farming? How many are returned from the east that go back to actual farming? There is not one in a hundred. I do not say we can correct this. I do not know that these agricultural colleges are going to be a success. I have serious doubts that they are. Therefore I think Mr. Sloan struck the right question in raising the question of the experimental farm, because we do not know whether the farmers will send their sons to the agricultural colleges. But I am in favor of the most liberal appropriations to try it. I don't care whether we take this appropria-

tion or not. We can get money enough from various sources. We are entitled to the fairest experiment. We are entitled to spend money prodigally to test this experiment. The great object is to get a class of educated yeomen. They are the brawn of this country. This is a farmers' republic. That is where our strength comes from. That is where our professional men come from. That is the groundwork of the success of this country. This is no demagogue's talk. It is what I feel from the bottom of my boots. You go into England and the lawyer when he gets out of court and the Member of Parliament and the merchant when he gets out of his store, where does he go? He goes in the country, and he has a noble estate and a beautiful country, and that is where the noble hospitality and courtesy of England flourish, and that is where we find the noble men of England. In the United States we have a different condition of things. We have an impression everywhere in the United States that the agricultural class is a low class. They are the Grangers, and they are sneered at everywhere. We can hardly meet with an educated man anywhere but speaks of the farmer as a Granger with hay-seed in his hair.

I say when the farmers make an honest effort to educate themselves, for heaven's sake give them a chance. The great necessity is a class of educated farmers. How are you going to get them? You are not going to get them now. It is proved beyond all question that you cannot get them at our colleges. You cannot get them to come back from colleges. Mr. Arnold read a paper the other evening in which he said that that was not education which a man did not get himself. In other words, a man must get his education by his own right hand and brain, and that which comes to him in any other way is not education. The Greeks gave their sons better education than we do. They educated the physical man as well as the intellectual man. We give our sons a one-sided education, and our sons, as soon as we educate their hands out of labor, will not go back to the farm. We must keep their hands in.

Mr. Boyce—I want to tell this convention just what it is that bothers the farmer. When they proposed to raise a fund to run this institution, every farmer in the land thought

he was going to get his son in there from the common school. Then they raised the grade so that no farmer's son could get in there. That is where the main fault is found. That is where it started. It seems that the lowering of the grade, as suggested by one of the professors, would modify it quite materially. You all know that there is no chance for a farmer's son to get into the University without first going to some city like Madison and going to school, and they are obliged to pay out about as much money going to those schools as they would in the University. That is where the trouble is. I know there was not a farmer in my vicinity who did not hold up his hands for the agricultural college, but when they raised the grade they dropped on it.

Mr. Babbitt—I dislike exceedingly to hear farmers talk about lowering the grade. I am a farmer and growing bald-headed, and by and by there will be no hay seed in my hair, but I dislike exceedingly to hear farmers talk about lowering the grade. I would like to see it raised. I would like to see it lowered in entering, but raised in graduating.

Mr. H. C. Adams—I suppose I belong to that class of beings which the gentleman a little while ago denominated serfs. I do not think the farmers of this country feel very much as though they were serfs. There is no reason why they should feel so, and if they do it seems to me it is their own fault. It seems to me there is one phase in this question which has been overlooked.

The farmers themselves are to blame that they do not give their sons education in the science of agriculture. We have here a State University. We have certain provisions for the education of young men in the science of agriculture. That University has been open for years. It has had all the facilities that any institution needs for the education of young men in the science of agriculture, but the farmers of the state have not sent their sons there. Is there any one to blame but the farmers themselves? Why is it that they do not send them there? It is for the reason that the great majority of the farmers of the state believe that it is better policy to give a man a broad general education than it is to give him a special education. It seems to that there is all there is of it. The farmers of the state patronize the Uni-



versity in all its departments. Probably three-fourths of the graduates of that institution have been the sons of farmers. As farmers we have received the benefit of the institution. As farmers we are enjoying the benefits of the institution to-day, and there is no reason why, if we want to, we should not send our sons up there and let them get the advantages of an agricultural education. There is one point which Prof. Henry made, which, it seems to me, was not founded on sound reason, and that was, that if the people were not educated, that was the fault of the school, which seems to me to be one of the most absurd propositions I ever heard from any man who has the education which adorns Prof. Henry. There is a certain percentage of illiteracy in all the states of this nation. Is that the fault of the schools? Take states like Wisconsin and Illinois, where we have common schools scattered broadcast all over the state. There is no reason under heaven why the people should not be educated to the last man, if they desired that education, and the rules that apply to these schools apply to the State University. Now it seems to me that the proper solution of this question is this, that we should take that institution just as it is, with perhaps not the best farm that could be obtained, but with professors who are abundantly qualified to discharge the duties they are called upon to perform, with buildings there representing a value of perhaps half a million dollars, with apparatus second to none in the west, except at Ann Arbor, that we should take that just as it stands and utilize it, and build that institution up in the coming years, so that it will stand on good ground with Illinois and Iowa and Michigan.

It seems to me that the requirements for admission should be lowered, and I have recently consulted with the regents of the University in regard to that, and the opinion I have obtained from them is this, that in order to bring the agricultural department into closer relations with the people of the state we should lower the literary requirements, so that boys can enter the department more easily than they can now. It seems that that is the course dictated by sound reason. But Prof. Henry and some other gentlemen say, "if we allow boys to enter with lower requirements than in the other departments those boys will be sneered at." I will ask

how is it in the law department of the University. I will ask if it is not a fact that a great many apply for admission to the University and can not enter and turn around and go into the law department. They are laughed at and sneered at to a certain extent by the men in the literary department of the University. But do the men in that department care anything about it? Not a bit of it. They know what they want and are going to do it. I do not see why the young men of Wisconsin and the young farmers of Wisconsin can not go up to the University and enter where they best can and pursue their studies like men and with the independence of men and the courage of men and with faith in their work.

Prof. Henry — I wish we could hear from our farmers outside of Madison on this question.

Mr. Broughton — The suggestion is good, and if no one else will respond I will. A good many words may not make an idea, and a good many ideas lack expression for the lack of words, and that is what is the matter with the farmers. They have tremendous big ideas, but they fail in words. What are words made for? To express ideas! A man may have many ideas, and still be a total failure in other respects. What is language for? It is for two purposes. One is to tell the truth and the other is to conceal the truth. Now if I was only skilled in concealing the truth I might stand a fair chance, but it looks now as if it was going to be a dead failure.

Now in regard to classical education, I do not know anything about that; consequently I know just as much about that as others do. If that means Greek literature and Roman literature, I want to ask those best informed what was the condition of the farmers of those countries when that literature was engendered. In Greece there were Helots. In Rome there were forty million slaves at one time, and they found it so hard to support the aristocracy that thousands and thousands of them left their lands and went to live among the Barbarians, or else Gibbon lies. I do not know anything much, only what I steal from the knowledge of others, and if I do that as well as these others maybe I can succeed. Now let us talk business. Why do not young men

go to this agricultural course? I would ask President Bascom what kind of advice he gave J. M. Bailey, of Prescott, in this state, and his son in regard to what course the boy should take when he proposed to enter this agricultural course. I could not swear that Mr. Bailey told the truth, but it certainly had the semblance of being true. I have a record of the statement he made, and he said if any body did not believe it he would sign his name to an affidavit that it was. Prof. Sterling, it is understood, gave the same kind of counsel. It was that agriculture was rather a low study at the University, and that whether they had not better take some other course. I would believe that it was a lie if the same story had not been told to me in the state of New York. If I wanted to be a lawyer, they said, I had got to study certain things, if I wanted to be an engineer I had got to study certain things, but if I wanted to be a farmer I had no business there at all. That was George R. Perkins, professor of mathematics. I think he was the first professor of mathematics in the normal school of New York, and he wrote a book on arithmetic. Now what are we doing in this country? What kind of a government have we got? It is an aristocracy. When we ask who is the government, some say Jay Gould and Vanderbilt. It is not them, it is their lieutenants. Who are they? It is the intelligent persons of the community. The lawyers and the preachers ride on passes, and the members of the legislature all ride on passes and do not call it bribery. If they had the sense that Judas had they would probably go out and hang themselves. Two years ago, I think it was, I thought some of sending some boys to the University, and I went to board at a club house. There were some thirty students boarding there. I asked the boys what they were going to do when they got out of college. Some said they were going to practice law; some were going to be teachers, and the like of that. I said "lots of you are taking the agricultural course, are you not?" "Why, no! we got enough of that on the farm." I said "I suppose the professor wanted you to take counsel as to what course you should pursue as represented in the catalogue. I suppose they advised you there was some-

thing better than farming." The first one of them said he had not any such advice. The other one said "it is no use to tell any such stuff as that," and he told what it was and who told it. Then they all said "yes, they told me so and so," and it was all on the same strain. When they would have served the Lord the same advice was given to them that was given to Adam and Eve.

Now the question is, would not Adam and Eve have been a great deal better off if Satan had not been there at all? That is what's the matter with this literary aristocracy. The farmers do not want anybody else to stand between them and the management of their own affairs. They are as jealous of their rights as any other class. The fact that a man can repeat ideas at a tremendous rate may not add anything to his judgment. He who makes two blades of grass to grow where one grew before is entitled to great credit, not as much, however, as the one who made the grass grow in the first place. He who will attempt to make three blades of grass grow where one grew before, and will perform it, ought to receive a pension. He says it will cost \$200,000 to put this on a separate basis. How much is that when we have \$500,000,000 of property in the state? And the farmers pay seventy per cent. of the taxes, when they ought not to pay more than one-half. If the University gets one-tenth of a mill per cent., it gets \$50,000. Half of one mill per cent. would produce \$250,000. The fact of the business is a farmer cannot talk anything but facts. That is the reason they do not talk as much as others. The whole object of the University, and all the colleges of the United States is to educate an aristocracy to rule the rest, and all the advantage that can be seen in this classical literature, so-called, is to befog and befool the rest of the people. If that is not so, the Grangers are most terribly fooled. What we want is this institution separated entirely from the State University. If anybody wants to go there, all right. We want it out from under the shadow of the influence of the teaching they have there, and put it by itself, away from the proximity of the University, where a farmer's boy can step from the common school into that college, and get a business education, and

learn as much as he can concerning what is going to be his vocation.

Mr. B. F. Adams — I have listened to the gentleman with a great deal of interest. I am a farmer by occupation. I regard that business simply as an occupation, as Mr. Sloan said. I have lived in this state forty years, and I have not during that time discovered much of any feeling among our farming population favorable to what is called an agricultural education, and yet I find that that population as a class are favorable to education and glad to avail themselves of the means generally for obtaining it. It is very much changed during the time that I remember. Forty years ago a man who would enter an institution and take what is called a college course and then engage in any other pursuit than professional was regarded almost as a curiosity. At the present time it is far different. Men enter our various literary institutions and go through a course of study, and we see them scattering into the various pursuits and occupations of life according to their tastes and inclinations. We have had legislation in times past and in recent years to encourage agricultural education. These land grants have been made to the several states. They have accepted them and adopted means to carry into effect the object which the law provided for. But agricultural education is yet in its infancy in this country. It is at present an experiment, and now I will call your attention to the Agricultural College of Michigan, of which the gentleman speaks.

Not many months ago I met Prof. Whitney and talked with him in reference to that institution, its struggles, its present condition and its future prospects. They had the same difficulty in the beginning that all new institutions experience. It struggled along feebly at first. He said that they dated their prosperity within ten years. He said there had been such a prejudice against it at first that they could scarcely do anything, but finally the leading men engaged in agricultural pursuits throughout the state, you might almost say in every township in the state, became convinced that they needed this higher agricultural education which such a college would give to their sons who designed to follow agricultural pursuits, and they made a special effort to

awaken an interest among the rural population in behalf of the college. They did it through the grange. It had become strong in the state, and they enlisted it in its behalf. They got it to make a long appeal and a strong appeal and an appeal altogether to place it in a more flourishing condition, and they succeeded. I am not prepared to say that it is not the best plan to sever that department from the University, but I see no reason only a lack of interest among the farming population of the state in this matter of agricultural education to prevent a long appeal and an appeal altogether in behalf of the agricultural department of the State University to place it in a flourishing condition. What they need at the present time is students in that department. The president has stated that all the facilities are there for laying broad and deep the foundations of an education that will benefit the young men of the rural population. Now if you who are present will create this interest in the various communities that you represent in favor of the institution, I see no reason why it cannot be made flourishing and prosperous. I for one would like to see an institution built up here complete in all its departments, and I would like to see men laboring in its behalf who look far beyond the present hour and contemplate the existence so complete that it will shed its benign influence over the state, and its fame and influence run parallel with the history of this commonwealth.

Since I have been attending this convention I have heard some slurs cast upon higher institutions of learning. I regret to hear such sentiments promulgated, and I trust they will not find favor among our friends who represent the rural population. I think highly of our higher institutions of learning, all of them. It is certainly an encouraging sign of the times when men like our friend Ford go back to farming. I think he stated to us that he was a farmer at the present time. I know that he was educated in one of these institutions which the other gentleman did not speak very favorably of. I think he did them great injustice. I thought he did injustice to those who had been educated at those institutions. I wanted to call his attention to such men as the late Mr. Willard, whose name is as familiar to us as household words. He also was educated in one of

these ancient old-fogy institutions, and what man has been more useful to the rural population of this country? His writings on dairying have been read by thousands. He was so posted in that industry that he was an authority among us. He has passed away from us, but his works will live after him. Although educated in one of those old-fogy institutions, he spent his life as a farmer.

A Member—Are you in favor of the resolution we are now discussing?

Mr. Adams—I have no particular objection to passing that resolution. I do not think it would do any harm, perhaps.

Mr. Ford—I have been very much interested in the remarks of the gentleman who was last up, and I think there has not perhaps been any more good sense uttered in the convention than was uttered by him, but if any gentleman understands from my remarks that I depreciate college education, or a liberal education, I should be ashamed of myself; for, as he said, I have had a college course, and I know the value of it. The motive I had in what I said was in behalf of giving that same education to as many of these farmers' sons as we can. That is what I have at heart. I had rather that my right arm were cut off than to say a word against a liberal education anywhere. I am talking for it, and I want all classes to have it.

Mr. Flint—I am glad to be present at a meeting of farmers and educated men—educated in the educational interests of Wisconsin. In regard to the intent of the endowment of the agricultural college, I think we need not misapprehend. The mover of that measure was the Hon. Mr. Lowry, for a long time one of the leading senators of the United States senate. The object of it was the promotion and upbuilding of agriculture and the agricultural interests of the country. With regard to the University and its connection with the agricultural fund, we ought to proceed very cautiously. The fact is patent that it is not at present an institution satisfying the demands of the people of the state. The intelligent men of the state are not pleased with the progress made in regard to this matter of agriculture and the education of our citizens for the last seventeen years.

Seventeen years ago we set in motion this agricultural college and blended it with the University, and I repeat, we need to inaugurate new measures and new progress. We have made progress. A portion of the regents are now agriculturists, and upon the executive board of control (I suggest it in a spirit of kindness) we need a practical and thorough agriculturist. The board of regents is the power that controls the University, and it is for us to inquire if that control is precisely of the character that we demand. I throw out these suggestions as being one of the farmers of the state of Wisconsin, who is greatly interested in the matter of the higher education of the people, both as regards agriculture and as regards the other departments of education. I doubt the propriety of any radical and decisive measures for the separation of these two branches of the University at this time, but the fact that we are here together to discuss this question, augurs well for the interests of the institution.

Mr. J. M. Smith — I think that we are not so far apart as might be thought from some of the remarks made. I think that we are all of us in favor of education. I think we may lay it down as an axiom that the better a man's education is, the better the man is, and the more powerful he is for his own good and for the good of those about him. Now the question is, what course shall we take to make the man the most powerful and the most useful? We agree that we should have education. How much of it should we have? How shall we get it? It has been said here that the farmers could not get into the University. I have seen and felt a great many times the force of that remark. In the portion of the state where I reside, and where I am better acquainted, in the northeastern counties, I can count up one hundred thousand inhabitants that represent that portion of the state, and not more than twenty-five thousand are situated in or near cities where they can get a good elementary education. In other words, they cannot fit their children to enter college without sending their children away from home for a long time, and farmers, as a rule, are not able to do that. I merely state this as a fact that exists. As a rule they cannot afford to send their children away from home to a school in the city, or to the normal school, and then send



them through the University. I have no doubt that condition of things exists to a greater or less extent throughout the state. I was pleased to hear some remarks about lowering the requirements for admission into the agricultural course, so that they can get in and work their way through. I do not care how well educated they are when they get in, the better they are educated, the more useful they will be to themselves and the community. Our children do not go there. Will it be any better if we separate it at the present time?

I think the feeling is universal among the farmers of the state that we are not satisfied with the course that has been pursued at the University with regard to agriculture. We have felt that we had not justice done us. President Bascom seems to show by figures that we have had more than our share, and yet we can not but feel that there must be some mistake, that we have not had what we ought to have had. But it seems to me that there is a change going on for the better. A few years ago we had not a farmer on the board of regents. At one of these meetings I drew up a paper asking the governor to appoint a farmer on the board. It passed the convention. At the next election Hiram Smith was put on the board, and I think we have not a better representative farmer in the state. I know him well. He is a grand, noble man, and he is ready and willing to do his best wherever he is placed, and he is able to do well. I have been in consultation with him frequently in regard to the status of the University and of the agricultural interests there. I have also had conversation with other members of the board of regents. I have never learned that they were unwilling to do what seemed best for the agricultural interest. Hiram Smith has told me more than once that the farmers do not always seem to know just what they do want, and it is difficult to find out just what they want. If they will let their wishes be known plainly, they can have just what they want. Other persons have told me the same thing. They have asked in an informal way that they have a larger representation upon the board of regents. Our governor has given us two more regents. We now have enough there to make an agricultural committee. They have given us a

professor of agriculture, Prof. Henry, who is working hard and faithfully. I have been with him days and weeks first and last attending conventions, and I know that he is doing a good work out of the University. I cannot say how he is doing in the University for I have not been with him, but outside, among the farmers, attending conventions, I know that he is doing a grand good work, and a work that will tell in the years to come. They have lately given us another professor, Prof. Trelease, a young man yet apparently untried, but so far as we can judge he bids fair to do well and nobly for us, and I believe he will. This shows that they are not disposed to ignore us. Hiram Smith said to me one day that he did not think there was a single member of the board who wished to ignore the farmers; that we had had more than we asked for and would have more as soon as they found out what we wanted. Then let us organize and work together. Let us continue as we are, but let us make it known that we want a thorough and complete equipment in the University, such as would be necessary to get our sons in there and give them a good education, and then, after trying that experiment, if we find it is going to be a failure, let us ask for something else. I am certain that we can get what we want if we put ourselves in a position to get it.

President Bascom — The agricultural convention is the only place in which I ever hear farmers spoken of disrespectfully. It is the only place in which I ever hear about hay seed in their hair. It is the only place in which I ever hear them spoken of as serfs; and it is a kind of speaking which does not seem to compliment their intelligence. The farmers have the same rights and the same opportunities and the same advantages that all other American citizens have, and if they are disposed to make use of them the way is entirely open to them. The first condition of being respected is to respect one's self. If the farmers are not troubled about hay seed in their hair no one else will be. There is no disrespect for this class of citizens, unless it be with some incorrigible fool whose opinion is not worth considering. We all know that the most important portion and the most influential portion, and as honest a portion of our citizens as we have,

is this portion which is represented here, and I am very sure that there is no disrespectful feeling entertained by any one at the University against any portion because of his or her connection with a farm. If we entertained any such feeling we probably should have to exclude a majority of our students. There is one point that seems not to have been understood. I have told Professor Henry since he has been here that he could give the terms of admission, just such as he thought you could meet and send your sons there, and if a young man comes there and it looks on the face of things as if he ought to be there he will find admission to the agricultural department if he seeks it.

Prof. Henry — Will he find teachers there to instruct him?

President Bascom — He will find teachers in reference to the whole line of agriculture and in reference to all English and mathematical studies that constitute a college course. If there should be at any time half a dozen, or three students of agriculture who need algebra, a teacher will be provided. It is an exceedingly trifling thing. I do not think there has been an application since I have been there by one person who wished instruction in these few intermediate branches. It is a very simple thing to supply that, and that space can be bridged over without the slightest difficulty. If you had a million dollars in hand and were consulting as to what you should do with it, I should be very slow to try to dissuade you from establishing an agricultural college and having your own way with it, and I have no doubt it would be a good way; but that is not it. I have been here a long time, and I have had work to get the most necessary wants of the University supplied on the present basis. A man may talk largely about half a million dollars, but it cannot be readily raised in Wisconsin; but the thing you can certainly do, if you choose to do it, is to embarrass the University as it now is, and that you are almost sure to do unless you give the University as it now is your cordial support until you are prepared to put something in its place, and then I hope you will also give it your cordial support. According to my experience, we need the support of all the good people in the state simply to keep that University moving on in the line that it is now pursuing in general education.

It is a noble institution, and it is capable of being a far more noble institution than it is now. Looking at it in reference to general education it is the foremost institution in the northwest, and yet it is exceedingly difficult to get from the legislature the things absolutely necessary for the institution. We are suffering now for the very necessities of life. Our buildings are so uncomfortable that they are unsafe for health. I have been to this legislature now — if I get it this winter, it will be the third winter, to get aid in reference to a necessity like that. You must therefore excuse me if I feel warmly, if I feel that there is any liability on the part of this very influential portion of our citizens in any way, indirectly and without design even, to weaken the support which is being given to this University. I know that the University calls constantly for the best thought and the most earnest support of every intelligent man in this state in order to maintain it in its present position and carry it forward.

Mr. Phillips — There has been only one argument advanced here that I think I know enough to answer. That was from my friend Adams. It was, that when the boys went to study agriculture, the professors did not advise them to do it, and the rest of them laughed at them. That is a very poor reason for not going on with their studies, if it is worth studying and if the facilities within their reach are such as to enable them to do it. How many are there here that have been lucky enough to find a wife who, when they first undertook to go home with a girl, were laughed at, and how many gave it up on that account?

Senator Anderson — I have been somewhat interested in this University Farm. I helped logroll with the board of supervisors to get them to buy a farm, to get them to come to Madison. I did not know what farm they would buy. I would not separate that farm from the University, but I would, if I thought it was going to be a great benefit to the young men of Wisconsin, double the tax, and give them two-tenths of a mill instead of one-tenth, and I think we can get it. I think farmers have a right to use a little of their own money to educate themselves. We really pay the most of the taxes to educate the young men of the state. I think no man can deny that the farm will be a

failure as long as it is attached to the University. Farmers will not send their sons to the University. Facts are facts. These young men that want to study agriculture are sneered at, and some actually abused. A gentleman, who is a clergyman, who was here to-day, told me that his son, who graduated there, was abused. I do not care if every member of the board of regents is a farmer; the farmers will tell you it is a chicken coop for the University.

President Bascom — I do not think it is true in any way that the young men are sneered at or abused.

Prof. Daniells — There is a senior of the agricultural department present, and I would like to know what he says.

Senator Anderson — I do not know anything about what they can testify to, but I know what they have told me. I feel very sorry that that farm was ever bought and attached to that University. I am a Dane county man, and of course I would like to see the agricultural college located in Dane county, but I am willing now that it shall go anywhere in the state and make a success rather than remain where it is and make a failure. There is a feeling among the farmers of the state that it can never be a success where it now is. I do not want any person to think that I am an enemy to the University. I am not. I would be willing to vote them any amount. The state of Wisconsin has been very niggardly with the University. I feel proud of the University and proud of the professors. Prof. Bascom and all the professors there stand high with the people. I do not blame them for the failure of the agricultural department at all, but I say that you cannot have the scholars that take the agricultural course among those that take the literary course and have them respected as the others are. That feeling is all over the country. Whether it is true or not I could not say, but I do not think that all who have it are mistaken. I am opposed to the resolution of Mr. Sloan and in favor of the original resolution, that the statistics show that where they are separate they are more successful.

Prof. Parkinson — I wish to ask that senior to state his experience.

Mr. Broughton — He may be an interesting witness, but is under intimidation.

President Bascom—I think it is a proper thing for a senior to testify as to the general sentiment of the University. I never had a word's conversation with this young man in reference to that. If what Senator Anderson says is true I am profoundly ignorant of it.

Mr. J. N. Wilcox—I think I am rather unfortunate in being the one senior here this afternoon. I have been in the University for some time and I think I can state the general feeling among the students in regard to the agricultural course. I have lived in dormitories nearly all the time I have been here and associated with all classes of students, from the lowest to the highest, and I think I am pretty well acquainted with the feeling of all classes and all ranks of society represented in the University. I have never heard a disrespectful word spoken against the agricultural course from any student or any professor in the institution, and I am glad to have the opportunity to say this, because I think Senator Anderson is somewhat mistaken in this respect.

Sen. Anderson—I could give names if necessary, and will do so, and I can prove it by as good a gentleman as any in the University. I was told so by a gentleman who was here to-day, who is a clergyman.

Prof. Henry—It is possible that both of these gentlemen may be right. It may be that some years ago some students had a prejudice. It may be that since we have more farmers on the board of regents and more money to experiment with and more agricultural students coming in, that the sentiment is changing.

Prof. Parkinson—I do not care to speak at all on this subject. I have been very much entertained with the discussion this afternoon. I think these discussions will do good. They have been conducted in the main in an excellent spirit. But there is always something about my friend Anderson's speeches that makes me want to say something in reply. I cannot resist now saying a word or two. I want to first reply to my friend Ford just a word. He took my friend Sloan to task for his construction of the object of the land grant. I understood Mr. Ford to say that this grant was made for the benefit of the sons of farmers. I think the position taken by Mr. Sloan was correct, that the grant was

for the benefit of agriculture, whether it be farmers' sons, or merchants' sons, or business men's sons, or professional men's sons that take advantage of it. This is something we must not lose sight of. This grant was made for the benefit of agriculture, and every man and every man's son can take advantage of it. It seems to me this discussion will do good for various reasons. The real question that we have been discussing is the question of separation. It seems to me that we are apt to draw wrong conclusions from the results that have been stated by Prof. Henry and others in other states. Those states that have the agricultural college separate from the other seem to have the most students. That argument I think has been substantially answered by President Bascom. You will always find more from local reasons, and the more you go on separating the more you will have, but when you weigh the men it is a question whether you will find any better results, and those states where they seem to have the greatest number are the states where the other colleges are not sustained very well, except in the state of Michigan, which sustains all her institutions as she ought to do. She is a shining example to us. I believe if her agricultural department had been connected with the other it would have prospered, as every department connected with the State University has prospered. They come right up and support their institutions, just as we ask these gentlemen to do. We must not be misled by these numbers. It is said that farmers' sons do not take this course. Not as many have taken it as it would seem ought to. I think it has been shown here that the fault is largely with you. It is as stated by Mr. Smith, who was quoting from one of the regents. I know a little of this from personal experience. On the first board of regents was one of the best farmers of the state. I am glad that the farmers now have more. The governor has said if the farmers want anything more let him know, and if they want any more regents let him know. I would like to know if our sons cannot get in here, how they could get in if you moved the agricultural department somewhere else. If you want the standard lowered all you have got to do is to say so.

Mr. J. M. Smith — How low a standard could be made so as to make farmers' sons eligible to the agricultural department?

Prof. Parkinson — I could not answer that as well as Prof. Henry. I believe the board has tried to do what was right for the agricultural department. I believe they are prepared to lower the standard if necessary, but there has been a pressure upon them all the time to raise the grade from the schools of the state which did not want the University to do the work that the schools ought to do. They have perhaps thrown back too much work upon the schools, and that may affect the agricultural department. If they are doing so it is the business of the board of regents to rectify it, and it is your business to see that it is rectified. I believe that all these educational advantages should be given largely without reference to whether a man shall go back upon the farm or not. I am a graduate of the institution, and think I know the graduates as well as any other man connected with the institution, and I know personally of scores of men that did not take the agricultural course that have gone back on the farm and are respected and influential farmers, and just as influential farmers and perhaps just as good farmers, and perhaps better farmers, than if they had taken this technical agricultural course. You cannot force men to go on the farm. You can give them the advantage of learning everything that may be of benefit to the farmer, and then you have got to let the matter take its course, it seems to me. I am glad to have heard from a representative of the agricultural course here to-day. It brought up a matter that I want to speak of. There are but two members of the agricultural department that seem to belong to the senior class. There are two or three in other branches. I have had those two men under my personal instruction in political economy and other things. I believe those two men are worth twice as much here as if they had been off in some corner of the state away from here, on account of their surroundings here. I believe there is some advantage in bringing these departments in contact with each other, and if there is anything unpleasant in these departments being together I should like to know it. We have asked the



young gentleman here, and he does not know anything of it. We hear many things of that kind in a roundabout way. They seldom come to us. If there is anything of that kind, correct it in any way in your power. But there are advantages here which you must not ignore. Look at your buildings and apparatus and other things that agricultural men have the benefit of as well as others. Look at our libraries. We have in this city almost 100,000 volumes perfectly free to every student of the University and every other person. How are you going to duplicate them?

A young man in a college is educated in a thousand ways and in no better ways than by these surroundings. How are you going to educate farmers? Do you not want to make strong men of them? Would you not give more for one man like that than forty men educated in the technical way? You have it here. You can have anything else you want. Then why change it? I have not seen one strong reason, even from Prof. Henry, why any change should be made. I believe there are not as many in that department as there ought to be. It has been stated here that the fault is yours, and I believe that it is largely yours. It is said that in England men go back upon the farm, but is it because they have special agricultural education? It is because the farms are in the hands of rich men, and they are respected, as they ought to be everywhere. Having been born and raised on a farm I know something about it. Having been in this University many years I take some interest in it. We would gain nothing by separation. We would be simply frittering away our means of usefulness. If you do not have as many men in that department as ought to be there, tell us what we ought to do to put them there, but remember you are not dependent on that department solely, but on all the other departments. Civil engineering and everything are benefiting farming. It is not wholly to your interest that every student should go back on the farm, and all these surroundings are educating, and these gentlemen are getting the benefit of that education.

Mr. Buell — I had not thought to say anything on this subject, but I would like to say just one word. It has been objected to some of those who have spoken in reference to the

sentiment at the University that they were interested witnesses as they were professors or students in the agricultural course. That objection cannot be urged against me. I can say from what I have known of the University that it is perfectly free from any sentiment whatever against the agricultural course. The first graduate of the agricultural course was a classmate of mine, and if there had been any prejudice against the agricultural course I think that during the nearly six years that I was there I should have discovered something of it. I never, during the time that I was in the University, discovered any prejudice against it any more than against any other course in the University. In fact, I never heard as much said against the agricultural course as I have heard said by agricultural and scientific students against the classical course. I think the University is as free from any sentiment against the agricultural course as any other. A great many who have taken part in this discussion seem to think that the farming community get no benefit from the University, that it is run in the interest of other professions. Now a large majority of the students at the University come from the farm. Only about one-fourth of those who enter graduate. The others stay one, two, or three years and then fall out. A large portion of these men go back upon the farm, and the agricultural community is benefited by the instruction they have received. A great many of the graduates of the University, go into the high schools and normal schools as teachers, and the farmers' sons and daughters attend those schools and receive education there, and they in turn go into the district schools, so that the farming community, either directly or indirectly, obtains a very large portion of benefit from the University. I think that the only reason that there are not more students in the agricultural course is that you have not taught your sons that they should take that course. You have not made farming attractive. Instead of using your minds to the best advantage on the farm you have used nothing but muscle. There has been a great revolution in farming in the last twenty-five years. With the improved machinery and facilities of to-day the work of the farmer is not the

mere drudgery that it was, and the farmers, instead of being serfs, are as intelligent a class as we have.

Mr. J. M. Smith — I rise to a word of explanation. I had heard before I left home that it was a common thing for students when they came to the University to be discouraged from taking the agricultural course by the professors of the University. I am glad to learn, and I am satisfied of the fact, that it is not true, and that all that it has grown out of may be some foolish remarks of students at some time not worthy of consideration.

Mr. Arnold — There is a sentiment among literary men that the farmers are one-sided men, that they are educated on one side. There is another sentiment popular that the literary men, particularly the teachers and professors in our universities, are one-sided men, that they are educated on one side. You cannot divest the public of that sentiment. How has it become the public sentiment? It has become the public sentiment by virtue of the fact that it is the case; the public can only be divested of this sentiment by educating us all so that we will not be one-sided. There is a good chance for missionary work among the farmers, and no one is better aware of it than the farmers themselves, and therefore they are a little touchy. It is not the work of five years or ten years. It cannot be obtained in a few years in a university, and we farmers must understand that an education cannot be obtained on a farm or even in an agricultural college. You cannot educate a boy too broadly. You must educate the whole man. Every man who is liberal-minded must feel it. I want my boy to go to school and college and then take such course in life as he is fitted for. That is the kind of education we want our boys to have. I want to correct this public sentiment that farmers have not their proper position in society. Every man is taken for what he is exactly. You cannot expect that farmers will have the same standing in the community if they are not, as if they are up in the standard intelligence. A farmer, or a mechanic, or a lawyer, or a doctor, or a minister or any other man is judged by the amount of knowledge and information and practice that he has.

Mr. Babbitt — I have listened with a great deal of attention to these discussions, and I think I have got at right what the trouble is. If you all agree with me we are on the highway to success. It is apparent to me that the trouble is that we have not money enough backing up these institutions of learning, and the only reason why we have not money enough is that we are too modest to ask for it. We will not ask for our own. I am simply disgusted that you farmers, whom some have called serfs, sovereigns of the state of Wisconsin, do not ask your servants to give you what belongs to you. After the governor has recommended to the legislature to appropriate to the Wisconsin State Agricultural Society and other institutions certain sums of money to enable them to advance your interests and the interests of the state, you walk up tremblingly to the legislature and ask "do you not think our bill is a little too large?" So long as you entertain these views you will occupy the positions which some gentlemen say you occupy, but when you come forward like men and ask, it will be given you: if not, the power is in your hands and you must take your own.

Prof. Daniells — I think ten years ago this month there was an agricultural convention held here, and I delivered an address upon agricultural education in the Assembly Chamber. I called the attention of the farmers of the state at that time to the fact, that while in other states the agricultural colleges had a great deal of criticism, in this state the farmers seemed simply to regard it with indifference. I asked them whether this indifference was the best thing for the farmers and for the college of the state. I think the address is in the report of 1873. I see now that the farmers have simply waked up to what I called their attention to at that time. It is not the fault of the University. It was not the fault of the University at that time. It is the fault of farmers in not coming up and getting what the University gives, and encouraging it to give them more. I am pretty well acquainted with the history of agricultural education in this country. I know it intimately since 1860. I know the history of every college in the country, and I know that

what President Bascom has said is true, that the numbers which attend those schools is because they are local schools, and local schools which give a fair education, and that is the only reason. I asked Professor Beale the other day how they were getting on at Lansing. He said they were getting on pretty well. I asked what was their income now. I forget whether he said \$20,000 or \$22,000, that is, from the agricultural fund. I asked him if he had to go to the legislature and get an annual appropriation. He said "Yes, and it is a good deal of bother. We have not had any mechanical department up to this time, but we are asking them for an appropriation of \$14,000 this year to start a mechanical department." These are some of the little troubles they are having. I asked him how the manual labor was getting on, saying that I understood that every student was required to do fifteen hours manual labor a week. He said: "That is the great problem with us. I never was in favor of it. Our president believes in it, but it is the source of pretty much all our troubles." All is not gold that glitters, and if you knew the history of the Michigan agricultural college as I know it, you would say that all is not gold there. They have their troubles. Their education is not very high; it is good. They have done a splendid work, and are doing the best that is possible.

My opinion is that since the agricultural college was started in 1858, it has had considerably more money from the state than the State University of Wisconsin has. I may be overstating in that, but I think not. All these things want to be thought of. Before you build your house you want to count the cost. I believe thoroughly that a large number of the students who come to the University from the farm will not take the agricultural course, that their parents do not want them to take it, but want them to take the course by which they can make themselves most useful to the world, whether it is the agricultural course or any other. If a man goes to the agricultural course he develops and is as well off as he could be in any course which represents the same amount of study. The reason that the University has not done more for the farmers of the state is the reason I called their attention to ten

years ago — their indifference to the subject. Because the University has not done more they do not want to come up here and hit it on the back of the neck. They want to look wisely and see where the trouble is, and I am convinced by the sentiment this afternoon they are going to do it wisely. They are not going to be hasty about such things. When the University cannot give them anything which it should legitimately give them, then is the time for them to complain. I think at present they have no right to complain. Prof. Henry says that the agricultural department is suffering from dead rot. Where is the source of the dead rot? Is it in the faculty? Is there anything which the farmers want taught there which cannot be taught there and well taught there? If not, there is something wrong in the faculty, and it should be cut out. If the dead rot is in the farmers, then they may take it to themselves and cure it there, and not expect we are going to do it up on the hill.

Col. Warner — I have but a word to suggest and that not on the resolution. There is another agricultural farm running in opposition to this. Friend Curtis who sits here has been running it and he has students from England. There are numerous young men being sent from England to these agricultural schools such as he keeps. He has them on his farm and makes them get up at five o'clock in the morning and milk his cows and learn to work. I like to see the farmers come up here and have their annual grumble. As long as they will grumble it is evidence of life. My idea is that if the farmers will give up trying to buy that other eighty and send their boys to school summer and winter with the money, and educate them and let them do what they are a mind to they will do as well as to come up here and have our grumble at this institution because our boys insist on being in one department there.

Mr. Broughton — They have a right to grumble. The farmers do not want to be ruled by any literary fellows. This twisting a question around in this way and that way, this scientific dodging, does not amount to anything. We feel a farmer's prejudice against this institution. Why? Because the ones that control it are the ones that are trying

to make slaves of us. These higher institutions pretend to great knowledge and have not got it. They are just like the oracle at Delphos. The man that makes two blades of grass grow where one grew before is the one that has the knowledge. The ones that have earned money and supported their families and built up the country and paid the taxes when half of them have been fooled away are the ones that have knowlege. These literary fellows are all the time grumbling and begging and crying "give! give! give!" He says the University has not got enough and will consume all the funds. I presume it would consume all we have got in the world. There are two classes, the rulers and the ruled, and those who are ruled are not satisfied with their rulers. College education of the kind that they have at Yale and Harvard is no good to the farmer. What the farmer wants is to learn the application of science to the supplying of his wants. The farmers are willing to pay the taxes if it is for useful purposes. I have talked with any number of farmers about this very matter, and it has been broached for five or six years that if we were ever going to have any show to get an education above the common schools we must get it somewhere else besides at this college. You might just as well send a boy to the dogs as send him into the city. It is the grand idea of the city to rule over the country. The rustics are not and have not been regarded as very much more than the beasts of the field. Paris rules France, and Madison tries to rule the state. Education is of three kinds. There is one kind that we would like to have very much, the useful. The ornamental may be good for those who get it provided they can fool anybody with it. The other kind of education is the parasitic, the same kind of knowledge that a louse has when he is on a calf. The calf might do as well without the louse, but the louse could not do without the calf. Classical knowledge and higher mathematics and algebra are great things because they can fool folks. It is of no earthly use. There was some writing once and they could not tell what it was, so they thought it was the writing of God, and it is just as it was in Babylon. What the farmers want is to use their own judgment without the intervention of these literary fellows. We do not want them

to overshadow us so much. We expect they will get lots of taxes out of us for they must live and we must pay the taxes. It looks as if they were determined to freeze out Prof. Henry, just as they do the small shareholders in a railroad company or in the mines out west. It is a trick. It is not likely the farmers will ever see the trick, but they will feel it of course.

Mr. Ford — I move the gentleman have the right to print the remainder of his speech, and have it referred to the committee on Entomology.

Mr. Broughton — I might close, because I see my work is futile. There are more weeds than I can pull up. There is one thing sure — it will be printed.

Mr. J. M. Smith — I dislike to have these things go abroad. My grandfather was a farmer; my father was a farmer, and a good one, and I have been a farmer all my life, and expect to be the rest of my life, and my whole sympathies and interests and prejudices, if I have any, are with the farming interests, but I do not think we are serfs or slaves. I believe we are getting more and more free every year. I know we pay a large share of the taxes, but while the statistics show that while the population of the nation is about one-half farmers, the wealth is nearly three-fourths of it in the hands of the cultivators of the soil. It shows that farming is not such bad business, and that the men of education and culture in the state do not average as much wealth as the cultivators of the soil. I do not believe that we are a pack of serfs and slaves, who do not know anything, and are ruled by a few literary men, whose learning is only pretentious, and I protest against that doctrine going out as the doctrine of the farmers of the state.

Prof. Burdick — Laying the ridiculous aside and returning to the subject, to express the sentiment which I have heard expressed in different associations, it has been said in Illinois that Wisconsin is entitled to carry the banner of the north-west. Why? There are many facts which might be enumerated which time will not allow — its grand and diversified industries, etc., but they refer to the men who represent the different interests of the state, who assemble yearly for the purpose of considering all these interests pertaining to their



pursuits and sifting that which is false and unproductive from that which is beneficial and practical. The transactions of our societies are sought for in various states, but I will not enumerate. I will give way to a respected friend from the state of New York, whom I heard a short time ago make the assertion that the time was that men traveled to the east for light, but now they travel to the west. I refer to Mr. Curtis, of Syracuse.

(Mr. Curtis was called for, but did not respond.)

On motion of Mr. Arnold, the third resolution, as reported by the committee, and its amendments, were laid over for one year.

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### TOBACCO CULTURE IN WISCONSIN.

By Dr. S. L. LORD, Edgerton.

With the discovery of Hispaniola, Europe was first made acquainted with tobacco. Previous to this time it had been a luxury of the American savage only. Its introduction into Spain and Portugal lead to its cultivation throughout southern and central Europe. Simultaneous with the introduction of negro slavery, was the cultivation of the weed in the American Colonies, and ultimately it became one of the great staples of the border slave states. Well would it have been for civilization if it had been extinguished with that other relic of barbarism. It is to-day grown in nineteen of the states and territories of our union, and as an agricultural product it has become an important factor in the commerce and manufactures of the United States.

The agricultural reports for 1880 show that 602,516 acres, yielding 446,296,889 barrels, were planted to this crop. The value of this amounted to the sum of \$36,414,615. As an article of export it holds about the fifth place. In 1870 and 1880 there was exported to Europe of this article, to the amount of \$46,000,000 in value. The number employed in its growth and manufacturing in this country approximates 300,000. It yields to the government an annual revenue of \$47,000,000.

The first tobacco grown in Wisconsin was raised in Mag-nolia, Rock county, and Troy, Walworth county, about 1848.

In 1853 Pomroy and Brydon grew a crop in Dane county, near Madison. In 1854 Ralph Pomroy, Esq., began its cultivation in Fulton, Rock county. His neighbors immediately engaged in its growth, as they saw it a profitable crop, and from this beginning has grown up one of the most important industries in southern Wisconsin. It has become a large element among the agricultural products of Dane, Rock, Green and Jefferson counties. Some tobacco is raised in Grant, Sauk and Dodge counties, and its cultivation promises to extend over the southern part of the state. Our soil and climate are peculiarly adapted to its growth, and Wisconsin can compete successfully with any state in the union in the production of fine tobacco, if her farmers will but give it the care bestowed upon it by the growers of Connecticut and Pennsylvania.

In 1882, there were planted to tobacco in Wisconsin 14,924 acres, yielding 15,000,000 pounds, worth at a fair estimate \$1,500,000. Our state tobacco is shipped to all parts of the United States and Canada, and much of the inferior grades is exported to Europe.

For several years after the production of the weed was begun in this state, Connecticut and Pennsylvania seed leaf were the only varieties grown. Within the last three years it has been, to a great extent, superseded by Spanish, which now constitutes the majority produced. Connecticut, Ohio and Pennsylvania are cultivated to a limited extent, and are profitable varieties when the season is sufficiently long to ensure the crop from frost. Spanish has some advantages over the others, as it matures sooner, has less suckers, and is less liable to severe injury by hail and frost, and cures more rapidly in shed. It also commands a larger price per pound in market, although yielding less per acre.

The favorite kinds of Spanish are the Zimmen and Comstock. The Hartford Broad Leaf, and Lancaster are esteemed as the best of the larger varieties.

Tobacco fields, if possible, should have a location that will protect them from sweeping winds. A southern inclination is desirable. Land should be avoided that is very rolling, because if kept as loose by cultivation as it should be, it may be badly injured by rain, the crop damaged and the soil

washed away. Low lands are most liable to rust as well as frost and should be avoided. Location of field must necessarily depend to some extent upon character of soil. Although almost every kind of soil is used in the production of this crop, that adapted to the best quality, and largest growth is the dark, sandy loam. Very good crops are raised on clayey loam, but unless the field is heavily manured it is liable to produce a light colored tobacco. The effort at present is to grow a dark wrapper, to suit the demands of the trade.

Burr oak openings and hazel brush land, are among the best. Any soil that will grow a good crop of corn, will, with an abundance of manure, produce a fair amount of tobacco.

As a fertilizer well rotted barn-yard manure is the best. Horse and sheep manures are rich in ammonia and potash, and consequently, are well adapted to give color and quality, as well as body to this crop. Fish and Peruvian guanos are used largely in Connecticut and Pennsylvania, but are too expensive for use in our state. The pure bone phosphates have been used in Wisconsin to some extent, and, I think, with satisfactory results. Great care should be taken in the purchase of this article, as a majority of the so-called phosphates are worthless trash. Wood ashes have no superior as a fertilizer for this vegetable. Barn-yard manure should be plowed under in the fall or early spring, that it may undergo decomposition in season to feed the young plants. Many are accustomed to spread green stable manure on tobacco fields, just before plowing the last, and perhaps, the only time. It is a mistake to expect the plant to be benefited by unrotted barn-yard manures. Lime, at the rate of one hundred bushels to the acre, may be used to advantage. It should be composted with stable manure, and spread broadcast. Land plaster has been used to some extent, but has but little value. Tobacco stalks are invaluable as a fertilizer. They should be plowed under early in the spring that they may undergo decomposition. The bone phosphates may be used at the rate of three hundred or four hundred pounds to the acre, and either spread broadcast, or sprinkled over the crossings before the hills are made. Much may be

gained by plowing under green crops, although but little effect is observed until the succeeding year.

The tobacco grower should be a stock raiser as well. If not, his farm will become impoverished in time. The worn out acres of Virginia, are a sample of what will exist in our state unless our farmers take warning in time.

Every tobacco field should be plowed in the fall, and before the second crop is killed by freezing. If manure is not spread on the land in autumn the field should be manured and plowed as early in the spring as the frost will admit. It should be plowed again very finely just before planting, harrowed thoroughly, and rolled, preparatory to marking. In marking for Havana, the distance between hills should be thirty inches, and for broad leaf thirty-six inches. This will give an abundance of room for growth and cultivation. The hills should be raised but little, three inches at most, above the surrounding surface, and should contain no straw, tobacco stalks, or lumps of earth.

Tobacco seed should be sown as early in the spring as the frost will allow the ground to be worked. The plant bed should have a warm location, and be protected from cold winds, by timber, fence or buildings. The ground should be as free from noxious seed as possible, heavily manured with fine well rotted material, and either finely plowed or well spaded. It should be thoroughly harrowed, and then raked until pulverized. No lump of earth should be left on or near the surface. One drachm of seed is sufficient for a square rod. If too much seed is sown the plants will be weak, tender, and spindle, whereas the stalk should be short and the leaves broad.

Plants large enough for setting may be obtained, from one to three weeks earlier, from sprouted seed, than from dry seed. The germination may be facilitated by putting the seed in a woolen bag, dipping the bag in warm water two or three times a day, and exposing to constant warmth, or the seed may be mixed with pulverized rotten wood, which should be kept moist and warm. This should be sown as soon as germination is apparent. To sow seed uniformly, mix with white sand, plaster or flour. After sowing, roll or tread the bed very firmly, and cover with thin cotton cloth

or clean straw. If the atmosphere is hot and dry, the covering should be removed, the beds thoroughly drenched with water and the covering replaced. When young plants exhibit leaves, the covering should be abandoned. Two or three crops should be sown in succession, at intervals of ten or twelve days.

So far as the large varieties are concerned, early planting should be the rule, in order to avoid early frost in field and shed. Havana tobacco requiring less time to mature and cure, may be planted later in the season. None but thrifty, spreading stock should be set, as the character of the crop largely depends upon the manner in which it is started. Care should be taken that the soil is well packed around the roots and that the latter are not doubled upon themselves, as they are put in the hill.

Cultivation should be commenced as soon after planting as the land will permit. The soil should be kept loose, especially if the ground is dry and the atmosphere sultry. No farm product is more benefited by constant cultivation than this. The hoe should be used freely to remove weeds and loosen the soil around the plants. An instrument that answers well the purposes of both hoe and cultivator, is the Prout horse hoe, which is being built by Fuller & Johnson, of Madison, Wisconsin. These hoes are used largely in Connecticut, and so far as used in this state, give universal satisfaction to growers of the weed.

Tobacco should be topped as soon as the crop is in full blossom. It is the custom with some (and it is a good one), to top as soon as the buds show uniformity over the field. Thus much nutrition is saved that otherwise would be wasted. Great discretion should be used in this process. "Top low," should be the motto. Large, heavily bodied leaves are much more desirable than small light bodied ones. From fourteen to eighteen leaves on a stalk of Spanish, or from twelve to sixteen on a stalk of broad leaf are all that should be left. The number should be governed by size of plant.

The horned worm sometimes commits great depredations on this vegetable. As he is a great chewer he requires watching. The only method for his destruction is to pick or

brush him from the plant and crush him. When this parasite is first discovered, care must be taken, or he will make great ravages on the crop. The ordinary gray cut-worm sometimes proves very damaging to the young plants, and necessitates much resetting. He may be found in the earth near the plant and destroyed.

As soon as the tobacco is topped, sprouts make their appearance at the junction of stalk and leaf, and should be picked off. Labor in their removal will pay better than any other of equal amount expended on the crop. As often as they start they should be removed, as they rob the leaves of their nutrition. Before tobacco is cut these suckers must be thoroughly removed.

Before harvesting, tobacco should be fully ripe, when it will present a mottled appearance, and the leaf, when doubled upon itself, will break with a sharp fracture. Many growers judge of the ripeness of the plant by the time that has elapsed since it was topped, and thus are led to harvest a green crop, which is necessarily light and inferior in quality. Quality of soil and weather have much to do with its maturity. Grown on sandy soil it ripens more rapidly than on clay loam, and in dry, hot weather much sooner than in damp, cool weather.

Nothing but condition can be a wise criterion by which to judge of its fitness for harvesting. It must be ripe to have body, weight and quality. When the plant is cut and left on the ground to wilt, care must be observed if the sky is clear and weather very warm, or it will be burned by the sun. It is well to turn it over once or twice, but still better to string it as fast as cut, and hung on horses to wilt before it is drawn to the shed. From six to ten pounds, according to size, may be strung on a lath.

The practice of loading on wagon bottoms has been abandoned by careful growers, and racks just wide enough to receive a lath are used, as the former mode bruised the tobacco badly. Care should be taken in hanging in shed that plenty of room is allowed, or the crop will burn or pole sweat, and thereby be destroyed.

From six to eight inches should be allowed between laths. Distance must depend upon size of plants. The most popu-

lar model of tobacco shed is this: well timbered, twenty-eight feet wide, with walls fourteen feet high, covered with dimension boards, and roof covered with shingles, ventilator extending whole length of ridge, with trap doors on side. These doors twelve inches wide and hung at the upper edge, can be raised for the purpose of draft or the escape of steam from below, and closed to exclude snow or rain. Some of the boards on the wall are hung to admit air if necessary.

Driveways may be lengthways or crossways of the building, to suit fancy or convenience of the farmer.

After hanging in shed the utmost care is necessary to guard against damage. If the atmosphere is damp and temperature high, the crop is liable to burn or rot, and the shed should be thrown wide open during the day and closed at night if a fog prevails. While tobacco should have sufficient air, it should not be allowed to cure too rapidly, as the color and quantity are injured thereby.

Tobacco should be assorted into not less than four grades, viz.: long and short, wrappers, binders, and fillers. Care should be taken that no rusty, shed-burned, worm-eaten, or damaged leaves are assorted as wrappers. It is better for the grower to make his wrappers perfect. Everything otherwise should be classed as binders or fillers. Not more than twenty leaves should be bound in a hand. Care should be taken that the hand is neatly bound.

As the crop is stripped it should be "bulked" in a cool place, and protected from wind, rain and snow. If not sold soon after stripping, it is well to pack in cases, the better to protect it from accident.

I will say in conclusion, as your honored secretary, Gen. Bryant, said at the meeting of the tobacco growers in 1881, "grow the best tobacco you can, make all the money you can, and ask the Lord to forgive you."

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On motion, the thanks of the convention were tendered to Dr. Lord for his paper.

## DISCUSSION.

Mr. Sayer — I am very much pleased with the Doctor's paper — the conservative way that he puts it. In speaking of what is done, I shall not speak of the moral effects at all. I shall confine myself to its financial aspects entirely. I want a grain of allowance for my prejudice against it, as I am the only farmer in my vicinity who does not raise tobacco. In the first place, the raising of tobacco from my observation is not financially a success. The first count in the indictment I would bring against it is, that no line of business can be legitimate which holds out large promises in the commencement, and often results in failure. It is speculative. The promise in the spring is that if the tobacco crop can be raised the rest of the crops may go to Botany Bay; if the farmer can raise his tobacco he can buy his corn and wheat and everything else that he wants. The result five years in seven is that the crop is a failure compared to what it promised in the spring. Instead of buying your corn and wheat and fodder from the results of your tobacco, you go without. Let me illustrate. In 1881 the tobacco crop was the best and most remunerative crop that was ever grown in our part of the country, the north part of Rock and the southern part of Dane county. The crop sold on the average for thirteen or fourteen cents. It commenced about twelve and a half and run up to seventeen, and on some crops as high as nineteen cents. The crop brought from \$150 to \$250 and \$300 an acre. Now the tobacco men might come to me and say, "What can you show on your farm to compare with that?" I frankly confess I can show nothing to compare with it as far as that crop is concerned. In 1882 the crop is put in with this large promise of gain. The average acreage is increased. Young men and old men go into it. They stake all upon it. They thought if they could get another crop like that they could go swimming — they could pay off their debts. In 1882 they got a crop that stood well on the ground. It was acknowledged to be even heavier than the crop of 1881. They put it into the shed. The murky weather in a few days begins to have its effect upon it, and it is shed-burned, and when they come to take it down in January they find the crop is



injured to the extent of one-third, one-half or fifth; we did not know how much. These men staked all on their tobacco. They expected to sell in December and January to get money to carry them through and pay their expenses in the last year. I have understood there are no sales of tobacco up to to-day. There is a sale here and there, but comparatively no sales at all. These men are holding their tobacco, borrowing money to carry them through, doing anything to tide themselves along till they think they can sell their tobacco. They hold that it is worth fifteen cents. The tobacco buyers on the other hand say if they get ten cents it is all they are going to get. The tobacco buyers are going to cry it down; the farmers are going to cry it up.

I asked a prominent man in the village of Edgerton what he was going to give for tobacco. He says: "If these farmers realize ten cents a pound for their tobacco it is going to be a good price. It is the most treacherous crop a man can handle." It is treacherous from the time you get it in till the time you get it on the scales and get your money. It is treacherous in the plant; it is treacherous in the setting out; it is treacherous in the hill; it is treacherous when you take it down, and it is treacherous all the way through.

Some years ago I was called upon to act as executor for a farmer who had a large estate in the county of Rock. He had put out forty acres of tobacco on his place. Twenty acres of it was put out on shares, so that his share was thirty acres. In closing up that estate I sold that tobacco for \$611. That man had staked almost everything on a farm of several hundred acres on forty acres of tobacco. That is my only experience in selling tobacco. I want to speak of some other points. There is the deterioration of the soil. These men say it does not deteriorate their soil; that it is just as good years after raising tobacco; and yet they, year after year, take all the manure of forty or eighty or one hundred and sixty acres of land and dump it on the six or eight or ten acres on which they raise tobacco. That small patch of ground is kept up, but how about the rest of the ground? The doctor very conservatively says in that paper that tobacco growers should be stock raisers. Financially, to make

it a success, they must be, but the doctor I think is in error. In not one case in ten do they have stock enough to raise the manure they need, but they put all the manure they have on this one place, so that while they keep that up they are running down the balance of the farm. I only say that, judging from appearances. This has got to run years before the rest of the farmers feel it. Another point is the demoralization of young men. A young man comes to me as a farmer and says: "I want ten acres to put in tobacco." I let him have it and he is to pay me half. I am to furnish the shed and he is to put it up and do all the work and pay me half the proceeds. He puts in a crop, and in seventy or ninety days harvests it and hangs it in the shed. In three or four weeks of the winter he strips it, and it is ready for sale. He gives me my half, and he gets for four or five months' work five or six or seven hundred dollars for his share. That is going to keep him on and entirely demoralize him. He will say: "If I can make five hundred dollars with five months' work I am not going to do anything for you."

I tried to get some young men to work for me two weeks ago. There were a dozen or fifteen in one place and as many in another, and you could not get one of those young men to do a stroke of work for you unless it was in a tobacco shed, if you were to offer them two dollars a day. If they can work one month and make a hundred dollars, they are not going to work another for fifty dollars. They say: "If I can make as much in one month as I could in three months, I am going to do it, and rest the other two months." That will do for old men, but for young men it is demoralizing to sit in a chair in a saloon and live for two months on what they have made in one. But after all it is fallacious. Take the years together, and they do not make as much as other men. Right in my village men are working for from seventy-five cents to a dollar and a half a day. They pay their board. They pay three dollars and a half for their board. If they get a dollar a day, they get fifty cents a day to put into their pocket. If they only work three days in the week, they pay out three dollars and only get back three dollars. That is more than an average. This last cold winter they

have not even worked that three days in the week. Another thing. I was much pleased with the paper read here the other evening by a gentleman on the pleasantness of home. If there is anything that the farmers need, it is that the pleasures and joys and happiness of home be increased. The intellectual caliber of our children must be increased. The complaint is that our boys are made drudges. If you raise tobacco, the boys and girls, and the little boys and little girls, too, will be engaged in the winter, stripping tobacco. A school teacher told me last winter that the attendance at her school was only half what the register showed, because the children were kept out to strip tobacco. They are kept stripping tobacco till eight and nine o'clock at night, and hardly ever have an evening to themselves. They might read the paper a little. They might go and see the girls. It adds to the drudgery of the house. It adds to the slavery of the lives of those boys, and it adds to it wonderfully, and that is far more important than the running down of the soil and these other things, and makes these boys feel that they are mere slaves, and that they have no other opportunity than the building up of the physical nature.

Mr. Kellogg then offered the following:

Mr. President, I wish to enter my protest against "the weed, that from the devil came the seed." Tobacco, if it was not grown it would not be used. We should be free from this vile curse which now pollutes our fair land.

The air we breathe is polluted; the men we meet are *tainted, contaminated*; the very ground burdened with the curse will cry out against it for all time.

Why tempt the youth with this twin brother of whisky, enticing them to the saloon and the downward road to ruin. Is there a man here who uses the nasty weed who has so far lost his manhood that he would under any circumstance recommend it to any, much less to his own sons? I have seen aged ministers who could not break off this filthy habit; I have seen a justice of the peace in high standing with the yellow juice running out of each corner of his mouth and down his beard; I have seen a young man well dressed puffing the foul smoke in the faces of a carriage full of ladies. Are we going to encourage the growth of this poisonou

weed and entail the curse on all future generations? Will you not by precept and example do all in your power to banish this curse? Did I hear you say you could not break off this habit? has it come to this? It is high time you right about face. Will you, for a few paltry dollars, encourage its growth? Will you demoralize the Wisconsin State Agricultural Society by giving it a place on your programme? The next step I shall expect to see, will be the beer industries represented by the barley raising farmers of our state.

Mr. Sayer — There is another point I ought to have made. I told you that for the 1881 crop they received a large amount of money. Now I took a fair average of my farm for three years. I kept account of my expenditures, not for my family, but for the farm. I knew what the actual proceeds of the farm were for two years, and approximately for the third. I published those figures in a Rock county paper and struck the average percentage which the farm made from general farming. I called upon the tobacco raisers to give me an average of, not one year, but three years or five years. No one has replied to it. I do not busy myself with my neighbor's money affairs, but I can say this, that those men who owed mortgages ten years ago, and five years ago are owing them still. One of the most prominent men in our section of the country, eight or ten years ago, had eight or ten thousand dollars out at interest at ten per cent. He is one of the largest tobacco raisers we have in our section of the country. It is just the other way now. I know that not one of my friends owe him now. I do not see the improvements on their places that I would see if these tobacco raisers made money year after year as they did last year.

Mr. Ford — I do not understand that the gentleman who read the paper recommends the growing of tobacco, or that the Agricultural Society, in having an article read on a given industry recommend it, or are at all responsible for it, or countenance it or discountenance it. Our farmers are in increasing numbers cultivating tobacco. In the last five years the raising of tobacco has at least doubled, so that Dane county is to-day the first tobacco raising county in the state. It is in my knowledge that the neighbors of the men

who have raised tobacco have had the idea that they were prosperous. It is simply a matter of general interest.

I do not think that we are called upon to issue a bull against the comet, or that the Agricultural Society is called upon to reform the community. The farmers have raised a good deal of barley and rye, and there has been a good deal of whisky and beer made out of it. They have not drank a great deal of it, and they are not called upon to discourage the raising of it because whisky and beer are made out of it. I think we are getting a little too nice. I never used tobacco. Within the last few years the nasty habit of the pipe has been given up, and men have taken to the cigar. I suppose business men use it because they are a little nervous, and it is quieting. There is a good deal of money to be made out of it, and if there is, our farmers will go at it. I do not think it is a moral question at all.

Prof. Daniells — It happens that I have thirty or forty of the last reports of the State Board of Health. In it there is a very interesting paper giving the opinions of a very large number of physicians of the state upon the physiological effects of tobacco upon the physical being. They do not take up the subject morally or financially, but simply physiologically. I should be glad to send out quite a large number of those reports for distribution.

There is one point in the Doctor's paper that I want to speak of. He said that lime was a very bad manure, and that it needed to be composted with stable manure. I think that any man that thinks of that twice will see that he is injuring his stable manure just so far as he puts lime with it. If you want to cause your straw or some manure which is not rich to decompose rapidly you put lime with it, and it will hasten decomposition. With stable manure, however, or any rich manure, it drives off the ammonia just as sure as you put lime with it, and it destroys the efficiency of the lime. It converts it to carbonate of lime, the form that exists in stone when we take it from the quarry, and it is perfectly inactive and drives off one of the most valuable ingredients of the manure. In this I think that every man who has had practical experience will agree.

Mr. Ford — Before this convention adjourns I think it is

proper that a committee of three be appointed to consider the matter of the agricultural farm and report to this convention, before it adjourns, what the needs of the farm are. This body is really responsible for that institution. It is its infant so to speak. I move that a special committee from this association be appointed to take that matter into consideration and report to this meeting.

The motion to appoint the committee was put and carried, and the chair appointed as such committee, Messrs. Ford, A. A. Arnold and Sen. Matthew Anderson.

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## ECONOMY AND SAVINGS INSTITUTIONS.

BY HON. S. T. MERRILL.

What is Economy? "I have no other notion of economy," said Dean Swift, "than that it is the parent to liberty and ease."

Economy does not imply avarice, nor parsimony, nor greed of gain.

To economize, does not mean to hoard, nor to be stingy, but *to save* by avoiding waste.

Economy frowns upon idleness and encourages the formation of habits of industry. It opens an avenue that leads to competency and wealth.

Economy is a virtue. The practice of it is a duty, not a matter of taste nor inclination. We have no right to waste that which a beneficent Creator has put into our hands. Does not the injunction of the great Teacher enforce this truth?

Did not He enjoin His disciples to "gather up the fragments that remain that nothing be lost?"

WASTE NOT, WANT NOT.

Is a maxim worthy of being placarded in every house and in every school-room in the land. In many households, and in some boarding schools may be seen bread plates whereon is this adage in bold letters. This is well, since it tends to impress on the minds of the young an important truth.

Economy as a practical virtue forbids waste of any thing useful to man or beast.

Economy shows the power and value of aggregation resulting from continuous additions, however small they may be. Fractions of pennies, considered separately, are of little consequence, but when aggregated they are momentous. The grocer or other trader charging for an article one, three, five, or seven shillings, takes thirteen cents for a shilling, thirty-eight cents for three, etc.

The buyer thinks nothing of the fractions, but at the end of the week, month or year they often figure largely in the cash account of the seller.

“Nothing shows the benefit of saving pennies better than the financial statement of the Bank of England. It has a rule that where fractions of a penny occur, to reckon them in favor of the bank. The fund from this source now amounts to \$716,360. Boys, save your pennies — every one of you can own a home at forty, from saving pennies alone.”

This statement, though surprising, is not incredible. It shows what economy, in the way of saving small sums can do.

Among the schemes devised by philanthropists in their efforts to promote the welfare of the laboring classes none have proved more effectual than

#### SAVING INSTITUTIONS,

savings banks for the dimes and dollars, post office savings banks and school savings banks for the pennies.

In Europe and in our eastern states, savings banks have been largely instrumental in securing thousands of comfortable homes, and in giving to many a boy and girl a good start in life.

Sad experiences with *so-called savings banks* in the west, has brought into bad repute institutions worthy of confidence. The prejudice, engendered by the mismanagement, misfortunes and frauds of speculative concerns that have assumed a name properly belonging only to a system of philanthropic effort, has delayed the organization of savings banks of the right stamp.

Without safe depositories for savings, western people have

failed to cultivate habits of economy and have become notoriously prodigal.

What is a savings bank proper?

A few historical facts will, perhaps, best show the nature, aim and advantages of the genuine institution.

In searching through the annals of the past the germ of these organizations is first recognized in schemes for ameliorating the condition of the poor, by encouraging habits of industry and frugality, at Berne, Switzerland, in 1797, and at Hamburg, Germany, a year later. These voluntary associations embraced some of the features of savings banks inasmuch as they received deposits from servants, laborers and mechanics and granted annuities therefor.

In the opening years of the present century great poverty and consequent suffering prevailed in Europe and especially in Great Britain. Taxation and drafts upon the benevolent for the support of the poor have become burdensome. The system of providing food, raiment and shelter, seems to make the houses of refuge popular, and apparently encouraged idleness rather than industry. Pauperism and mendicity increased rather than decreased.

This lamentable state of society enlisted the thoughts, the sympathies and the activities of philanthropists for providing a remedy. What shall we do to ameliorate the condition of the poor, was the question everywhere raised. Private undertakings are mentioned, notably that of Mrs. Priscilla Wakefield, of Tottanham High-Cross, who formed a "Friendly Society for the Benefit of Women and Children," which included in its objects a fund for loans and a bank for savings; and that of Rev. Joseph Smith, of Mendover, who proposed to his parishioners that he would receive during the summer their small savings, and return the same at Christmas with an addition of 33 per cent. as a reward for their economy.

In Scotland, Rev. Henry Duncan, of Ruthwall, preached and wrote advocating the importance of establishing depositories for savings as a means of promoting the welfare of the laboring classes, and in 1810 he put his theory into practice by organizing the "Parish Bank of Savings." Taking this for a model, the "Edinburg Society for the Suppression of



Mendicity" established the Edinburg Savings Bank, probably the first permanent institution of the kind ever formed.

To the minister of Ruthwell more than to any other seems to belong the honor of originating the present system of savings banks. As in England and elsewhere in Europe, so in America, idleness and unthrift seems to be contagious.

In 1818, Governor Clinton in his message to the legislature of New York, said: "Our statutes relating to the poor are borrowed from the English system, and the experience of that country as well as our own, shows that pauperism increases with the augmentation of the funds applied to its relief. This evil has proceeded to such an alarming extent in the city of New York, that the burdens of heavy taxation which it has imposed, menace a diminution of the population of that city, and a depreciation of real property.

\* \* \* Under the present system, the fruits of industry are appropriated to the wants of idleness; a laboring man is taxed for the support of an idle beggar; and the vice of mendicity, no longer considered degrading, infects a considerable portion of our population in large towns."

Out of this state of society was evolved our system of savings banks, *one* of the means suggested by Governor Clinton as a remedy for the evils which he so forcibly depicted in his message.

In New England and some other states, 1816 was a memorable year, not only in the history of savings banks, but in the annals of agriculture. The chilly winds of the summer and the early hard frosts of September, blighted the hopes of farmers and brought the wolf to the door of many homes. The almost total loss of the crops that year may, or may not, have had an influence in hastening the organization of savings banks; certain it is, that great activity was manifested in taking steps for that end in the summer and autumn of 1816.

Mr. Thos. Eddy, of New York, received a letter dated London, April 19, 1816, from Mr. Patrick Colquhoun, in which he says: "Among other philanthropic establishments which are yearly rising in this great metropolis, we are now anxiously engaged in forming a provident institution, or *savings bank*, \* \* \* the object of which is to assist the

laboring poor to preserve a portion of their earnings for old age and give them provident habits.”

The New York *Evening Post* of December 2d, 1816, contained an account of a meeting, Mr. Eddy being chairman, at which it was resolved that “it is expedient to establish a savings bank in the city of New York.”

The December, 1816, issue of the *Christian Disciple*, a monthly religious paper published in Boston, stated that a meeting had been held “to form an institution for the security and improvement of the savings of persons in humble life until required by their wants and desires.”

The committee appointed for the purpose at that gathering secured from the legislature of Massachusetts, then in session, an act of incorporation, which was approved December, 1816, for the “Provident Institution for Savings in the Town of Boston.” This is said to be the first legislation in the world pertaining to savings banks.

A few benevolent persons organized the “Philadelphia Savings Fund Society,” which commenced business December 2, 1816, but was not incorporated till February 25, 1818.

In receiving deposits, Philadelphia took the lead, in securing legislation, Boston was first.

The “Society for the Prevention of Pauperism,” in the city of New York, after repeated applications to, and rejections by the legislature, secured an act of incorporation for the “Bank of Savings of New York,” March 19, 1819.

In 1818, a few citizens organized the “Savings Bank of Baltimore,” “for the purpose,” as stated in its by-laws, “of receiving deposits of such small sums of money as are the profits of industry and economy.” This bank received its first deposit March 16, 1818, and was incorporated in December of the same year.

The great savings bank of Paris, France, now with 328,000 depositors, was organized in 1818.

The year 1816, and the three next succeeding, constitute an era memorable for the development of a system of *quasi* benevolence that has grown to wonderful proportions, and contributed largely to mitigate the evils of pauperism by encouraging habits of industry and economy.

It would be interesting to trace the growth of the institu-

tions organized almost simultaneously in Paris, London, Boston, New York, Philadelphia and Baltimore, but the limits of this paper permits only a brief statement of their present condition.

"The Provident Institution for Savings in the Town of Boston," still the incorporate name of the first savings bank that has the honor of being the first to receive legislative enactment, in this or any other country, had January 1, 1883, 64,764 open accounts, showing due to depositors, over twenty-five million dollars.

The Philadelphia Savings Fund Society had at the same date over twenty-three million dollars due to 85,957 depositors.

The Bank of Savings of New York, had July 1, 1882, 103,000 depositors, to whom was due over forty-two million dollars.

The Savings Bank of Baltimore, had January 1, 1883, 43,783 depositors and \$14,816,788.

Such is the origin and present condition of the four first savings banks established in this country, now having in the aggregate \$105,478,857.

The principles on which they were founded are sound. They are based upon philanthropy and christian charity, hence their permanence and wonderful growth. With these as a model, more than six hundred others have been established in this country, mainly in the eastern states, in which are deposited, according to the last report of the bank controller at Washington, in round numbers, \$1,052,000,000, a sum that almost staggers belief, and difficult to comprehend. A million standard silver dollars weighs 58,928 pounds avoirdupois, 1,052,000,000 about 31,000 tons. Suppose a man with a good team, that can take two tons for a load, undertakes to remove soil of equal weight, how long would it require, moving six loads or twelve tons a day? Eight years, three months and one day!

To whom does all this money belong?

Not to the banks, for they can only hold it in trust to be returned to depositors when called for. Not to the wealthy, for the reception of large sums is forbidden by law; and it is the policy, and to a considerable extent, the practice of

the managers, whose time and business experience is gratuitously bestowed, not to receive money from those who are capable of profitably investing and caring for their own funds.

A noticeable feature of the reports of these institutions is the large number of women and children depositors. In 1880 the Provident Institution for Savings in the Town of Boston, had 34,000 open accounts with women, to whom was credited \$13,000,000. In the State Saving Bank of Hartford, Connecticut, according to the special report of 1873, forty-two of every one hundred of its depositors were women and children.

By the same report, "A large proportion of the deposits" (over seven million dollars) "of the Norwich, Connecticut Savings Society are from operatives in factories, mechanics or daily laborers." Other banks report that two-thirds, three-fourths, and one as high as nine-tenths, of their depositors are of this class.

The conclusion, then, must be, that the \$1,052,000,000 in the savings banks belong mainly to comparatively poor people.

Had the deposits in the New England savings banks January 1, 1882, been equally divided among the people, each man, woman and child in those six states would have received \$107. Divided among depositors, the average to each would have been \$332. A like division in New York, July 1, 1882, would have given every inhabitant of the state \$90 and to depositors an average of \$431.

A better understanding of the characteristics of these mutual savings banks may be obtained by reference to the new Wisconsin savings bank law, that was ratified by the people at the November election of 1876. By that enactment it will be seen that any number of persons, as corporators, not less than twenty, constitute a savings bank, when they shall have signed and filed in the office of register of deeds, a certificate, stating the name, place and object of the association. The bank, that is, the corporators, elect directors or managers, who are forbidden under penalties, to use or to borrow its funds, or to become security for a borrower, and no one except the treasurer, who gives a bond, can receive any compensation for his services.

The admirable feature of this system is, a bank can be and necessarily must be, organized without capital. No expensive building nor costly fixtures are requisite at the beginning, and while in its infancy, its affairs may be transacted in any office or place of business, and by a treasurer, who can devote to it an hour or two a day, once or twice a week.

The cradle of one, the New Hampshire Savings Bank, was in a manufacturer's office, and there it remained until it had accumulated \$100,000. Another was organized in a post office—and there continued till it had over \$200,000 deposits; still another in a drug store, where it remained till it had over half a million dollars on deposit. The only necessary expense for an outfit is the cost of the blank books for keeping its accounts.

When deposits reach hundreds of thousands and millions, a reasonable amount is invested in a suitable building, safe and fixtures. The expense of management is surpassingly moderate. In New York the average cost is about one-third of one per cent. of the deposits, and in Massachusetts and Connecticut it is still less.

National banks and savings banks have no characteristics common to both, except that of receiving deposits. The former are money *making*, the latter money *saving* institutions. National banks are owned by stockholders to whom all dividends are paid. Savings banks belong to their depositors who receive all the profits.

#### ARE THESE BANKS SAFE?

Experience, in answer to this question, sets forth an array of facts conclusively showing that they are reasonably so. It is true, there have been failures, but the causes producing them have, to a great extent, been eliminated from the system by legislative action. The savings bank laws of New York and the New England states have been thoroughly revised within the last few years, thereby greatly diminishing the chances of failure.

The bank examiner of the state of New York, in his last report to the legislature, says: "The worst wrecks found among the failed banks resulted from mismanagement prior

to the passage of the present bank law in 1875. Under the present regulations as to investment and supervision, *no serious wrecks can occur.*"

The only bond of indemnity for the faithful performance of duty in "The Provident Institution for Savings in the Town of Boston," is that of the treasurer for \$20,000, and yet he is the custodian of more than twenty-five million dollars.

Treasurers of savings banks hold their offices by virtue of their well known integrity, rather than by any security which their bonds afford.

The law has its eye constantly upon them, they must open their safes and books at stated times and whenever called upon and show clean hands; but after all, well established character for honesty is the chief reliance for security.

The corporators, not less than twenty of the prominent men in the vicinity of the bank, have the whole matter in their hands. They choose ten or a dozen trustworthy citizens, whose duty is to elect a man of unblemished reputation for treasurer, and then to supervise his transactions.

All human institutions are imperfect, hence it is possible for a Judas to occupy the position of treasurer of a school board or of a church society or of a savings bank.

An experience of more than sixty years has demonstrated that the percentage of loss in savings banks *proper* is less than in any other business, with few, if any exceptions, when money is employed in its transactions.

The legislatures of Illinois and Iowa, have not yet provided for the establishment of savings banks. Minnesota and Wisconsin have general laws, recently enacted, exclusively for that purpose, but the people are slow to avail themselves of their advantages.

Mr. Henry M. Knox, bank examiner for the state of Minnesota, in his report for the year ending November 30, 1882, says: "It is a cause for congratulation that under the provisions of the act of 1879, no more of these mixed organizations which under the name of savings banks, are transacting a large business of commercial character, can be organized. \* \* \* The only bank established under the act of 1879, has savings deposits amounting to \$1,014,492." This is a genuine savings bank, without capi-

tal. The five other so-called savings banks, referred to as "mixed organizations," having capital, have savings deposits amounting to \$666,557.

In the political economy of our country, savings banks are becoming an important factor. Their deposits in 1880 amounted to \$880,677,350; in 1881 to \$967,790,662, and in 1882 to \$1,052,982,065, showing an actual increase of nearly \$100,000,000.

These accumulations signify additions to the means laid aside for sickness, for old age, for tiding over business stagnation; they are the increasing funds that will enable thousands of depositors, now in the service of others, to purchase and paddle their own canoes.

The advantages derived from these institutions can hardly be overestimated. The one thousand millions of savings, yield depositors at the present low rate of interest, on an average, four per cent. dividends, or in the aggregate forty million dollars, a large proportion of which without savings banks would not be saved, and many of those who now have funds upon which to draw for a rainy day would be in the ranks of pauperism. Saving banks have been largely instrumental in lessening the burdens of taxation for the support of the poor, a fact that has been satisfactorily demonstrated in Great Britain, where for the ten years, 1811 to 1821, prior to the establishment of savings banks in that country, the government expended £68,000,000 for maintaining the poor; but for the decade 1821 to 1831, immediately succeeding their organization, the cost was only £63,000,000, a reduction of £5,000,000, or \$25,000,000. The amount paid for this purpose for the year 1834, was £5,989,411; for 1841, £4,492,329, or over 20 per cent less.

This reduction of taxes was attributed largely to the influence of savings banks; hence the English government deemed it wise to encourage them by paying for money borrowed of the people through them three and one-fourth per cent., although it could have been obtained elsewhere for a less rate. After an experience of fifty-five years, it was found that the fostering care of the government in sustaining savings banks had virtually cost \$20,000,000 (more exactly £4,169,167), but it was evident that ten-fold as much

had been thereby saved, not taking into account the beneficent reflex influences of savings institutions in the line of encouraging industry and habits of frugality.

But aside from their mathematical demonstration, experience and reason furnish abundant evidence to show the elevating influences of savings institutions in communities where they have been established.

How much does it cost the state of Wisconsin to support its poor.

Imperfect reports from all the counties except eighteen, show the expense for 1882 to have been \$127,473. The total amount raised by taxation in the state for this purpose would probably exceed \$200,000.

The establishment of savings banks in Wisconsin would unquestionably be attended by the same results as in England. Taxation for the support of the poor would be reduced. The first and only bank of the kind in the state is the Beloit Savings Bank, organized in March, 1881. Although not yet two years old it is a creation of steady, healthy growth, and is working out the ends for which it was instituted very satisfactorily. The bank is in the office of an insurance agency over a book store. The treasurer is the city surveyor, who devotes to it his time only Mondays and Saturdays. The investors' funds are kept in the First National Bank. It has declared three semi-annual dividends of 2½ per cent. each, aggregating \$1,051, to 401 depositors. It has paid all current expenses, and has a surplus of \$179 over all liabilities.

Of this bank the auditory committee make the following report:

"We, the undersigned, duly appointed auditors of the Beloit Savings Bank, have examined the books, accounts and securities of said bank and make the following report of statistics, and of its condition January 1, 1883.

Date of Organization, March, 1881.

	Jan. 1, 1882.	Jan. 1, 1883
Total depositors.....	119	401
Open accounts.....	109	351
Total amount deposited.....	\$12,566 07	\$49,199 07
Total amount withdrawn.....	3,429 00	21,399 09
Total amount due depositors.....	9,137 07	27,799 98
Loans on personal and collateral security .....	3,200 00	6,470 00
Loans on real estate .....	3,203 55	18,876 90
Total loans .....	6,403 55	25,346 90
Due each depositor, average.....	83,82	79 20



First dividend $2\frac{1}{2}$ per cent .....	Jan. 1, 1882	\$121 90
Second dividend $2\frac{1}{2}$ per cent .....	July 1, 1882	349 76
Third dividend $2\frac{1}{2}$ per cent .....	Jan. 1, 1883	579 54
Total dividend $2\frac{1}{2}$ per cent .....		1,051 20
Expenses (services, fuel, outfit, rent, etc.) from organization .....		564 22

RESOURCES.		LIABILITIES.	
Loans .....	\$25,346 90	Due depositors .....	\$27,799 98
Cash on hand .....	2,226 55	Third dividend .....	579 54
Cash at loan agency .....	100 00	Surplus .....	179 86
Interest due .....	825 93		
Stationery .....	60 00		
	<hr/>		<hr/>
	\$28,559 38		\$28,559 38

We take pleasure in saying that the deposits are apparently well invested, that in our judgment, the securities therefor are good, and that the Bank is worthy of confidence.

WILLIAM BLODGETT,  
JAS. M. CARPENTER,  
H. M. WHITNEY."

Few persons comprehend the vast amounts rolled up in the course of time by even small principals at compound interest. It seems hardly possible that one dollar at ten per cent. would, in one hundred years, amount to \$13,809!

The Safeguard Almanac, 1877, illustrates the results of accumulation as follows:

"There are probably few, however familiar with the subject of the rapid increase of capital put at interest, who would not be startled at the statement that the cost of the outfit of Christopher Columbus in his first voyage of discovery, put at interest at six per cent., would by this time have amounted to *more than the entire money value of this continent, together with the accumulations from the industry of all who have lived upon it.* If any doubt this, let them reckon the amount, estimating the entire outfit to have cost *only* the small sum of five thousand dollars, and remembering that money doubles, at six per cent., in a little less than twelve years — or accurately, in eleven years, ten months, and twenty-one days. Allowing it to double every twelve years, this five thousand dollars at interest at six per cent. since 1492, it will be found, would have amounted to \$17,895,700,000,000; which, estimating the population of the entire continent of America (North and South) to be eighty-five millions, or seventeen

million families (averaging five members each), would give more than a million dollars as the possession of every one of these. The interest upon a million dollars at six per cent. is sixty thousand dollars, which would now be the princely annual income of each of these seventeen million families from the accumulations up to this time upon so small a sum as that named for the outfit of the discoverer.

“In Hildreth’s ‘History of the United States,’ it is stated that Manhattan Island — afterward called New Amsterdam, now the city of New York — was bought by the Dutch from the Indians for sixty guilders, or *twenty-four dollars* (\$24), and this only about two hundred and fifty years ago. And yet, if the purchasers could have securely placed that \$24 where it would have added to the principal annually, interest at the rate of seven per cent., the accumulation would exceed the present market value of all the real estate of the city and county of New York.”

Savings banks are not yet old enough to furnish examples of large accumulations from small deposits. Occasionally, however, instances occur showing the confidence reposed in them, as well as the profits derived from them.

“A bank book was recently presented at the Springfield, (Mass.) Institute for Savings, which the bank officials had not seen since the original deposit of \$300 was made thirty-two years ago. The interest alone amounted to \$1,649. During all this time the owner had never entered the bank nor asked a question as to her property, which she came to claim.”

A savings bank book was brought to the Cheshire (N. H.) Provident Institution, April 1st, 1881, upon which appeared the following entry: “1837, *Jan. 3, deposited* \$100. The book had never been presented since that date, and was sent in at that time to have the interest added in compliance with the recommendation made in the new rules adopted by the bank. The interest found to be due was \$1,092, which, with the \$100 deposited, gives \$1,192, the total amount due the depositor.”

A record relating to the first bank established in New Hampshire, is both interesting and instructive.

\*“The Portsmouth Savings Bank was organized (1823) here soon after the Sunday School was established, and for the same purpose, and to a considerable extent by the same persons. It was essentially a philanthropic enterprise, intended to elevate the character and improve the condition of young people of small means. The effect on this community has been decidedly favorable. It has improved the habits as well as augmented the means of those for whom it was established. \* \* \* \* \*

“Perhaps a few words and figures will give you a better history of the workings of the bank, and to this end I would state the result of two deposits made soon after the bank was organized, viz.:

Deposit No. 143, of \$20, made Dec. 17, 1823, amounted July 18, 1868, to.....	\$291 88
Deposit No. 343, of \$20, made August 4, 1824, seven months and eighteen days later, amounted at same date to. ....	268 88
Difference more than original deposit.....	<u>\$22 70</u>

Mr. I. H. Foster, treasurer of the bank, says in answer to a letter of inquiry, that these deposits are still in the bank, and amount (Feb., 1883),

No. 143, to.....	\$630 44
No 343, to.....	581 13
Difference for seven months and eighteen days.....	<u>\$49 31</u>

Twenty dollars, then, deposited in 1823, is now earning for the depositor \$78 a year.

Two other kindred institutions, the natural offsprings of savings banks, are very popular, wherever their advantages have been enjoyed. These are

#### POSTAL AND SCHOOL SAVINGS BANKS.

The former were first engrafted upon the English post-office system in 1861; the latter were first introduced in Belgium in 1866. Neither was put in operation in any other countries except the English colonies, till 1875, when the Bureau of Education in France sent Mr. Malarce, and the School Board of London sent Mr. Fitch to Belgium, to make observations

\* Keyes' History of Savings Banks, p. 201.

in regard to the school savings banks in the city of Ghent, reported as having a remarkable influence in bettering the condition of the laboring classes.

Both these gentlemen, charmed with what they saw, wrote glowing accounts which were published in the papers of London and Paris, the purport of which briefly stated, was, that a Mr. Laurent, a professor of civil law in the University of Ghent, a voluminous writer on the rights and duties of men, undertook to effect a reformation in behalf of the operatives in the cotton and linen factories of the city, and of the laboring classes generally, who were in the habit of spending their leisure time and a portion of their daily wages in the dram shops and dance houses, and whose condition in consequence of their improvident habits, had become very depraved.

“Just as the twig is bent the tree is inclined,” so thought the large-hearted professor. He resolved to give his attention to the twigs of the race—to the children. Accordingly he formulated his plan, gained the consent of the school board to test his theory, then went into the city schools where he found the teachers ready to co-operate with him.

The main feature of his scheme consisted in giving the children an opportunity of depositing with the teacher once a week their small savings. This he called the “Savings Exercise,” in detail as follows: On Monday morning the teacher takes the school register, having a page for each pupil checked off for months and days and calls the roll. Any scholar desiring to deposit steps forward with his card, checked off like the page of the register, upon which the amount deposited is inscribed as well as upon the register. At the end of each month the instructor takes the money, thus put into his hands, to the post-office bank, or to the city savings bank. He returns with a savings bank pass book for each of his depositing pupils, in which their little savings for the month have been credited.

Another valuable feature of the system is, the teacher at this weekly exercise imparts to the school a lesson on the advantages to be derived from forming habits of industry and economy, *habits* of which Shakespeare says, “how use doth

breed a habit in a man;" and Bacon, "habits wisely formed become truly our second nature;" and Paley, "man is but a bundle of habits;" and Cowper, "habits are soon assumed, but when we strive to strip them, 'tis like being flayed alive." While the pupils are thus encouraged to save, important truths are at the same time impressed upon their minds.

The reports of the schools of the city of Ghent show that the system became very popular. After an experience of six years, of the 15,383 pupils, 12,982 participated in the weekly savings exercise and had pass books of the city savings bank which shows the aggregate sum of \$92,982, an average of more than \$7 to each depositor.

"Nearly all the children in the city are by this means serving an apprenticeship in economy, and hence promise to be a generation profoundly ameliorated," says A. de Malarce in his *Manuel Des Caisses D'Epargne*.

The following official report demonstrates the popularity of school savings banks in France:

	School Savings Banks.	Books Issued.	Deposits in Francs.
January, 1877.....	8,033	177,040	2,984,252
January, 1879.....	10,440	224,200	3,602,624
January, 1881.....	14,372	302,841	6,403,773
January, 1882.....	16,494	349,219	7,984,811

There is no lack of enthusiasm on the part of the friends and promoters of this scheme for inculcating habits of saving in the rising generation. They say: "The boy is treated like a man, performs the act of a man, receives the deposit book of a man, and hence feels like a man." The children show their bank books at their homes and there repeat the lessons of the school, thus making impressions that have had a marked influence in improving the condition of whole communities, and in increasing surprisingly the number of depositors in savings banks.

Three hundred and forty-nine thousand children in France, while forming habits of industry and frugality, have gained credits in their little savings bank pass books amounting to more than a million and a half of dollars, or an average of

\$4.50 each. Who will not say that the money thus accumulated is insignificant, when compared with the value of the habits which they have acquired? Who will say, in view of such facts, that it is unwise for a government to exercise its paternal care and foster, even at considerable expense, savings institutions.

Do school savings banks tend to make children penurious or avaricious? Experience answers no.

The great inundation in the south of France, a few years ago, caused great destitution and suffering, so that contributions were called for. The generous as well as economical pupils in the schools of Bordeaux, drew from their savings and put into the relief fund, nearly 10,000 francs.

In view of such facts is not this system of gathering and saving the pennies worthy of attention and adoption in our own country?

Superintendent Searing, in his report for 1877, recommending the introduction of school savings banks in Wisconsin, says: "To teach children the value of money, to induce the desire and habit of saving and to practically acquaint them early with some business forms and usages, must certainly be recognized as legitimate school work."

If school savings banks are so worthy of adoption why are they not engrafted upon our school system? First, because their advantages are not understood and appreciated, and secondly, because we have no savings banks nor postal banks where the money can be safely deposited.

Why do we not have postal savings banks in this country as in England, France, Belgium, Germany, Italy Austria, India, Japan and elsewhere? Postmaster General James, and Postmaster General Howe, both have recommended their adoption, and there is a bill now pending in congress for their establishment. Why is congress so slow in putting in operation a system that promises such great advantages? Because the savings banks of New York and New England, through misapprehension, are wielding their influence against them. This opposition is perhaps voiced by a prominent bank official in Boston, who intimates — March, 1882, number of *Rhodes' Journal of Banking* — that a postal system of savings banks would result in the com-

plete extinction of all the savings banks in the country, that the \$250,000,000 in the Massachusetts bank would be transferred to Washington and there lie idle, and that New England would become the home of a poor and discontented people.

Depositors in the 450 savings banks of England who received only three per cent. dividends did not withdraw their funds and place them in the postal bank, where two and one-half per cent. is the rate of interest.

When the latter was organized in 1861, the former had on deposit \$207,000,000. Seventeen years thereafter the amount had increased to \$221,000,000, showing a gain of \$14,000,000, and the postal banks had in the meantime accumulated \$152,000,000.

If, with a difference of only one-half of one per cent., the two systems work harmoniously and prosperously in England, the savings banks in this country, with a difference of two per cent., have little to fear from the establishment of postal banks.

The bank examiner of New York, in his report, February, 1882, presents his objections to postal banks, objections that facts, and the light of reason and experience dispel as the sun dispels the fogs of an autumn morning.

The committee to whom the bill, now before congress for the establishment of postal banks in the United States, was referred, have made a report containing statistics and facts in regard to the operation of such banks in other countries sufficient to show that objections to their inauguration in this country are groundless.

In closing, they say: "Your committee believe the provisions of this bill to be wise, and that by its operations both the depositor and the government would be mutually benefited. We also believe that this business can properly be conducted by the post-office department. The latter is now engaged in carrying merchandise and selling exchange for the sole purpose of adding to the commercial facilities of the people, while the system hereby proposed will not alone prove a great convenience, but will elevate the standard of citizenship and largely promote the prosperity and happiness of all."

Let us hope that our western and southern states will soon reap the benefits of savings banks, of postal savings banks, and of school savings banks.

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## THE INDUSTRIAL RELATIONS OF OUR BIRDS.

By Prof. F. H. KING, River Falls.

*Mr. President, Ladies and Gentlemen*—Now that type, steam and electricity have rendered such extensive, rapid, and intimate communication possible, there comes a growing realization of a deep under current of human interests which knits all nations into an organic union scarcely different from, or less intimate, than that which exists between the various members of our bodies.

Let the blood be drained of its nutritious elements, and there flies along the nerves a demand for food. The sensation of hunger is the signal for definite action of many organs to meet that want. It is the same way to-day with nations. When England's great stomach is emptied, and she grows hungry, the sensation of want throbs through those long submarine telegraphic nerves, and in less than three days the world is moving toward her capacious mouth with something to fill it.

But man is not more closely wedded to his fellow-man, for weal or for woe, than he is to the lower forms of life, both plants and animals, which surround him.

How fundamental, intimate and far-reaching these relations are, it seems that we are but fairly in the dim dawn of realization; and as the farmer's profession is the applied science of life in the very largest sense, it follows that you, of all men, are most intimately and irrevocably bound up in this complicated net-work of living forms. The importance of your domesticated animals and cultivated plants you fairly realize. It is to the other side of your relationship with the world of life that I would be glad to turn your attention during the few minutes at my disposal.

So simple and, one would say, unimportant an animal as the angle-worm, Charles Darwin has shown to be the great



soil producing agent the world over. Eating its way deep into the ground it swallows the sand and gravel as it burrows, grinding it to fine powder as it passes through the body. This is voided on the surface as fine soil and a tribute to husbandry. You have all recognized the loss of soil from your fields through the action of wind and running water. The Mississippi river is estimated to pour enough sediment into the Gulf of Mexico annually to cover 268 square miles one foot deep. This and much more must be replaced year by year, and if you will observe the little piles of dirt thrown up by angle-worms, during and after showers, you will see by whom it is replaced.

But these same angle-worms have been shown to be instrumental in spreading that terribly contagious disease of domestic animals, anthrax or splenic fever, by burrowing down to the buried bodies of animals which have died of the disease and bringing the germs to the surface even after an interment of perhaps ten years. This does not teach that angle-worms should be destroyed, but, on the contrary, that the animals dying of contagious diseases should be burned completely and at once rather than buried, and in this fact too is to be found the very strongest possible argument for cremation in similar cases. I presume that it need not be said to most of you that that other terrible disease of cattle and sheep, known in England as fluke-rot, which has destroyed in a single locality in Europe, during one season, 300,000 sheep, and which has ruined large herds of choice cattle, is due to a parasite which is believed by those who have studied its habits to pass through one stage of its transformations in the bodies of fresh water snails. A knowledge of these facts has led to a better drainage of pastures and greater care during wet seasons with the result of much greater immunity from the disease.

Darwin and others have found that if clover heads are covered so as to prevent the visits of insects, they produce very few or no seeds, whereas the heads not thus guarded are likely to mature the usual number of seeds. Bumblebees have been shown to be largely the agents which fertilize red clover, which they do by carrying the pollen from one flower to another. The honey of the blossoms is the cash

paid by the clover to the bees for their services; its advertising medium is the fragrant odor sown broadcast by the winds.

Now if angle-worms, pond snails and bumble-bees do sustain intimate and important relations to farming, I think it may safely be conceded that possibly our birds may sustain a more important relation than we at present realize. The purely industrial interest of our birds, grows out of their food relations. This being the case they must be serviceable or injurious according as they feed upon beneficial or injurious animals, plants or materials. At the outset, let me endeavor to convey to your minds some notion of the amount of work the bird population of Wisconsin is capable of doing annually. During the month of July, 1877, I found by traveling on foot continuously in one direction in various parts of Jefferson county, that I was able to count thirty-three birds per mile. I think you will agree with me that in traveling in a straight line without stopping one would not be likely to observe more than one-half of the birds which actually exist upon each square mile crossed. If you grant this, the number of birds per square mile in Jefferson county at the time was sixty-six. This would give Jefferson county an actual bird population of 30,096, and an area somewhat less than our state, 3,565,000.

From the stomach of a wild pigeon were taken nine full grown crickets, four grasshoppers, two caterpillars and one harvestman. From the stomach of a young partridge, less than a week old, were taken thirteen caterpillars, seven harvestmen and one grub; from that of a night-hawk were taken five grasshoppers, eight square shouldered bugs and ten scorpion bugs, none of which were less than three-fourths of an inch long. Three golden-winged woodpeckers had in their stomachs respectively 255, 220 and 200 ants each. In the stomach of one hairy woodpecker were found eleven wood-boring grubs and thirteen measuring worms. The actual amount of food which these birds consume daily, if we except the night-hawk, is probably three times that which was found in their stomachs. Fifty insects of the average size would certainly be a small daily allowance for the average bird. One hundred and twenty days is less

than the time our summer residents are with us. At the rate assumed each bird would consume six thousand insects. This would give as the aggregate number of insects consumed during the 120 days the enormous total of 21,384,000,000. This number is sufficient to put one insect on every square inch of more than five square miles. Put in another way, it is an army thirteen inches wide reaching around the earth at the equator in which each member of the army occupies a square inch of surface. Shorten the length of the army to the distance between here and Milwaukee, and its width becomes eighteen rods. Prof. Forbes, who has done some very careful work on the food of the birds of Illinois found, by actual count, the stomachs of seven cherry birds, which he obtained in an orchard infested with canker-worms, to contain nearly one hundred canker-worms each. Supposing these to represent the day's food the number is double that which we have assumed in our computation, and still the cherry bird is only a fair average in size of the birds which have entered into our count.

Taking his figures, the number of square miles would be ten instead of five, the equatorial army would be over two feet wide and when shortened up would extend eighteen rods each way from the railroad track between here and Milwaukee. Again, we have considered the food of these birds during only 120 days, one-third of the year, whereas they are destroying insects somewhere during the entire year, that is, to represent the whole work done by the birds of Wisconsin annually, the results indicated should be multiplied by three.

It should be borne in mind that less than half our summer residents were observed in Jefferson county at the time the counts were made, and that nothing whatever has been said of that much larger group of birds which passes through the state during the spring and fall. These birds are with us on an average of four weeks and in certainly more than double the number per square mile of the summer residents. While some of the birds which have entered into our count feed to some extent upon seeds and fruit, this food is more than compensated for by the insects eaten by the birds which have not figured in the estimate. It has been urged

that birds, feeding as they do indiscriminately upon beneficial, injurious and neutral insects, are likely to render a positive injury or little or no service in the destruction of insects. In regard to this question in general it is to be said that after an examination of the contents of nearly 2,000 stomachs of our birds, and classifying the insects eaten under the heads beneficial, detrimental and those whose economic relations are unknown, the results show that these birds have eaten but one beneficial insect to six that are injurious and to twelve whose economic relations are unknown.

Now in regard to beneficial insects it has been urged that parasites are among the most potent agents which serve to keep noxious insects within safe bounds, and that their influence is very great there can be no doubt. This, however, is to be said in regard to them: Many apparently only become extremely abundant when the insects in which they lay their eggs have assumed such numbers as to commit wide-spread ravages. Their influence is spasmodic rather than steady. They are, as it were, the last reserves which nature holds back for those emergencies when favorable conditions of climate let loose upon the world such an abundance of insects as cannot be controlled by other means. The faithful army-worm illustrates well what is here meant. In spite of the combined action of its nine known parasites, this worm at irregular intervals marches its gigantic armies over fields of grass and grain, for a season, and then disappears. Again, parasites do not stop the ravages of insects at once as birds do. The larvæ which they infest are allowed to pass through the destructive periods of their lives apparently with appetites unimpaired or very likely increased, for they must eat for several instead of one. They save future rather than present crops, while birds do both.

It is in the destruction of insects which capture and kill other insects as birds do, that we are to apprehend the greatest injury from our birds. They are extremely numerous and frequent every situation which a bird may visit. In the directness of their influence upon insect-life they take the same rank with birds, for when they secure their prey its devastations are at an end. It is to be said, however, in regard to these insects, in whose destruction we anticipate

the greatest injury from our birds, that Prof. Forbes sent me three weeks ago a paper of his on the food of ground-beetles (carabidæ) and lady-bugs (coccinellidæ), in which he shows that only 57 per cent. of the food of the ground beetles consists of insects, and only 34 per cent. of that of the lady-bugs; and yet these have long been held to be very valuable insect destroyers as they doubtless are. Now my own observations show that of 1,608 birds examined, 1,243, or 76 per cent., had eaten animal food, mostly insects, while only 605, or 36 per cent., had tasted vegetable food. Of those eating vegetable food only 20 had eaten cultivated fruits.

In regard to the statement made in the *American Naturalist*, that "birds destroy insects enormously, but they are in great part neutral," it is extremely doubtful whether any such insects exist, at least when life is considered in its broadest relations to man, and I have studiously avoided the use of the term, as I believe all writers on the industrial relations of life should. What noxious insect or plant have we, which, if judged by the ordinary standard of neutrality, were not once neutral? Twenty-three years ago the Colorado potato beetle, feeding in its original habitat upon a wild species of solanum, would have been classed as neutral, and yet it only needed the encroachment of civilization upon its home to enable it to march eastward and take possession of the whole potato-growing region of the United States, which it now holds with a tenacity that baffles all opposition. There are now feeding upon the potato-beetle between twenty-five and thirty insects, all of which, until their possibilities of usefulness became known, would have been classed with the beetle upon which they prey, as neutral. Now they are acknowledged friends, while the beetle is a pronounced enemy. All those insects which may feed upon plants under cultivation, or upon those which are yet to come under cultivation, are, with the utmost consideration for them, to be looked upon as latent enemies, and guarded as such, while those animals which hold them in check should be looked upon as latent allies, to be held in reserve for future needs. But when vegetation not under cultivation, not to be regarded as weeds, is considered with reference to its soil-producing function, to its influence upon

climate, and to the production of lumber and fuel, the insects which feed upon it are injurious, and the birds and insects which hold them in check are beneficial. Viewed in this light, the life of the Rocky Mountains and that of the British possessions are as directly connected with human interests as the winds and the waters which flow from them. The food of birds cannot, therefore, be said to consist of insects which are, in the great part, neutral.

The failure to recognize the dissimilar relations which various birds sustain to different industries, has led to much of the diversity of opinion in regard to the value of birds as destroyers of insects, and to much of their needless persecution. The bobolink, considered with reference to rice culture, has been regarded as a scourge in the Carolinas, where almost countless numbers of them have been slaughtered. But all through the northern states, where it spends the summer, and where it is almost exclusively insectivorous, few birds are more needed than it. Here it occupies the grassy meadows, both damp and dry, where grasshoppers, crickets, cut-worms, and other noxious insects abound and upon which it may feed. To the dairying interests of its summer home, then — and these are by far the greater and more important — it is as beneficial as it is destructive to the rice crops of the south. Similar remarks are applicable to the common robin as immediately related to horticultural interests and the interests of general farming.

If we grant the general usefulness of birds, can they ever maintain a sufficient abundance in old and thickly settled countries to make their services applicable? To obtain an answer to this question four journeys of two and a quarter, five, seven, and eleven miles respectively, were made in the vicinity of Ithaca, N. Y., similar to those made in Jefferson county. The average number of birds observed per square mile during each trip was 56, 56, 58 and 56, respectively, or a total average of nearly 57. These observations, it should be noted, were made during the breeding season, whereas those in Jefferson county were made after the young birds were all upon the wing. One of the four journeys at Ithaca was repeated after the breeding season, the number per mile being 112, showing that the bird population had been doubled.

Estimating with these figures as we did before, an area somewhat less than our state would have a bird population of 12,096,000, or nearly four times as large as that of Wisconsin, and yet the vicinity of Ithaca must have been under cultivation a full half century before the first settlers came to Jefferson.

Much may be done, I believe to increase our bird population and with great advantage to agriculture in general. In the first place I would urge that as few cats and dogs as possible be tolerated about the premises. Their tendency is to prevent birds from breeding about dwellings and in orchards.

The blue birds and house wren are two birds which never molest fruits or grains and are exceedingly destructive to insects. They gladly occupy the few houses which are provided for them and it is purely a lack of suitable breeding places which prevents them from becoming far more abundant than they now are, and I would urge upon you the desirability of putting up cheap houses for them, not about the dwellings simply, but at many places along the fences in the fields. The wren will do the best service in the garden and orchard and the blue bird is best adapted to the fields in general.

Every town has its annual brood of tyros who must learn to shoot on the wing and no bird is a better target than the meadow lark. The result is, thousands of these birds are destroyed every year. You should prohibit the whole of this bird shooting and nest robbing which is done for pastime. I believe that every meadow lark reared in a meadow is worth more than a ton of hay. You tolerate this trespassing upon your rights rather than offend your friends, but it is a bad practice morally as well as financially.

Again, those lone trees which are standing in the fields should not be cut down. The king bird needs them and will more than pay for whatever damage the tree may do. I believe it would pay, not only to leave some of these native trees standing which are growing along the line fences, but to plant trees there for the express purpose of furnishing shelter and nesting places for birds. They should be hardy, deep-rooting trees, and some of them should be black cherry

trees, if not the better varieties. Improvements of this kind are greatly needed in prairie sections of the state. Barns should be constructed with a view to letting those swallows in rather than shutting them out, and I would recommend that the brackets which are put up under the eaves of barns for ornament, should be planned so as to serve for bird houses as well. This may be easily done.

The larger species of snakes should be destroyed. They are very destructive to birds and to frogs, and toads as well, which are as servicable as any bird can be. Once during my collecting, I left some birds which I had examined lying on the ground at camp. On returning I found a large striped snake there with the tail feathers of a woodpecker just protruding from its mouth, and, if you will believe it, the snake had already swallowed a cat-bird with the feathers all on. A snake which can capture and swallow a frog will certainly have no difficulty in disposing of almost any young bird which is reared upon the ground.

The little red squirrel and the flying squirrel are two terrible enemies of our birds. Both are extremely fond of their eggs and the little red squirrel eats the young birds also. I suspect this habit is possessed by all of the squirrels, though I do not know from my own observation in regard to others. I should be very glad to know how the squirrels here in the park influence the breeding of birds in the trees and on the grounds. The encouragement which the squirrels receive here, furnishes an excellent opportunity to decide the question of the influence of the fox squirrel upon our birds.

Crows, the blue jay and the shrikes are other terrible enemies of birds much more useful than they can possibly be, and for this reason these birds should be held in scanty abundance.

It remains for me to thank you for the privilege of appearing before you in behalf of some of your best and strongest allies in the struggle for existence and progress, while at the same time I express the regret that as their case is so large it is impossible to do them even approximate justice in thirty minutes.



## DISCUSSION.

Mr. Plumb — What is your opinion of the English sparrow?

Prof. King — The English sparrow in my opinion has no business in America. It ought to be got rid of.

Mr. Plumb — What will you do with it?

Prof. King — Kill him. In their native country where the cities are fully populated by them they are crowded out into the country. In our country where there is plenty of room, their preference is for the cities and they generally remain there.

Rev. G. E. Gordon, of Milwaukee — Have you ever examined the crops of the English sparrow?

Prof. King — No sir.

Rev. Mr. Gordon — I have examined the crops of some thousands of English sparrows at all seasons of the year, and my experience is that they are the best friends that the farmer can have. I remember when it was the fashion to order the death of all the sparrows, and prizes were offered to boys for the number they could kill. Millions of them were killed in England. Then came all the pests, the measuring worm and thousands of the pests. Then the farmers protected the sparrows again, and now they are free from those things which are most destructive to the small fruits and some of the grains. In this country I have examined a great many sparrows. I think sparrows are the most prolific of all birds, raising as many as four and five broods a year. The young sparrows cannot be raised on anything but insect food. When they are not raising young they eat grain and fruit, but during the time they are feeding their young they eat insects alone. I think if our friend, who has given us a most instructive paper, and one of the most useful I think which will be read at this convention, will give a little more attention to the matter of the English sparrow he will come here next year with a different opinion about them. I believe they ought to be encouraged. I do not believe in the protection of all living things, but I think the English sparrow is about the most abused thing in this country.

Prof. King — My objection to the English sparrow is that

it does no work that other birds are not capable of doing. It possesses those traits which enable it to assume an excessive abundance. It eats anything and everything. That being the case, there is no limit to the number of birds which may exist in the country, and when the number of birds becomes excessively great, they must necessarily push out into the cultivated fields and do havoc generally. The blue bird, whose tastes and inclinations limit it to insect food, cannot possibly become so abundant as to molest the crops of fruit or grain, and so in general the birds who feed entirely upon insects are the least likely to do damage and the most likely to do service.

Mr. Ford—Is it not true that the English sparrow is a most pugnacious bird and drives away others?

Prof. King—It is a pugnacious bird.

Mr. Ames—They have taken up their abode with me. I have a young Englishman with me, and I asked him what they were. He said they were English sparrows and that we would get enough of them. He says they are very destructive to grain in England. They feed upon the swallows' nests. They are certainly active and mean to live.

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## HOW DAIRY INTERESTS GROW.

Hon. JOHN LUCHSINGER, Monroe, Wis.

An instructive and effective way to find out the secret of success and eminence achieved by individuals in any calling or profession, is to review the course pursued from the beginning, to note the history of the efforts made, the success attained, the failures and their causes noted.

The same causes that produce success or failure in individual cases, produce like results where applied to any corporation or other interest.

There are many great prosperous dairy sections in this country, whose present position is regarded with just pride by all interested, and whose evident success has awakened a desire in many other parts of the country to imitate the

systems, and partake of the prosperity attendant upon this branch of farming when rightly managed.

As with individual greatness, the dairy industry has not jumped at one bound into its present eminence, but has worked its way, step by step, upward from small beginnings to its present position. Sometimes partial failures caused a retrograde movement, but in the main the failures have proved to be but the necessary wholesome lessons, necessary to prosecute any business successfully.

If this effort to give a short history of the growth of the cheese interests of Green county shall prove of benefit, and be instructive to those who are seeking to enter upon this branch of agriculture, the main object of this paper will be accomplished.

In common with the rest of the farmers of southern Wisconsin, those of Green county, twenty-five years ago, were generally engaged in wheat growing. Even after it was grown at a certain loss, all available lands continued to be sown with this grain for no apparent reason except from mere force of habit. The ravages of the chinch bug at length made the crop quite impossible, especially spring wheat. Farmers were running hopelessly in debt, and their farms were fast becoming impoverished. Necessity compelled them to change from wheat growing to other branches of farming, and of this necessity was born the cheese industry of this county.

In 1865, there were no cheese factories in the county. There were a few dairies where cheese was made in a small way, mostly for home use, with a very little to spare to sell. This was particularly the case in the northern part of the county, where the Swiss colonists lived. They made cheese after the fashion of the Fatherland, and after adapting the process of making to the difference in climate and herbage, really succeeded in making a fair article of cheese. It was made, however, on a small scale, in dairies of from ten to forty cows. But few farmers were so engaged, and the business was mostly regarded as an auxiliary source of revenue; such as the poultry yard is considered at present. The quality of cheese made, and consequently all the prices,

were very uncertain, there being no established market under these circumstances.

The total product of all kinds of cheese made in the county prior to 1870, was hardly 10,000 pounds per year.

In 1870 the first factories were established by N. Gerber, two for the production of Limburger cheese and one for Swiss. They were operated on the plan of selling milk by the farmers to factorymen at an agreed price. This plan proved to be popular, and the scheme was successful.

These factories were located in a section of the country especially in need of change of tillage. The people of this section were accustomed to the care of cows. Their farms were hilly, and subject to wasteful washings away of the soil, and were in a great measure unsuited for the growing of corn. Cheese factories were therefore welcomed as the one thing needed to save the farms, and their occupants from utter impoverishment.

The year following witnessed a boom in establishing factories, principally for the production of Limburger in the rougher parts of the country. In other parts, as at Brooklyn, Dayton, New Glarus and Postville, American cheese factories were established. Shortly after — after the usual backsets incident to all new business, and caused mostly by ignorance and mismanagement — these took firm hold.

Very soon they superseded the old fashioned dairies for the good reason that the product was far superior in quality and of a uniformity not attainable under the old way. These factories were mostly co-operative. A number of farmers organized a company, built a factory, hired a cheese-maker and elected the officers by whom the business was managed, and, in most cases, managed well.

The makers of Swiss cheese were the last to generally adopt the factory plan of operation. Principally for two reasons: 1st. Many had made the variety for years on their farms, were doing fairly well, and were satisfied with the results. 2d. Owing to the peculiar process of making this cheese, which has not varied for centuries, viz., using copper kettles instead of vats for heating the milk and curd in, it was thought to be unprofitable to work up the milk of

more than one hundred cows at one place. These supposed obstacles were overcome by the experience that cheese of a superior quality and of more uniformity was made by the factories than in the old way; and the use of copper kettles of unusual size has permitted the making of cheese weighing from 100 to 200 lbs. each, and two to four each day, of a flavor and appearance that good judges assert that it is impossible to distinguish it from the best imported.

It is found that this section is wonderfully well adapted for the successful production of this cheese. Some fine specimens from this county were exhibited by S. Birkenwald at the dairy fair in Milwaukee last November, and attracted much favorable attention and comment, and were awarded first premium. The manufacture of this variety, however, will never become general in any great portion of the country, because, while under proper circumstances it can be profitably made, selling usually from 2 to 5 cts. per lb. higher than American cheese, and has unequalled keeping qualities. Though a native of a republican country it is a very aristocrat among cheeses, demanding not only minute care in making, but also continued waiting upon until sold and eaten, and resenting more than any other kind any lack of attention with deterioration. When properly made it is chief among cheeses, fit for kings to eat; if not properly made the loss to those who handle it is great and certain.

The following table will give an idea of the growth and present important condition of this industry. In this county on Nov. 1st, 1883, there were fifteen American Cheese factories with 4,500 cows.

	<i>Pounds.</i>
Amount of cheese made in 1882 .....	1,450,000
Sixteen Swiss Cheese factories, 1,400 cows, produced in 1882 . . . .	400,000
Forty-two Limburger Cheese factories, 7,000 cows, produced in 1882 .....	2,400,000
Total .....	<u>4,250,000</u>

Almost all of this amount of cheese is produced in the so-called "cheese country." This comprises about one-half of Green county, or eight townships, and includes the country lying northwest of a line drawn from the northeast to the southwest corner of the county. Nine-tenths of the fac-

tories are located in this section of the county. This section was the roughest, wildest portion of the county, full of hills, but containing excellent pastures, and springs and brooks of clear, cool water without number—on the whole a tract of country unsurpassed for dairy purposes.

The benefits resulting from so large a proportion of the people of this county engaging in the cheese business are manifold.

Formerly lands that, because of their rough character, could hardly be sold at all, now are promptly bought at good prices, if within reach of a cheese factory. Farms that a few years ago were sold at \$20 per acre can hardly be bought for double that amount.

The benefits resulting from the change from tillage to pasture on the hilly farms subject to wash-outs, cannot be estimated in dollars and cents. It is enough to say, that a continuance of the grain farming of twenty-five years ago until to-day, would have resulted in ruin to hundreds of farmers, and thousands of acres of land would now be worthless.

There is employment that pays for the sons and daughters of dairy farmers, thereby encouraging them to remain at home. The young beginner who buys land on credit has more reason to hope to be able to pay for his home in a reasonable time; and he *will*, if he be not afraid of steady, intelligent, hard work.

Perhaps it is owing to the general good character of the people of this county, more than to the occupation so many of them are engaged in, that there is so little litigation. Certain it is, that of late years, there has been less business for the courts than in any county of like population in Wisconsin. The city of Monroe, with over 3,500 population, and the county seat, has but two lawyers in regular practice, and one of these is district attorney, and the other is city clerk, and both have abundant time to spare from their law practice to perform the duties of their offices. It would doubtless be giving the dairy business too much credit to say that this satisfactory condition of things owed its existence altogether to it; but there can be no question that the continued application required to run a dairy farm has a ten-

dency to cause people to mind their own affairs, and consequently to be at peace with their neighbors.

On the whole, cheese factories have proved to be the most effective agent in promoting individual and general prosperity that our farmers ever employed, and there is no reason why many other sections of our state, which may be similarly circumstanced, may not go and do likewise.

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### LABOR IN ITS RELATION TO PROGRESSIVE AGRICULTURE.

By J. C. STICKNEY, Wauwatosa.

The heading sounds large, and is large. But be not disturbed; you are not to have a learned and exhaustive handling thereof. Only a few simple thoughts that seem to have some bearing upon the success or failure of our business plans.

That the average annual income of our farms as compared with the capital invested in them, is miserably small, you will freely admit. There are, perhaps, a few that pay six per cent. on their cash value; but there are vastly more that pay less than three per cent.

If it became my duty to tell you that your farms were incapable of doing better, I should place myself at a safe distance; for I think you would resent the assertion — and you would be right.

Probably no farm in the state gave crops the past season that it is not possible to double; many might be quadrupled.

It is well understood that increased yield means a much larger per cent. of net gain, and could this become the rule, it would mean a degree of thrift and prosperity that would very soon quiet discontent and grumbling, and stop the reaching out towards frontier life, as the only way to secure elbow room, and a competency for ourselves and our children.

Some mathematical genius has stated that in about five hundred years the population of the United States, progressing at the present rate, would be something more than one

person to each square yard of land. Probably by that time our lands will be doing better.

The islands of Alderney, Jersey and Guernsey, have now a population of considerably over one person for each acre. Yet employment is given to a large number of laborers from Normandy and Brittany. Perhaps, there is the place to look for a model acre, yielding to its full capacity.

I have a neighbor who furnishes a fairly good example of productive land. His gross sales from one and one-fourth acres have, for the past ten years, averaged \$1,322 annually. Of course this is in "truck gardening," and not possible in common farming. Still one, or two, or ten, or fifty steps in this direction can be taken by every farmer in the state. The progress of each being graduated to his surrounding circumstances.

Why need so much of our farming be so very common? Growing the same crop, year after year, with little regard to adaptation; marketing our products unseasonably; having no plans reaching further than from April to November; and taking no thought for the future good or ill of the soil.

This is a progressive age, not of horse-power alone, but of steam and electricity. Increased facilities in machinery, transportation and marketing make it possible, nay almost necessary that things be done more in a wholesale way.

Of course, the plodders will not heed; but he who would "keep abreast" must exercise something of the same thought, forecast and judgment which bring success in other callings. For this work the materials are all about him. No need of reaching out after new, cheap lands. Plow a little deeper; cultivate a little better; reclaim the waste places; keep more and better animals; make, and use more fertilizers; produce a grade of goods which will command a higher market value. These are the first steps leading to broader and better ways.

No need of sons and daughters seeking other callings that may give better pay for their knowledge and brain work. All around them is work for brains as well as hands — chemistry, botany, entomology, ornithology — more than they will ever master. Book-keeping, accurate field notes and records of experiments with fertilizers, with the crops of



each field, with each animal or class of animals, and with different plans of rotation of crops—all leading as directly to positive gain and prosperity as do the sharp forecast and good business methods of the most successful merchant or mechanic; and all, too, with but a fraction of the risk and hazard of other pursuits.

Ask ten well-to-do farmers if this line of management or that improvement would not pay? and at least nine will answer "yes." To the question: "Why not do it?" the invariable answer comes: "We would like to, but we cannot get the necessary labor." Yet the needed labor is small as compared with that required in almost any kind of manufacture. Does the manufacturer allow his business to languish for want of labor? No; he devises ways and means to get all he can profitably use, and so must the farmer.

Census figures give the average wages of workers in cotton as 81 cents per day; in silk, 97 cents; in wool, \$1; in iron and steel, \$1.31; in iron mining, \$1; in boots and shoes, \$1.27. These figures are not greatly above the average of farm labor.

The percentage of labor to total value of goods produced is in manufactures of wood, 16 per cent; iron and steel, 21 per cent.; cotton, 22 per cent.; silk, 37 per cent.; iron mining, 41 per cent., etc.

What per cent. of the farm crop is labor? Well, who can tell? Why, of course he who keeps debit and credit or accurate figures with his farm crop. Don't all speak at once!

In the absence of positive evidence, we will assume that the percentage of labor does not exceed that of the industries mentioned, and, furthermore, unlike the manufacturer who pays a large additional per cent. for rent, material, power, etc., the farmer's material lies in his land, free for his use. Idle, and, so far as any useful purpose is concerned, wasted, unless he develops and uses it. Consequently, every dollar of increased production means some sixty cents of increased income, and the only seeming bar to all is lack of available labor.

With the thousands of able-bodied immigrants landed weekly on our shores, there should be no scarcity of labor. To the fact of numbers, add the other fact, that a very large

per cent. have all their lives been cultivators of the soil, and it would seem that our agriculture should be most benefited by their coming.

True, very many go almost directly to farms of their own; but is it not also true, that enough to fully supply the demand are not only willing, but anxious to tarry wherever they can find constant and remunerative employment.

Our most urgent need of labor is, of course, during the summer months; but from the laborer's standpoint, there is also a winter to be provided for; and, if not a duty, it becomes a matter of policy for us to take some interest in their winter. In fact, to make them efficient, reliable and profitable helpers to us, we must see that their year as a whole is made remunerative and prosperous to them.

Time was when help for a month or week, or season could readily be secured, used for the time being, and discharged, with the assurance that they or others like them would be ready again at call. But, thanks to cheap lands and free homes, that time has passed, and those drifting helpless are now, or ought to be, prosperous freeholders. If thereby we have lost something, they have gained vastly more. Whether their absence is a loss depends largely upon how we fill their places.

If we build cheap, comfortable tenement houses, and place in them good industrious families, to whom we give employment at least ten of the twelve months, not to the man only, but during the summer months to the women and the children, and if by cheap rents the use of an acre of ground, cheap pasture for a cow, a day's use of team in gathering fuel, etc., we simplify their means of living, so that at the year's end they can count a little sum laid by, just as we would like to do were we in their places. Then is our labor supply better assured than ever before, and in doing this much we have made a good start toward a fuller development of our farm resources. Followed out it means permanent help, worth more each succeeding year, because better accustomed to our ways and our work.

Continuous work beyond the busy season means jobs of draining low ground, grubbing out bushy waste places, arrangement and repair of fences, and a thousand and one

similar items, all tending to give one a wonderfully thrifty and beforehand sort of feeling.

Might it not also mean hand-threshing of our small grain, thereby saving much that now goes to waste; better care of animals, stall feeding for the top of the market instead of selling at half maturity when the market is filled with many sellers and few buyers?

Perhaps I might pass for an agriculturalist, though I am not much of a farmer (you all understand the difference), therefore the last named items are only suggestions; but about this tenant house plan for securing the best of labor in a very pleasant and satisfactory manner, I am not talking at random but from my own experience.

I have to-day seven such houses, all occupied; and at no time in the past twenty years have I had less than three.

Many of these men have been in my employ from six to ten years. One recently left for a farm of his own after a service of twenty-four years.

I think these people are held by constant employment and the facilities I can so easily put in their way to live comfortably and yet lay up something every year. I am sure it is not by high wages, for I have never paid more than the usual monthly wages with cost of board added. Better help, or help more thoughtful of my interests, I could not ask to have.

What is practicable for me, is equally so for others. There is only one imperative condition—do as you would be done by.

Perhaps the thought is uncharitable, but I never hear about trouble to get or to manage hired labor either in-doors or out without wondering whether the grumbler ever took a thoughtful view of the whole subject from the laborer's stand-point.

Another and by no means small advantage of the tenant system is the relief from the board of laborers. If at first it seems expensive, please consider carefully whether you can possibly afford to board them as cheap as they will board themselves. I think a few figures will satisfy you; but if figures of dollars and cents are not entirely convincing put into the scale a *home*, sacred to the comfort, happiness and

best interests of yourself and your family, as compared with a boarding house in which you and your family must provide for, and minister to the wants of those who board. If this fails I have nothing further to urge; only to the "half converted" I would say, please try it. Build a "silo" first, if you choose, but try one tenant house. Any well-to-do farmer can afford to risk that much for experiment's sake.

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DISCUSSION.

A Member — What wages do you pay your men when you furnish them a house?

Mr. Stickney — I do not furnish them a house free. For the past five years the wages have been during the summer one dollar and a quarter a day to the men, they boarding themselves; in the winter one dollar a day, dividing the seasons, making about eight months of summer and four months of winter, and I do not think that during that time I have ever had a man ask me what his wages were going to be. I do not remember an instance of it in five years. I employ from eight to twenty men all the time, and the employment I give them is gardening and cultivation of the soil and a little factory work and things of that kind. The men are left to their control just as much as a farmer's hands are generally. Those have been my uniform wages for about five years.

Mr. J. M. Smith — What do you call a day's work?

Mr. Stickney — We work on the ten hour system. If we want extra work we do not have any difficulty in getting them, paying two hours extra. We pay every Saturday night, and every man is told "Your regular pay is so much; have you any extras?" I leave that to the men as much as possible. Put every man on his honor.

Mr. Broughton — What kind of gardening is it?

Mr. Stickney — It is farming. It is run in the interest of the pickle factory; still it is all cultivating the farm. It is nothing requiring any highly skilled labor, still we find a man who has been with us two or three years more useful to us than a new man.

Mr. Broughton — Do you think your plan would work on a dairy farm?

Mr. Stickney — I do not know why it would not. As to the ten hour system, if you hire men in the beginning with the understanding that they are to do a certain amount of work, it is as easy to accustom them to that as anything else. If you hire a man with the understanding that milking will be part of his day's work and then work him outdoors as long as he can see to do the milking, the result will be that you will have trouble very soon. You would if I was working for you.

Mr. Williams — Do you furnish a house for them included in the dollar a day?

Mr. Stickney — No sir. I aim in furnishing a house to simplify it to the smallest possible cost, and then to charge the laborer just what it has cost, and that he shall know that he is charged no more than it cost. I have four houses in one row, and not one of those houses cost me over \$135. They would cost to-day about \$150, because lumber is a little higher. They are dry and warm and can be kept clean. There is not any lath or plaster in them. They are double boarded and papered between, and those men know that those houses cost so much. I furnish one of those houses and from an eighth to a quarter of an acre of land, just as I can pick it up for them, at \$15 a year. That furnishes a home for that family. If I can pick up some rough wood or culled wood cheap, I very frequently buy it for my men. If I have a day's time when my team is not employed, a man is given a team to go and get himself a load of that wood if he wants it. They have all those things at cost, and I never yet heard a man grumble about the house he was living in, though the cheapest of them cost only \$135, except sometimes that the house leaks or the chimney is out of order, but that is not in a grumbling way, simply that it may be fixed, and it is very promptly.

Mr. Broughton — Would it not be better for a tenant to go west and take up a homestead, and have a farm of his own?

Mr. Stickney — That is a question every man must answer for himself. I cannot answer it.

Mr. Broughton — If you were to give him good, sound

honest advice, would you not advise him to do that and lose your tenant?

Mr. Stickney — No sir. I will tell you why. One man who was with us five or six years, went out last week to buy a farm for himself. He came to me to ask what I thought about it. I learned the price that he was paying. I asked him how much he could pay down. He shrugged his shoulders a little and said: "Well, if I must, I can pay down \$3,100." That surprised me by about \$1,000. I thought he had about \$2,000, but he has in the savings bank and at his command about \$3,100.

Mr. Broughton — What interest does he get in the savings bank?

Mr. Stickney — I do not know.

Mr. Broughton — What security does he get?

Mr. Stickney — The banker's certificate of deposit, I suppose.

Mr. Ford — Where is your farm?

Mr. Stickney — At Wauwatosa, five miles north of Milwaukee.

Mr. Ford — You are in a special business.

Mr. Stickney — I am running a pickle factory, but I am doing other work. This applies quite as much to our nursery as it does to my pickle business.

Mr. Ford — What nationality are your laborers?

Mr. Stickney — Nearly all Germans.

Mr. Ford — The conditions that prevail in your locality and in your style of farming are quite different from what most of us have to submit to. Labor in our locality has been very scarce, as I think every farmer will bear me out in saying, and has been made much more so by the opening of the Dakota lands. Every man that could has gone out there. The result has been that it has raised the price of labor so that farmers can hardly afford to get help. A man who has a family is more sure to go than a young man. It is easier to take a young man into his family than to do this way. That question has been discussed in the *Country Gentleman* a little. We cannot build houses for \$135 that our laborers will live in, nor for less than \$500. Then we have got to take our chances of getting an efficient man and hav-

ing him change every year, and paying him his wages, so that I think the experience in this part of the state is that they will take their chances on getting young men or doing their own work.

Mr. Stickney—That is just the line of argument I have met from every one of my neighbors, and I have been almost burdensome to them for the last three years. I cannot answer it for any other locality in the state except by a man or two. How many comfortable tenant houses, comfortable in warmth and dryness and capability of being kept clean have you in your neighborhood standing vacant?

Mr. Ford—Quite a number. It is as fine a country as I know of, and I can point to a number of instances of houses that are vacant and stand vacant year after year till they rot down.

Mr. Hinton—Built for tenants?

Mr. Ford—I do not know as to that.

Mr. Stickney—That is the point. Build them as cheaply as they can be and then offer them to tenants for the lowest sum that will pay their rent and with an offer of extending to them constant labor that will enable them to live. If you have a tenant house in that condition it is a curiosity to me.

Mr. Ford—These houses have perhaps been built by men who have lost their tenants, but the owners would be glad to have them occupied to keep their houses from deteriorating.

Mr. Stickney—Do they offer them wages all the year round?

Mr. Ford—Yes sir, and they all go to Dakota.

Mr. Stickney—Then I am sorry for you. That is all I know.

Mr. L. G. Kniffen, of Milwaukee—I want to say if the gentleman will go out to Dakota and start a farm and build a half a dozen tenant houses, and offer those very men who have gone out there a house and constant employment they will be glad to leave their homesteads except going home Sundays, to keep their claim, and come and work for him.

Mr. Elver, of Middleton, Dane Co.—I have worked on that plan. I have lived in Dane county since 1852. I have had sometimes three tenant houses. I have one man who

has worked for me six years. I think the trouble is you give them employment when you need them, and when you do not need them you do not. Another thing is you act too high-toned towards them. If you will act towards them as they do towards you, you will find they are all right. I have had four or five boys and they have done part of the work.

Mr. Broughton — What do your four or five boys do?

Mr. Elver — They have worked since they were able to, and gone to school. They have now left me to attend to their own business. I never had any trouble with my tenants. Every one of them worked with me until he had accumulated a little property and then went and bought farms of their own. One is in Nebraska, and two are in Kansas. When they went away I asked them how much money they had and gave them my advice. Those men recommended others to come in their place. One man had a family. One man came there with his wife and worked five or six years and then had money enough to go on his own hook. By that time his brother came to me, and he stayed five or six years, and by that time a third came along, and they worked for me three or four or five years. They have all got farms now. The one who works for me now has been there five or six years. I asked him last fall, "Ain't you going to get your farm pretty soon?" He said, "No, I am doing pretty well this way; I do not want to do anything better than this; I am all right; I am provided for." He feels perfectly at home, and whenever I want him to work he works. I charge him a dollar a month for the house. He has a little garden with perhaps twenty or twenty-five fruit trees, half an acre. I let him have the garden and fruit in with it. If my children or family come around and want an apple they may have liberty to pick it. I told him half the fruit was mine, but half the time I do not get them. If there are not many I tell him to keep them, but I claim half the fruit so that he cannot shut me or the boys off the place.

Mr. Hinton — I have lived in Milwaukee thirty odd years, and there is no man in Milwaukee who stands in so high estimation as the employer of labor as Mr. Stickney. He is talked of by Germans. They say, "He is the best man



what I ever worked for in my life." I know this: I am a pretty stout fellow, but I would not dare to go to his farm and take hold of him, even for fun; they would go for me. What he has said to-night I know to my own knowledge, and if you would take the trouble to go into the Historical Society I could show it to you in print.

Mr. Stickney — I knew before coming before you that this paper would stir things up a little. It is not good orthodox doctrine. It is not the light you have been in the habit of looking at it in. I do not want to urge it at all. I believe if any of you should try it, money could not hire you to go back to the old way. I was forced into it. I started in life boarding from three to six men in my family until my wife's health was entirely worn out, and we were absolutely compelled by circumstances to take up the other system. Money never would hire us to go back. If you once try it you will never go back.

Mr. Ford — The circumstances under which the gentleman is placed are entirely exceptional. He is employing German help, and that help comes to this country and act as sensible men always will. They want to get experience, so they stop with a good farmer like himself, or sometimes in the city, because they like to be in cities or towns. They stay with him and are contented. But I tell you the young American is not content with that, and when these Germans have been in the country four or five years they will not stay there. Every young man that becomes imbued with American ideas has first among his aspirations the idea of self-independence, of establishing his own home and being his own man. You cannot repress it, and you can offer him twice as much as he can make in bleak Minnesota or Dakota, and he will leave you and go there in spite of you. I appeal to every man who has had experience in the central part of the state, outside of the exceptional experience of the gentleman here, to confirm me in this. I know they will do it. I know that Gov. Taylor will, and I know that this gentleman from the southern part of the county will. The gentleman from Middleton comes from Germany, and some of his brother Germans have come and stayed with him till they got their experience. He says we lose men by being high-toned with

them. I do not know but that is a good thing. I do not know of any men that are more high-toned than the laboring men. You can support a young man in your house cheaper than you can build a house for him and support him there, and you are going to have a valuable class of men who are willing to make something of themselves, merely as temporary make-shifts. In England where there are recognized classes of men and where it is difficult to get hold of land, these men are willing to live with farmers and work for them all their lives. They will not do it here, and it is not necessary for them. The best answer to all this is that labor is so dear here that the farmer cannot afford to hire it.

Mr. Stickney — To those who think as Mr. Ford does, and there are very many, there remains but this one problem to solve: Our land is producing less than half its capacity simply because we lack this element of labor. The hard problem is how shall we get labor and profitably apply it to our land?

Mr. Elver — I think Mr. Ford is not authority because he has not employed this kind of labor, but I have. I would rather have a man living in the house to-day if I could have it, because if a young man lives with you you can call on him whenever you want to.

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## BEE KEEPING.

By DR. J. W. VANCE, Madison, Wisconsin.

*Mr. President:* I come among you not as farmer nor the son of a farmer. I know very little about ensilage, South-down sheep, Jersey cattle or Berkshire hogs, yet I thank you for the privilege, as a representative of the Madison Beekeepers' Association, of speaking to you upon one important branch of rural industry, which we deem worthy of your attention, viz., beekeeping.

Although we dwell amid the narrow confines of the city with no contiguous clover fields, yet we have had large returns of honey from a small number of colonies. But the farmer, with broad acres capable of sustaining hundreds of

colonies, may gather tons of the nectar, which may yield a larger profit than his fields. The meadows that entice the bee produce, in the shape of honey, a harvest ere the time comes to start the reaper and mower, thus doubling the products of your land.

From time immemorial honey has been one of the most common sweets, and yet up to perhaps thirty years ago bee-keeping was carried on in the rudest and most primitive manner, not securing a tithe of the amount of honey that the present improved methods enable the apiarist to obtain. The ancient bee gum, the hollow log, the box and the straw hive, were the rule, and the honey was taken by smothering the industrious servants, reducing the stocks down to the lowest number, and then starting afresh and depending upon the natural impulse to swarm. Swarming was uncontrolled, and often was so frequent that the bees did not gather enough for winter stores. Only in exceptional years when the flow of honey was more than ordinarily abundant, could the beekeeper find many of his hives heavy enough to warrant a slaughter of the innocents. But the invention of the movable comb hive has wrought a great change. We may appreciate the importance of this invention when we consider that most of the numerous improvements and appliances we now have are the outgrowth of the movable comb device.

To Rev. Mr. Langstroth is due the honor of this great invention. By the use of this hive in its various forms its internal economy is brought within the control of the beekeeper. He can at any time know the exact condition of his bees, and is able to make such changes as the exigencies demand.

Taking it for granted that some who hear me have not seen the inside of a movable comb hive, I will briefly describe one. It may be constructed of any desired dimensions, but the most common form is a box about twenty inches long, sixteen inches wide and ten inches deep, with eight or ten frames hanging inside lengthwise, reaching within one-half an inch of the ends and bottom of the chamber. At first, and before the invention of comb foundation, the bees were expected to build their combs from the

top bar of each frame, but they did not always do as they were expected, and often gave the beekeeper much trouble by building their combs across from one frame to another. Foundation, however, has remedied that difficulty. Frames are now filled with sheets of foundation, and all the bees have to do is to work out the impressions in the wax into full length cells thus forming beautiful, straight combs. This they accomplish in a very few days.

On top of this chamber above described, another is placed, in which are section boxes for comb honey, or for full-sized combs for extracting, of which we will soon speak.

By means of the movable comb hive many scientific facts in relation to their physiology have developed, enabling the apiarist to control and direct the various operations of the bees. Swarming is under his control to such an extent that he can artificially swarm them without limit, or entirely prevent swarming. Those who have had to watch their hives, being hindered in the work of the farm or shop and kept home from church on Sunday, can appreciate the importance of artificial swarming. By means of the artificial comb hive the weak colonies can be reinforced by giving them now and then a comb of brood and young bees from a strong colony, strengthening the former and checking any disposition to swarm in the latter, thereby equalizing the strength of all the colonies of the apiary.

There are many plans followed in artificial swarming; some apiarists preferring one and some another. Some beekeepers adhere to natural swarming, yet I believe our most successful bee masters follow artificial swarming. The plan called the nuclei plan of artificial swarming has been very satisfactory, which is about as follows: Select the best colonies to breed from, remove one or more combs from the center of the hive and insert new combs or frames filled with foundation for the queens to lay in; select other strong colonies, from which take all unsealed larvæ and the queens, and after eggs have been laid in the new combs from which you wish to rear queens: in four days cut off about one inch from the entire bottom of the new comb, and insert the comb in the middle of the hive prepared to rear the cells. Select

as many cells as you desire to make nuclei and destroy the remainder. A day or so before the cells hatch, cut out the cells and fix in the combs, one cell to each nucleus. Beside each comb in the nucleus place a comb of bees and honey from a full colony, and beside these a division board, thus forming a colony or nucleus of two combs and a queen cell. In the course of a day or two each cell hatches a young queen and in another week the queen flies out to meet the drones, and is fertilized, and in a few days thereafter will be laying. From day to day as the old colonies fill up with brood, combs may be taken from them and given to the nuclei, soon building them into strong stocks. These nuclei may be kept engaged hatching queens by giving them a comb containing eggs from a full colony whenever deprived of their queen.

The beekeeper often needs extra queens, either to supply an artificial colony or to supersede an old or defective one.

About the first thing a person unacquainted with bee culture thinks of when speaking of bees, is the sting. Well that is a *point* worthy of consideration. No one ought to be heedless of them, and there are many to whom a bee sting is of serious consequence. Yet if ordinary prudence is observed, that is, quickly removing the sting and applying ammonia and water, a tea-spoonful to a tea-cupful, or a little wet clay, will soon relieve the pain and in a few hours the swelling will disappear.

Beginners may take comfort in the fact that after a year or two the poison of the bee has less effect, and in time a few stings are unnoticed. The liability to be stung depends a good deal upon the kind of bees kept, and the manner of handling. The most gentle bees will not continue to be gentle if roughly handled. They will not brook a jar of their abode, and will severely resent any quick or awkward handling of their combs. Be gentle. A skillful bee-keeper moves quietly among his hives, and if a bee happens to fly near his face, he does not nervously strike at it, nor take to his heels and run away. To those who have great fear of stings I would recommend the use of a bee-veil.

Allusion has been made to comb foundation. It is a sheet of pure beeswax, which has been passed between the rollers

of a foundation machine, which produce impressions somewhat like the bases of the cells of natural honey-comb. These foundations are worked out in a few days into full-length cells, and generally the honey is placed in them as fast as the cells are lengthened. The advantage arising from the use of foundation is obvious, when it is considered that in the production of a pound of comb the bees consume about twenty-five pounds of honey. By the use of foundation, the bees have only to form the cells of the wax furnished them.

Soon after the invention of comb foundation came the extractor, which added immensely to the capacity of a colony to produce honey, by the use of which the combs are emptied of the honey as rapidly as it is gathered, and in some instances three or four hundred, yes, even a thousand pounds have been reported as the yield of some very strong colonies, and in localities where honey-bearing flowers were very abundant.

The honey extractor is usually a large tin can in which a wire frame basket is made to revolve by means of a crank. The combs, after being uncapped with a honey knife, are placed in the basket, two or four at a time, and by turning the crank with moderate rapidity, the honey is thrown from the cells, by the centrifugal force, against the sides of the can, and running down accumulates in the bottom underneath the basket, and is drawn off by means of a faucet. By the frequent use of the extractor during the honey flow, the bees are prevented from becoming crowded for room for storing honey, and the queen for laying, and consequent swarming out of the hive. While it is true, bees often swarm while they have plenty of unoccupied space in their hives, yet they most frequently swarm because of becoming crowded and the queen having no empty cells in which to lay, hence its importance as well to prevent swarming as to increase the yield of honey.

As to the comparative merits of comb and extracted honey, I must say I think the extracted preferable to comb honey. Many prefer the comb on account of its more attractive appearance, but when one has become accustomed to eating the extracted, it will look equally delicious. It is far

more easily digested and therefore more healthful. There is much to be said in regard to the appearance of honey with respect to its salableness in the market. I have time only to say that small, neat packages are most salable; half and one pound tumblers meet with a ready sale at a good price, and one and two pound combs sell better than boxes containing several pounds.

It may be thought by many who have not had bees, that bee-keeping is a very simple and easy matter, and requiring no more knowledge than the care of a brood of chickens; yet experience will correct such a misapprehension.

It has been said that bee-keepers are born, not made. However, I do not think that any man or woman with a fondness for those insects and the study of their wonderful habits — a lover of Nature who finds

“Tongues in trees, books in running brooks,  
Sermons in *bees*, and God in everything.”

can fail of a large measure of success in its pursuit.

He who takes pleasure in watching their flight in and out of their hives, who soon learns to distinguish the different kinds of bees that make up a colony; the workers that carry on the work of the hive, who bring in from the field and flower the precious nectar, and the pollen in their tiny baskets on their hind legs, to feed the young larvæ, and with their fearful stings defend their sweet homes; the drones, those large, noisy males who toil not nor spin, nor gather honey, but seem to live only to have a good feast and to enjoy themselves, fit neither for offensive nor defensive service; the queen, the mother of all the colony, whose long, slender body distinguishes her from her children, moving about majestically over the combs depositing her six eggs a minute; taking out a frame from the hive, notes their condition. Among the mass of bees that cover the comb he seeks with wistful eye until he espies the queen; perhaps he observes her bands, her size, and conjectures as to the purity of her blood; is she Italian, Cyprian, Holy Land, Black or Hybrid? — I say a man or woman thus inclined, who loves thus to handle and observe them, can with judicious management, succeed in bee culture.

To all who start in its pursuit I would advise to first study a manual of bee-keeping, learning all that is known of the science at the start, and thus equipped buy one colony of bees — the Italians are the best in most respects — and then study the bees. After all you have read you will find there is much to be learned from personal observation. Be content to go slowly at first, gaining the first year or two as much practical knowledge as possible before attempting to embark largely in the business. Let us ever remember that profitable bee culture depends upon judicious management.

In this climate wintering bees is the great problem, and at its solution all who keep bees should aim. Those of us who had bees two years ago have a painful recollection of our losses, and that of the whole country — the winter of '80-81. Hundreds lost all or nearly all their bees.

In consequence of the terrible losses of that winter, much has been said and written upon the subject, and I think there is now a better understanding of the conditions required for successful wintering than formerly obtained.

Mr. James Hiddon, of Michigan, a bee-keeper of fourteen years' experience, who some years has had as many as five hundred colonies, and who, yearly, has carried on varied investigations and experiments, in order to ascertain the safest plan for wintering bees, says: "I now fully believe that I can winter colonies of bees with as much certainty as I can a horse or a cow."

He winters his bees upon their summer stands, each hive surrounded by a box a few inches larger than the hive, and the space between filled with sawdust.

Mr. Poppleton, of Iowa, uses a chaff hive, that is a hive with a double wall, and the space between the walls filled with chaff. It is a style of hive used by many bee-keepers. In an article read before the last meeting of the National Bee-keepers' Association, at Cincinnati, Mr. Poppleton gave a very full description of that style of wintering. Of his success he says: "I have used chaff hives exclusively for seven winters, and the largest loss I have sustained during any one of those winters has been about five per cent., while the average loss has been less than three per cent."

He gives some of the following as the advantages:



1st. The chaff hive admits of being prepared for winter as soon as the honey season closes, before severe cold weather sets in.

2d. When once prepared for winter they require little or no attention until spring. This is quite an advantage as it allows the farmer to turn his attention elsewhere for four or five months of each year.

3d. The sun cannot warm up the inside of the hives as readily as it can the single walled hives, thus inciting bees to flight when the air is too cold for them to do so safely. I think all can see the advantage of this, especially during fall and spring.

4th. They prevent too early commencement of brood rearing, which is considered by some of our ablest apiarists to be one great cause of spring dwindling. My observations are that bees in chaff hives do not commence rearing brood until they can fly freely in the spring, but after once commencing to breed, their more even temperature allows them to do so more rapidly than in single walled hives. It is a generally received opinion among bee-keepers that the manner of wintering that best prevents the accumulation of dampness in the hive will be the most successful. Next to a sufficient quantity and good quality of food, it is the most important factor.

In the same paper Mr. P. says: "My experience leads me to make the following suggestions in regard to the use of the chaff hive:

1st. Pack as early in the fall as possible. I have noticed that colonies packed before severe winter sets in do the best.

2d. Leave the packing on as late in the spring as possible. I never take any packing off until the middle of May, and not then, unless the colonies get very strong.

3d. Use the finest, lightest chaff you can get and have it freed from straw as much as possible, by sifting.

4th. Use a thickness of at least four or five inches of chaff on the sides and top of the hives.

5th. I thoroughly protect the bottom of the hive as well as the top and sides. Whenever possible use chaff cushions instead of loose chaff. Have as much empty space as possi-

ble inside of the hive and outside of the packing, and in no case allow the top of the hive to rest directly on the packing.

I use very large hives, with two to five feet of empty space, and have frequently noticed that those hives having the largest amount of empty space usually keep the dryest.

Crowd the bees into as small a space as possible, with the packing close to them.

It would make a large volume if I should attempt to write all that has been said on the subject of wintering bees. Considering double walled hives of the most importance I have written thus much about them and will not take time to describe the other modes in use, such as cellar wintering, wintering in clamps and bee houses.

It is necessary that each colony should have at least twenty pounds of good sealed honey upon which to winter. This should be seen to when preparing for winter, and if it is found they have not this amount in each hive, they should be fed syrup made of Coffee A, or granulated sugar.

There are a great many very convenient bee-feeders which I will not take time to describe.

It ought not to be expected in a paper on so large a theme, to more than mention some of its most important points, and I am deeply sensible of how far I am short of treating it adequately; yet if I have been able to say anything that may evoke some degree of interest in the subject in this Society, I shall feel that my feeble effort has not been in vain. Around you every summer are broad fields teeming with a wealth of sweetness, that is wafted away upon the passing breeze, that by cultivation of bees would add tens of thousands of dollars to the wealth of our state. May I not therefore commend to your earnest consideration the importance of offering premiums for the best display of bees and honey at our next annual fair? Other states have done so, and progress in bee-culture has been greatly advanced.

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DISCUSSION.

Sen. Anderson — I would like to ask Dr. Vance if he has ever wintered any bees in the cellar?

Dr. Vance — No, I have not.

Sen. Anderson — I would say that I have kept a few bees for the last fifteen or twenty years. I never went into the business very heavy. About twenty swarms is generally about as many as I have, and sometimes not that many, and I have had expert bee-keepers come and attend to my bees so that I could learn. I have read all that I could find on the subject, and I have tried various kinds of boxes. I tried the Kidder hive. I now make my own hive and have an extractor. I can get honey, I think, cheaper than I could raise sorghum and produce syrup for my family. I sell some to my neighbors when they want it, and we have it on the table about every day, and we never get tired of it. We think it strange men say they will get tired of honey. I think I have got a good locality for bees. In addition to a large territory that is covered with white clover, I raise large quantities of Alsich clover, or Swedish white clover. This last year I think I had about thirty acres of it. The year before that I had twice that much, and I expect to sow quite a quantity next year. I am in a valley surrounded by pine ridge, in all directions you might say. I think about 150 pounds to the swarm is as much as I have ever got in any one year, but it depends on the season how much you get. You must not think that every clover blossom has honey in it. If the weather is too cold or too wet there will be no honey in that blossom. If it is just warm enough and dry enough, and everything favorable, there will be immense quantities in the blossom and it can be gathered very rapidly by the bees if you have a strong swarm. I have not tried this Taft hive for wintering. I have read of it and think it is a good idea. My best success has been in wintering in a dry cellar. I have a tin pipe running down into the cellar, perhaps two and a half inches wide, such as is used in ordinary spouting. It runs from the back of my stove, so that it will draw any bad air or dampness out of the cellar and pass it up the chimney. Even then I have to take the tops off my hives and put a carpet over them. A comforter might do just as well, but I have very good success in putting a carpet over them. People might think they would be apt to come out, but they do not come out much.

I cannot say that I am in love with handling bees. I

would advise every person who is not well acquainted with the bees to keep himself well protected. When you go to take the honey from a bee it will fight, I care not whether they are Italian bees or black bees or what not, they will fight, and they are good fighters. They will put a sting through a pair of ordinary gloves and sting you pretty sharp through the gloves. To handle bees a person must know how. As the doctor has said, we have now a good many appliances. You must get veils and gloves and you must smoke them. A bee will get full of honey, and when they are full of honey they are better natured. Smoke them and give them a little time to get full of honey. If you do not give them time they will come out pretty angry. When they are angry they scold; they talk pretty sharp and you can tell when they are going to fight, but if you are pretty well protected with a veil, and your hands well protected with gloves, and if you are careful and do not undertake to fight or strike or run away, you can handle them pretty safely. I believe in artificial swarming, although mine will sometimes get out onto the trees. This summer I got up a pretty high ladder and got on a tree and cut a limb off and got them down successfully; but it is a pretty careful job; if there had been any accident I would have been in a pretty bad fix. You can most generally tell though when they are about ready to swarm, and make a new swarm out of two other swarms, or sometimes make two swarms out of a single swarm. I have double hives, top hives, for extracting in the summer. The bees collect honey in the top hives and we extract from that. In the winter time they are all put back in the lower hive and wintered in the lower hive. Although I am in favor of foundation I never use them. I have always had plenty of comb, and I prefer to use that. If you have no foundation take a little comb and place it on top of your frame and they will commence and build on that just as nicely as they will on the foundation. The foundation saves a great deal of work, but I have enough of the comb that I save. I drive the bees from the top box down into the lower box in the fall of the year and put away that comb carefully, and it is boxed

carefully, and in that way we always have enough comb to use.

I am in favor of extracting the honey. I think if a person takes comb honey and swallows the comb the comb is indigestible and it sickens more people than anything else. It is not the honey, it is the comb that sickens people. I have known my hired men to drink a cupful at a time and not sicken them. I do not think they could take half of that with the comb. I think every farmer could have swarms of bees to advantage, but it is a very uncertain business. Some of our best bee-keepers, two years ago this winter, lost nearly all their swarms. My bees were not put in the cellar that winter, and I lost nearly half of my bees. I had a man that put them in for me and he did not take my plan. The winter before that I put them in myself and did not lose any. This winter I put them in myself, and I think I shall not lose any. How a bee winters depends a good deal on the quality of the honey. If the honey is not good they will not winter well. There are some seasons when they require very little care. The honey that is gathered late in the fall I have found thin and poor in quality.

Prof. R. B. Anderson, State University — If the honey that is gathered in the fall be of a thin and poor quality, if the bee-keeper will set aside two or three frames that are gathered in July, and return that to the bees when he puts them into winter quarters, they would have good honey to winter on.

Sen. Anderson — I think that idea is good if your honey has not become candied. When people buy honey that is candied they think it is not pure, but pure honey is the only honey that will candy. Because it is candied they think it is artificial. There is an immense amount of artificial honey sold. If the fall is cold and chilly I think the honey will be thin. If it is a warm, dry fall, the honey will be pretty good. I think the honey we get from our white clover is the best honey.

Prof. Anderson — When honey is scarce in the fall I think the bees go to sorghum presses and other places and gather sweets.

Senator Anderson — I think they do, but we do not happen

to have a sorghum press in our section of the country. I always have good honey on hand. I have got it in combs. I keep it in a room where I think it will get candied. I have got comb honey now. I put an empty frame and a full frame into my hive, and in that way I feed my bees.

Mr. Reuben Boyce— I would like to ask some of these bee men how they keep their combs straight. I have used the Kidder hive for a good many years. I do not keep many bees and do not have much trouble with them, and do not get much benefit from them, only what honey I get, but I would not do without them for a good deal. I cannot conceive how you can make them build their combs straight.

Senator Anderson— Is not the top of your hive sharp?

Mr. Boyce— Yes sir. I work on the plan one of my neighbors did a good many years ago. You may recollect seeing him around instructing bee-keepers how to keep their bees. He worked them so much he finally worked them all out. He would go and cut them down straight. If I tried that, I believe I would come out as he did. Mine will come out in two and four inch, and I have had them come out in six inch blocks. I have never sold any honey, but I get enough to eat.

Mr. Sayre— In regard to wintering bees I find the greatest difficulty I had related to keeping the bees in the beehive. In warm, bright days they will come out. I would like to ask how to keep them from coming out.

Dr. Vance— In chaff hives the inside of the hive does not get warmed up. You will find in those hives very few come out on these bright days. I have chaff hives and I have seen very few come out, even in the very warmest days we have had this winter.

A Member— How much space do you leave at the bottom of the hive for ventilation?

Dr. Vance— About two inches or three inches. The entrance is closed up, with the exception of about two or three inches.

A Member— How do you account for the great loss of bees some years through the country?

Dr. Vance— I think it has been from various causes. One man will lose his bees from one cause and another from an-

other the same winter. Perhaps they have had poor honey. The fall honey is often mixed with the juices of various kinds of fruit, and it will get sour, and various things.

A Member—Some five or six years ago they lost bees throughout the United States, and especially in the western states. Every bee-keeper lost half or more of his bees.

Dr. Vance—Those who are careful to have bees provided with good honey and have them properly protected in chaff or sawdust and properly ventilated, will get them through safely. If you have not sufficient honey, feed them syrup; they will do just as well on syrup as they will on honey. There are two conditions: that they should have good food and be kept dry.

Mr. Arnold—I want to mention a case to show the possibilities. There is a lame boy in our town that has had a few colonies of bees. Last summer he sold five hundred dollars' worth of honey from those bees. He is lame, and could not otherwise earn a hundred dollars.

Prof. Anderson—The Doctor said the bee-sting was worth considering. I think of one point which may be worth special consideration. It is said that bee-keepers never suffer from rheumatism; that a bee-sting is a certain preventive against rheumatism, just as vaccination is against small pox. The editor of a bee-keeper's paper in Ohio made an investigation of that point a few years ago, sending postal cards to all his subscribers to be returned to him, with questions as to whether the bee-keeper had ever had rheumatism, and from several thousand postal cards that he sent out and received back, it appeared that only two or three had ever had rheumatism since they commenced keeping bees, and a friend of mine who keeps bees tells me that his wife was a great sufferer from rheumatism and at the same time she was very much afraid of the bees and never liked to go out into the apiary. At one time two or three years ago when she was down in bed from rheumatism, he persuaded her to allow herself to be stung by a couple of bees. She felt as though she had rather crawl into a beehive than suffer as she did at the time. My friend brought in seven or eight bees and succeeded in making six or seven of them leave their stings in her arm. The next morning she was very nearly

well and in a couple of days she was entirely well, and she has not had a particle of rheumatism since. The gentleman to whom I refer is in the room and can speak for himself.

Mr. Ford — I would like to ask the Professor whether the woman survived the stings?

Prof. Anderson — She did.

Mr. Boyce — I know that that is not the case. My wife has had the rheumatism for eleven or twelve years and she frequently gets stung and still has the rheumatism.

Mr. H. Floyd, of Berlin — Honey dew, I think, is one of the great causes of the enormous losses in bees, their storing a large amount of honey dew. Honey dew has very little saccharine matter in it, and will be gathered and stored by the bees when honey is scarce. If they require to be wintered on it, it cannot winter them. It is not possible for them to stay in the hive any great length of time and feed on honey dew. In our section of the country we live near the timber, and some years they will get a large amount of honey dew and store it. We have even lost almost our entire stock of bees in that way. At one time I had fifty-five swarms and lost fifty-four in that way. The other swarm had stored all the honey dew in boxes above so that they did not have any of it, but below they had good stores of it, and all the bees that had stored it below died; it was so all over the country.

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## INDUSTRIAL EDUCATION.

BY AARON BROUGHTON.

It needs no special vision to discern in society two classes of men, more or less distinct, performing distinct functions, assuming different prerogatives. The past and the present relations of these classes have long been questioned.

It is thought the time has now come, in the natural fitness of things, to determine the just relations, rights, privileges and prerogatives of each class, to wit: the industrial man, and the professional man, so called in common parlance.

With your indulgence, and for the good of the greatest number, and with no desire to do injustice to the profes-



sional man, your humble servant and co-worker has been invited to let his light shine. He has read about the foolish virgins, and is disposed to profit by their bad example, and has trimmed and lighted his lamp, and is about to use it to light up the dark labyrinth of human rights.

Since man to man is so unjust, to mitigate and harmonize his various relations in accordance with advanced and progressive civilization, governments are administered among men. These derive their just powers from the consent of the governed. A government should render equal and exact justice to all, and grant extra privileges to none, especially when other conditions are equal. In fact, governments are instituted to keep men from doing harm to each other; of which, if there was no danger, governments would not be necessary.

We find man in a civilized community in the pursuit of different avocations, that are in a greater or less degree necessary to the well-being of society, to the end that each avocation may enjoy its undisturbed pursuit of happiness, within the proper sphere of action, without disturbing the prerogative of the other.

We find no example in the vegetable or lower animal kingdom to guide us in adjusting the natural rights of one class towards another class of the same species, or separate families of the same species. But we do find leaders, or exponents in and from each class, that act for, and direct the energies of the class to which it belongs; but in no case do we find the exponent of one class giving direction to another class without having the semblance of usurpation.

Now, if this lesson from nature is true, and should be applied to man in a civilized state, then the leaders, in and of each vocation, should mind their own business, and not assume any prerogative in the affairs of others not of their avocation.

Since this government is composed of many avocations, in order that the machinery of government may work well, it is desirable that common arbiters or representatives from each avocation, according to their respective importance, should be chosen from each class to adjust their reciprocal

relations, as coadjutors in the establishment and perpetuation of good government.

If the foregoing argument be true, what a humiliating spectacle the industrial man presents; his pride humbled; his manhood but little above the cattle on a thousand hills; taxed without equal representation: compelled to render allegiance to those who put on airs of superiority over him: he allows parasites to dead-beat or scientifically steal his hard earnings.

What should create the greatest astonishment is, that it is the industrial man's own fault; for the remedy is in his own hands, and it is safe to prophesy that a change will soon be accomplished.

If this recital is true, then what? His duty is plain: 1. Assert his prerogative. 2. Claim equal rights. 3. Proclaim an irrepressible conflict. 4. Grant all other necessary avocations their just rights, within their environment or just limits. 5. Make eternal war against parasites. 6. Unite under one banner. 7. And most important—*become the most intelligent*—and your success is assured. 8. Be your own counselors. 9. Use your own self-judgment. 10. No allegiance to men or parties of adverse principles. 11. Resist city rule over you. 12. Oppose the granting of indulgences by the government, etc.

The industrial man presents his arguments by interrogation, analogy, with maxims and proverbs, to elucidate his side of the argument.

The professional man has heretofore more than taken care of himself, and has seemed, from the standpoint of the industrial man, to usurp prerogatives that do not belong to him, and had better be exercised by the industrial man, at least, when duly prepared.

1. If the industrial man is wise, he will strive to thrust aside every individual, and every contrivance that stands between him and the management of his own affairs. 2. He will claim his own without the intervention of middle men. 3. Public servants must be more ready to serve the people, than themselves, their party or the monopolies. 4. If you court failure in your avocation, buy of your enemies; sell at random; learn of those that despise you; vote against each

other; be social with those that flatter you; undermine each other in your business, in fact, become a house divided against itself and the problem is solved. 5. Avoid jealousy, of the envious kind; but strive together for success in your callings. Be clannish as the Jew, and homogeneous as the Chinese. 6. Hast thou a light? Place it on the hill-top, in the sight of all Israel. If your neighbor is jealous, he will strive to blow it out, darkness or no darkness; but if he is wise he will set his beacon on a higher eminence; for in so doing you will forestall ignorance and confound your masters. 7. If lawyers are to learn in youth what they are going to practice, how unfit the farmers are to teach them; they would look with holy horror on such pretension. 8. Then why should the farmer bid farewell to his prerogative. 9. Marvel not; was the State University made for the farmer, or the farmer for the University. 10. Why are we not prepared to demand equal rights? Because we are not skilled in giving the reasons therefor. 11. Is it wise to be slaves, when we could be masters. 12. If Madison had forty thieves forty years ago, how many will she have forty years hence? 13. If legislators riding on passes, is bribery, what a railroad man Judas would have made. 14. If the Wisconsin Agricultural and Mechanical College has been overshadowed for seventeen years, is it not time the sun began to shine? 15. Who made the lawyer king? The ignorance of the industrial man. Then let him have more light. 16. "If ignorance is bliss, 'tis folly to be wise," as the toiler said when too tired to read or think. 17. If faith in ourselves is dead, what have we to hope for? 18. When political parties are used to give political paupers office, party bigotry ought to cease. 19. Desirest thou to behold political paupers? You will see them on the boards of charity and reform. 20. When the judiciary becomes merchandise, arbitration ought to confound the lawyers. 21. "Forbearance is a grievous virtue," as the tax-payer said when compelled to pay for three kinds of public education; the useful, the ornamental, and the *parasitical*. 22. If the industrial man was in all things homeogenous, the world would witness something new under the sun. 23. Granger, hast thou a competence? Move not into the village or city, but stay on the

farm, and strive for the farmer's regeneration. 24. The aristocracy of Wisconsin will never become extinct as long as the University flourishes. 25. If knowledge is power, then ignorance is weakness; Solomon made choice of wisdom and to him all else was given. 26. Has the time come to attack the bigotry of the professions, and assert the prerogative of the industrial man? 27. If the industrial man is to love his enemies, who will provide for his friends? 28. If God helps only those who help themselves, ignorance and idleness will dwell in the cave of gloom. 29. Who puts the horse-leech to shame? The lawyer out of office and no fat clients. 30. When the tax-payer pays his taxes, the tax-eater says: "Well done my boy, give us more such; don't bother your head about us." 31. Why are Williams and Winans like Scylla and Charibdis? Because they are both lawyers. 32. When you are tossed on one horn of a dilemma and find it sharp, don't look for much difference when you are tossed on the other. 33. Why did the first murderer quit farming? Because he killed his brother and wanted to build a city. 34. If the legislature could give one-fourth million to extend the capitol, for the benefit of Madison and the Supreme Court — as parasites or paupers — cannot the legislature give the farmers and mechanics an agricultural and mechanical college even without asking? 35. If seventy per cent. of the taxes is too much for the farmers to pay, what are you going to do about it? 36. When is the wolf the happiest? When the grass is the greenest and the lamb is the fattest. 37. How is it with the hawk? When the grasshopper is plenty, and the old hen and chicks are far from cover and in the open field. 38. When is the lawyer in Aliz? When he is a legislator and chairman of the committee on claims or appropriations. 39. Is the doctrine true — equal pay and equal privileges, equal burdens and equal benefits? 40. Should the brains of the aristocracy counter-balance the gold of the tax-payer? 41. Should the just pride and ambition of the industrial man be neutralized by his physical exhaustion? 42. Why are these hard proverbs said? Because gangrene has set in and the surgeon is badly needed. 43. Did Washburn tell the truth when he said legislators are sold like bul-

locks in the shambles? 44. Is not the wheat as well off without rust? The calf without the louse. The land without the lawyer, who like the Microbe conceals his acts and presence so scientifically that the industrial man don't see the trick? O, Delphos! Thou art left in the shade! 45. The industrial man cannot see why the Microbe or the lawyer should have lived at all. O, Mysterious Providence! 46. Industrial man, hold up your head; the Millennium is coming; it is now on the home-stretch! 47. Could not Christ in his infancy have done better without Herod? 48. What kind of authority have we set up in this land? The heathen gods are nowhere compared with them. 49. Professional man, will you please stand aside and let the industrial man manage his own affairs? 50. Could we not have as good laws made in a log shanty as in this place? 51. Industrial man, pay less and have more. 52. Would not corn fat pigs as well without a Latin name? 53. If the hawk tribe should become extinct, would not the "Plymouth Rocks" crow as well? 54. Did the fall of the god Serapis stop the rise of the river Nile? 55. If the lawyer should become extinct, could we not settle our own difficulties? 56. If congress had less lawyers and bankers, could not the industrial man see how the land lay? 57. Could not Adam and Eve have got along just as well without Satan? 58. Could not the agricultural and mechanical college manage its own affairs, without the State University to steal its funds, and direct its energies to its death? 59. If there were no lawyers, universities nor churches, would not the grass grow as well? 60. Did Delphos, or Belos, or Serapis, save Greece, Babylon, or Egypt? 61. If there were no supreme court and no classical literature, would the Mississippi cease to flow? 62. If the Sacred Cow, or the god Apis had never been, would we not have had good Jerseys and Short-horns? 63. If Webster had never been, would not the self-binder have been invented? 64. Classical literature, worthless stuff! Shadow of extinct nations! Kept alive to befog and befool the industrial man! Outlived your usefulness! Mossback! Bourbon! Get out of the way for something useful! 65. Dead languages! Why survivest thou, when the tongue that spoke thee has

been displaced by the survival of the fittest? Give us the language of freedom, not the effete past! 66. Foreigner, thou didst leave the father-land for the land of freedom, for the land of free action, free thought, free *land*. Bid farewell, then, to landlordism, military tyranny, hovels for the industrial man and palaces for the aristocracy. And bid farewell for *prudential reasons*, and many regrets to the language associated with those appliances of tyranny over the industrial man. Remember only, the free air, the limpid brook, the bright rising sun, the sun that bids you rest at noonday, and the glorious sun, that sets behind the oft remembered hills that point toward Heaven, — and the valleys in whose bosom rest your fathers, out of reach of the professional tyrant. 67. Can't our legislature see how public opinion tends on this question of more light for the industrial man? or are they going to wait until they are buried in oblivion by another election cyclone, to mourn neglected opportunities? Can't they see the shadow of coming events, and be counted wise men, even by the industrial man, and separate, at once, the skeleton dead from incompatibility, — the thing called the Wisconsin Agricultural and Mechanical College — (it was good seed cast in stony places) from the State University, and place it on an independent basis?

Let the place be selected by the industrial man. Let it be managed by the industrial man, in its preparation and continuance, on the principle that no man or contrivance shall stand between the industrial man and the management of his own affairs.

Let the industrial man have a model farm and mechanical shop, where, when he leaves the common school, he can learn what he is going to practice for his and the public good. For "knowledge is power," which ought to be made as manifest to the industrial man as it is now, and ever has been, to the professional man.

Then you legislators will be held in grateful remembrance by the industrial man who ought to have his own without this ignoble asking.

Yours, when uncongenial things are separated,

INDUSTRIAL MAN.

## DISCUSSION.

Mr. Hinton — There is nothing in the world more confirmatory of the idea that the gentleman has advanced than that paper hung up on the walls of the British Museum from which we all enjoy the rights and liberty which we enjoy. Only five of the signers of the great Magna Charta of England — only five — could sign their names. The theory that classical, high-toned education is necessary to make great men or women is exploded by that one instance. That great Magna Charta wrung from King John at Runnymede, sowed the seeds which culminated in the Declaration of Independence, and all the great and grand principles therein came from men of broad hearts and great minds and of exceedingly limited so-called education. It is so strikingly confirmatory of what my friend has said that I have taken the liberty of calling attention to it, intending it to be a compliment to the clear, pointed and truthful statements which he has uttered to-night.

Mr. Babbitt — Do you think he could have written that paper if he could not sign his name?

Mr. Hinton — No, sir; I do not say anything of the kind.

Mr. Ford — I do not know that I understand the drift of the paper or the discussion this evening. The gentleman last up I heard with a great deal of pleasure last evening, and one of the most eloquent speeches, for a short one, I ever heard in behalf of ignorance, I heard from him. To-night he is buttressing it by instances to make it still stronger and citing the old Barons to strengthen his position. The philosopher and friend who has just read a paper I understand to be working just opposite to him and advocating the uplifting and enlightenment of the granger.

Mr. Hinton — I advocate that entirely.

Mr. Ford — These gentlemen I understand to be at war with each other. I cannot see the harmony of it.

Mr. Sayre — It seems to me if we should go to Milwaukee or Chicago and get the street arabs for patterns, we should be carrying out this gentleman's idea very nearly. They are smart and a great many of them cannot read or write.

Mr. Hinton — I think no word has fallen from me in favor of ignorance. The gentleman certainly is mistaken.

Mr. Sayre — How about the third gentleman in Australia last night? He was serving a man that could not read or write.

Mr. Hinton — It was an illustration given by the most eloquent man that has ever written just such papers in book form as the gentleman has read to-night, Samuel Smiles. Read his "Self-helps." Read any of his works, and there is not an American who has ever read them who will not place them before his boys. I challenge the gentleman to name a prominent critical publication which has not eulogized them in the strongest possible manner. The extract that I gave is from one of those books.

Mr. Sayre — Was Samuel Smiles an educated man?

Mr. Hinton — Yes sir, a very educated man.

Mr. Sayre — I do not find fault with the example, only giving it the way he did, and giving it in the way he did to-night. He said the Barons could not read or write, and they were the givers of the Magna Charter. The Barons were the aristocracy of England, and their prerogatives were infringed by King John. How much of the whole of Great Britain could read or write at that time, or how much of the whole continent of Europe?

Mr. Hinton — I do not think they could. I do not think you catch my idea at all. What I mean to say is that classical education is not necessary to a maintenance and diffusion of those great and grand ideas under which we hold the liberties and the freedom we possess. Look at the Declaration of Independence. There is only one good handwriting upon it, and that is John Hancock's. He took special pains to make it so big that John Bull could read it without spectacles. Let me say one thing to the gentleman. You will find this. You take a young man born with republican principles, no matter how much aristocracy or monarchy surrounds him, he seeks this land as the babe seeks its mother's breast, and he comes here not only to enjoy, but at all hazards to uphold the great principles upon which all our liberties rest, and hence I say it was perfectly proper to cor-



roborate what he said by an illustration which you can trace back to Runnymede.

Mr. Austin — I believe the subject under discussion is industrial education. Under that head I would ask permission to introduce a resolution.

WHEREAS, Agriculture is and always has been a great and prominent industrial interest of this state, and

WHEREAS, The highest degree of successful farming can only be reached by scientific and practical farming combined, and

WHEREAS, The present agricultural college income, some \$17,000 per annum, is clearly inadequate to carry out the intention of congress when making the grant of lands for that purpose, therefore

*Resolved*, That to remedy this deficiency we earnestly request the legislature to pass senate bill No. 96, a bill relating to the distribution of certain swamp and overflowed lands.

Bill 96 referred to, reads as follows:

All swamp and overflowed lands which have not been offered at public sale, and also all those which may be hereafter offered at public sale, including those which have been and which may be hereafter patented to the state from the general government under the act of congress of September 20th, 1850, and all lands so patented to the state in lieu of swamp and overflowed lands, shall be by the commissioners of public lands divided into two equal parts, and the proceeds arising from the sale of said lands shall go into and be placed to the credit of the drainage fund and the agricultural fund respectively. Such portion as belongs to the first named fund shall be disposed of according to the provisions of section 251 of the revised statutes, and the portion belonging to the last named fund shall be disposed of according to the provisions of sections 249 and 258 of the revised statutes. All moneys received from the general government from the sale of swamp and overflowed lands which may hereafter be paid to or received by any officer for the state, shall, upon being deposited with the state treasurer, be by him credited equally to the funds before mentioned, and the disposition of such moneys shall be in accordance with the provisions of said sections 249 and 251 of the revised statutes.

All acts or parts of acts contrary to, or inconsistent with the provisions of this act, are hereby repealed.

The resolution offered by Mr. Austin was referred to the committee appointed to consider what action should be taken in regard to the agricultural college.

Mr. J. M. Smith — It seems to me that some of the discussions of last evening and this evening would give an unfavorable impression abroad; an impression that we are opposed

to good education. Now I believe I am pretty well acquainted with the farmers of the state. I have been among them for the last twelve or fifteen years, and I have never yet heard a good farmer of this state say that he was opposed to education. We differ sometimes with regard to the kind of education. We differ in regard to how the education should be obtained. But I protest against the idea that we do not want anything but an industrial education. If my neighbor wants to send his boy, or his boy wants to go to the University and learn the languages of ancient Egypt, or Syria, or Hebrew, or Greek, or Latin, or anything else, I say to him: Go there and learn those things; spend your lives studying them, if that is your pleasure; if you think you can do better and be more useful in that way, do it; it is not any of my business so long as you do not damage me or hurt your neighbors. If I think I can make my boys more useful by mixing their education with manual labor somewhat, I have a right to do it; but education must not only be hereafter as good as it is now, but it must be better than it is now. We must have not only liberally educated men, but thoroughly educated men in all the branches. Our working men, our laboring classes, our farmers must have more education and better education, and I believe I only express the thoughts and wishes and feelings of every intelligent farmer in Wisconsin when I say that I am in favor of it. We may not agree as to the best mode of giving them the education, but we will agree that we must have it. I do not like to hear the idea cropping out that we have too many educated men, or that they are parasites, and all that. I think its influence is injurious and that it will hurt the farmers. It certainly will not do them any good in any way.

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### MANAGEMENT OF THE UNIVERSITY FARM.

By Hon. I. C. SLOAN, Madison.

This subject is an important one to the agricultural interests of the state, and I believe the time has come when it is the duty of the intelligent and experienced farmers of the state to consider and discuss it thoroughly, and then by

united influence and action have, if possible, some definite system applied to the management of the farm.

I only hope to call attention to the subject, so that more experienced and capable men may carry to practical results any changes which may be deemed necessary to secure such benefits to the farmers and people of the state as proper management will give.

So far as I am informed up to the present time, the control of the farm has been left wholly to the person charged with its superintendence, without any settled plan or system for a guide, and without any very definite object in view. Theoretically, the farm has been worked in connection with the agricultural college course, which is a part of the University system of education, but practically, so far, the number of students who have taken the agricultural course at the University, has been so small that the benefit derived from the farm in this connection has been a wholly inadequate return for the outlay necessary to carry it on; but one student, I believe, has been graduated in this course of study, and I think there are no very strong grounds to expect that the number of those who will attend the University for the purpose of pursuing and graduating in the agricultural college course of studies is ever likely to be very large. The truth is that farming is not now, a science, and I greatly fear will never become one, and it can hardly be called an art, although facility and adroitness may, to a certain extent, be acquired by teaching, but more by practice, in the multiplied and frequently diverse operations involved in the conducting of general farming. Farming is a business depending largely for its success upon the natural intelligence and good judgment of those engaged in it.

Its results depend upon so many complicated and varying conditions of soil, season, time of planting, thoroughness of culture, insect enemies, etc., that it seems almost impossible to establish any system of general rules, or indeed any general rules at all, that can be applied in different seasons or to any considerable extent of territory. I do not therefore think that the University farm possesses any very high value for the purpose of teaching students attending the University the manual methods of practical farming.

The question is how can the farm be made to render an adequate return for the outlay which will be required to carry it on over and above the income which may be reasonably expected to be derived from it.

I remark in passing that if any general benefits are to be derived from it, the operating expenses will always greatly exceed the income, and this should not only be expected but cheerfully acquiesced in.

Having been so far conducted without any settled plan, very little of general value has resulted. Some experiments have been made to determine which are the better and most prolific of the small grains, as wheat, oats, barley and also of corn and potatoes; so far as these have shown the relative yield of the different kinds, they have been of some value, but I believe these experiments have been mostly if not wholly abandoned.

Experiments were also carried on for a series of years for the purpose of ascertaining whether there are any varieties of winter wheat which could be profitably grown in this portion of the state, but these were of little value to farmers generally, the situation of the farm on the southwesterly side of the lake, the highly fertilized condition of the land, giving large fall growth, as winter protection its sheltered situation, the thorough preparation of the soil, were so different from the conditions of land in general farming that they could hardly be said to prove anything in respect to the general profitableness of the winter wheat crop in even this section of the state.

So far as experiments of the character just alluded to are concerned, I believe they ought to have been conducted under conditions similar to those which would be adopted by the ordinary farmer, that is to say, that no large quantity of purchased manure should have been applied, but the land seeded in good average farming condition so far as fertility is concerned. No farmer in this, or any other state in this country, can make or purchase twelve to twenty loads of well rotted, barn-yard manure for all of his cultivated land each year. And even if he could, it is an entirely unsolved problem whether the cost of such manure would not be much greater than the increase in money value of the crops pro-

duced by its use, and like almost all other farming problems it probably can never be demonstrated. So far as barn-yard manure is concerned, the difficulty, if not impossibility, of large numbers of farmers purchasing as much barn-yard manure as might be necessary to heavily manure all their cultivated land, together with its varying cost, presents insuperable obstacles to such a plan ever being adopted generally by farmers. Of course it is a matter of satisfaction and pride to the manager of the farm to show large growth of crops to the numerous visitors of the farm, and in his report to show large yields, but when this is done by the purchase of manure without any account being kept with each crop, and without any information whether these large crops have not cost two or three times as much as they are worth, is not only making no advance in the knowledge of profitable farming, but is absolutely wasting time and money.

My idea on this point is that no manure (except artificial fertilizers hereafter referred to) should be purchased for the use of the farm. That it, like the ordinary farms of the country, should be confined to its own resources in this respect. That the produce of barn-yard manure on the farm and its application to crops, should be so managed, so far as possible, that we should know what it costs, and whether its production and application on the farm are attended with a profit or loss, and it will be seen that in this inquiry is involved the whole question of feeding, the different kinds of stock, and whether with purchased feed or that grown on the farm; whether any results useful to the general farmer can be obtained by experiments of this character I am in doubt. The conditions and varying circumstances in such experiments are so great and complicated that I should not be very hopeful that any rules of general use would be established, but I believe a series of experiments ought to be tried on the University farm and continued until it shall be demonstrated that a valuable general system of feeding stock in connection with the production of crops can be established, or that the conditions and circumstances involved are so various and changeable that it is impossible to establish any general rules, and that each farmer must depend upon his

own judgment under the circumstances in which he is placed.

In regard to commercial fertilizers, I believe a plan of experiments ought to be made and steadily carried out for the purpose of determining the absolute and relative value of these fertilizers so far as possible. They are all resolvable by chemical analyses into a few mineral ingredients which are alone beneficial to crops.

In regard to the stock kept on the farm, it has been a genuine medley, and so far as I know, kept without any plan or definite object in view; the result has been what might be expected — nothing.

There are now on the farm, I believe, a few Short-horns, a few Holsteins, a few Jerseys and a few scrub or grade cattle. So far as keeping any of the pure European breeds is concerned, I do not see that any beneficial results can be expected; they are all fixed breeds, whose peculiar and special qualities and merits are well understood by all intelligent farmers, and there are twenty breeders of each kind in the state that will by their private enterprise, experience and intelligent judgment, far outstrip what can be expected at the University farm.

Established and well known breeds of cattle, sheep and swine need no experimentation at the University farm; their respective breeders will take care of them, and they will make their way ultimately, according to their respective merit.

If there is to be kept on the University farm any fixed and established breed of cattle, let those be obtained which have not been largely introduced and are not generally known in this country, so that their adaptability to the farming conditions of this country may become known either for good or evil.

There is now a good deal of interest existing in regard to polled cattle in this country. The Angus, Aberdeen and Galloway are being largely introduced and are becoming rapidly known; they are essentially beef cattle.

There is another old breed of polled cattle existing in England, of which as yet little is known in this country.

I refer to the red Norfolk and Suffolk polled cattle, said to

be excellent dairy cattle, and to combine with their value in the dairy as great feeding capability as is compatible with the production of milk. Let the University farm procure some of these, and if of real merit, a work of some value might be accomplished by making their merits known.

But I believe private enterprise will do far more in respect to established breeds than public farms can expect to accomplish.

No breed of cattle has yet originated in this country. Why not strike out on the University farm, and after having the type to be established and a definite system of perfecting it settled upon, procure some of the best milking native cattle of this country, and endeavor to perfect a breed of American cattle, which will be valuable to the general farmer?

This has been accomplished by private enterprise in respect to Merino sheep, Poland China, and other breeds of swine and in trotting horses. Why not in cattle?

The great advantage possessed by public institutions like our University college farm over private enterprise in such undertakings as the establishment of breeds of animals is very great, individuals become infirm in health, they die, or by adverse circumstances may be forced to abandon such undertakings, but in continuing public institutions, no matter how often the superintendents or managers may be changed, a well matured plan may be steadily acted upon, although it may take fifty or a hundred years to accomplish the object in view.

Under the management of the University farm as it has been heretofore conducted, the wonder is not that so little has been accomplished, but that anything of any public benefit whatever has been done.

Managed as a mere appendage to the University, by a Board of Regents only one of whom, I believe, has been a farmer, or suspected of knowing anything about the principles or methods of farming, without any plan or system on which the farm was to be operated, it was of course impossible that anything of great value could be accomplished.

I believe the time has now come when the interests of the whole state require that the farm should be placed under a

board of control, composed of intelligent farmers. That an experiment station under the direction of a competent chemist should be connected with it, that a settled system for conducting the farm and experiment station should be formed and steadily pursued. So far as practicable, such system should be carried on in connection with the agricultural college course of the University. By this method it is to be hoped that some general benefits to the agricultural interests of the state may be produced from the expenditures necessary to carry on the farm.

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DISCUSSION.

Mr. Broughton— If allowable, it is desirable for a farmer to review some of the points made in the paper just read. It is undoubtedly a fair presentation of the condition of things so far as it was presented to our view, but whether it was presented to our view with an intention of giving us a clear understanding of the condition of things existing between the agricultural college, so-called, and the University, or the agricultural farm proper, is somewhat doubtful. The first thing is the number of students to be lodged. Why? Were they ever intended to get lodged? Was there any such incompatible thing when they did get lodged there? The intention was to overshadow the agricultural part for the benefit of the big tree that overshadowed it. It might have been through ignorance and it might have been through design. But there is an attempt now by design to hold it together when it is known that it ought to be separated. There is no ignorance about it to-day. If any one hereafter, seeing the state of things that exists there, attempts to hold it together, we must attribute it to design. Here is a question to be asked: What does a farmer know about legal science? The lawyers say he does not know anything. "If a farmer attempts to meddle in our affairs he is meddling with that which is none of his business. He is crazy and ought to be in the insane asylum." If the question was turned around, the farmers ought to assert their prerogative and say, "Attend to your own business; what do you know about farming?" The institution was managed originally



by eight lawyers, afterwards one farmer was added to the Board of Regents. He, it is supposed, and we have a semblance of reason for supposing, had a buzzing in his bonnet. He wanted to be governor of the state. He did not want to quarrel with those who were his coadjutors, or those who promised to help him some time if he would help them many times before. *No settled plan!* Yes, there is a settled plan. What is it? Get no students and get the income from a certain farm! That is the plan now. Whether it was the plan with those that created it I do not know. It was put there to educate another class besides the farmers. The farmers need more light. They want to go by their own light, not by somebody else's light. When we say we want more light, some pretentious fellow steps forward, as cheeky as the farmers ought to be, and says, "Here is my light; see by that; I have a light that will answer the purpose; pay me a hundred times as much for the use of my light as it would cost you to use your own," and if you are not careful they will blow your light out. If that is not so, I would like to see the man that can successfully deny it. You see I have learned this pretentiousness of these very fellows. We have been breeding cheek.

Like begets like if other conditions are equal. We can make those conditions just what we are a mind to, so we will have like produce like. The farmers should be cheeky, and assert their prerogatives in unmistakable language, and use some very mild intimidation if necessary. Another point he speaks of, which means something to you, only this is put by indirection. "No manure on poor land." He thinks they had not better put any manure on that land. It is very poor land. If you do not have any manure on it, you will raise ideal crops up in the thin air. It is not the object to raise any crops at all. When farmers go there it is intended to disgust them with it. But here some lawyers say it cannot be moved away. If the devil should set up his kingdom here, he would undoubtedly say it could not be moved away. That is the usual pretentiousness in such matters. Why not? The farmers say they can move it away so as to have more light for themselves by themselves. If the sheep were wise, would they employ the wolves to teach them. If the

wolves were wise they would employ none but fat sheep to teach them. Would not two, and perhaps three, blades of grass grow where only one grows now, if the farmers controlled it? Who would have made those two or three blades grow where only one grew before? Not those who say: "Put no manure on it!" as the old Dutchmen used to on the Mohawk — put it on the ice in winter, and let it float away in the spring. You can see the effects of it to-day. They have, a good many of them, taken Greeley's advice and moved west, where they can have virgin soil. They are these fellows that have given this great light. They do not wish to be called parasites. They would wish to be microps — do things so fine we cannot see what they are about. It is a fact that they are doing it, and that cannot be successfully contradicted; but the question whether they have a right to do it, is another question. It has been asserted by some that the brains of the professional man should counterbalance the gold of the taxpayer. If that is so, we have a class that is born to govern and we must submit to them, and a class that is born to work and pay the taxes; two classes, the tax-payer and the tax-eater. The better they know it, and the sooner the professional man says it, the more honest we will esteem him to be. Then we will bid farewell to hypocrisy, but as long as he conceals his manner of doing it, as long as he has these state secrets, as long as he practices this monarchy plan, this plan of the ancient oracles, pretending that they get a special knowledge from God, told principally behind a curtain, we cannot believe in their pretentiousness. This science of government, called legal science, had better be known. The grangers want to know something about it. We have a terrible curiosity to have knowledge, but we do not want to get it from these pretentious oracles; we want to get it from studying Wisdom's ways. He says he is in doubt about those institutions remaining together satisfactorily. So are we. We sometimes think there ought to be a divorce. It was a poor product, undoubtedly a polygamous product, and not brought into the world by correct rules of generation.

Mr. Ford — If it would accommodate you to deliver the rest of your lecture this evening, I would suggest that this matter be passed until then. I see a number of University

Professors here and others that are interested in the question. It is a very important question and has a good many sides to it. As we have a programme undisposed of, I would suggest that this evening be given to this subject. The gentleman was talking to a different purpose from what Mr. Sloan was. The committee appointed to consider this matter will make their report this afternoon.

Mr. Sloan—Suppose you state what you would like about this University affair. I have not the slightest idea what you would like.

Mr. Broughton—I did not expect to find a man of your order in darkness. The proposition is to separate the agricultural farm from the University and place it on an entirely separate basis; separate it from the shadow of the teaching of the classics as far as possible. Michigan and Texas and some other states have done this, and it has worked well and they have plenty of students. We have got to get at this by any route we can take if it is ever so circuitous. We are scientifically fooled in this matter.

On motion of Mr. Babbitt the further discussion of this matter was postponed to the evening session.

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## ENSILAGE.

### DISCUSSION.

Mr. Hacker—In regard to putting clover into the mow green I would like to make a statement. Some ten years ago I mowed some clover that had considerable pigeon grass in it. I was afraid we were going to have a rain and I put four tiers into that mow pretty green. For a while it seemed as if that hay was all rotted, but in the winter when I opened it, it was the nicest clover I ever fed. Even the stems were eaten up. It kept very nicely. About two feet of the outer edge next to the side of the barn was spoiled. It was put into the mow the day after it was cut. It was very green when it was put in.

Mr. Palmer—There is some danger of fire from that cause I understand. I heard of a barn in my neighborhood that was lost by putting in clover green. I saw in the

*Country Gentleman* lately the suggestion of baling hay green. The idea of putting into silos is to press so as to keep the air out as I understand. The question was asked why hay could not be pressed green and then packed with dry straw put between the bundles so as to take up the moisture which would come from the bales—if it could not be preserved in that way cheaper and with less trouble. Would it not be a good idea to experiment in that direction.

Prof. Henry—It seems to me that that is a more expensive way than to simply tumble the hay into the silo and take it out as you want it.

Mr. Palmer—I have always been in favor of putting in clover before it got very dry. I have put it into my barn when it would get wonderfully hot on top, but the clover came out extremely fine in the winter and my cattle liked it very much.

Mr. Ford—I was talking with the gentleman whose barn was burned, and he said nothing about any such cause as that. I wish to ask Prof. Henry about the economical aspect of this question. If I understand his figures, in forty-two days the cows made six pounds more of butter on ensilage. That would be, assuming that the butter is worth 25 cents a pound, \$1.50 for the extra expense in preparing the ensilage. It seems to me that if you can save 2,800 pounds of ensilage for less than a dollar and a half there may be a little profit in it.

Sen. Anderson—I have had a good deal of experience with clover hay. I have raised as high as 350 loads of clover hay in a season. I would not advise any farmer to put it up too green. That is my experience. It will become mouldy. It will become as brown as if it was pressed tobacco, and about the same color. I think the better plan is to try to have it dry before you put it up if possible. The great difficulty I know is to cure clover hay properly, but when properly cured it is one of the finest feeds for sheep or milch cows of anything I can raise on the farm. I generally mix it with a little timothy, but not so much timothy that it will affect the clover for being good seed for a second crop. Sometimes it pays better to cut the second crop of clover for

seed instead of hay. I suppose most farmers are aware that the second crop fed to cattle will make them slobber a good deal. It is not a very good feed. Do not put up your clover hay if it is dampened with dew or if there is any water on it. There are some very dry years when clover can be put up very quickly, when there is very little moisture in the stalk, when it is so dry that in a few hours after it is cut the leaves will break off from the stalk. In such years I would put it up very quickly. I have a large barn that I can pack about 100 tons of hay in. I would take it out of the mow and the blossoms would be red in some seasons, but it is very seldom that you have such a season as that. Last season was a bad one.

Mr. Hacker—What course would you pursue if you had five or six acres mowed, and if you did not put it into the barn immediately it would get wet.

Sen. Anderson—I have taken in as high as one hundred loads in three days, and I thought it was doing pretty well, with my own teams; but I would prefer putting it up in quite large cocks, and if it goes through a heating process in those cocks, spread it out a little before you haul it in. After you dry it it will not go through that heating process afterwards. I would prefer to have a little of the outside of the cocks injured than to injure the whole of it by drawing it into the barn.

Mr. Sloan—Buy haycaps.

Mr. Hacker—They would be a good thing, but they are expensive and troublesome.

Sen. Anderson—I do not know whether Prof. Henry was at the Grand Pacific at the national convention. The question of ensilage was discussed fully by a farmer from western New York. He said that the best corn he found for ensilage was southern sweet corn. He said there was more nutriment in it and the stock liked it better, and it was a large variety of corn which produced very heavily to the acre. He gave his whole process. He had a steam engine for cutting, and said he could put in a ton every five minutes in his silo. He spoke of it very highly and every man who heard him thought he was well posted.

Mr. Kellogg—I have had a larger experience than any

farmer I know of where I live since 1846 in handling corn fodder. I am almost the only man that is enthusiastic over cutting up corn. I have farmed 240 acres since 1846, and I have cut up all the corn I have raised except nine acres one year. It appears to me that I could make a fairer experiment than the Professor did. I understand the ensilage was cut up and the other was fed whole. I know well that stock in that way loses a large proportion of the food. I would cut up and cure that as he did, and I would cut it up the night before I fed it with the same machine. I would then put the feed of the meal, etc., with that and put on warm water in cold weather (cold water will do in warm weather), and mix it thoroughly, and my experience for years and years has been that the cows will eat the whole of it up. In that way you would get it all the same as you would with ensilage. It seems to me that would be a fairer experiment.

Prof. Henry— At the New Jersey station they have done that. In one experiment they found they got as much milk by macerating the corn fodder as they did with ensilage. In another experiment they got 7 per cent. less.

Mr. Kellogg— Does that cost any more than your ensilage?

Prof. Henry— I cannot settle the whole ensilage question with one experiment, and I do not want the farmers to take it as the settlement of the whole question. New Jersey has performed one experiment and will soon come out with another on the feeding of Amber cane ensilage.

Mr. Kellogg— I have cut up much feed for horses in that way. I feed them at night, put on the meal, etc. I find in the morning that they have left perhaps one-third of the stalks and butts, etc. That I take out and put into my mixing box and add a little more meal and give it to my cows or steers that I am feeding, and they eat the whole of it. I never lose anything.

Mr. Sloan— This subject of ensilage I desire to say a word upon. I have investigated the subject, devoting to it considerable time with a view of building a silo on my farm, but I am not so enthusiastic on the subject as I was a year or two ago. In my judgment it is a subject on which western farmers should make haste slowly. The experiment performed by Prof. Henry on the experimental farm is a very

interesting one, and is valuable as far as it goes, but to my mind it does not go far enough to give the information on the subject which farmers want to have before they go into this new system of feeding.

The question is how dry fodder and ensilage compare in value to hay, which we raise as the staple feeding product upon our farms. The experiment which the Professor tried, I think, should have been carried further. He doubtless was not able to do so, but I hope an effort will be made on the part of the farmers present at this convention to give the experimental farm all the means necessary to carry on experiments that are valuable for the farmer. He should have taken, in my judgment, six cows more and fed them on a good fair quality of meadow hay, and then we should have been able to see whether there is really any profit to the farmer in raising corn fodder and ensilaging it or drying it. You will observe that while the experiment, as performed by Prof. Henry, shows in favor of the ensilage, yet, if the cattle could have been induced to eat all of the corn fodder, stalks and all, it would presumably have contained as much nutriment as the ensilage, and would have kept the cows as long. Whether it lost any of its nutritive qualities by drying out is an undetermined question, but I think the presumption is it did not. On the experimental farms in Germany they have carried this subject of analysis of fodder and feeding to almost as great an extent as it seems possible to carry it. They have, or think they have, determined how much fodder is necessary to keep an animal of a given weight in a stationary condition. They have analyzed all kinds of fodder. Their analyses show, I think, that there is very little difference between dry fodder and ensilage; practically, I think, hardly any, either in Germany or in this country. They show that one ton of good meadow hay is equal in feeding value to seven tons of dry fodder or ensilage. If that is true, and a man can only produce twenty-one tons of corn fodder to put into the silo, it is only equivalent to three tons of hay, and I judge from the account which has been given here, if the meadow is manured as much and made fertile so that it would produce twenty-one tons of fodder it

could very easily be made to produce three tons of hay per year in two cuttings.

Mr. Kellogg — We get the corn.

Mr. Sloan — Not in ensilage. No ears are produced. And if you cut it up for fodder you get no corn. The eastern farmers are going into ensilage very largely. The number of silos is being multiplied every year. Last year they held a convention of all those practical farmers all through the eastern states who were feeding ensilage, and this year they have held in New York a similar convention, and there were farmers there from New Jersey, New England, Pennsylvania, Maryland, etc., and they all spoke of it with great praise and were in favor of it, but those very men almost invariably said that two tons of ensilage were equal to one ton of hay in feeding value. That is the very thing we want to know. It has not been tested and we do not know it. If that is true there is no doubt about its value. If that is true every farmer present ought to go home and build a silo if he can raise or borrow the money, because if he raises twenty tons of corn fodder on an acre and can put it in his silo for eighty-nine cents a ton it is equal to ten tons of hay, and two tons of hay will winter an ordinary cow during the winter, and every acre of his land on which he grows corn fodder will winter five head of cattle, and every farmer here could quadruple the number of cattle he keeps on his farm; but these old gray headed farmers who listen to me know that the proof of the cake is in the eating of it, and that these theories do not pan out in practice. I say the University farm is the place to try how valuable it is in comparison with hay; then we would have one point settled so that farmers would know what they were doing when they put their money into silos. We want to know, too, how much can be grown to the acre under ordinary circumstances. That, perhaps, it is almost impossible to know. They claim forty or fifty tons. We know that one farmer will raise twenty bushels of corn to the acre, and another will raise seventy. The Frenchman who perfected this system averages on seventy or eighty acres thirty tons to the acre, and claims, and he is a man whose word is not to be doubted, that he has raised one hundred and fifty tons. But one man



put forward the claim in this country that he raised ninety-two tons to the acre. I suppose such crops are estimated, and there is no allowance made upon it; but if we can get the feeding value of ensilage as compared with hay we will know what we can do, and we will have some foundation to build upon. That it is the best winter fodder for dairy cows, that it increases the flow of milk, that it makes better butter than the ordinary dry fodder which is given cows, is established beyond all question. No one need do more than to read the testimony of a hundred farmers in the east who have tested this in all manner of ways to prove that unmistakably. That is all I desire to say upon this subject, but I desire to make one remark in regard to clover hay.

Several years ago I had a magnificent crop of clover hay, about fourteen acres of it, a heavy growth, with heavy stalks, and it was put up in two large stacks in the field, the stacks being about six feet apart. My man came down from the farm one morning and said there was not any clover there, and I rode up to the farm to see what was the matter, and there were two heaps of ashes there. My neighbors said it had been put up too green, and that it had been destroyed by spontaneous combustion. I do not know anything about it, except the fact that the entire crop was consumed in the night.

Mr. Randall, of Appleton — I commenced experimenting two years ago under very unfavorable circumstances, having no appropriation, and nothing but pluck to help me in my experiments. I have a pit twelve feet by eighteen feet in height and twenty feet deep. I filled that last year with about ten tons of ensilage. Part of this was clover. Upon this I made some careful experiments. In my experiments last year I experimented with milch cows. I furnish what is known as the City Dairy, and they call every morning for the milk, so that I had to be confined entirely to the weight of the milk. I took two cows, feeding them upon ordinary food, good meadow hay a certain number of days, and then feeding them ensilage, and I found an increase. There was a decided increase in favor of the ensilage. This year my experiments have been of the same general character, but there was a curiosity about it. The ensilage had a strong

tobacco smell, and when passed around an association of farmers, many of them declared it was tobacco. I sent a sample of it to Prof. Henry, and he said it had a good deal of the odor of tobacco.

I read an article in the *Country Gentleman* where revenue officers had detained a package of ensilage claiming that it was Cavendish tobacco. I do not believe they would do that with mine, but I want to say that this year I have a very favorable and a very unfavorable condition in the same silo. I have the tobacco ensilage near the top from clover that was raked with a horse-rake after the other was all covered in. About three loads of it was thrown in, being the last on top, and with it there is not the least deterioration except this tobacco odor; otherwise it is perfect, but I have a strip of ensilage about ten inches wide outside of where the horses tramped that is somewhat mouldy, but in the middle of the silo, where the great pressure was, it is in a state of almost perfect preservation. I judged I had about twenty-five tons of ensilage. I have fed about ten cows and animals since the 4th day of December, and I have now about three-fifths of the amount remaining. My ten head of cattle have not consumed three tons of common timothy hay. I fed it the first five weeks exclusively. One of the animals showed a falling off in flesh, but the flow of milk remained. I changed my feeding after the first five weeks, and fed directly after milking a common bushel basketful of ensilage to each animal and following the three quarts of corn and oats ground together. When they are turned into the yard they are given all that remains, and there is something remains since we began to feed at four o'clock in the morning one ration of hay; then there is something left in the manger that I carry out. The next feed is at about the time of turning in, about two o'clock in the afternoon. The hay rations are in the mangers for them when they come in. The next feed is in the evening after milking; no feed before or at the time of milking. Then they have this same basket of ensilage, which weighs about forty pounds, followed with some three quarts of corn and oats ground. My silo has been filled in with concrete, that is, lime, sand and stone, dropped in until t h

mass is one solid substance. It has a ring to it. If you go into the barn and speak when the door is open, it sounds like a drum. I weight it with plank, and then I put on about 16,000 pounds of stone, or about 100 pounds to the square foot. I thought that was insufficient, and last year I loaded it heavier with stone and cord wood. I aimed to put on two cords of stone on a surface of ten by sixteen feet. Where it was tramped heavily, the ensilage was perfect. The man I had, left it soft at the edges and there it was not perfect. My experience has been very satisfactory. I know if I had fed fodder I would not have one pound of fodder by the first day of January, but now I know I shall feed past the 15th day of March, all things being favorable.

Prof. Henry — Mr. Charles Lindsey, of La Crosse county, one of our careful, particular farmers, who has his farm accommodations as very few farmers can afford to build them, is present. He has been feeding from the silo, and I would like to hear what he thinks about it.

Mr. Charles Lindsey — I have built a silo. This last summer is the first time that I have experimented. I had seen and heard so much of it that I thought I would build one. My experience so far has not been at all satisfactory. I do not suppose that I have had time to learn all the merits and demerits of it. I have only completed one-half of the silo. I built the silo twenty by sixty feet, including the outside walls, and twenty feet deep. I have three division walls, making four compartments. The walls are two feet thick, laid in with cement, quarry-lime, stone and plaster inside, with two coats of cement. I have only completed two compartments, but it is all under roof. I planted about six or seven acres, and with that I filled two of those compartments level full at the time I was done cutting, but they have settled down to about fifteen feet. I believe the estimates they make would give me about 140 or 150 tons in those silos. I am perfectly satisfied that no such quantity as forty and fifty and eighty and ninety tons can be grown on an acre, because my land is naturally a very rich, black loam and has lots of manure, as I keep lots of stock. It is heavily manured, and my fodder grew heavier because it all lodged down. I said to my neighbors, I would rather plant fourteen

acres and have an easier time in cutting it than to have it so heavy. It was quite a hard job to get it. I think I had from twenty to twenty-five tons to the acre, and I think about that, or a little over, is all that can be grown on an acre. Some of the stalks were fourteen and fifteen feet high, and it laid in every direction, as heavy as a mat on the ground, most of it, and then bundled up in bunches; so I think that is the limit that can be grown, twenty-five tons to the acre. I had to cut it by hand with a corn-hook. When I put it in I had ten or eleven men at work. It took me three days to fill one of those silos.

I run a six or eight horse engine on my place to grind my feed and do all that kind of work. I have used it for running my feed-cutter, and it took me three days with ten or eleven men. I used three teams in hauling and three men in cutting the stuff up, one to help load, one to feed the cutter, and one man in the silo and one to run the engine. I guess I used ten or eleven men. I do not know how they worked it out in the field for I was not always with them. As they loaded I found it practicable to haul it right in and take it right off the wagon, let the team wait and run it through the feed-cutter, but I could hardly get enough with that force of men to keep the feed-cutter running. I had more capacity in the feed-cutter than I had in the force of men bringing the fodder up. It would have been a great benefit if I had had more men. On account of the fodder being lodged they could not cut it down as fast as they could haul it, so I had to send the men out about an hour and a half beforehand to let them cut it. They brought the stalks in in a kind of a wilted condition, which I think is not the way it ought to be. I think they ought to be put in the silo in as green and juicy and sappy a condition as possible. I think from what I have learned that it would be better to fill the silo inside of two days than three days; but the size of the silo would not allow me to do it. It took three days to fill one of them. My silo was not weighed down as it ought to have been. I met with an accident by losing my balance when walking on the stone wall and had to jump down twenty feet and bruised my ankle, and my hired hands had to attend to the business and did not do it completely. In-

stead of putting on two feet of stone as I told them to, they only put on half that amount. I was afraid when I opened that silo I would find a pretty hard mess of stuff, because I knew it was not done as it ought to have been. I opened my silo about the 15th or 20th of November. I was astonished when I took off the planks to find that there was not a quarter of an inch decayed. It was under the planks just as good as ten feet below. I did not find the ensilage in the condition that one member did, and when he was speaking it came to my mind what the cause of the failure must be. I think he tramped his ensilage too much, so that a part of it was pressed more and it did not get an even pressure. He pressed it heavily in the center and left the outside unpressed. I have seen in some agricultural paper a remark that it would not do to press the ensilage too much. I find it will settle with its own weight. When it gets through the heating process its own weight will settle it. I do not think it is necessary to tramp it at all.

In filling my silo I shall just spread it out and let it settle itself, and that will give it an equal pressure and there will be no unequal quality to the ensilage. I have not seen any ensilage but my own, and I had a different opinion of ensilage before I saw mine. Whether it can be bettered or not I cannot say; I would like to find out. My ensilage is just as good close to the wall as it is inside. It smells a little like fresh lime as it was plastered only a week before. The cement was dry and hard, but it has a little different smell, and I thought the walls might have given it that smell, but I cannot find any difference in the quality. I had an idea that it would be better lower down, but I do not see any difference. As far as keeping is concerned everything is all right. My neighbors felt quite tickled when I was putting in that. They said I would have a nice lot of manure, that I would have enough to cover my farm, and all that kind of remarks. I laughed and said it would be my loss, I liked to experiment a little, that it was for their benefit; if it was a failure they would keep their hands out of it, and if it was a success they would all go to work at it and have the benefit of it. I find that it will not rot any more than a pile of straw, but whether it can be kept from more or less souring

I do not know. I think the less it will turn into this vinegar souring the better it is. My cows will eat it; still I think my ensilage is a little more sour than I would like to have it.

A Member — How ripe was the stalk when you cut it?

Mr. Lindsey — It was just forming — once in a while a stalk. Where you grow corn so thick it will not form any ears; but once in a while, where it was a little thinner, some of the stalks would produce small ears. It was just turning into milk when I cut it. My calculation was to cut it a little earlier, but I did not get my silo complete.

Mr. J. M. Smith — Did you take the whole top off when you opened it?

Mr. Lindsey — The first silo I opened and fed, I only took off two planks at a time. I found it quite a job to keep cutting down that solid mass, so the next section I took three planks and the next section I took off four planks, and now in the second silo I took off one-third of it, and I do not believe it will injure it at all. I laid it out for ten days in my stable, and it does not seem to change it much.

Mr. Sloan — What do you think of its feeding value as compared with hay?

Mr. Lindsey — I cannot tell yet. I am not settled as to its feeding value. I am running a small creamery and making butter for about thirty cows, but I cannot say that my cows have largely increased in the quantity of milk, but my feeding as I used to feed my cows is a little different. I have been feeding all chopped clover hay mixed with more or less oat straw and steamed slop right with it, all they wanted to eat, but I guess I did not feed quite as heavy of meal and stuff this winter as I did before. I feed a bushel basket full of ensilage in the morning, and after they get pretty near done eating it I give them about ten quarts of meal made into slop. I cook it. I feed a good deal of what they call mill screenings. I can buy these screenings from our elevators and mills pretty cheap, and my farm is not so large. I have only two hundred acres, and keep fifty head of cattle or more, and generally over one hundred swine, and horses. It is not possible to raise on that space all my small grain, so I buy mill screenings mostly and what is called pigeon grass or wild millet, and once in a while I get hold

of some buckwheat, and flax screenings with a little flax seed in it. The reason that I am in favor of steaming is that these grass seeds are very nutritious but very hard to digest, and by cooking them they will be digested perfectly.

A Member — Will the cows eat the ensilage?

Mr. Lindsey — They will eat it slick and clean. They do not seem to care much for hay either.

Mr. Ford — How do you make the quantity of tons of ensilage you got on that ground?

Mr. Lindsey — The estimate is forty to forty-five pounds of solid ensilage to the square foot. By measuring my silo it would come to a certain number of tons, and by measuring the number of acres I get at the number of tons per acre.

Mr. Ford — Can you tell how much in weight a cow will eat in a day?

Mr. Lindsey — A bushel basket in the morning and another in the evening. I never weighed a basket.

Mr. Ford — How many cows are you feeding?

Mr. Lindsey — About thirty milch cows, and the balance are yearlings and two-year-olds; about fifty head.

Mr. Ford — How many tons do you estimate they have eaten so far?

Mr. Lindsey — About eighty or ninety tons so far according to my estimate.

Mr. Ford — About two tons a head?

Mr. Lindsey — Not quite.

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## THE AMERICAN FARMER.

By PROF. W. J. BURBANK, Lake Mills.

There is no class of men in our whole land more influential and powerful than the farmers. Ours is essentially an agricultural country, with every variety of soil and climate, and the men who till that soil, causing it to bring forth the wealth which makes the nation rich and the people prosperous, are a power in the land whose influence for good or evil must be and will be felt throughout its borders. Being so, it becomes you like men to learn how that influence and power can be

best exercised for your own good and for the good of your fellow-men. Laborious though it may be, there is no work more noble than that performed by the enlightened and educated farmer, who with well-trained mind and industrious hand, draws from the vast and inexhaustible fields which lie around, the abundant treasures of nature. I say the educated and enlightened farmer — he who in all that a farmer and a man should be — is as far above the clod-hoppers of other lands as is a thorough-bred above a cart-horse. Education does not lift a man above labor — it lifts up labor to the man. Honest labor, even though performed in ignorance, is respectable always, and nowhere so much so as in this country. Yet mere human drudgery — hand work, brain idleness — differs but little from the work done by the machine, which cannot think, or the beast of burden, which can only feel. When, however, intellect and muscle work together, when the heart throbs and the brain plans and the hand toils, then, indeed, there is a long pull, a strong pull and a pull altogether, and the farmer, clothed in all the attributes of manhood, is lifted to the full dignity of his calling. Then labor becomes a blessing, not a curse. I think one of the good effects of your agricultural conventions and farmers' institutes is to make you partially realize and appreciate this truth. I do not believe, however, it is yet half understood, for outside a limited circle and area progress has not been rapid and marked. There has, however, been some change for the better.

The time was, and not long ago, when the farmer would cling with blind prejudice to all the imperfections of the past as if progress were the natural enemy to prosperity. He looked with mingled feelings of pity and contempt upon his energetic, but as he thought, visionary neighbor, who was willing to avail himself of all discoveries of science and the improvements devised by inventive genius. New fangled notions, as he called them, did no good to the farm or its owner. His ancestors were wise enough for him. He did not care to know any more than his grandfather did, and so he plodded on sowing his seed, which, by God's blessing, would grow, and reaping in due time scanty harvests which he fondly believed could not be improved. He cared noth-



ing for books. He would not read essays or journals devoted to agriculture. He denied to his children all opportunities to acquire knowledge, save those afforded during a brief winter season in a miserable school-house where some half paid teacher who "boarded around" would teach the boys to read and write and cipher, and begrudge the paltry tax which he had to pay for that. But a new light has dawned upon the farmers of America—the light of a larger knowledge and of a sounder sense. The example set by a few enterprising, intelligent men of few professions are followed by hundreds and thousands all over, and the farmers begin to feel that they are not only the laboring but the thinking men of the land. Every man has his use, and a lesson may be learned from almost any incident of every-day life. I have too often heard the hard working farmer who rose at the break of day and worked with his own hands till the sun went down, laugh at the "gentleman farmer," as he called him, who did no hard work and spent his money, as was said, like a fool in trying some new inventions and making new experiments. But a man may learn even from fools, especially such wise fools as some of these gentlemen farmers. Whilst residing in the eastern part of the state of New York I had the pleasure of forming the acquaintance of one of these "gentlemen farmers" whose farm was located near the Hudson river. His broad acres lay all around him in lawns and meadows or in rich fields of grain. His barns were costly and beautiful. His home was not the plain farm house, but the elegant mansion filled with all that money could buy—books and pictures and statuary. His library was stored with works full of agricultural learning. He had the finest breed of cattle and horses, and every improvement which was practical in agricultural machinery could be found upon his land. He had a passion for farming and did not despise anything because it was new.

It is true he found his work pretty expensive and his accounts did not always show a balance on the right side. Once when visited by some friends, after showing them all the beauties of the place, he said, quietly: "Now let me offer you some refreshments; will you take champagne or milk; I have both, and they have cost me about the same

per quart." It was doubtless true the farm brought to him no pecuniary profit, but he had his enjoyment and it served his purpose. He showed to practical and prudent men around him who looked upon his fine fields and blooded stock, his improvements in drainage in making compost and using manures, his well-built barns and his agricultural implements, that in imitating him in what was wise and avoiding what was useless and extravagant, they could have all that was valuable, if they would only make the effort on a smaller scale, indeed in abundance, and using the means he used, as prudent working farmers know how to do, they could realize from them not only the pleasure of the possession, but the pecuniary profit as well. The practical idea which I wish to impress upon your minds is that you should as farmers, with great responsibility resting on you, neglect no opportunity of acquiring information and avail yourselves as far as possible of every instrument and means of progress and improvement which offers. Every farmer's house should contain a small collection of books — books to be read, not merely looked at. An agricultural and scientific journal should be in every farmer's hands. You have no right to shut your eyes to the progress of the age in which you live and to the discoveries of modern science; you have no right to remain in ignorance of the great changes going on around you so long as opportunities for learning about them are within the reach of every one of you; you have no right to limit your reading to the market reports which tells you the price of wheat and rye, and of apples and potatoes. God made you intelligent men, with power to reason and to be heard, and in this great land of ours where you farmers can, as I have said, exercise so much influence for the good or for the evil, you have no right to let your powers lie dormant and be content with standing still, while men all around you are marching on with the great army of intelligence and progress.

I do not underestimate the great advance which the farming interests of the country generally have made, but this idea of educated labor has not taken hold of their minds and hearts as it should do. Why is it that in many portions of our country in our farming districts the building which ap-

pears to be the most neglected and least respected is the district school house? How often do we see it standing by some roadside where the land is the poorest and cheapest, a single story frame building. The hinges on the door are broken. The cheap red paint which once covered its sides is washed away by the storms of many years. Its small windows are shattered. Its timbers are rotten. No grass grows around it. No shrub protects it from the noonday sun. Its furniture is poor and shabby. It is the meanest thing in the neighborhood except the spirit which allows it to remain neglected. There is no cheer within it and I fear too often little good comes from it. It looks less respectable than the shelter provided for the cattle on the farm, and the boys and girls who gather within it seem to be less cared for than the beast that perisheth. The poor school master living on starvation wages, cannot be expected to do much for the education of children whose parents care so little what they learn or from whom they learn it, and the children feel as they ought to feel, that a place that has so few attractions is no place for them. These things may not be so in our surrounding, but they are so too often elsewhere. The farmers of America have a solemn duty to discharge to their children, to their own consciences and their country. Let them see to it that the school houses everywhere shall be cared for and protected; that the school teacher shall be encouraged and sustained in what is useful; that the district's libraries shall be established, increased and maintained. They must remember that the education of their children is not attained when they can read, and write, and cipher through the rule of three. Let them not forget the world of thought has moved forward since they were boys, and now if they are too old to catch up, their children must not be behind in the race. The farmers of America are far in advance of the farmers of Europe in the comforts of home and fireside. There the great landed proprietors enjoy the comforts and luxuries of life, but the smaller ones and tenants, and those who labor on the land have few of either. Here the farmer, who generally owns his farm, and does not live as tenants, everywhere has at hand the opportunities to make home attractive. Many, very many indeed, neglect

them. Why should any choose, as some do, the poorest and lowest lot for the site of the dwelling house; why should rank weeds fill the door yard; why should the front door be closed and the "best room" be shut almost every day against the light of the morning sun and the cheerful blaze of the evening fire.

Why should any farmer's shelves be strangers to books, and why should the melody of music not be heard within their walls? These things should not be, but they, too, are. Life at the best is short. Let it be made, therefore, as cheerful and pleasant as is consistent with the faithful discharge of its duties. When you can, oh good farmers, choose some pleasant site for your dwellings overlooking the surrounding beauties of nature and let their contemplations inspire you with gratitude to God. Let the rose and the creeping vine and the honey suckle bloom about your home. Let the light and warmth of the blessed sun drive out of all your rooms the musty damp with which closed doors and windows will taint them. Put upon your shelves a few well-selected books, not agricultural ones, choose the best histories, biographies and some good works which, while they will amuse your children, will create an interest for other and more instructive reading. Give to your daughters the chance to learn some accomplishment which will relieve the drudgery of daily life, and let the melody of music fill your house. Give to your hired men the comforts of a home, and do not let them feel that they are less cared for than the beast whose natural masters they are. Do any of you say all these things tend to luxury, idleness or vanity, that the boys and girls and men will be above their work, and be less fitted for their daily toil? Do you think your farms will be less productive because your houses are made more attractive? I tell you *no!* No man or woman is ever made worse by having home rendered pleasant. The love of home is a holy love. It keeps many men and women pure amid all temptations of this world, and the wise, thoughtful parent who would see his children happy will study to make their home the most blessed spot on earth. There is no reason why the farmers' houses and lands should be a place of toil and care only.

There is no reason why himself or wife and son and daughter should drudge forever and have less than others of the joys of life. On the contrary, God has surrounded you with more sources of joy and of comfort and true luxury than are given to your fellow man. No money can buy what you always have at hand of these things. Sunshine and fresh air for the want of which the dwellers in cities pine, are to you daily gifts. The flavor of new cream, the taste of freshly gathered fruits — no foreign wines or spices can equal them in deliciousness. These alone you can fully enjoy, for be as careful as you may, every mile of transportation to market takes off more and more of delicate flavors. It seems as if God intended that the choice luxuries of nature should be enjoyed in full perfection only by those whose hands contribute to their production. It is the tendency of us all to overlook the sources of enjoyment which are every day at hand and to think that greater pleasures are to be found in enjoyments further from our reach. My advice to farmers, as to other classes of men is that, to cultivate an appreciation of the good things they have at hand and make the most of these first, before they indulge in longing after the fancied enjoyments to be found elsewhere.

One of the most deplorable evils of the times is the craving of the young men of our country to exchange the freedom and independence of the farm for the exciting, busy, tumultuous yet slaved life of great cities. The life they lead at home is one of labor with apparently small rewards. It is thought to be a life of mere drudgery and toil from the rising to the setting of the sun, with but little of anything to relieve its weariness and monotony. The young man feels that he is but a laborer on his father's land, having no ownership or interest in it, and no hope of any until that father lies beneath the sod. He hears much said about the independence of the farmer's life, but that kind of independence he does not understand nor appreciate. He asks himself the question, "In what do I differ from my father's hired servants?" and finds no satisfactory answer. He looks into the long streets of a great city, lighted as they are by a thousand false lights, and he is attracted by their splendor, for he thinks it real. He hears how lawyers, and bankers, and

merchants and manufacturers grow great and rich, and how their sons share in their prosperity and in the luxuries and comforts which it brings. He is told how the man of business, professional and mercantile, educates and trains his children, and how, when they come to man's estate, they are made partners, or given an interest in profits which they help to make." He says: "Upon my father's farm I have no interest nor can have any until he is dead." He hears of the great and wonderful riches which men sometimes accumulate so rapidly in the channels of trade. And as he watches the slow course of the seasons and the gradual ripening of the harvest, and the uncertain progress his father makes, despite all his labor, in getting rich, he envies the man of the town, of whose dangers and anxieties, sorrows and risks, difficulties and failures he has heard but little, and he longs to throw off what he considers the slavish dependence of the farm life, and exchange it for the freedom of the city. There is just enough of real substance in his complaint to justify his discontent, and just enough glare in these prospects which invite him, to dazzle his eyes.

This desire for a change cannot be eradicated but can be lessened somewhat. I ask you old men are you not somewhat to blame? Have you not forgotten the passions and ambitions of youth? And having forgotten them are you not inclined to say that, "what is good enough for the old man should satisfy the boys." If any of you have a worthy son who has toiled for years and has been faithful to you, yet who longs for this change from the country to the city life, are you not a little in the fault? Suppose you do as the lawyer or banker or merchant does, make your son your partner in business, give him an interest in the profits of the farm, let him feel that he is the owner of land. Those who work other people's land, either as laborers or tenants, never can feel the spirit, the ambition and the energy which dwell in the breast of the owners of the soil. You who think that you can make the young men of America, high spirited as they are, satisfied, even though they be your sons, by keeping them on your farms in any dependent position, are mistaken. They must be made to realize that fidelity in your service will earn its just reward as like fidelity in other

stations. When you do them justice you may hope to find them contented. While I speak thus to the fathers, I wish the young men to listen. You desire to change your country life for a life in the city. Think well before you act. The road before you is not so smooth and pleasant as it looks. Some seek clerkship in public offices. To those I say in words of earnest warning, never surrender the comforts of your home and the certain independence of your vocation for the petty salary you can earn in an official station. The man who is dependent on an official salary for support becomes a slave of party. He holds his place by an uncertain tenure. He hardly has a chance for advancement. He dwarfs his intellect, too often belittles his manhood, and becomes the most dependent of all dependents; and in the course of time changes come, he finds himself without occupation and without means.

He is thrown upon the road without a trade or a profession. His place upon the farm is supplied by others or if it be not, he can no longer labor for he has become unused to toil. He is but little better than a beggar for he has not the means to live or an occupation which can procure for him subsistence. To those who would give up the farmer's life for the uncertainties of trade in great cities, let me say you should carefully calculate the chances of success before you act. If you have a talent for trade and no taste for your country life, then take your chances amid the great struggling multitude. But recollect that in mercantile pursuits where one man succeeds many fail. The great ocean of trade and commerce is filled with wrecks. A few of those who embark upon it reach the haven where they would be, and to the innumerable hosts that sink in its turbulent waters, but little aid is tendered and but little sympathy extended. You from your country homes, looking upon this great mercantile ocean, see none of the many who have been engulfed within it. Rejoice that you are free from the perils to which they were exposed. None who own and till the soil with intelligence fail to win, if they labor industriously to achieve it, an independent livelihood and an honorable success. The crop may fail, the land may be parched, blight and disease may attack your cattle and your flocks, but for one season

of misfortune there will be many of abundance and prosperity. The providence of God may send you sometimes temporary disaster, but you can hardly be utterly ruined as the merchant can by the folly and treachery of men.

Envy not the smartly dressed clerk, nor even his rich employer, surrounded by the splendor of city life. The brightness of the outside wrappings is not always a guaranty that there is cheerfulness and peace of mind within. Many of these men may more justly envy you your sound sleep, of which their over-anxious and overworked brains so frequently deprive them. The life and the condition of the American farmer are not what they were a century ago. Everything has tended to lighten his burden, and to add to his comfort, his independence and power. While he has been plowing and reaping, the inventive genius of man has been at work to lighten the labor of his hands. To recount the inventions of the last fifty years would be to tell the story of amazing progress. But I shall not undertake the task to-day; time forbids. Within the last year more than 25,000 applications for new patents have been filed in the department at Washington, and about 17,000 have been issued, of which two-fifths are for the benefit of the farmer, either direct or indirect. A few of the leading machines for the farmer I will mention, to-wit: plows, 175; harrows, 75; grain drills, 25; cultivators, 100; harvesters, 100; mowers, 25; reapers, 12; planters, 125, etc. Time will not allow us to complete the list. One moment, I had almost forgotten to mention the receipts at the office, which were about \$900,000, which is about \$100,000 excess over the receipts for the previous year. The false idea that labor-saving machines were the manufactured enemies of the laboring men of a country, has been exploded. All the inventions of the age have not diminished the demand for farm labor in America. The cry is still for more, and from the lands across the sea hardy men are coming to meet the demand and supply the want. Mind and muscle thus work together to develop our vast extent of territory and make us the greatest producing country in the world. Home and foreign markets are of easy access. At home, great lines of *railroads* and water communications give to the most distant sections advantages



which a few years ago were hardly dreamed of. Upon lakes and canals the rich and abundant harvests are bound on to the great central markets, and competing railways, with reduced charges for freight, bring to the same markets their great loads of the produce of the far west.

Almost before the din and bustle of the late civil conflict were over, the Pacific and Atlantic were linked together by an energy almost unparalleled, and passengers and freight are now hurried across the continent in less time than was required some years ago to transport men from Albany to New York. The nations of Europe also offer to us their markets. The sailing vessels upon the ocean, struggling against adverse winds, have to a great extent given place to the advancing power of steam, and the cargoes of wheat, corn and other products of your farms rapidly find their way across the seas. As the immigration of Europe diminishes her productive power and increases ours, so also it increases and will increase her demand for what we produce. The southern people of whom it was said before the war, did not know frugality, and were more extravagant than the north, have in their adversity learned economy and are now applying themselves with an energy to the work of repairing damages and getting rich. The crop of cotton for the last year is estimated to bring \$280,266,240 in gold, which tells us what they are doing in adding to the wealth of this country. Just as soon as the jealousies and strife of sections shall pass away, just as soon as proper relations between labor and capital and protection to all men shall be perfectly adjusted, then the southern states will rise to a condition of prosperity such as they never knew before and will stand side by side with the most favored of their northern sisters. Our country, notwithstanding the great debt which rests upon it, can not fail to grow rich and prosperous if our people will be economical. The extravagance of the age in which we live must be checked, or with the corruption and demoralization which attend it, will come disaster and distress. There is no estate so large that a spendthrift cannot exhaust. There is no people so powerful that extravagance and corruption cannot destroy. Our exports of the great staples will bring neither national nor individual wealth if they go only to pay

for luxuries which enervate and corrupt. Far be it from me to deny to any man or woman the enjoyment of anything which contributes to his or her peace and happiness. But the nation is in debt to the amount of about \$2,120,415,370. What the nation owes the people owe, and what the people owe, each individual owes, for we are sureties for each other. Bondmen indeed? And who is so much a bondman as the debtor?

There is no way to get out of debt but one, either for a nation or for individuals. A man cannot pay his debts by giving his note, nor can a nation pay its obligations by the issue of irredeemable paper. There is but one standard of value and that has been fixed by the common consent of the world, and by that standard must all debtors ultimately be judged. As no quack remedies can remove deep-seated disease, so no ingeniously devised financial schemes can point out any but one way to pay a nation's debts. Where a man has violated the laws of health and finds his system broken and his physical powers weakened, there is no medical specific which can save him. He must nurse his exhausted energies. He must economize his wasted strength. He must develop as best he can his physical powers. So it is with our country which has been called upon for profuse expenditures. It has within it elements of strength and the means to meet all obligations full and fairly if it will, but it must diminish its expenses. It must stop waste and develop all its resources. It must labor in earnest and economize in earnest.

If a farmer owes \$1,000, the payment of which is secured by a mortgage, he can pay if he will, by his labor and out of his land. If he neglects his farm, if he and his sons and daughters are extravagant and wasteful, if family discord destroys the peace of home, if a reckless disposition characterizes his life, he will add to his obligations and will not pay his debt. So with the nation. The labor of the country and the great area of its territory upon which the whole national indebtedness is a lien, can sustain the credit of the government and pay its obligations. But if strife, discord and contention shall prevail among them, if passion and folly, instead of judgment and good sense shall control

them, if hatred rather than love of one another, and of their common country moves them, then their national honor will be imperiled. I see but one way to pay the national debt, and it is this: A union of people and of states, a hearty joining together of all sections in the common cause of developing all of our various resources, and sustaining all of our industrial pursuits, and being governed by prudence, retrenchment and economy, and granting equal protection to all classes of industrial citizens. Increase your earnings and diminish your expenses. Save when you can. Spend only when you must and let the world know and see that yours and the national debt will be paid. If the people are extravagant the government will be. The stream cannot rise higher than its source. The representative will not be any better than those he represents. Other people have sunk under the crushing weight of individual and general extravagance and folly. Let us take warning by their examples, and in doing so avoid their fate.

And now, my friends, a parting word. You have a noble occupation and great duties and responsibilities. You ought to strive to model your lives after the highest human standard. Shall I describe to you the model American farmer? The practical man will say the sketch is a fancy, and well enough in books and pictures, but too poetical and fine-drawn for the corn field and meadow. Yet in every picture, however highly colored, we may find some features worthy of being copied and preserved. The model American farmer has his calling and appreciates the good and beautiful things by which he is surrounded. The snow-clad field of winter, the soft verdure of spring, the ripe wealth of summer and the glory of autumn are as dear to him as they are familiar. The noise of the running brooks and the dripping of the fertilizing rains are music to his ear. The whisperings of the great forest trees are sweet to him. His eyes are trained to note the changeful phases of the sky, and his mind is quick to interpret them. The hum of busy trade does not bewilder him, nor the glare of the distant city dazzle him — his heart is full of a comprehensive love of nature and he is content to work on with her in her own calm and deliberate method of working. He is honest, patient, industrious and

thrifty. Nature does not cheat him of his just rewards, nor does he shirk his share of duty in the universe. Every day imposes on him its daily labor; but he knows that every season will vary his work and so relieve and refresh him. The gifts which he received from nature's hand he is ready to mite out again with no niggard hand. He is cheerful, hospitable, kind-hearted. Friendly intercourse with his neighbors lightens his toil, takes from the sharpness of temporary adversity and adds to the pleasure of his prosperity. He has entire respect for his calling and for himself, and feels that he has full play in his occupation for brain and muscle and need not overwork either, although the mouths to be fed are too many and the process of nature too slow to admit of indolence and waste. The buildings which shelter his family and those which protect the cattle, who contribute to his support, are in good repair and cleanly without ostentation. He is kind in his treatment to the dumb beasts who are his submissive servants, nor does he begrudge a little fruit or grain to the birds of the air who help him in his warfare with insects and many of whom cheer his life with their songs. He opens his eyes to the sunny side of life and seeks not out its dark spots as an incentive to grumbling. If sickness or other misfortune befall a neighbor he is ready with sympathy, with active aid to the extent of his ability, and in turn counts on his neighbor's help should he need it. He is patriotic, a firm friend of liberty, of order, of law. He glories in the grandeur and power of his country, and is content to contribute in his quiet life to the general good, by making himself and those around him good, honest, faithful men and women. He is religious, living always in the light of the *Creator's* beautiful works; his heart expands daily in thankfulness for the many pleasures which *God* has given him free of cost, and he shows his gratitude in his daily life. Contented, yet desirous of improving his condition, too proud of his independent lot to envy others who may be clothed in gaudier trappings, yet kind to every man and submissive before *God*; saving from a sense of duty and not from avarice, faithful and loving to his family, honest and frank in all his dealings, thankful that so few temptations surround him, yet watch-

ful against evil, truckling to no man, yet scorning none, not given to grumbling at the weather, but greeting cheerfully alike the sunshine and the rain, earnest in his political duties, a lover of nature, a lover of mankind, and lover of *God*. Thus my friends you have my model of the American farmer.

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### HIGHLY BRED AMERICAN TROTTING STOCK.

By RANDOLPH HUNTINGTON.

*To the Farmers and Breeders of Wisconsin, Greeting:* By invitation of your secretary and officers, I herewith present to you a paper upon the "Highly Bred American Trotting Stock," and "pedigrees," as looked at through my glasses.

Truly your obedient servant,

RANDOLPH HUNTINGTON.

ROCHESTER, N. Y., February 1, 1883.

I have long felt that breeding in all domestic animal life should, with vegetable and floral existence, be classed under the head of science. And when I remember that I am writing from Rochester, Monroe county, New York state, and think of our great University of learning, with its special large halls, filled as a museum, unequalled in its comprehensiveness, representing the science world, by skeletons of all manner of animals, whose home was on the land, in the sea, or in the air, mounted as they were in Professor Henry A. Ward's renowned natural science establishments (adjacent to these stately university buildings), by old and experienced workmen from the most skilled establishments of the old world, who will tell you those bones for all time in their experience, and in the experiences of their preceptors, as far back as osteology and zoölogy became a science with man, were identically the same, representing in each structure its type, from the foundation of the world; and interested as I once was in the theorizing writings of Darwin, Huxley, and Tyndall, I am constrained to quote from the graduate, who, thinking to impart valuable information to his old father, informed him "that it was now an undisputed fact, according to Darwin, that man descended from the monkey." The old gentleman

(who was a sterling farmer) listened to his son with amazement for a few moments, then at last replied, "Well, my son, if your father was a monkey, mine warn't." Or, better still, I quote Talmage's reply to the theorizing evolutionists: "Their fathers may have been baboons, but his Father was God."

Speaking of Ward's Science Shops, we will also speak of the Professor himself; who as an enthusiastic student in sciences all his life, has traveled through and over every part of America and Europe in diligent research; extensively into Asia and Africa, through Egypt, Arabia, and Abyssinia, and unfrequented isles of the sea: and at last, with the honors of "A. M." resting upon his head, continued crossing and re-crossing the ocean yearly in the interests of osteology, zoölogy, mineralogy and geology; collecting, assorting and identifying, until Smithsonian Institute at Washington, D. C., Agassiz's Museum of Comparative Zoölogy at Cambridge, Mass., the Yale College Museum, old Princeton of New Jersey, and the State National History Museum, the Cornell University, and indeed all the leading institutions of learning throughout our land and other lands, even to Japan, put these same scientific establishments with Professor Ward himself, under contribution; while objects of minor importance, yet interesting in their history or associations, are prepared and set up in these same science buildings, interesting and informing the young and the old of to-day, and in days to come, in every city in the country. Even your own beautiful city of Madison can testify of these establishments as it looks with historic pride and pleasure upon the skeleton of the triumphant war horse which bore the conqueror, Sherman from Atlanta to the sea, during the greatest civil strife a century has witnessed. Yes, "Tecumseh's" skeleton, that stands so imposingly in the museum of the University of Wisconsin, at Madison, was mounted here. Then in the Smithsonian Institute, at Washington, *side by side* upon the same pedestal, stand the skeletons of the great race horse progenitor "Lexington," and old "Henry Clay," the only positively reproducing type of the famous "American Trotting Horse," both being prepared and mounted here.

In these science workshops, the skilled artist and workman will point you out the mounted frames of the running, the jumping, pacing and trotting formations, each true to its type in living families.

Here also, the student can learn that no ring-bone or bone spavin ever was or ever can be cured; and that neither is necessarily hereditary, nor is blindness hereditary. But boldly as these branches of science buildings stare at me through my window, the great "Rochester Academy of Science," comprehensive in its whole, but divided and subdivided into branches, with their weekly lectures and teaching, for all so inclined, from youth to old age (for there are those not too young or too old for mental culture), puts me still more in a state of timidity.

Again, that imposing astronomical observatory, with its immense telescopes erected, equipped, and donated to the science by H. H. Warner, Esq., but under the supervision and management of our famous Dr. Swift. Next come our horticultural artists, with their frequent meetings in the scientific interests of our farmers and patrons of husbandry, from near and far. And our nurserymen, too, with their nurseries in fruit and ornamental shrubbery, the largest in the world. Also our late James Vick, through whose enthusiasm and untiring industry, floral seeds pay tribute to his name and enterprise in all the cultured and enlightened cities of the world, of all nations and all tongues; who in departing left his mantle upon his sons. So the good work continues here.

Of Sibley's immense seed warehouses, sending as they do to all parts of our country, and into other lands, garden, vegetable and farming seeds, each true to its kind and full of vitality. Science extends itself to everything here in Rochester; even our Genesee Falls, for a century only a pleasure spot for a "Sam" Patch for suicidal experiment, or an object of interest to wonder seekers, is now through science in hydraulics, made to give power of great value to this city and to the land, controlled in its power, and scientifically managed as it is, by the Rochester Hydraulic Company, through great lengths of shafting, driving machinery long

distances away, stimulating large manufacturing interests, lighting the city with electricity, and laughing at steam. Science also in Rochester has aided photography through Dry Plates for its work, unequaled elsewhere in the world.

Then come our frequent meetings of wool growers; bringing men from all parts interested in sheep husbandry, for interchange of thought and experiences, comparing progress in the breeding and growing of sheep for mutton or wool, with no *slang or slander* as to who has the best buck or the best ewe, but engage in sensible talk with an eye to scientific progress.

All these shining marks in progress are in my mind, here and about me, in this the beautiful city of my home. Can I do justice to the subject you have handed me, and the enlightened community of which I am a member?

Can I send out thoughts of fact in breeding, in a manner that will be of interest and advantage to the intelligent farming community of our sister states in the west, peopled as they are with our own people, taking with them as they did our experiences, and improving upon them as with their intelligence they do in all new countries, the settling of which invariably draws upon the mental activity and resources of progress in man? I must not forget that "Westward, the star of empire takes its way," and yet from the east do not the Orientals bring us new and advanced ideas in art, learning, and floriculture?

Through interchange of experiences progress is developed; and as all men in different countries do not have the same experiences from which to observe and note down facts of importance associated with same occupation, this interchange of thought with information becomes man's great school.

In writing upon the problem of breeding the American trotting horse, I can but state my experiences and observations of many years.

I cannot take the masses of so-called breeders of horses, and deal out to them sweet words of comfort or sympathy characterized with conservatism, lest I hurt some man's "pet theory;" nor would I stir up babble conversations and writings which do no good, but are a harm to the cause, and



an injury to man; frequently shutting up or silencing men who otherwise could and would impart valuable information.

A man's wife and even his children can be censured and criticised without engendering widespread bitterness; but let any man so deal out opinions relating to another's horse, or horses, and a wickedness of feeling is at once engendered, unequaled in any other cause, which journalism well understands and takes advantage of for money. Any man can praise up what he may term a "breed" of horses, and be justified by those in sympathy; for every so-called "breed" has its representative horse as an illustrative evidence of its superiority; as from the Bible an adventurer can manufacture any kind of religion, faith, creed, or sect, and find advocates.

The building of the Tower of Babel did not present more confusion than does the trotting-horse breeding question of to-day. Men talk of crossing the hot blood on to the cold; of the cold blood on to the hot, who cannot explain to you what cold blood is, or what constitutes hot blood. Others will talk of crossing this breed with that breed; and of crossing this way and that way, without any idea of what constitutes breed, who do not know what crossing means any way; but will sit down and write nonsense for some sporting paper claiming to be a breeder's journal, and the journal publishes it as matter; while the weak theorizer at once fancies himself an oracle on breeding, when a scientific study of "breeds" and breeding of families (of which there are next to none in horses), in their mental and physical affinities or adaptabilities, never entered their heads as *the* great question to be considered. The truth is, that through amateur crossing, hybridism and mongrelism run rampant through the country. But to your subject:

"THE HIGHLY BRED AMERICAN TROTTING HORSE."

Permit me to reply, or state, that in my opinion there is no such thing, except of fashion's *name on paper*. And why, you ask? Because that to date we have not understood the first or prime necessity of elimination and concentration into families for a root, (so to speak in a horticultural sense) upon which to graft our theories, if, indeed there is anything

to be gained from these theories; indeed we have not understood how to breed, or appreciated the necessity as students; and even those few who have faithfully and honorably endeavored to intensify the trotting instinct and capacity of their horses, have failed for want of practically investigating the fundamental principle or root; hence have not bred intelligently, but *prejudicatively* with fashion's name.

Every known science under the sun has had its diligent, untiring, enthusiastic student, in animal and vegetable life, excepting the grandest of all domestic animals, the horse; in which latter case we have been wrapped up in preconceived opinions, advanced by theorizers in the books and papers we have read, and through the talks of fashion's votaries, or "tabulated time records," with no base except the cash account that had produced them. We have, in short, bred *down to theories with no base*, except the money-created time tables, and have not had the courage to give freedom to what many of us have, in our minds, been convinced was error. Aside from this, the great portion of horse breeders have had only a single purpose in view — that of getting a speedy trotter, no matter how or at what cost, so long as an excitement could be created, bringing demand with prompt monetary returns for the refuse encumbrances, aside from the one or two expensive trotters we have succeeded in creating; and thus it has happened that there are so-called trotting families without number, with only here and there a trotter, and theorizers or novitiates console themselves and their admirers with the cheering words that "*there are trotters in all families*," advising an increase of hybridism, crying aloud to all the world, see "the great 'American trotter!'"

We have in our years of practical writings demonstrated, we think, that all animal and vegetable life has its positive type; and when we breed away from that, the produce loses strength in its peculiar characteristics, if indeed it had any, in its original family. This is why we have plead so hard and so decidedly for the highly bred American Clay trotting horse; the only one in our experience, that, to this date has the right to bear the name, inasmuch as it

trots upon its own blood, and makes other blood famous that can not trot without it.

It has long been an axiom with old-fashioned breeders that crossing produces strength; but careful investigation of the subject proves that crosses cause abnormal developments; and where you fancy you have gained strength, it has only been at great loss in nervous vitality, or a detriment to more important details of characteristics, family requisites, and so on to the end of the chapter, except some mongrel cross shall, by accident, "sport back" to the fountain life (termed atavism) to stimulate the incipient breeder to renewed energy in crosses and mongrelism.

In-breeding of polygamous families (as all know who are familiar with my writings these twenty-five years past), has been my *point de resistance*; and when we have a high type to begin with, strong in all the most desired points, as in the original Clay horse, we then breed it to itself, and find rapid, favorable development; and it then rests entirely with the breeder, which shall, from his more superior breeding and managing gifts, produce the best or more valuable horse in the same family; as with the breeders of fine wool sheep, Jersey cattle, Percheron or Clydesdale horses, or even thoroughbred race horses; indeed the word thoroughbred includes all these families of animals named above.

I would not speak so emphatically, but that the Clay horse has, as I have said, these many times verified to the public my statements, despite abuse and slander heaped upon both the horse and his defender. Many are surprised that I am so bitter in my denunciation against the so-called Hambletonian family, and have abused me shamefully for presuming to speak the truth of what I know in the interests of breeding in general. While I as a man have been abused by men, I have retaliated upon no man; but stuck to my text, the *mis-named* and *mis-credited* horse, "Hambletonian" is "Abdallah;" a blood that was never of any value in itself, and I have implored that it might never be sent abroad as our representative "American Trotting Horse;" for it can in the end but prove like the "Yankee's nutmegs," a fraud with the uninterested but intelligent English breeders. While I have been abused in one sporting paper by

amateurs, over "nom de plumes," or blind initials, it is a pleasure that no breeder of experience and intelligence has ever in any way attacked me; on the contrary my desk is filled with letters from experienced men, very strongly endorsing the stand I have taken.

Now, we are aware that all have denounced Clay, and continue to do so, knowing nothing about it. For instance: one journalist, who has been writing editorially these several years past, of the "soft and quitting Clays," was heard to remark in the presence of gentlemen, upon being shown a stallion son of "Henry Clay," "Why, is that a Clay?" and being assured it was, exclaimed, "Well, I never saw one before." He was a fair sample of Clay abusers. This son of "Henry Clay" stood 16 hands high, weighed 1,300 pounds, was 18 years old, was never trained, and could draw a two-seated democrat wagon in 2:40, or make a "Percheron" at the plow think he was outdrawn to dead weight; or in the stud, get a coach horse or trotter as well as farm horse every time; and that, I say, is what the farmer needs to breed to.

But why am I bitter on the Hambletonian family, do you ask? For the very reason that it is *no family*; nor has it the foundation for merit which admirers of the *name* claim; indeed it is "the play of Hamlet, with Hamlet left out." The word Hambletonian represents a stolen name, and the largest bankrupt bank account of any one name known to man, representing a horse. Even had the name been legitimate, it has been so crossed, or hybridized, or mongrelized, there is little of the sluggish blood left to boast of in connection with the name; while the name itself represents thousands, upon thousands of broken bank accounts, with but one thing to its credit, and that is, the support of untold numbers of trainers, drivers, grooms and rubbers; the expensive building of private and public tracks, with encouraged Sabbath breaking (for there is no Sabbath in most trotting horse breeding establishments), and the support of numerous horse boot and toe weight manufacturing establishments; but in these latter, where mechanical industries are encouraged to

the support of mechanics, the name may be awarded some credit.

I am aware that there are a few of the best men in the land giving the "American Trotting Horse" problem deep study, which they find is necessary; but while unfortunately some are for gain, more are for pleasure, with only a few for scientific progress.

A good observer, of a thinking and practically studious nature, cannot but have seen that all trotters credited to the name "Hambletonian," were most unjustly so awarded; also that many credited to thoroughbred race horses proved, upon investigation, to have somewhere back a more just claim to lineage among the scouted cold bloods, which latter so-called cold bloods, upon investigation, proved to be of a far higher type of blood than any cross by or upon the thoroughbred race horse could possibly produce, thus too often overthrowing newspaper thoroughbred theorizers, as well as stove talk theory.

Right here, let me ask the intelligent farmer, what he can expect to get by crossing his great nice farm mare with a thoroughbred race horse stallion. Certainly not depth and breadth, with increased substance of body. On the contrary, a liability to flat ribs and wasp waist, with a nervous, fretful disposition. Certainly not better feet, for the thoroughbred race horse has a thin sole and very thin wall, with often a low heel; and to cross upon it, gives one liable to split, from an open grained wall, poor sole, and also the too often inherited low heel. Certainly not better knee action, for the thoroughbred race horse has no knee action. Certainly not great nice mane and tail (which coach horse buyers always want on coach horses), for the thoroughbred race horse has no mane and tail. Certainly not the deep body on short, stout legs, a build most desired in a coach horse and roadster, as well as the farmer's horse. On the contrary, crosses with the thoroughbred are most liable to long stilted legs, holding up light bodies. Certainly the farmers do not want vicious biting and kicking horses, which crosses with thoroughbreds do produce, together with a nervous, fretful temperament, which fails to carry the dinner with them very long at work.

I have seen the experiment tried over and over again these

many years past; the crossing of the thoroughbred race horse upon the farmer's mare; but invariably by lads or young men who have got their lesson to learn; which is failure ninety-nine times out of every hundred. As I have said, I have seen it tried too often, and to date have failed to see any produce the farmer wanted to keep, or a good dealer to buy at any price; then, too, the thoroughbred breeder or race horse man will tell you you have (in his parlance) only a "dunghill," (which word is used from custom, but is not applicable to any horse, while "mongrel" is, neither of which terms does the farmer wish applied to the horse he has bred and raised).

Now the question of this "Highly Bred American Trotting Horse" is up, and should be discussed freely by fair minded men; men firm as well as fair, remembering that conservatism never won a good battle on the field, or settled a scientific problem. Conservative grounds are no grounds. The merits and demerits of all breeds will be discussed only to find *we have no breeds and no families of horses*, except as we import the "Percheron" and "Clydesdale," also the English race horse.

These three representatives, as we import them, are all thoroughbred families, and breeds, which, to retain their import value, must be inbred with us, as they long have been in France, England and Scotland. All crosses by them are but mongrels, degenerating in each succeeding cross.

As for the "Highly Bred American Trotting Stock," I have explained that we have it only in *name* upon *paper*; or in verbal use from custom.

The field is open to any one of our great agricultural states like Wisconsin, with its climatic and terrestrial advantages, to create, name, and establish, with precedence over any other state that does not do so, a "Highly Bred American Trotting Stock" of horses, true to its name and instinct, as are the "Percheron" and "Clydesdale;" and this horse should be known as the Wisconsin farmer's coach, road, and farm horse of America; a type true to itself, and of itself; in short, an in-bred family; and this subject should be discussed with a catholic spirit of view. Such a discussion will prove that a first class coach horse can be a first

class trotter, always a good road horse, and for all time a first class farm horse.

Investigation will also prove that the horses of intermediate gaits, produce more naturally trotters. Such being the judgment, we must select the largest, deepest, broadest, and strongest possessing the qualities desired, breeding *in* and *in*, culling out the weeds from mongrelism, until we find the fountain head of the element wanted.

It will take time, but it can be done; and the fewer changes made in the use of stallions in the meantime, that have proved good, the speedier the work will progress.

Some men will tell you that you must begin upon a "time standard." Did any of our speedy horses begin on a time standard? But while such men talk about beginning on a "time standard" base, they will also cry out to you "like begets like," which is fallacy; a misnomer in that his bloods are all *crosses*; and neither he, nor any man can tell what cross will "sport" out. He may send you a stallion or mare which shall prove to be a "shoot from below the graft." What then? Has "like produced like" according to his "time standard" fallacy? Certainly not, but nature has been true to herself, and given you the "*blood*," although not the kind *you paid* for.

With all fancy breeders the pecuniary interest, with large capital involved, cripples their principle in a measure, and leads them astray from their better and more experienced judgment, in order to *unload*. They defend their stock (which they know to be a failure) for money; they insist upon defending through the papers and their friends, and both themselves and the papers make money by defending. Then worse than all, they have numberless toadies who rise up in their feeble way to sound their praises and that of the stock; content, by way of remuneration, with the smiles and crumbs that fall from the banquet tables, not knowing themselves what thoroughbred means, and still less about crosses; but who do know how to talk horse in the bar room, interlarded with free drinks and cigars, while around the warm stove their breeding lore is wonderful. Such men are a curse to the honest breeder and farmer, but make good *nom de plume*

contributors to sporting journals; never to the true breeding journals. The practical breeder ignores *nom de plume's*.

I have spoken of *in-breeding* and elimination to establish families; many will say close breeding is sure failure, although not so ridiculed as it was fifteen or twenty years ago when I harped upon it. May I ask such if the horse is not a polygamous animal? Do sheep and high bred cattle degenerate from close breeding? Do the birds of the air and beasts of the field degenerate from close breeding? But when man forces a violation of nature's laws with these birds and beasts, does he not in his majesty produce *a mule*? Does the Frenchman's "Percheron" or the "canny Scot's" "Clyde" degenerate from close breeding? Has the Arab's steed ever degenerated from close breeding? Crosses are the perpetuated blunders of the farmer for all time, whether in cattle, sheep, swine, or horses, although there are some exceptions; indeed the finest flock of sheep in the state of New York have been bred to themselves for over forty (40) years, and are better to-day than when started forty-five years since.

Long years since I concluded that the breeding of the American road or trotting horse would in the end devolve upon the American farmer; knowing, as we have said, that the first class coacher can be a first class road horse, which is at all times a first class farm horse; and in the farmer's hands is where he is most cheaply raised, and the farmer's work is where he is most thoroughly broken and tested at little or no expense, as the work from him pays expenses with a profit. If it be considered a science to breed, it is one more easily mastered by farmers than is the horticultural art.

All farmers can and do breed horses; but no farmer should make it a specialty, except he be gifted in that line.

It may seem useless so to speak to the practical farmer who from boyhood has bred hogs, sheep and cattle, also horses; and yet go among the farmer's boys and you will soon detect, that while one little fellow will by instinct become an expert judge of the different grades and families of sheep, not only in the carcass, but in the staple of wool another will instinctively take to the cattle, while a third



will be all horse; and yet *all* the boys take to colts, although there is only now and then one with the special instinctive genius for handling and breaking colts; such an one, if also an instinctive breeder, and of a cool, patient, but firm nature, withal a thinker, and able to hold his temper, can go on scientifically, and successfully breed and raise colts all his life, in no way detrimental to the more important farm callings. I am acquainted with many farmers who for years, and indeed all their lives, have bred and raised horses successfully; selling yearly to eastern buyers coach and road horses, of three or four years of age, at from \$300 to \$400 per head, only nicely halter broken and stable wise; but a head stall was put on the colt when (30) thirty days old, he always wearing it; so that it was halter broken without knowing it, and otherwise handled, treated with kindness and fed from a liberal hand, never frightened, but so handled without loss of time, that at 3 or 4 years old it was ready at thirty day's notice to go into the harness as a gentleman's coach horse; or from sixty day's handling, to a gentleman's road wagon. Such grown colts always go on and improve in good hands, and these old horse buyers know where to find them; they know these farmers breed *to blood* as a standard, and seldom indeed change the stallion they have used and proven.

Of all domestic animals on the farm the horse is the slowest to mature; hence a patient, cool, thinking, studiously-inclined, well balanced *temper* is very essential.

In hogs, sheep and cattle, satisfactory experiments can be speedily reached, with seldom a loss; for the shambles stand ready at all times to pay ready money for meat or pork; thus failures in such stock can be very quickly converted to money, stopping cost; and at no time are they absolute loss, which is not the case with experimental breeding of horses. But all breeding requires time in days, weeks, months, and years taken from a man's life-time; and should there not be mental gain, by which to stamp out *theory* from the boys?

In sheep it requires from six (6) to eight (8) years to test results of an experiment. In cattle eight (8) to ten (10), but in horses no conclusively satisfactory experiments can be made inside of fifteen to twenty years; yes, and I may add,

in the way things have been done, during, or in a man's life-time; and still the universal practice with many farmers is, change year after year in stallions, with no good reason; until our horses are the most mongrel lot of animals to be found upon the continent, if we except the street *cur* and barn-yard fowl.

Talk about crosses! Why, the horses of America are crossed to death, until large buyers and dealers keep agents scouring the entire country in search of pairs of coach or express horses, and road or work horses; and as for trotters, there were twenty fit for road purposes before the war, and the advent of theoretical breeders, where one is to be found now.

Of draught horses, the shrewd Frenchman and canny Scotchman understand their business thoroughly. They give us just as many "Percherons" and "Clydesdales" as we want to pay them for, and will tell us they are just what we want to *cross* upon our little American horses, to get great, nice horses. Can you get them to cross these families of horses? No, sir; they will not. Then why should we? If the "Percheron" and "Clydesdale" are what we want, cannot we in our great big country breed just as good "Percherons" and "Clydesdales" from our importations (once we have the blood) as they can? But no, the system of mongrel crossing seems so thoroughly established, and is so ignorantly advocated from many editorial chairs, that every breeder thinks he must *cross* something, in the way of horse-flesh, to get any kind of a horse. The French breeders and the English and Scotch breeders know crosses mean mongrels, and cannot our farmers understand it as well? While those European brethren understand this, they are not going to point it out to you. They want to continue to sell to you from their thoroughbred families. And it is the same with the thoroughbred race horse men. When their horses begin to break down, and are no longer of account to them, they will begin to tell you, and pay sporting papers to tell you, that the only way for you to get a coach horse, a road horse, or a trotter, is to buy his thoroughbred horses that cannot win anything, including the weeds (which are worse than worthless to him), and to cross them upon your good, nice farm

mares, which they call cold bloods, but they fail to put in these words: "By so doing you can breed dunghills of first water, which no man wants to buy."

The situation now is, the farmer must be induced to buy or pay tribute to "Percheron" stallions, and refuse thoroughbred stallions, in order to get a coacher or a trotter; and the papers are made to say "like begets like;" so our staid old farmer, believing what he reads in the papers (may heaven open his eyes), goes on to cross up with bloods no way akin, or of affinities physical or mental, and wonders it is such hard work to breed a good horse. Does not the saying that "like begets like" become in truth a misnomer of the worst kind, through such rambling efforts in breeding? None can detect this fallacy in crossing so quickly as the old experienced, legitimate, practical horse buyer.

You now ask me by what right I make all these statements? And I reply from a life-time spent as a practical experimental student in breeding for forty or more years, and as a legitimate buyer and dealer in coach and road horses for the New York and eastern markets.

Fifty years ago, in early boyhood, through the breeding of domestic pets, as fancy chickens, doves, rabbits, Guinea pigs, birds, dogs, and so on up, studying as I grew older, the experiments of the good old farmer with his pigs, sheep and cattle, to the horse, and later as an owner of many stallions for the farmer's use, I continued to learn.

And any man who will for a number of years keep stallions in a good large farming community, then follow up these stallions for results, critically inspecting the get of all other stallions besides his own, looking close to the kind and quality of mares in all cases; with all, buying year in and year out the horses from these farmers for market, finds a larger field for study and understanding than any breeder in America can upon his own farm, with his ideas necessarily wedded to his own stock. In shipping horses into the New York market, with a mind never at rest, I was continually at study.

The New York city market is the crucial test, where dealers come with the choicest possible selections, from the far

down east to the far west and the southwest; usually with stock in fine condition to show and sell for the biggest possible price.

Taking for myself the best possible to be found in my western New York country, without regard to cost, after repeatedly traveling over the best three or four counties in this great Genesee valley, I became familiar with all the types of our country in its different localities; at all times inquiring into the breedings of new stallions used, also mares bred, until I claim to have been well informed upon the horses of this, the garden portion of New York state; the central heart of the Genesee valley, embracing as it did the heart of the great Gorham and Holland purchases.

When in market I quietly, but thinkingly, compared my own choice selections with those of other dealers, not failing to inquire into the breeding of every man's horses; and while I may boast of never having been ashamed of western New York horses, in any of these yearly comparisons. I am sorry to say that not one dealer in ten could tell anything about how his horses were bred, until the moment of an anticipated sale, when they would be called of whatever "breed" the buyer was partial to, or the one that best pleased the market. And here is where the pedigree was made to be recorded, if it happened to be a mare sold, (good enough until discovered, but a lie established). I grew yearly more interested in my study of both horses and men; for in no vocation can one study the true character of men in general, as in the eastern market, dealing largely in choice horses for coach or road purposes. I had married into a family of Ontario county, of the Genesee country, whose ancestry dated with the earliest settlers of East Bloomfield and Bristol, and whose marital relations reached out in all directions, uniting the bloods of many of the first and best settlers, dating from 1786; so I made it my business years since to seek information from all old gentlemen and ladies, knowing they would soon be passed away, and dead men tell nothing.

The result is that my old diaries are filled with incidents and facts relating to the stocks of horses brought into this then wild country from Connecticut, Rhode Island, Long

Island, Massachusetts and eastern New York; and I can assure the reader there was a foundation for the good horses Western New York was for all time famous, and will be again when this "Abdallah" bubble is laid wide open. As I think of the class of pioneers who settled here, they were of New England's best. The Bronson's, the Gunn's, the Gooding's, the Coddling's, the Wilder's, and Adams, the Spragues, the Chapin's and Bacon's, and Eggleston's, and Kellogg's, and Taft's, and Pitts, the Rice's, and Porter's, the Brown's and Blackmer's, and Goss, and Hayes, the Hawley's, and Steele's, and Norton's, the Buel's, and Beach, and Emmons, the Hamlin's, and Mason's, and Fairchild's, and Reed's, and Bostwick's, the Bailey's, and Bradley's, and Newton's, and Shelton's, with the genteel old family physician Dr. Ralph Wilcox. It was a common saying that East Bloomfield alone could fill the legislative halls at Albany, with a body of men unequalled mentally and physically and in tone of character, by any western settlement this side of Albany.

All these old families of men in time contributed to my fund of information upon the horses brought in during their early days; and as I reflect, I am astonished at the quality and classes of horses; but the names I have mentioned in men bespoke everything of the best; and I am prone to say we have no such stock of horses in this day; and from these stocks, seed and seedlings were sent east and west. Dealers took them east, and as the boys pushed west into Ohio and Michigan, on to the Ohio river or out to the Mississippi river, they were supplied with Messenger and Morgan, crossed upon the Narragansett Pacers; for beginning with 1786, all these types were brought in male and female, which in so new a country necessitated *close breeding* of a few families, and thus with the intermediate gaits, the Bloomfield country of the great Genesee Valley, became famous for stage or coach horses (one and the same in those days), also horses for road and all work, in eastern cities, including way down east to "Bostontown." Two and two, hitched to cable rope, drove after drove of the best horses in the world went from Bloomfield, Ontario County, New York State.

And this locality sustained its reputation up to the breaking out of our late civil war, and here let me say, these old

men were from earliest days opposed to the thoroughbred race horse coming into that country; in fact were opposed to all extremes in breeding. When the late Thomas Weddle moved in there from Yorkshire, England, bringing in a ship chartered exclusively for his own implements, household and live stock: it was the winter of 1833. In horses, he had each of its kind, male and female; as the thoroughbred "Humphrey Clinker" with three mares, "Turk" the coacher, with three mares, and "Alfred," the "Cleveland Bay," with three mares.

Mr. Weddle found in three or four years there was no use for thoroughbreds there; so looking about, sold "Humphrey Clinker" and his three mares to Henry Clay, Jr., of Kentucky. "Turk" remained some years, but he had too much running blood in him, and went to Kentucky. "Alfred" remained longer, but went at last to Canada. It was "Messenger" or "Morgan" or the Narragansett Pacers that gave those early farmers the stuff in horses they wanted; either for the plow in the stiff new soil, to draw grain to market, or to go a distance with on the road; and that is what the Wisconsin farmers want. The first crosses by the "Cleveland Bay" pleased such as used it; but like all such extremes, the second and third crosses were uneven, with bad feet, and joints soft. "Sporting" back, or atavism took place in all mares with "Alfred" blood in them, which was not stamped out until William W. Wadsworth had brought in "Henry Clay."

As I have said, I was with my memory cap at all times on my head, interviewing the old men; and as I have stated that they necessarily inter-bred largely in those early days, it in no way injured their horses; but did intensify the *better* qualities, even in the best they had; so that in young stallions they frequently, as far back as 1825, duplicated the names of these renowned horses, sending into Ohio a "Blucher," a "Duroc," and "Flying Duroc," a "Lyon," and "Grand Lyon;" all bred in East Bloomfield, of intermediate gaits; but in their western homes, to perpetuate the names in theoretical history *as thoroughbreds*.

## CLOSE BREEDING.

As I have remarked, in my early days I was by instinct, an experimental breeder of domestic pets, and you know lads learn quickly. I learned that if I wanted Maltese rabbits I must breed a Maltese doe to a Maltese buck; or if lop ears, I must breed a lop eared doe to a lop eared buck; and so if I wanted Angolas, I must do the same, breed an Angola doe to an Angola buck, all of which I bred for years. So, also, with doves and pigeons. The fantails must both be thoroughbred fantails; so, also, with my black and tan dogs, and my Scotch and Skye terriers, or the pointer or the setter, each must be true to its type, male and female, and somehow crosses never worked to my satisfaction; they did not wear well to the eye as they matured.

In the *game* fowl it was the height of folly to make the slightest change, and in them I learned when I had a good thing to keep it so.

On the question of *game* fowls I could write a history by itself; for did I not, as an exhibitor at the "New York State Poultry Show," for three years in succession, take the first premiums on all my entries of high types, competing against all England, Ireland, Canada and the United States? Then, after I ceased to exhibit, for four years fowls bred and raised by me, but sold and shipped direct from my yards to exhibition rooms at Boston and Worcester, Massachusetts, and to state poultry exhibits, in the names of presidents and directors of other associations, as *their* importations or breedings, never failed to win *first* prizes; while in the pit, purchased by those who indulged in that sport, they won, or died game to a certainty.

Now game fowls are not horses, but the principle of *in*-breeding involves the same importance; and some of my best strains of game fowls have been *in*-bred since 1840, to my certain knowledge, and in no way failed in size, constitution or quality. *But*, after being so bred *in*, and so sustaining their superiority, from 1840 up to 1873, the very first cross made upon these fowls, in 1872, while it increased their size at once, the second and third removes gave all shapes

and sizes, with unknown diseases, until the superior values of the original family were lost.

Poultry societies started up all over the country after the inauguration of the New York State Society, and hundreds of theorizing amateurs in poultry breeding sprouted, every one of whom knew it all in a day, and began to tell old breeders and cockers, how they should cross their fowls to improve; and of course the amateur began his work of destruction of families, until there was scarcely a healthy chicken to be found in the country. While he succeeded in one or two crosses, in getting his fancy feather, and abnormal growth, he also engendered all kinds of filthy diseases by and through his ignorant violations of nature's laws, until the fancy poultry breeder needed an apothecary's shop and a chicken doctor adjacent to his hen-house. Chicken books and chicken papers were published, with innumerable chicken theorizers as advocates and contributors, until they killed the humbug of crosses, killed theory, and the old cocker once more breathes freely.

The same thing is now going on in the breeding of horses; but as more capital is involved, and more years required to prove the fallacy of theorizers in horse breeding, it will continue for some years to come; but the boys of to-day will have become men, and the farmers shall once more have become the sole breeders of the great American coach and road, even trotting horse, as they in fact always have been. Then these boys of to-day will tell you of the great "Morus Multicalus" horse breeding bubble during their young days.

As things are, every breeder of trotting horses is a theorizer, and must become himself a trotting horse trainer, and control a sporting paper in order to prove to the buyer that he has bred a trotter eligible to the "2:30 standard;" and with all expenses added to first cost of the colt, is he going to get his money back? Do you believe the wisdom, judgment and principle of the American people are going to encourage and support this madness and degeneracy in intellectual man? No, sir; it will not, and the good old-fashioned farmer is going to tell you that "blood tells where records fail," and proves it in the team that draws his plow through the soil, or grain to the market; after which the legitimate dealer in



horses will pay our sterling farmer his price for a good horse, or a good team, in the good old-fashioned way of "blood that tells." All honor, however, to the true breeder, who with his capital, leisure and tastes, is willing to test these theories now before the people, and may be amply rewarded for his laborious devotions, to which I am sure the farmer will say "amen." Allow me to remark, however, that all efforts to reclaim any stock, which having been thoroughbred, pure of its type, shall have been once or twice theorizingly crossed, is a long, tedious, expensive process, as Hammond, the great Vermont Merino sheep reclainer, demonstrates.

Our civil war broke out, with which came a demand for army horses, which demand increased until our farmers fairly robbed themselves in their eagerness to show sympathy with our government's cause. New York state being near and convenient to the centralizing of the army, the first great lot of horses were from this state; and our warm-hearted farmers gave freely of their best, without regard to value; hundreds going from the plow in this section, fit to trot for a man's life, or draw a king's carriage. The buyers soon saw the state of affairs, and many a valuable horse sold by the farmer, or given away, I should say, at *government* prices, for the government's sake, was taken out or exchanged from the drove to be sold at three or four prices as roadsters or coachers in our cities. While the government demanded geldings, *mares* were taken by the buyers at reduced prices, only to be exchanged by shrewd dealers, to become roadsters; and in many instances become *brood* mares to the great *name* of *Hambletonian*, after which pedigrees were manufactured. All through Ontario, Livingston, Steuben, Monroe and Genesee counties the Clay blood was plenty in the farmer's horse, which Clay blood had been the base of our famous western New York coach horses. These horses when put to cavalry uses, artillery wagons, camp trains, camp wagons or draught purposes, proving sound, prompt, quick, and lasters. Not considering "bloods," the buyers discovered quality, and our country was at last destitute of horses. Even Canada could not, or did not meet the demand of our impoverished farmers. So an uucle of my

wife, all his life a sheep and cattle and horse dealer, went several times into the Indian Territory and to Texas after ponies and mustangs; bringing at one time into East Bloomfield 150 head of Mexican mustangs, which sold readily, scattering over this country, so destitute were we of horses. The war over, we looked upon what we had lost in our old horses, which for seventy-five years had been famous everywhere, *i. e.*, "the western New York horse," the foundation of which I have given as "Narragansett Pacer," "Messenger" and "Morgan," with "Kanuck" or "Pilots"—a mixture concentrated of the intermediate gaits, largely Arabian bloods.

During the war, sports, or vices (if we may so speak), augmented, and among them, the trotting tracks, as associations multiplied; many a trotter being the Western New York farmer's plow horse, ostensibly purchased for the army. Men who never before had money above their daily wants, now had more than they could use, and wanted a fast horse, which disposition was encouraged by these trotting race excitements and events. All the old time trotters had passed away, and fresh upon the trotting track, with heretofore unknown advantages, came "Geo. Wilkes," "Dexter" and "Goldsmith's Maid" to sound the praise of *one horse*, each one cultivated and trained under these growing advantages in tracks, shoeing, harnesses, vehicles, and systems of training. Their competitors were the "Little Morgan;" "Ethan Allen;" the great, noble "Geo. M. Patchen," the excelsior mares "Lucy" and "American Girl." Although these Clay representatives were the equal and superior to the average three first credited to Rysdyk's Hambletonian, yet being Clays, legitimate in name and inheritance, representing three different strains of that family, all three were dubbed "dunghill quitters;" while the first three, inheriting *paternally* a *false* name, were every one *falsely* credited in the breeding *maternal*, which should have been Clay Arab, or Andrew Jackson Arab blood.

With the excitement of the war men were easily blinded, hence when these three noted horses were credited to Wm. M. Rysdyk's Hambletonian, that *name alone* became euphonic, which all men sounded; and horses being exceedingly scarce, every man with a mare became a breeder to that *one*

*name.* No breeding or pedigree in the mare was for a moment thought of. It was Hambletonian or nothing. The man who ventured to buy "Clay," and speak of "Geo. M. Patchen," was promptly informed *he* was a great *big bull*; or if he mentioned "Lucy" or "American Girl," he was informed that they were only "clay quitters," and when little "Hopeful" came out, trot as fast as he would, even to the fastest wagon record in the world, he was only a "clay quitter;" or, if you spoke well of "Ethan Allen," he was a little runt of a Morgan which had to have a running horse to draw him up to time.

I was then dealing in horses and greatly among horse men of the ordinary dealing class; who, catching the Hambletonian fever, were always talking it. Acquainted with the old and better class of drivers, as Horace Jones, Hiram Woodruff, Dan Pfifer, Sam. McGlaughlin, etc., etc., I was frequently down at Hiram's place, adjacent to the old Union track, L. I. There were times when Hiram would talk soberly and thoughtfully. Speaking of "Robert Fillingham" (later "Wilks") one day to Hiram, he replied slowly, that "Lady Emma" could beat him in any race they had a mind to name, as she had that old "Arab Andrew Jackson" blood in her that would last forever, and no "Abdallah" horse ever trotted before this colt "Fillingham," and he acted mighty like a dunghill "Abdallah" when tired; but "Fillingham" kept trotting, and "Emma" died. I went to Europe in the meantime, where I was often asked about our Hambletonian sire, and I always replied this sire was an "Abdallah;" that his dam was of unknown breeding, but why, or how they called him Hambletonian, I could give no explanation. Upon my return I confess to being drawn into the family and for a few weeks forgot all I knew about the horse's blood, giving myself away to fashionable name influences. This was in 1864. I had a superior road mare by "Bay Norman," by "Nottingham's Norman," out of a Clay mare. I had long used her as a road mare until she was sored up, and Mrs. Huntington had taken her for a ladies' driving horse. I had her on Staten Island and decided to breed her to Rysdyk's Hambletonian; but first thought I would talk with Hiram about it. He considered a moment, then said, "Don't you do it. Breed her to

‘Rich’s Jupiter,’ or get the ‘Andrew Jackson’ blood if you could.” I cited “Fillingham” and “Dexter,” telling him how my mare was bred. He answered there was something in the *dam* of “Fillingham” besides “Abdallah” that made him trot; for “Bill” Rysdyk’s horse, could not trot, nor did any “Abdallah” ever trot of itself; and as for “Dexter,” he did not believe “Bill” Rysdyk’s horse ever got him; “any way, you go over to Mercer street and talk with Horace Jones.”

Now as Horace had worked “Fillingham,” owned part of him, and knew all about him, I did so. Horace kept stable on Mercer street. He most emphatically said, “don’t throw your mare away on Bill Rysdyk’s old Bull. He never got a trotter, and no ‘Abdallah’ ever did or ever could; but if you will have that blood, take it through ‘Volunteer,’ for the dams of ‘Volunteer’ will stand a chance to make ‘Volunteer’ a good sire.” “How about ‘Fillingham,’ Horace?” “Well, you better *inquire into that mare* Harry Felter spoiled on the road, and see what she was. She was an almighty good mare, but Harry foundered her, then sent her up to his father, Theron Felter, who bred her to Bill Rysdyk’s horse,” and her colt, ‘Fillingham,’ is the best colt in America, but *his mother* made him, for Rysdyk’s horse could never alone, get any such horse.” Not one single old-time horseman I advised with, that did not tell the same story about Abdallah. Well, now I had known old “Abdallah” well, since 1840, and my opinion was the same then as it is to-day, and as it was with all experienced horsemen. He was not a trotter nor a producer of trotters; while “Andrew Jackson” was, and all his sons were. “Bellfounder” I knew in the same light I did Abdallah. The last Bellfounder I had was bred on the Island, but I traded her for a Morgan horse in Hartford, Connecticut, paying in the trade \$240 boot, getting a Morgan trotter and laster. This was in 1854. My Hambletonian fever soon gave way to common sense, and I sent my mare up to “old Henry Clay,” in Monroe County, New York.

I kept on in my horse dealing, studying more deeply into this subject of breeding. I found horses I had sold, and that I knew to be by old Henry Clay, changed hands as “Ham-

bletonians." One mare bred near my place here, and was got by "old Henry Clay," I sold to Isaac J. Sheldon, of Sheldon & Co., book publishers, New York City. She was a very fast road mare, straight from the plow. Sheldon drove her two or three years soreing her, then trading her to a dealer named Cook, in whose hands I saw her. Subsequently she turned up the half of a very fast road team (then along in years), owned by Gilman, of the "Great American Tea Company." Meeting Mr. Gilman one day, I asked him where he got the brown mare of his team and how she was bred. He told me the dealer he got them of, and that they were a pair of mares by Rysdyk's Hambletonian, for which he paid \$5,000. I told him the brown mare, he drove on the off side, was by "old Henry Clay," and that I brought her to New York. Mr. Gilman was exceedingly indignant, genteely informing me no Clay horse had ever disgraced his stables or harness, and certainly he would not sit behind one. Gilman was an exceedingly well-to-do gentleman, I, a plain horse dealer, so I did not dispute. This mare "Flora" was bred by William Steele, a good farmer of East Bloomfield, Ontario County, New York, and I had known her from a colt as a daughter of "old Henry Clay." So I can name many more such instances, but what is the use? I could not stop these lies. So too with Lew Parker's mare, or the Woodward mare, dam of "Hattie Woodward;" she was under my nose all the time she was changing hands, and I knew her to be a Clay; but Al. Weaver, Pat Fleming, Sherwood and Samuel Truesdale were all New York City horse dealers, and friends of mine; hence the best thing for me to do was to keep my mouth closed, for the odds in number were against me, and no man in New York City with horses to sell, can profitably afford to dispute fashion's claim backed by money and numbers, as to breeding of any horse.

In my dealings I took "Hambletonians" in trade until I was so disgusted with them, I preferred to lose the trade of a good western New York horse anytime, rather than pay keep for one of these fashionable loafers which I found even the name would not sell out of second hands, as buyers were getting wise as to differences.

Hiram Woodruff and Horace Jones, also Tom Cregan were all dead. Each had put fleas in my ears about looking into the breeding of Wilks' dam, also of Dexter. There was no question about the sire of Wilks being Hambletonian, and that it was the blood Sam. McLaughlin used to so unmercifully whip when he drove Wilks in his races. On the sly Sam used to whisper he had to "work like ("h—ll") to make that 'Abdallah' blood in Wilks stay up with the lightning blood of his dam." I was full of general information, and concluded to concentrate upon one prominent horse at a time, in defending Clay, so took that dam of Wilks' and worked her up from one ownership to another until I landed her in Bristol, Ontario County, New York, as a daughter of Henry Clay, to which mare Governor Stanford of California, has the counterpart in the Webster or Cobb mare, "Maid of Clay," by old Henry Clay.

When I reported these facts in New York, I was politely informed that Wilks was already registered with *proper* breeding for his dam, and no Clay was wanted in Wilks nor should there be any. The words "truth, though crushed to earth shall rise again," kept ringing in my ears, so I bided my time, but at last established it, "dam of Geo. Wilks, by Henry Clay," and the only entire son known to have been got by Wm. M. Rysdyk's Hambletonian, out of a *daughter* of *Henry Clay*, hence Geo. Wilks has been the *only positive producer* of *trotting speed* of all that Hambletonian family, but will his mongrelized sons and daughters so produce? Hambletonian fanciers now began to enter their stallions at fairs, always telling how many premiums the old horse won. On the contrary, I knew that the Clays and "Biggot's Rattler" had beaten him every time out of sight, as any one can learn by investigation of the records of the American Institute Fairs, at their rooms in Cooper Institute Buildings, in New York City, or Elmira, New York, Horse Fair.

As far back as 1853, the horse breeders of Orange county, New York, were anxious to get "Abdallah" blood out of the county, but how to do it was a question. Wm. M. Rysdyk suggested getting in a Morgan stallion, and keeping all the *fillies* in *their* county they could breed. Chas. Ingersoll,

clerk of Seneca county, New York, also a large merchant, was owner of "Gen. Gifford," by "Gifford Morgan." Edmond Seeley and Wm. M. Rysdyk corresponded with Mr. Ingersoll, they wishing to buy his "Gen. Gifford," but Ingersoll declined to sell. They then negotiated for a season's service by "Gen. Gifford," offering to give a large, fine, young son of "Abdallah," coming (6) six years old, for one short season by "Gifford." This was in the winter of 1853-4. Chas. Ingersoll and M. H. Ingersoll went down to Goshen, Orange county, meeting Rysdyk who took them to Mr. Seeley. They had this "Abdallah" stallion in the hands of Chas. B. Seeley, near Chester, a much better horse than Rysdyk's horse, and better dam. A bargain was made. Ingersoll was to send "Gen. Gifford" to them with his negro groom to stay in charge, and they were to deliver the "Abdallah" stallion. The suggestion was made that Ingersoll call their horse "Rattler," for the name was fashionable, and not all farmers liked "Abdallah," although in Seneca county "Abdallah" was not known, although it might take just as well. Ingersoll called the horse "New York Rattler" putting him in the stud at Ovid and Lodi, Seneca County, New York, in the spring of 1854.

Four years after, or in 1859, when N. Y. Rattler's colts began to show, no one wanted another; and to get rid of him, Ingersoll drove him into Schuyler county, trading him away for little or nothing. The man who got him soon sickened, and traded him to an Irishman, who soon found what a loafer "Abdallah" blood was, and castrated him. As there were few Clay mares to cross him on to, this son of Abdallah showed the absolute worthlessness of the blood. To this day the farmers of Seneca county do not know that the brute of a stud horse Chas. Ingersoll induced them to breed to, as "N. Y. Rattler" was a half brother of Rysdyk's Hambletonian by old "Abdallah," but out of a better mare than was the dam of Rysdyk's "Abdallah" horse called Hambletonian. "Gen'l Gifford" came back after the season, and continuing to stand several years in Seneca county, was finally sold west into Illinois, an old horse, for \$1,200. One of "Gen'l Gifford's" daughters died recently in Seneca county, 34 years old, but old as she was,

was hard to beat on the road, and did not up to her death know the meaning of a whip. After Rysdyk's repeated entries of his horse in the American Institute Fairs in New York City, and being beaten every time by Clay blood, Biggots Rattler and Young Andrew Jackson, he changed the name of his horse from "Abdallah," to Hambletonian, ignoring entirely the name "Abdallah," forever pretending to know nothing, and care less *how* any *mare* his horse covered was bred, determined the stolen name of *Hambletonian alone* should establish his horse, knowing the ignorance of the public.

Next on the carpet in this, Seneca county, was Coleman's horse, Seneca Chief," by "Rysdyk's Hambletonian." He came up with the growing name of "Rysdyk's Hambletonian," was put into the stud at three years old, in 1866, with the best of mares at the largest prices ever paid in that county; and of course these colts had extra chance over all others. "Seneca Chief" inherited the "Abdallah" infirmities in joints, and as for speed, the "Champions" of that county have given one hundred trotters, with less opportunity, where "Seneca Chief" has one. Next, "Major Edsall," by "Alexander's Abdallah," was bought by Mr. Clark, of Scio, Alleghany county, in 1871, at the reputed price of \$5,500. He, too, had the best mares in the country and state, but Deputy United States Marshal Bartholomew, of Scio and Cuba, who went for and had charge of him for a time, told me they were never so disappointed in the get of any horse they had ever known, as in Major Edsall; and that he—Bartholomew—was then driving an in-bred Clay colt, four past, that could beat 2:30 on the road at any time, or double distance all Major Edsall's gets. And yet "McGregor" stands to the credit of Major Edsall: but does this one horse pay for all the other losses and disappointments for any purpose, as coach, road, or at farm work? Yet every Clay within fifteen miles of Scio, found buyers for any and all purposes. Next "Wood's Hambletonian!" but what have been his opportunities? In 1852 two sons of "Henry Clay" went into Wellsville, Alleghany county, New York, to do truck work and stud duty, covering mares all through the section, clear over to Knoxville, Potter county,



Pennsylvania, where Woods' Hambletonian located. That county was full of Clay mares when the Wood's took their horse to that lumber district, and although Elmira and New York horse buyers thinned out the Clay's, as did the war, enough were left to sound the praise of Woods' Hambletonian.

To go back to Seneca county, we find at Waterloo a son of "Geo. M. Patchen," foaled in 1862, bred by the late Joe Wright, within two stone's throw, as it were, from the home of "Seneca Chief," by Rysdyk's Hambletonian, shut out from stud duty—because he ("Seneca Patchen") was Clay—for over ten years; but with the abatement of prejudice against Clay, "Seneca Patchen" is given a few common mares at \$5.00 to \$8.00 in the new ownership of Dr. J. W. Day. One of his first colts was out of a Clay mare, by "Andy Johnson," a second remove, and himself a third remove, from old Henry; yet this colt, "Frank Patchen," trots out of the plow, as a four year old, in 2:36, and before sixty days were passed, was able to show 2:25. That was 1881, and here this fall past, 1882, a four year old filly by this son of Geo. M. Patchen, out of a Champion mare, comes up to our track, shows close to 2:30, is sold for \$1,200, and soon showed such a flight of speed as to command and bring \$3,000 from an eastern horse buyer's pocket; and every colt is proving the same sort of stuff when Clay blood is concentrated.

Last autumn, a *prize was offered* at the Seneca County Fair, held at Ovid (near Sheldrake, the home of "Seneca Chief" and "Wm. M. Rysdyk" by Rysdyk's "Hambletonian,") for the fastest two year olds. Fashionable prejudiced talk was, that either the colts by "Seneca Chief" or "Rysdyk" would win easy. An old farmer down at Lodi, who had a son by Henry Clay (for all time damned because he was Clay, and yet able to beat any Hambletonian stallion in the county, after a hard day's work at the plow or drag), also had a two year old filly by his horse. His neighbors induced him to break the filly and go for the prize, which he did; but when the Hambletonian devotees saw they had got to trot against one colt by a son of Henry Clay, and one by a Champion horse they backed out; so Aaron Miller with his two year old Clay filly,

took first prize, and the Champion second, while Hambletonian was nowhere. Next week the owner of "King Almont" at Watkins, Schuyler county, offered a prize for the fastest two year old at their fair; and farmer Miller went over there with his Clay colt, and although the "Almonts" were all there, they failed to trot, owners having learned this farmer's filly by a son of Henry Clay—only just broken—had cleaned all the Seneca Chiefs and Rysdyk's out over at Ovid, so the owner of "King Almont" did not think it good policy for the coming stallion season, to trot against a Clay.

Coming up from Seneca county, we stop at Canandaigua, where "Champion of Orange" by "Hetzels" son of Rysdyk's Hambletonian, out of "Lady Patchen" by Geo. M. Patchen, second dam by "Abdallah, sire of Rysdyk's Hambletonian," is owned. This horse "Champion of Orange," has been in the stud at Canandaigua thirteen years, side by side with Gooding's Champion; and from the best mares, Champion of Orange has not one single representative that can trot in three minutes, while Gooding's Champion in the same length of time, out of second and third class mares, has got a great many to beat 2:30 and some to hug 2:20, with none that can not beat 2:40. You see with *two* loads of Abdallah blood in "Champion of Orange," to *one-third* remove Clay, it was too much for the little *leaven*. We will pass by the other Hambletonian scions that have done no better, and look at our own city. We have one son of "Volunteer" that has been in the stud here for fifteen or sixteen years, with nothing to show in speed. We have two sons of "Mambrino Patchen," out of a daughter of Rysdyk's Hambletonian, with produce nine years old, down to weanlings; and although these two "Mambrino Patchen" stallions have been raised here by a first class horseman farmer, neither one can trot, nor have any of their colts shown trot. We then have a son of Rysdyk's Hambletonian bred and raised here (dam stunted at Rysdyk's farm in Orange county), and this stallion cannot trot a little bit, nor have any of his colts shown to this date trotting step; although I have expected there would be some, as the owner has scoured the country to find Clay mares to get his Hambletonian to. Next, we have a son by "Curtis' Hambletonian," and one by

"Hamlet" by "Volunteer;" but to date, all the trotters Monroe county has produced, as well as work and coach horses, have been by poorly bred third, fourth, and fifth remove Clays.

Only a few weeks since, H. H. Warner, Esq., the great kidney cure proprietor, paid a poor Irish farmer, living sixteen miles south of Rochester, \$1,000 for a green in-bred Clay colt, five years old past, that stands sixteen hands high, weighs 1,196 pounds, and although he has been in the drag and plow since two years old, and never trained a day, can make any 2:30 horse run at the pole, to keep up to his trot. Now for crosses and in-breeding. A farmer seven miles out, named Andrews, has an old son of Henry Clay which he bred, raised and calls "Red Bird." He has also one brood mare by another son of Henry Clay, out of the same mare that threw his old stallion by "Henry Clay." This brood mare was by "Col. Wadsworth," by "Henry Clay." You will notice she is out of the dam of his son of Henry Clay, and was got by another son of Henry Clay, and he calls her "Black Jenny." She has had fourteen foals, of which *three died*, leaving eleven (11) fillies and colts to sell. Of these eleven, *one* was by the *thoroughbred horse* "Boaster," *one* was by "Robert Emmet" by "Curtis Hambletonian," *one* was by "Saint Germain," by "Bay Norman" by "Nottingham Norman." and *the other nine* (9) were by his horse "Red Bird" by "Henry Clay," thus being doubly *in-bred*. The filly by the son of Curtis' Hambletonian he sold for \$125 dollars. The one by the grandson of Nottingham Norman, he sold for \$100. Now, one in-bred by his son of Henry Clay he sold to Soule, the "Hop Bitters" man, for \$1,500, at six years old, after getting two years' good farm work from him. Soule bought him for what he is, a first class all-day road horse, able to beat most of the best. Another in-bred he sold at \$500, at four years old, another in-bred at \$300, at three years old, and two more in-breeds at \$250 and \$300 at three and four years old, and still another which he kept, he refused \$2,500 for at three years old, and \$5,000 for at four years old, and still keeps, coming five. The only colt in all the eleven he cannot sell at any price, is *the one by the thoroughbred*, because she will kick, and she cannot trot. Now I

have mentioned these instances, which I can multiply and doubly multiply; but these will do. If I could in any way offset them through representatives of the other family called Hambletonian I would do so, but I cannot; and these facts I give you, never get into print, as they were farmer-bred and raised horses, all workers, and all sellers as trotters, unnoticed and unmentioned because of honest plebeian breeding — “Clay” for farmer’s work.

We all know that Henry Clay was but a third remove from “Grand Bashaw” *the Arabian* imported into Philadelphia. His sire, “Andrew Jackson,” was never beaten a heat or a race, and got every time a trotter. Of all Andrew Jackson’s sons, Henry Clay proved the most prolific producer of trotting speed, and like his sire was never beaten a heat or a race, although in 1847 he was driven one hundred miles to trot a match for \$2,500 which he did and won, the day following the one hundred mile drive. The other horse (the competitor) had been kept two or three weeks on the grounds to win the race; now which horse quit in this race? Did Clay?

We have recently seen in the horse, “Captain Lewis” (that went from the plow to the track in June, 1882), that a reunion of Clay and Arab blood performs wonders; as “Lewis” without preparation or training other than what he got as he trotted his races in the circuit, won all his races through the circuit as fast as other horses could drive him, coming home with a record of 2:20 $\frac{1}{4}$ . Credited several times by other watches than the official timers, in much faster time; and this horse “Lewis” cannot be beaten at the plow, drag, reaper, mower, or load of grain or manure, by any farm horse; but his injured leg gave out in the fall.

Bear in mind that this horse “Captain Lewis” is the result of a reunion of Arab blood, through Dr. W. A. Wallace’s Arabian bred stallion “Phenomenon,” and “Andrew Jackson’s” Arab blood through Henry Clay, and like Andrew Jackson, “Phenomenon” himself was a trotter, a laster, and got wonderful speed; but this was all in the woods of western New York, when trotting events were considered disgraceful places for men of respectable commercial or social standing in any community. I can remember when

trainers of race horses on the Island would whip their boys if they heard of their going to trotting matches; partaking as they did of the spirit of their employers, the gentlemen owners of the racers they trained. In "Saint Julien" we find the *Arab* and *Clay* blood. Then for Clay without Arab, in the circuit event with "Lewis," we find the young horse "Wilson," with Clay in BOTH SIRE and DAM, winning every race through the circuit, while "King Wilke's" with but one dash of Clay, to two of *Abdallah*, was nowhere in the same circuit. Bear ever in mind that Clay has been derided and ridiculed by fashion worshippers, until the youth of fashion's votaries were ashamed to say they owned a Clay, even though they had one. Clay has for twenty years had to contend against all odds, yet trying under most adverse circumstances, even under protest; despite of all which, the Clay horse has been the farmer's friend as a worker, as a load puller, and in the end as a selling road horse, or first class coach horse; but tell me, if you can, of any time when the "Abdallah" or "Hambletonian" tribe furnished comfortable work horses, and at no time did I ever see, know, or hear of a pair of Hambletonian coachers. Their big heads, long, lopping ears, with tails hugged between their quarters like a scared dog, preclude the possibility of becoming selling coach horses, even though they had any element to make them admissible. While these Hambletonian horses have multiplied like the lice in Egypt, coach and first class road horses have become scarce, owing to loss of Clay blood proper.

Old things have passed away and we are living among a new race of men who know nothing of what was before the war. While we have made many improvements in developments of trotting speed, we have sacrificed and lost types in breeds. I saw that the old reliable substantial types or families of horses were being lost, hence began in earnest, determined that one valuable family should be saved and perpetuated in purity. I wrote through journals begging the breeders of America to secure what little was left of old Henry Clay in sons and daughters; breed the blood to itself, and perpetuate it for the boys, lest in years to come, men should talk about Clay as we have about Messenger, when

there was none. Clay was a most valuable type, and bred to itself could be of great value to the country. "Morgan" was one of the best of families, both Clay and Morgan being invaluable to the farmer, merchant, or gentleman road rider. Thus we have two families valuable to all classes and which animal affinities, physical and mental, readily assimilate. Next the old time "Kanuck" from which sprung the Pilots, traditionally descends from the crossing of the Arab on the "Indian Pony," and here again we have speed and constitution; but the "Kanuck" is extinct, while "Morgan" is very nearly so, and Clay would have been, except for my prompt, sharp work. All three are close Arab bred as was Messenger.

We now come to Messenger, which extinct, is worthy of consideration. Did it ever occur to the farmer or breeder, that of all thoroughbreds imported to America, there was but one "Messenger," celebrated as a progenitor of trotting speed? Did any man ever call to mind the fact that this same "Messenger" descended as did "Young Bashaw," from close-bred Arabian blood with a mixture of cold blood which in years gone by, brought his position as a thoroughbred into question? Conceding then, that this single horse called Messenger, really produced the remarkable trotting instinct credited to him, did he not inherit that instinct from his *Arabian ancestry*? and is not the problem explained and verified to studious thinkers? We take long years for study, but the world was not made in a minute, nor has Edison got through with his lightning investigation yet, although a life-time at it. If *Arab* blood made "Messenger" the only producer of trotting speed, among the long list of imported thoroughbreds, and when we see and know that in later years Clay, with his diluted Arab blood cannot be put out, but when re-enforced with the Arab blood, a "Lewis" is produced, or a "Saint Julien" goes to the front, or a "Lulu" makes her mark, or a "Gold Dust" is by "Arab" blood sent to the front, then conceding the old time "Kanuck" with his Arab blood produces a "Pilot," who in turn produces a "Maud S," a "Jay Eye See" or a "Mambrino Gift," do we not at last find a scientific base to work upon, through which to solve the problem of the great American Trotting Horse?

## CLOSE BREEDING.

I have repeatedly spoken of close breeding, but failed to say that for immediate improved results we should begin as close as possible to the fountain head of the highest type which has shown to us, that as a type, it truly possesses the elements we most desire; and then, the less mongrel the type is, the more speedily improved results as certainties will come, with increased physical, mental, and nerve superiorities.

If however, the family we have selected as the one we think we want, shall prove in truth more mongrel than we knew, then the greater extremes, or more wide-spread diversities in attempted close breeding will take place, in the end absorbing a life-time in the eliminating, concentrating, and testing these different crosses, introduced in years gone by, through ignorance or unwitting experimental crosses. We cannot quickly, as can the chemist, precipitate and analyze flesh, blood, and nerve organisms.

Now the Clay family, began in "Old Henry" with a positive type, close up to a fountain head, physically and mentally what we wanted; and whose longevity which he entailed, proved him to be a high type. He was a solidly put together horse,  $15\frac{1}{2}$  hands high, with superior bone, splendid hard joints, and best of feet; eleven hundred to eleven fifty in weight. By close breeding his sons to his daughters, we get more weight, and more height, with the same depth and breadth of body, on short, sound legs, with increased speed. Old Henry Clay's sons and daughters would go from  $15\frac{1}{2}$  to 16 hands high, weighing eleven hundred to thirteen hundred pounds. By selecting these sons and daughters with regard to height and weight, as well as breeding, we get more uniform height, more even weight, and increased instinctive trotting instinct, with good disposition; thus close breeding in this family, has proved satisfactory, whether through sons and daughters of old Henry Clay, or through reunion of Clay blood to its fountain head of Arab blood, as we have seen in "Captain Lewis" and "St. Julian," "Lulu" and "Golddust," and I can also show in produce from Clay mares bred to General Grant's Arabian stallions.

In the Abdallah, or Rysdyk's Hambletonian family, the very reverse has been proven, as Orange county and Kentucky can testify if they see fit, that inbreeding of Abdallah or Hambletonian is a failure.

Now, because I have in all my writings so strongly denounced Hambletonian or Abdallah blood, do not think I have been working on one side of the fence only, or studying through other men's glasses, for I have not. I must tell my farmer listeners that I have had the best bred blood to be obtained, from Rysdyk's Hambletonian direct; and have to-day some mares, got by the best bred sons Rysdyk's Hambletonian ever got; one out of a mare by old "Abdallah," the sire of Rysdyk's "Hambletonian," but got by "Sweepstakes," one of Hambletonian's best sons; then I have two by a son of Rysdyk's Hambletonian, known as the Bull colt, that sold as a yearling for \$4,500. By this latter stallion I have two mares by a son out of "Rysdyk's Maid" bred by Wm. M. Rysdyk himself, representing the "cream de la cream" of his Hambletonian horse, or the highest possible type of concentrated Abdallah blood. Side by side with these mares, I can show stock in-bred to old Henry Clay through his sons and daughters; also Arab get out of these same daughters; also Clay get out of these in-bred Hambletonian mares, and in-bred Clay out of my Clay mares, so that any man who is scientifically interested in breeding, can see for himself, that all my writing has not been theoretical, but based as I have said upon a life-time experience, with hard, practical study. I will add, that the only horse boots and toe weights I have ever bought have been for Hambletonian horses, and never once for Clay.

In concluding this long paper (long because of the importance of the question), may I suggest to the farmers of Wisconsin that they breed to stallions the most positive in types of blood; indeed, I feel it should be a law in every state, that stallions peddled or standing for public service should not be mongrel bred.

Well fatted and carefully groomed stock horses, may appear attractive to the farmer's eye by the side of his hard-worked ungroomed horses or mares, and a well printed pedigree paper carries much weight, when nine times out of ten



it is a fabrication, and thus the public stock horses as a rule, fail to produce their like, to the farmer's great disappointment. It seems to me that the agricultural associations of our different states might cause this stud horse business to be better regulated in the interests of the farmers.

To stallions of positive types in blood and breeding, the farmer could breed with some degree of certainty; making crosses to please himself, and teach his boys about blood; but in all cases, horse colts should be gelded as crosses, but grown, broken, worked and sold as coachers, express horses, road or light draught or all work horses; in short, disposed of at a convenient time for the city markets, making room for the growing young, the same as is done with cattle and sheep, when of grades. The "Norman Percheron" and "Clydesdale" are positive types when pure, and each is a thoroughbred of his family.

They make valuable heavy draught horses for our large cities, or on smooth roads.

Crossed with the Clay proper (which should be thoroughbred through close breeding) or well-bred Morgans, and the produce excels as coach, coupé, family horses, express and light draft uses, for single trucks in our cities, as well as farm horses.

The best horses we are now raising in this western New York state, are being so produced.

Mr. Frederick Fellows, a large farmer in this county, once owned "Old Henry Clay," and raised a stallion colt by him which he still has.

A few years back, the cross referred to, we talked over, and he tried it to his satisfaction; since when he purchased two Percheron stallions to cross on to the mares in his vicinity, by his Clay horse; and to-day his vicinity turns out some of the finest coach horses in this state, many being very fast road horses.

Avoid the use of stallions credited with excessive stud business. Remember that the ancient Romans limited their stallions to twenty (20) good mares, intending to get twenty (20) good foals.

The stud horse man who boasts of having covered seventy-five to one hundred mares with his stallion, to show the de-

mand, may tell the truth, or he may talk it to encourage a contract with you. Avoid him as a very foolish, not to say ignorant man.

I have been particular to suggest the Clay proper or well-bred Morgan as *the* cross for the Percheron or Clydesdale, because their bloods assimilate. The Clay proper has the best of feet, and is set low upon his legs, with the best of joints and superior action; also quick, tractable, cheerful dispositions; never being sour-tempered, as are the Abdallah or Hambletonian horses.

I have now been speaking of the farmer's horse, which can most profitably by him, be bred, raised, broke, worked and sold.

The breeding of the trotting horse will in time concentrate into the hands of a few gifted breeders of sporting inclinations, the same as is the thoroughbred race, running or gambling horse.

While no farmer should give his attention to the breeding of sporting horses, they will for all time be liable to produce the very fastest and best, as they have done to date. I would, however, say to farmers so inclined to breed, that they know cattle and sheep husbandry has succeeded through concentration of bloods; and they know, too, how quickly all crosses are thrown out, as grades for the shambles. So, too, is the first cross upon the race horse condemned as worthless; denounced in England as a "cock-trail," but in America called a dunghill, meaning a mongrel. How ridiculous, then, for some trotting horse breeders to try and credit all the good in their horse to some "dunghill" cross from some thoroughbred race horse.

#### MONGRELISM.

Nothing has conduced so much to wide-spread mongrelization of the American horse, as the name Hambletonian. From Maine to California the name has spread, and every representative presents a different cross, which crossing is augmented; yet the *name* is retained. Hambletonian in plain English means "Abdallah," which being interpreted by the Hon. Geo. B. Loring, in his address before the

graduating veterinary class at Columbia College in 1881, means a cold-blooded mongrel.

As the name "Abdallah," through his son Hambletonian, has so unjustly been held up before the American people, I will cite one or two cases for the farmer breeder to reflect upon.

First, the American people are spasmodic or electric, and impulsively carried to extremes. The mare "Maud S" startles the world through the papers with her four year old time. Millions are immediately placed at her back for development, without regard to cost. Her speed is quickly credited by way of advertisement to "Rysdyk's Hambletonian" through his son "Harold."

Now every horse man knows that neither "Harold," nor his sire "Hambletonian" or grand sire "Abdallah" could trot or run; and yet the name "Harold" as the sire of "Maud S," together with her grand sire "Rysdyk's Hambletonian" are advertised to the world as *the cause*. "Harold" the "bench legged" stallion, that could not trot, and that never got a coacher, a worker, or a trotter for Mr. Chas. S. Dole, his breeder and owner for many years, now commands from two to three hundred dollars service money, turning away the choicest of mares because his book is full; but has he ever produced another "Maud S?" What is the reason he has not? simply because the Kanuck Arab blood called "Pilot" is extinct, or nearly so.

"Jay Eye See" next comes out, able as a 5 (?) year old to beat "Maud S," and he too is credited to Rysdyk's Hambletonian through his son "Dictator," when up goes Hambletonian stock again.

Let us examine this business. The dams of "Maud S" and "Jay Eye See" are half sisters, by the same Kanuck Arabian blood called "Pilot," and in which "Pilot" family, there were none that could not trot or pace farther than either Abdallah, Rysdyk's Hambletonian or Harold and Dictator could run, and yet credit for speed in "Maud S" and "Jay Eye See" is given to Rysdyk's Hambletonian. "Harold" had for many years been a failure, because he had *not* covered the *positive blood* inheritance from the Arab as found in "Pilot."

So too with "Dictator;" he for years in the hands of his owner Mr. Durkee of Brooklyn, L. I., had been considered a failure.

It is true "Dictator" has got two or three speedy colts, but by no means what his opportunities should have warranted, had the Abdallah or Hambletonian blood possessed the merit awarded to it. Then, too, the grand-dam of "Dictator" had a way of producing colts marked and quartered like the old Andrew Jackson get, to which blood she was credited by old men, now dead.

Again, take the case of "Jerome Eddy." His dam was "Fanny Mapes," by "Alexander's Abdallah," got when owned in Orange county, where he was bred, and called "Edsall's Hambletonian."

"Fanny Mapes" is bred to "Rysdyk's Hambletonian," and produces a failure at trot, and a failure as a producer. She is bred to "Messenger Duroc," and the produce is a very great disappointment. She is now bred to "Napoleon," whose dam was Clay Arab, and "Jerome Eddy" startles our impulsive natures. The gentlemen Jewett, of Buffalo, buy him at a large price, and write, also telegraph me, to investigate the breeding of his dam, "Fanny Mapes," knowing I was acquainted with the old time horsemen east. I did so, and give you results not known to the public. In 1846, or 1847, Wm. H. Saunders, and "Nate" Morgan (both old time horse dealers of western New York), with John Hoyt and L. J. Sutton of Goshen, New York, were stopping at the old Four Mile House, on Third Avenue, New York City, with horses to trade or sell. A man drove in with a pair of brown bay, flag-tailed mares for sale. He remained some little time to get them into shape, but failed because they were with foal. Mr. Saunders at last traded, giving a trotting mare and boot money.

At this time they were old fashioned *Morgans* and had come from between Hartford and Springfield, a country flooded with Morgans and Arabian crosses in an early day. Mr. Saunders who was a first-class horse man, pronounced them "old time Morgans" (and I think he ought to know). Saunders traded them to L. J. Sutton, who took them to

Goshen, Orange Co., and one of them became the dam of "Fanny Mapes," by "Edsall's Hambletonian."

Now, as the dam of this horse was by a son of Andrew Jackson, and the dam of "Fanny Mapes" was Morgan, we have the same foundation as Geo. Wilke's had. Her Arabian blood was not positive enough to lift "Abdallah" blood, hence she failed to help Rysdyk's Hambletonian, also "Messenger Duroc;" but the moment "Napoleon" with his Clay Arab blood (from his dam), covers "Fanny Mapes," the produce "Jerome Eddy" trots; and upon mares with Clay Arab blood, he will produce every time.

One more and I have done; "Electioneer" is by "Rysdyk's Hambletonian" out of a Clay mare, and he trots some. Upon mares prominent in *Abdallah* or *Hambletonian* blood, he is a failure. He covers "Beautiful Bells" who is by "The Moor" by "Clay Pilot," and whose grand dam is Clay. The produce to Electioneer is "Hinda Rose," with three strains of "Clay Arab" blood with one of Arabian Kanuck blood or Pilot, and "Hinda Rose" as a one year old, a two, and a three year old, beats the world; but like "Maud S," "Jay Eye See," and "Jerome Eddy," is credited to "Rysdyk's Hambletonian."

Again, "Carrie C," a still faster filly than "Hinda Rose," is by the same "Electioneer" whose dam is "Clay Arab," while the dam of "Carrie C" is "Maid of Clay" by "old Henry Clay" himself, and yet this filly "Carrie C" is credited to Rysdyk's Hambletonian!

The day must certainly come, when the entire breeding world will understand I have been contending for the interest of the American breeder; for the present wild system of breeding to a name regardless of blood, will disgust, as well as bankrupt thousands of innocent men, besides flooding our country with mongrels, below the mule in point of blood value.

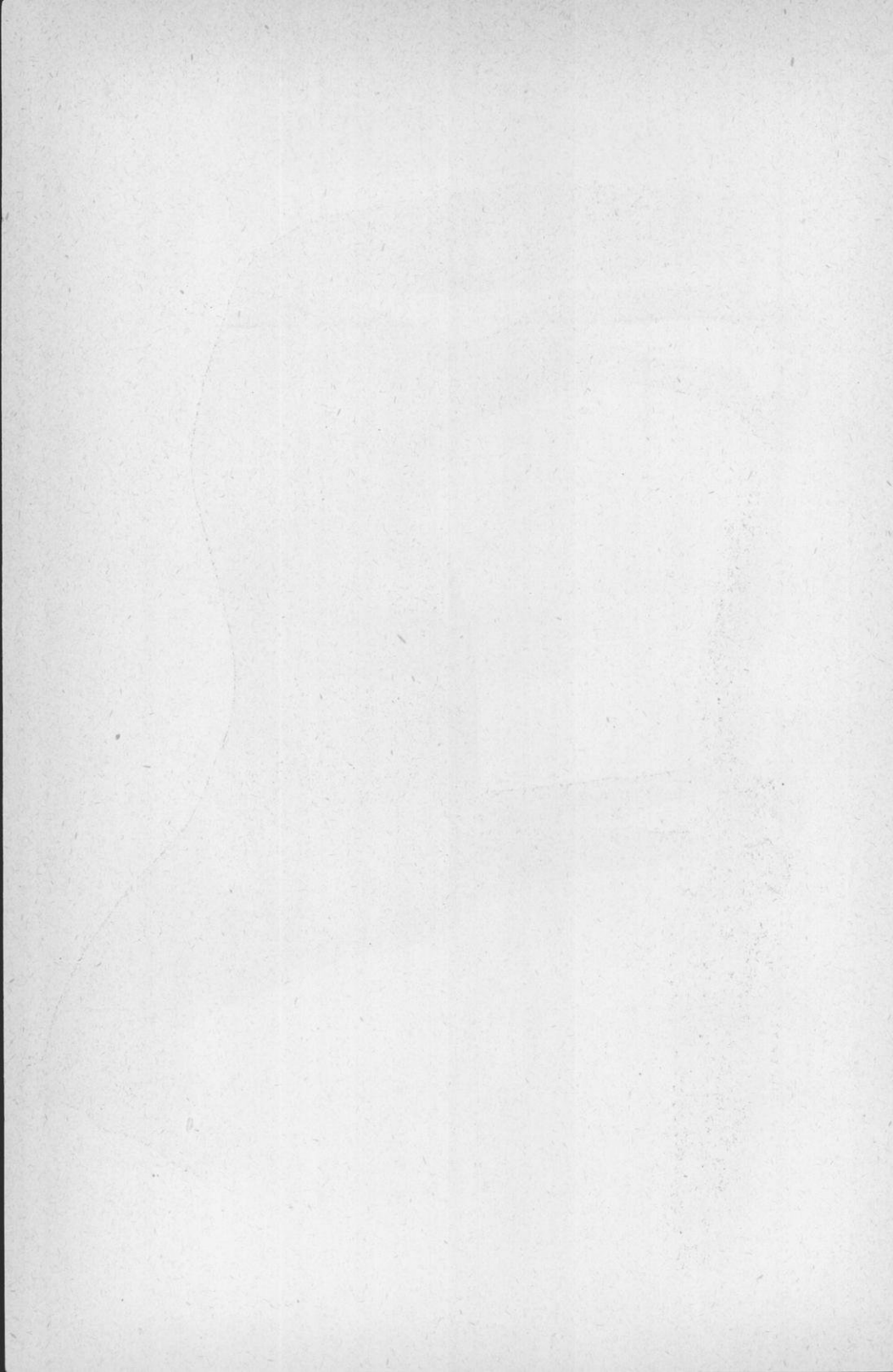
THE CLAY STALLION "FRED PIERSON," BY "OLD HENRY CLAY."

"Pierson" has been owned since a colt by "Frederick Fellows," Esq., the great fine wool sheep breeder of Monroe county, New York.

The stallion has been always a farm horse as well as stock

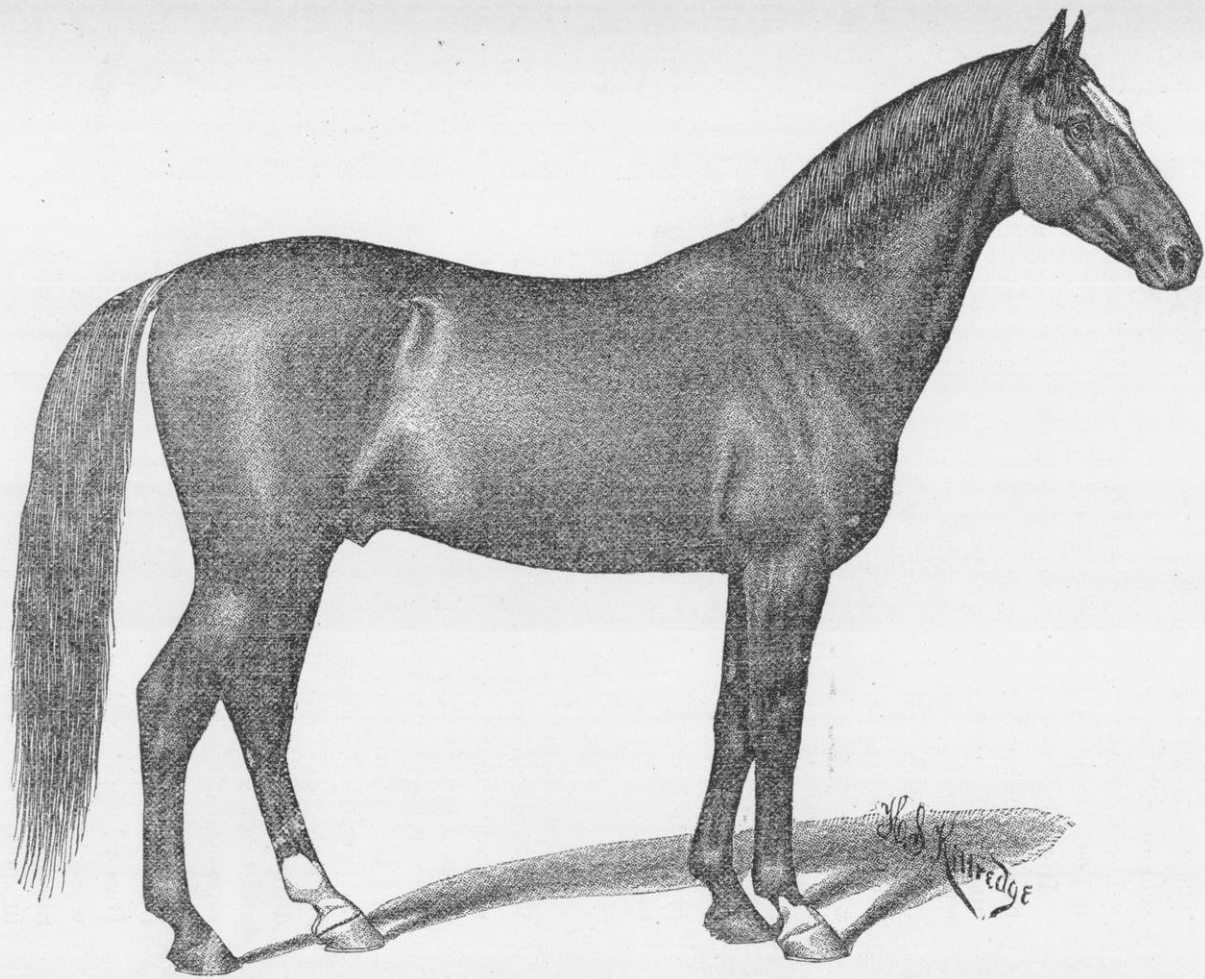


"FRED PIERSON," by "OLD HENRY CLAY." (Copyright secured by R. Huntington.)









"JACK SHEPPARD," by "HENRY CLAY." (Copyright secured by R. Huntington.)

getter, never being developed for speed; but like all of "Henry Clay's" get, was ready to trot from the plow.

At our autumnal fairs he would always win his races in 2:36, 2:32, showing at times 2:28; while in the show ring he seldom met his equal.

The accompanying cut is a faithful likeness as he looked in 1880. when taken; at that time, 19 years old.

His colts have been picked up, as fast as grown and broken, by eastern horse buyers, for coach or road purposes; and the question is often asked, what became of all the mares by "Pierson?" As the daughter of "Old Henry" Clay that produced "George Wilks," was for many years credited to a false breeding, so with the daughters of "Fred Pierson;" many of them may be holding up the name of "Hambletonian," themselves being prostituted to "stars" or thoroughbred breedings as may best please ignorant prejudice. For a verified history of this son of Old Henry Clay, see Huntington's Clay History, which will tell of two of his entire sons, bred and raised here, but doing stud duty west, ignoring Clay blood.

#### THE "CLAY" STALLION "JACK SHEPPARD."

"Jack Sheppard," thirty-two years old 1884, by Wm. W. Wadsworth's old "Henry Clay." The accompanying plate was made in 1880, when "Jack" was twenty-eight (28) years old, and is a faithful likeness as he then looked.

He trotted when six years old (in 1858), before 2,000 people, in 2:25. There was a large country horse show held upon the beautiful farm of John W. Taylor, at East Bloomfield, Ontario county, New York. Premiums were offered for the different classes of stallions, as getters of coachers, workers and trotters. "Jersey Star," by old "American Star," two representatives of "Nottingham's Norman," (half brothers to "Alexander's Norman"), one son of Roger's "Mambrino," by "Mambrino Chief," one by "Mohawk," by "L. I. B. Hawk," and one by "Morgan Eagle," all of which stallions were owned in Ontario and Livingston counties. "Jack Sheppard" took the first premium as a coacher stallion, and in speed trial, distanced all competitors in 2:25.

If "Jack" had been given the opportunities of to-day in

tracks, harness and vehicles, shoeing and care, he would twenty years ago have beaten the fastest records of to-day.

He has been used little in the stud, not thirty colts all told, showing to his credit.

As a road horse in Rochester, New York City, Boston and Worcester, Mass., thence to Michigan, and back to New York, he still lives, a grand old horse.

The above gentleman referred to, Mr. John W. Taylor, was from 1825 to recent years, a great dealer in cattle, sheep and horses of the finer grades, taking much fine-blooded stock into Kentucky from New York state.

In the spring of 1855 (see *Spirit of the Times* for March 7, 1857, page 12), Mr. Taylor purchased a brother of "Flora Temple" at \$500, for Mr. R. A. Alexander (of Woodford county Kentucky), with whom he had long been dealing. This colt was "Madam Temple's" third colt. Her first was "Flora," her second, a horse colt was killed by lightning, and her third (a horse colt) my uncle purchased as I have said, for Mr. Alexander, of Kentucky. Thus, from 1855, when Kentucky first began to breed trotters, up to this day, that state has been obliged to come to New York state, New England and Canada for the bloods that produce trotters with staying qualities.

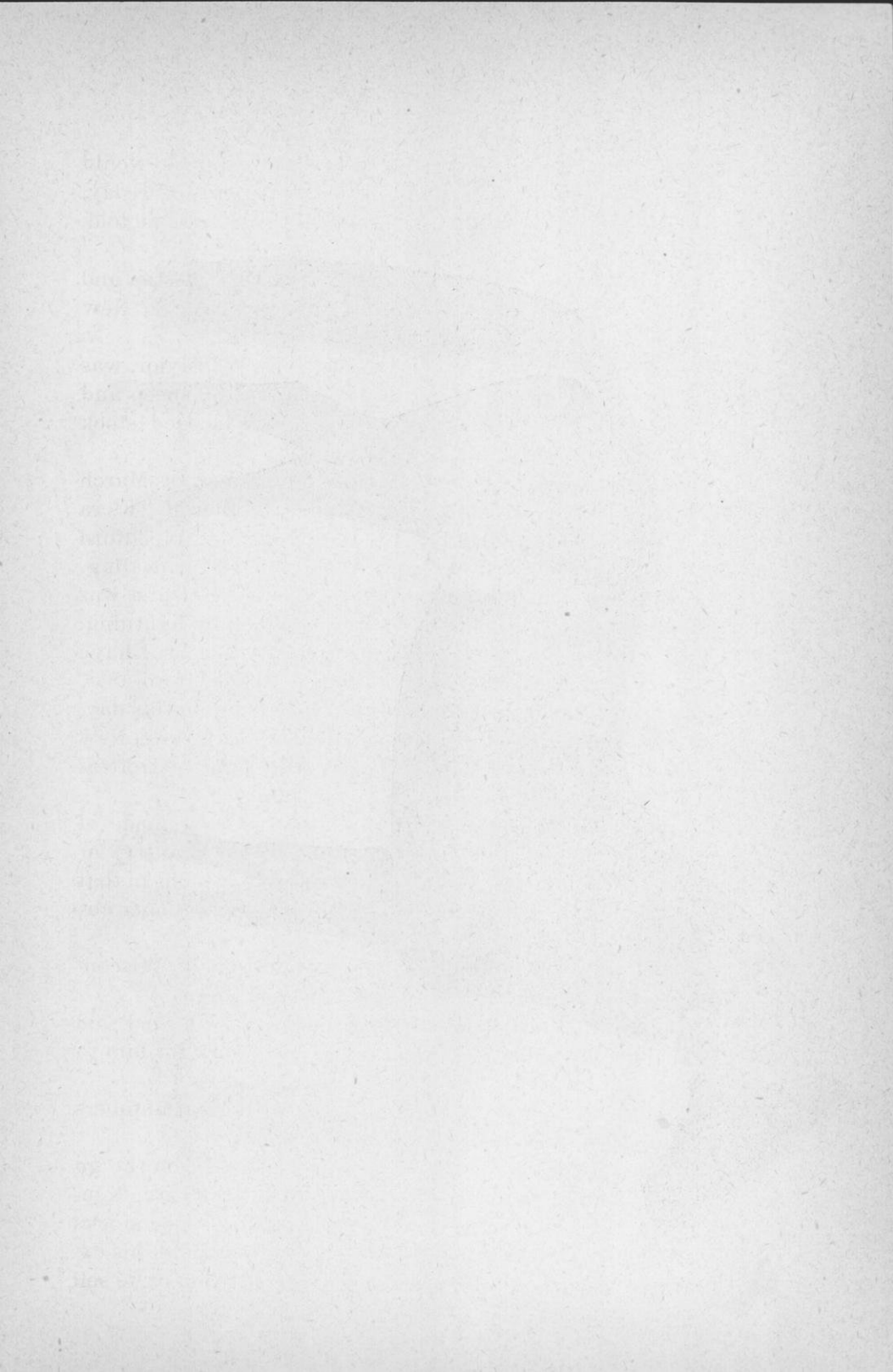
Through either the climate of Kentucky, their mode of crossing (which is simply mongrelizing in any country), or through their "blue grass," all bloods seem to run out in that state, needing re-enforcement from our colder, stronger climate and grasses.

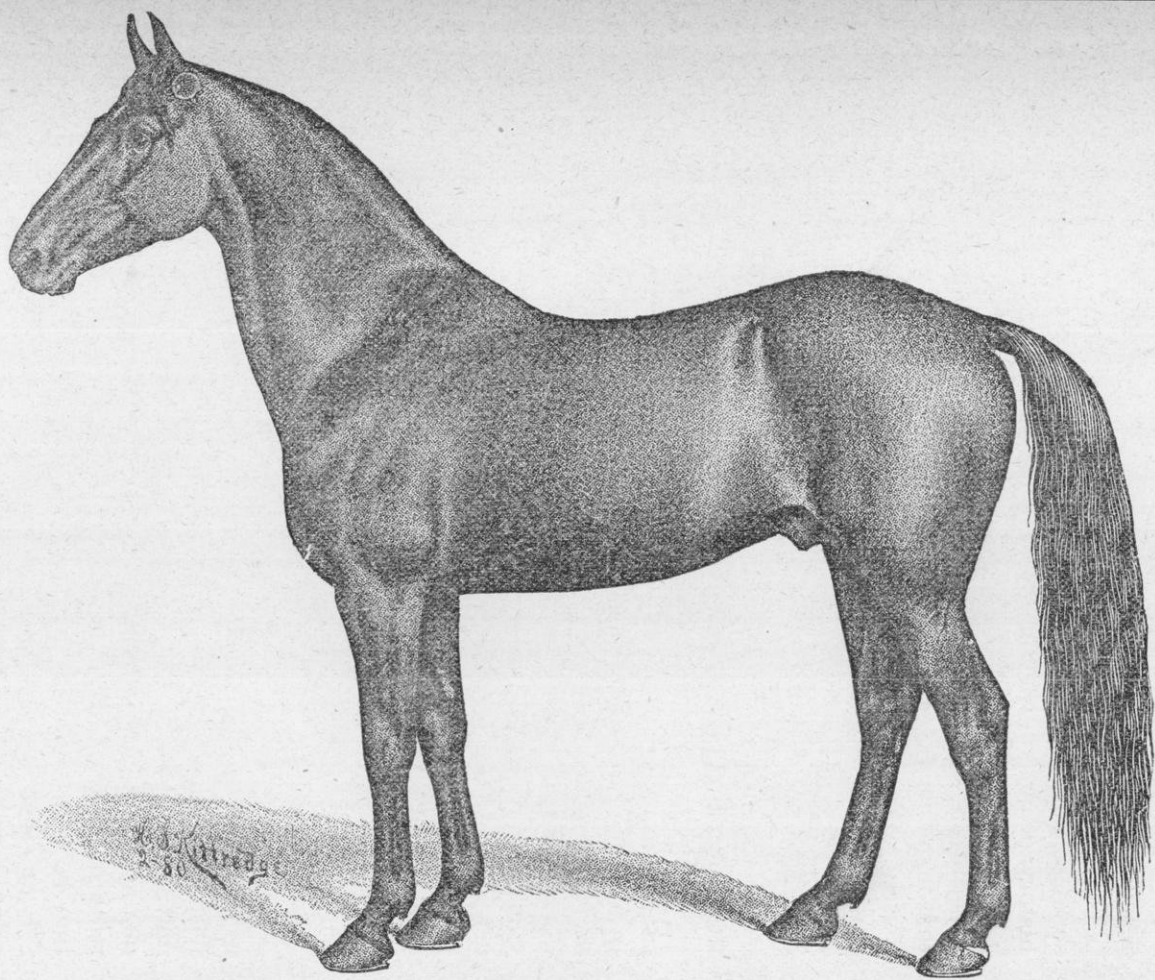
I am a strong believer in the climate and soil of Wisconsin for horse breeding, as well as cattle and sheep.

Mr. Taylor, whom I have mentioned, is now a very old gentleman, but visits me often. It is hard work for him to believe he is an old man.

He has large tracts of land in Texas with great numbers of sheep, well attended to by his sons.

From a young man, in 1825, he was constantly on the go between East Bloomfield, New York, New York City, Kentucky and the west, a pioneer reporter as it were, upon stocks of all kinds; and to-day, he will tell you that in all his experiences in horses, either upon his farm at work, or to sell





"BLACK HENRY," By "HENRY CLAY." (Copyright secured by R. Huntington.)

for coach or roadster purposes, no family had the merit to that founded by the Clay Arabian stallion "Old Henry Clay."

A Spanish proverb says, "Old wood to burn, old books to read, old wine to drink, and old friends to chat with."

Thus, when the boys of to-day shall have become old men, some of them may enjoy reading a complete and verified history of old time Clay horses, including the history of "Jack Sheppard;" in the meantime, the visionary theoretical experimenters of to-day, will have come back to the blood that made old "Henry Clay," and concede that I have been a friend to the breeder and not an enemy as some may now say.

#### THE CLAY STALLION "BLACK HENRY," BY "OLD HENRY CLAY."

The accompanying likeness is correct as he looked when the picture and plate was made for me in 1879.

He was then sixteen years old. I had owned him some time, and thought much of him as a horse for any purpose. In his young days he was valued highly for his ability upon an endless chain horse power, sawing wood all winter, or at the plow in spring and autumn. He was never trained, but won his races handily against odds; although credited with 2:37 and 2:38 in races, he won in much faster time. A full history of this horse was given in the papers of the day when I sold him to the Jewetts of Buffalo, and will be found in the "Clay History."

#### ON PEDIGREES

I will say nothing except that I take them as they appear in print, and class them with the mongrel representatives in flesh and blood, as we see them under different names and crosses. So far as I know and am individually acquainted, not many of the pedigrees we see in print are truthfully correct, after the first or second removes, even if they be so in the first.

I can cite many pedigrees which passing as pure gold in print, I know to be false in fact; but the loud eoniums sounded through the sporting press as to the wonderful

breedings (as given on paper but which do not exist, as I say, in flesh and blood), establish falsities with the young.

John H. Wallace did laborious work in compiling his Trotting Stud Books; but for the past twelve years, since the issue of his first volume, he has spent much time in correcting errors published in his first; so too in each succeeding volume. Mr. Wallace's works are a foundation for the "American Trotting Stud Book;" and I feel that attempted effort upon the part of any man or body of men, or journal of any kind, to issue a new compilation, will be but necessary plagiarism on Mr. Wallace's works, and an injury to the one grand cause, an injury to the general horse-breeding public, and great injustice to the man who has sacrificed so much valuable time, with hard labor and good intent.

I make these remarks in justice to the cause of breeding; not that I have personal acquaintance with Mr. Wallace, for I have not; indeed he has a number of times taken it upon himself to abuse me through his Journal, because I had long years since, in reply to his letters, pointed out for him errors, which he was bound to have in *his* way, despite the truth; but *the cause* is what I am in sympathy with, *not the man*; hence I say no new trotting stud books, but concentration by all men experienced in breeding, to a purification of the present compilation recognized.

Respectfully with good will towards our farmers and farmer breeders of the land,

RANDOLPH HUNTINGTON.

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#### DISCUSSION.

The following should have appeared in connection with Prof. Parkinson's remarks on page 147.

A word or two in reply to Senator Anderson. He says when he read his paper he did not expect to have to defend it against lawyers and professors. Of course not; and if he had added that he had no such expectation when he prepared it, no one who has been listening would question the statement. Too many papers have been prepared upon this subject without any expectation of their having to be defended

against lawyers or professors, or anybody else. Nothing has a healthier effect upon any one who speaks or puts his pen to paper than to feel that he must stand ready at once to defend every assertion he makes, whether against lawyers, professors, preachers, or laymen. If this condition were always met, one half of the speeches and papers on the tariff would never have seen the light, and the other half would have been of infinitely more value.

The Senator charges me with not being satisfied with what the framers of the constitution meant by the expression "direct taxes," and with preferring to take John Stuart Mills' definition. I prefer to take both, but one at a time, and each in its proper connection. The Senator seems willing to accept both, but insists on using them interchangeably in the same argument. This I ventured to say, and now repeat, is the logical fallacy of equivocation. The framers of the constitution used the expression "direct taxes," in a narrow, technical sense. Mill defined it in a broad, general one. I am also charged with saying that in this narrow sense a direct tax is one laid upon land or *other property*. With all deference to the Senator's good intentions, I said no such thing. I *did* say it was a tax on "land or other real estate, and poll or capitation taxes." This is not my construction of the constitution either, but the one repeatedly given by the supreme court of the United States, which he and I are equally bound to accept.

I am also charged with saying that it is an insult to the farmers to tell them that their products are protected. This, too, I did *not* say, as the record will show. But I now say, and say with emphasis, that farmers as a body are not protected, and so far from their being so, they are as a whole doubly cursed by the system as it exists to-day. What I did say I will venture to repeat. It was in substance this: You are told there is a duty on wheat and oats and beef and pork, and even on potatoes. To be sure there is, and *it was an insult to the intelligent farmers of the northwest to impose such a duty*. The idea of protecting wheat and oats and barley in the Mississippi Valley, or beef and bacon and hams in this great stock farm of the world, is preposterous! They, whose business it is to manipulate tariffs know, and you



know, that the farmers of this country, as such, have asked for no protection and need none. All they ask is an open field and fair play. They who manipulate tariffs know, and you know, that we are fast coming to be the feeders of the world; that more than eighty per cent. of our exports are of farm products, and that in the production of those I have named and many others, we have practically no competitors. Forming the bulk of our exports, their price is regulated by the foreign market, and any duty laid for their protection, so called, has virtually no effect, and to lay it is but *adding insult to injury*. Then why is it done? For the purpose of deception—nothing more. This is what I said and desire to emphasize.

But the worst in point of misrepresentation is yet to come. The Senator says that I, in speaking of the *tariff*, said: "I would begin to remove it at once, and continue the process gradually and discreetly, until every vestige should disappear." Now mark just what I did say: "I would not remove all *protection* at once, because it would disturb our industries unduly, but I would begin to remove it at once, and continue the process gradually and discreetly until every vestige should disappear." Evidently in making his speech as well as in preparing his paper, Senator Anderson did not expect to have to defend it against the lawyers and the professors.

The Senator is disposed to dispute my assertion that a protective duty, as such, tends to raise the price of the home product (and, for that matter, of the imported product as well), and that if it fails to do so, it fails of the very end for which it is imposed. It is true, nevertheless, though it may not always seem politic to admit it. It is a curious fact that the average protectionist, when thrown upon the defensive, is sure to contend that the tariff does not raise the price of the home product, but whenever he has no thought of having to defend himself against the "lawyers or professors," or anybody else, he contends for the very opposite, and even holds it to be the legitimate business of government in many cases to barricade against nature's bounties, whether of sunshine, soil or climate. There is a duty, we are told, of forty-five per cent. on calicos. Is the price of calico raised when you can buy it for five cents a yard? Of course it is, if you

could buy it without the duty for four cents or three cents a yard. "The protection," it is said, "consists in this, that it gives our manufacturers the privilege of supplying our own market instead of foreigners doing it at the same, or higher prices." There you have it all in a nut shell. But the trouble is the veriest monopolist asks for nothing more. All he wants or gets is the privilege of supplying the market. Give him this and he will take care of the price. Why, friend Anderson, no doubt would take the contract, and fill it too, of furnishing the state of Wisconsin with all its wool, if you would just guarantee him the privilege of supplying the market. Of course *he* would *not* think of putting up the price on us! But it will be said it is not proposed to cut off competition within national limits; yet if competition has any effect to keep down monopoly prices within certain geographical bounds, I have yet to hear any substantial reason why it will not have the same effect if extended beyond them. I have shown what the "privilege of supplying the market" means, if it means anything.

The Senator's illustration in this connection is too interesting to pass unnoticed, but unfortunately for him, it proved too much. He thinks if the government should impose a tax upon the importation of lawyers and professors, it would have no effect upon my salary or Mr. Sloan's fees, but would protect us in giving us the work to do instead of a foreigner." Now that is a happy thought, and, like many another great discovery that has burst upon the world, it startles by its very simplicity. The only wonder is that it has never occurred before to these zealous friends of the American "workingman." We shall now expect to hear of all the great "captains of industry," including the wool growers, advocating a tax upon the importation of "European cheap labor," for the benefit of the "American laborer." Of course it would have no effect upon his wages, but then it would give him the privilege of supplying the home market with his services, don't you see? What the laborer is panting for is something to do; what he shall receive for his work is a matter of secondary consideration! Now isn't it strange that so simple and so cheap a device as this for securing the

welfare of the "American laborer" has never been urged by his employer?

The Senator fairly revels in statistics, and it seems almost cruel to dispel any of his bright illusions. His argument from the wonderful growth of our commerce under a system of protection, has been more than answered by citing the fact that England has even discounted us under free trade. But our exports are in excess of our imports, while the reverse is true in her case, and this *must certainly* settle the question in favor of protection. Yet one who has not discovered that the mere relation between the exports and imports of a country for one year, or for a series of years, independently considered, proves nothing as to its financial condition or material growth, hasn't exhausted this subject, to say the least. The foreign trade of Great Britain at the present time amounts to more than \$3,400,000,000 annually, and her imports are more than \$600,000,000 in excess of her exports.

If the gentleman's argument is worth anything, she must be rapidly nearing the brink. Now, what are the facts? England, to-day, has practically the carrying trade of the world, and for that service to other nations she must be paid, and her pay comes in the way of imports. She has loans and investments, too, in almost every country of the world, and the interest on these, and dividends, come back to her in imports. Instead, then, of this great excess of imports being an evidence of approaching bankruptcy, it is the highest evidence, when all the facts are considered, of a prosperous exchequer. The imports of France are largely in excess of her exports, and the same is true of Germany, Belgium, Denmark, the Netherlands and all the leading industrial states of Europe. The reverse is true of Russia, Spain, Turkey, Egypt and all those states which are recognized as industrially inferior.

The truth is, a nation's imports, from its own standpoint, ought always to exceed its exports; but from an independent view, and in the long run, they must balance. If a nation will not buy, it cannot sell. All trade proper is an exchange of equivalents. This is its very essence. It exacts as much as it gives. A single transaction may involve loss,

but continuous trade balances itself on the average of dealings. To buy is to sell, and to sell is to buy. Neither individual nor nation that refuses to do the one can hope to do the other. This is the first absolute incontestable truth on which free trade rests.

This brings us to a matter that deserves a moment's notice. I have said that England has practically the carrying trade of the world, and that this accounts in a large measure for the great excess of her imports. Now what is our own showing? From 1770 to 1790, almost the entire carrying trade of this country was on American bottoms. Even in 1860, just before the Morrill tariff was fastened upon us, we had from seventy to seventy-five per cent. of this trade. Now we have left but the beggarly pittance of sixteen per cent. of it. Congress has been trying to devise some means to revive this crippled industry, but still clings to a high protective tariff, which has been the chief instrument in its overthrow. A large portion of our boasted exports goes to pay England and other countries for carrying our own products. And what is most significant of all, more than eighty per cent. of all our exports are of agricultural products, which, so far from being protected, are, as a whole, doubly cursed by the tariff. Could any, then, be "cooler" than to cite this very excess of our exports as an argument in support of the protective system!

I want to say in conclusion that this discussion of the tariff has come to stay; and I warn the Senator that he must prepare henceforth to defend what he has to offer against teachers, preachers, lawyers, doctors—everybody. No one has a monopoly of interest in this matter. It is a question which comes home to all. We are all laborers, too, in the true sense, who are engaged in honorable pursuits. There is no such thing in this country as a producing class, or a consuming class, as such. All men are consumers, and must be, and whoever renders an honorable service for which a return service is freely given, is a producer. All then have interests at stake in the approaching conflict. The war may not end in this decade or the next, but peace will come and it will be "peace with honor."

## A GRANGER WHO WANTS COLD FACTS.

CRANTON, Illinois, February 3. — Editor of the *Chicago Tribune*: I have just had an argument with some protectionists about the amount of tax farmers have to pay on their goods of different kinds. I contended that nearly all the exports of Illinois were non-protected products, because their price was fixed by foreign markets, but that the imports of Illinois were all either protected goods or foreign made imported articles—I suppose in the aggregate about four dollars of the former to one of the latter. If I am right in this estimate, then for every dollar we of this state pay to the government in the shape of duty on foreign goods, we pay four dollars in the form of bounty to the eastern manufacturers on the stuff we buy from them.

Now will the *Tribune* be so good as to state how much the tax is on each of the articles a farmer's family must buy. I wish to get some definite notion of how much tribute we Grangers have to pay to the eastern manufacturers for the support of their "infant industries." I believe this tribute is the money that is called by the soft, persuasive and patriotic sounding term, "protection of American industry." Please give us the cold facts to paste in our hats.

AGRICOLA.

REPLY: The cold facts may give our granger readers a chill colder than the frosty weather does, unless perchance their indignation should warm them up. We will classify a few of the items of the expenditure of the Illinois farmer's family, with the amount per cent. of tax it pays either to the government on the article imported, or to the manufacturer if produced in the eastern states:

## TAXES ON AN ILLINOIS KITCHEN.

	<i>Per cent.</i>
The iron the stove is made of.....	45
Hollow-ware, pots and kettles.....	53
Copper and brass utensils, if any.....	45
Crockery, of the commonest kind.....	55
Glass-ware of the cheapest kind.....	45
Table cutlery and spoons.....	45
Pickled or salted fish.....	25
Salt.....	36
Sugar.....	48

TAXES ON AN ILLINOIS KITCHEN.

*Per cent.*

Vinegar.....	36
Pickles.....	35
Rice.....	123
Oranges and other foreign fruits, about.....	20

TAXES ON AN ILLINOIS PARLOR.

Carpet, if made of druggets.....	74
Carpet, if made of tapestry.....	68
Furniture.....	35
Wall paper.....	25
Window curtains.....	45
Looking glass.....	60
Ornaments or knick-knacks.....	35

TAXES ON AN ILLINOIS WARDROBE.

Men's clothing, of wool.....	48
Woolen hosiery and undershirts.....	75
Cotton hosiery and undershirts.....	45
Woolen hats and caps.....	75
The farmer's wife's black silk dress.....	60
Gloves.....	60
Blankets.....	60
Alpaca dresses.....	63
Any other woolen dresses.....	70
A pair of scissors.....	45
Brass pins.....	30
Hair pins.....	45
Penknives.....	50
Needles.....	25
Steel pens.....	45
Ink.....	25
Paper.....	20
Razors.....	45

TAXES ON SUNDRIES.

Castor oil, even for the baby.....	102
Castile soap.....	50
A dose of epsom salts.....	30
Insect powder.....	20
Salad oil.....	34
The commonest window glass for the house.....	80
Paint; white lead for the farm house.....	54
Bricks.....	35
Roofing slates.....	30
Horse shoe nails.....	31
Trace chains.....	53
A hand saw.....	40
Files.....	40
Spool thread.....	60
Bags and bagging for grain.....	40
A burr stone.....	20
Combs and brushes.....	30
A wooden pipe.....	80
An alpaca umbrella.....	50
Any iron or steel a farmer may need, average of ..	45
Tin cups, skimmers, dippers, and all tinware.....	42
Tin plate for canning meats and fruits.....	34
Fencing boards, \$2.00 per 1,000.....	
Pine boards for building, about.....	20

## TAXES ON SUNDRIES.

	<i>Per cent.</i>
If planed.....	33
Fencing posts, about.....	30
Shingles for roofs.....	25
Lath for house building.....	20
Barbed wire for fencing.....	55
Bibles.....	20
Hymn books.....	20
Histories and other books.....	20

It is just as our correspondent says—that four-fifths of all these taxes go not into Uncle Sam's pocket, but into the wallets of the eastern protected classes. And this system of robbery of the western unprotected agricultural states for the enrichment of the eastern protected sections will continue substantially as it is, until the farmers rise in their strength and say to their members in congress: "This robbery has gone far enough; we want a new deal. We want to be placed on a footing of equality with the rest of the community. We want these swindling burdens removed; we have stood them long enough." When the farmers talk in this way to their congressmen, and mean it, relief will be given; the iniquities of the tariff will be cut out and the system of taxation reformed, but not before, as the eastern manufacturers rule the western members of congress for some inscrutable reason.

## MISCELLANEOUS.

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### AMBER CANE—DEFECATION AND EVAPORATION.

A paper read before the meeting of the Wisconsin Cane Growers, by  
WM. FRAZIER.

I had some experience in manufacturing syrup from the northern cane, from 1865 to 1873, making from six hundred to seven hundred gallons each year. Never had any trouble to dispose of my goods at remunerative prices. The syrup was usually light and clear, but always more or less accompanied with an unpleasant (grassy) taste. I was frequently complimented for the fine appearance of my syrup, but I was often told that I well knew that it had the "Sorgos flavor." During those years I read a good deal about using lime, but the way the subject was then treated it seemed to me it was a risky, uncertain undertaking, unless a person had a pretty fair knowledge of chemistry.

I commenced the business again in 1880, still working on the old plan, with the exception of using settling tanks, instead of trying to filter the cold juice. These were found to be of very great advantage. I made one thousand nine hundred gallons, mostly on shares; was not able to fill an order for fifteen gallons the day we finished; and yet I was not satisfied, and determined to take lessons from the most successful men in the country. I procured Hedges' books, corresponded with Kenney, Schwartz and others, subscribed for the *Rural World*, dropped politics and read everything I could find on the subject of defecation. In these investigations I met with much to encourage me; but when I came to talk with local manufacturers I was almost invariably told to let lime alone — it would spoil the syrup.

But, from all I could gather, it was concluded that it was absolutely necessary, in order to make a syrup that would suit the palate of the most fastidious, that lime, or its equiv-



alent, must be used; so I determined to use it. I have used it the two past seasons with entire success. It did for me all that is claimed for it by its most sanguine advocates. In the tropical countries they do not think of making sugar or syrup without lime. Why should we? In making preparations to neutralize the acid in the cane juice, I was for a long time puzzled to know how to prepare the lime, until I finally received a circular from Mr. Seth Kenney, of Minnesota, which told how *he* prepared and used it. That settled the question.

But to my subject. The word defecate means to purify, to refine; to clear from dregs or impurities; to clarify, etc. I believe that it is a settled fact, that it is impossible to fully defecate the northern cane juice by heat alone. But by the use of an alkali to neutralize the acid, etc., and by applying the settling process in combination with heat, a very fine grade of syrup may be made — and sugar, too.

I now give you my process of manufacturing. I use two custom tanks, capacity one hundred and eighty and two hundred gallons respectively; two lime tanks, one hundred and fifty-five gallons each, and two tanks for semi-syrup, one hundred gallons each. These tanks are made of galvanized iron and wood, and hold just ten gallons to one inch in depth, except those for semi-syrup, which hold eight gallons to the inch.

I have ten feet fall from mill to evaporating house; four feet from level of evaporator to floor of syrup house. Run juice through a two inch pipe fifty-two feet long from mill to custom tanks. Here the juice is allowed to settle while the tank is being filled. When it is tested, measured and drawn through a swing pipe from the top, leaving a muddy sediment at the bottom, and ran into one of the lime tanks, put in enough of the milk of good fresh lime, so the juice will turn blue litmus paper purple. It usually takes a little more than a quart to one hundred gallons of juice. When the lime is put in it must be thoroughly mixed. Of course in this process I lime my juice cold.

Some successful manufacturers do their first boiling in batches; this I believe to be unnecessary and inconvenient. I use a pan seventeen feet long by forty-four inches wide,

with three apartments, the one next to the smoke stack is five feet long; the next one is four feet; the balance of the pan is finished like the Cook evaporator, except that the channels are wider. I run the limed juice into the apartment next to the chimney (this is made separate from balance of pan and placed higher), here it heats gradually but never boils. We skim this part about once in five or six hours. It passes from this to the second apartment, where it is raised nearly to the boiling point, but not allowed to boil; here it is skimmed every two or three hours. The juice is passed through a gate from this to the third division, almost as clear as water, where it is boiled as quick as possible until the green scum is all off; then is drawn by a continuous flow into one of the semi-syrup tanks, where it is allowed to settle an hour or more from the time it begins to fill until it is empty. Here we obtain a feculency, fine and very tart; these settlings will ferment in a short time. From these tanks the defected juice is drawn through swing pipes into the "Madison pan," Cook pattern, where it is kept boiling *rapidly* until finished.

We run the finished syrup by continuous flow through a wooden trough, covered with fine wire screen, thirty-two feet to cooler, from one cooler to the other, when it is usually cooled to about 140° Fahrenheit. The second cooler is set upon trucks, and when filled it is drawn by means of a windlass and pulleys to the top of the syrup tank, which has a capacity of two thousand three-hundred and sixty gallons. A little porous alum water should be used in the semi-syrup. When one of the tanks is about three-fourths full, put in one pint of alum water.

To prepare the alum water, dissolve two and one-half lbs. of porous alum in ten gallons of water.

To prepare the lime take one-half bushel of good lime, put it into a half barrel or tub of large size; pour on eight or ten pails of hot water, stir well while it is slacking to keep it from burning; let it stand till it settles, then drain the clear water from the top; mix enough water with the residue to make it about the consistency of thin cream.

The settling tanks should be rinsed two or three times a

day. Each tank should have a large hole in the bottom to expedite the cleansing. On stopping for the day I always have the mill and all the tanks that are emptied, rinsed and whitewashed. The milk of lime should be freely used in or on all places about a sugar factory that are likely to become sour. The wood work of all tanks, coolers, troughs, etc., used about a sugar factory should be thoroughly painted inside and outside with red lead and boiled oil for obvious reasons. I think the manufacturers of pans and evaporators ought to paint the inside of their wood work.

I do not filter the cold juice, for the reason that the desired result can be more surely accomplished by settling, even when no neutralizing agent is used. But I am so well convinced of the merits of lime that I have no thought of making syrup without the use of it or its equivalent. Any person who has not used settling tanks will, upon the use of them, be surprised to find so much dirt and slime in the bottom of their tanks after draining the juice from the top by the use of swing pipes. For the purpose of controlling the flow of juice from the lime and semi-syrup tanks, I use enlarged wooden faucets inserted in the outlets of the swing pipes.

After allowing time for subsidence, the sooner and more rapidly the juice and semi-syrup can be boiled the better. That shallow boiling is preferable to deep boiling I have no doubt; I am speaking of fire trains. We aim to have the juice about an inch deep in all parts of the pans, except in the first two divisions of the defecating pan; in these departments the depth must be regulated according to circumstances, taking care not to reduce the temperature of the juice to any great extent. If the hot juice is suddenly chilled by an undue rush of cold juice, or if the fire is allowed to cool down, there will of course be a partial precipitation of scum. Under all circumstances a steady, hot fire should be kept up.

Too much skimming is bad; any attempt to remove the scum before it becomes somewhat firm, or in other words, has somebody to it, will result in mixing it with the juice, thus materially injuring the quality of the syrup. It is believed, however, that a thorough removal of the scum is necessary; even the white scum at the finishing end of the pan should all be taken off, and put into an open barrel, with

a wire screen cover, to keep out motes. A molasses-gate should be put in the barrel near the bottom; when the contents have settled, a pretty fair grade of No. 2 syrup may be drawn therefrom.

I use wood for fuel; have it split fine for the evaporator, so that an even hot fire may be kept up.

The Cook evaporator makes a fine finishing pan, if it is preceded by a good defecator. The seventeen foot pan heretofore described, I believe to be one of the best, if not the best defecating pan in use.

Now, as to the results of making syrup by the foregoing process, as compared with the common way. I can make from one-fourth to one-third more in a given time, worth ten cents more per gallon. In 1881, the merchants refused to buy my syrup at my price, fifty cents per gallon. However, during the fall and winter it was all sold to consumers, who came to the factory and paid my price. They advertised my goods so thoroughly, that during last October and November, more than half the merchants within fifteen miles of my factory ordered syrup of me at my price, until it was all gone.

Each manufacturer of syrup should be supplied with a saccharometer, some litmus paper, test cups and a thermometer.

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#### ADDRESS OF HON. JAMES HILL.

Delivered before the Barron County Agricultural Society, at their annual fair, held at Chetek, September 18, 1883.

*Mr. President, Officers and Members of the Barron County Agricultural Association:* I am glad to have this opportunity of visiting you, and extending to all a happy greeting.

As your representative in one branch of the legislature, I can most truly say that I feel a deep interest in your welfare and happiness, and I wish to say again, that I am glad to meet you and have this opportunity of giving expression to the interest I have in you, and thanking you for your liberal support, and the kind consideration I have always received at your hands.

You have come to witgether to-day, h your families and friends, under favorable auspices, bringing with you the best of your agricultural products. The choicest of your flocks and herds. The best products of your mechanics and artisans, the handiwork of your wives and daughters, representing the useful industries of house and home, as well as the house adornments and decorations so tastefully arranged in yonder hall. To exhibit the home products and home industries of the house, garden, farm and dairy, and learn by comparison the products best adapted to your soil and climate, and the best mode of cultivating them; these are among the objects of the society which you represent here to-day.

I wish to say at the outset, that these objects are worthy of your attention, that the pursuit of agriculture stands first among all the industries in this, and every civilized nation. I wish to say further, that agricultural pursuits alone give to labor its true dignity because they are among the most honorable pursuits of life. The purest and best minds America has ever produced, have received that right kind of teaching and discipline, so essential to a noble manhood and a true patriotism, from parents whose only means of livelihood was that of tilling the soil. These pursuits have engaged the attention of the best men of every nation and age of the world, from the patriarchs down to the present day. Indeed, so dignified and lucrative have agricultural pursuits been considered in all time that the monarchical governments of Europe, have by law kept the broad acres of their dominions in the hands of the few privileged classes, which has served as one of the main elements in building up and sustaining their law-made aristocracy; thus robbing honest industry of the dignity, the enjoyment and fruits of its labor; perverting the will and testimony of God made to man, when he created him, bidding him to go forth, bidding him to occupy and till the earth and enjoy the fruits thereof — and no less perverting what are the inherent, inborn principles in man, that he has the right, as the fruit of honest industry, to have and enjoy a portion of God's heritage bequeathed to the great family of man.

Search the world over as much as we may through the

annals of its history, and it is only in this, our republican America, this the home of the free, where the rights of men are respected, that the laborer in agricultural pursuits can hold his true dignified position in society; here only does labor receive that respect and reward so justly its due.

No aristocracy or moneyed monopolies control our soil, but it is as free, in this country, to every man who will accept of it, as it was in the first creation, when God made man to occupy, till and enjoy the fruits thereof; and every man who will accept and occupy this heritage, tendered to him by our government, may live as independently as any nobleman in Europe.

I notice in this assembly, many whose faces bear the impress of foreign birth. We are glad to see you here to-day, and I am also glad that I am authorized by the constitution and laws of these United States, as well as by the sentiment of good will, everywhere expressed for you by the American people, to extend to you, in the name of Barron county, in the name of the state of Wisconsin, in the name of this great nation, the hand of fellowship, and bid you welcome to all the privileges, rights and protection, to life and property, guaranteed to American citizens by her constitution and laws.

In fact, fellow citizens, our ancestry but a little way back, were all of foreign birth, and we may thank God for the landing of our pilgrim ancestry; for their courage and the privations they endured in working out these great problems of a government by the people and for the people, based upon the laws of justice, equal rights and protection to all. In earlier times, our ancestors could only invite those of kin and nationality to the bleak, rocky shores of the Atlantic coast. To-day, we can invite them to a climate unsurpassed in its health-giving principles, and to the occupancy of a soil, which for fertility, is unsurpassed on this globe.

If the desire is for a prairie farm, cleared of forest and ready for early cropping, you have it west and southwest of you, from land that can be counted by millions of acres. If you desire the more fertile soil of the timber lands, with their magnificent forests of wealth, with purer water and healthier climate, you also have it in abundance all about you.

But, returning to the objects of this society which are first, to foster and encourage the agricultural, mechanical and commercial interests of Barron county, and, second, the general interest of state and nation.

Barron county is among the newest counties of the state. In 1860 there was a population of 13 in the territory which now comprises the county. In 1870 you had 538. In 1880 you had 7,023. You have to-day over 10,000, probably 12,000 inhabitants. The lands improved in 1870 were 384 acres. The value of all agricultural products was \$22,715.00. In personal property you had 61 horses, 6 mules, 20 sheep, 171 swine, and 390 neat cattle; the value of all personal property was \$68,663.00. Of taxable real estate you had 124,491 acres, valued at \$257,097, or \$2.07 per acre. The total valuation of real estate and personal property in 1882 was \$1,534,034—a gain in values of \$1,208,273 in 12 years. The tax levied in 1870 was \$417; the tax levied in 1882 was \$55,790.64. I give you these few statistics to show you how rapidly has been your increase in value and population, and yet you are but in your infancy of development. The county contains 691,200 acres, capable of sustaining twenty if not forty times its present number.

As our forefathers were the pioneer settlers of New England, so are we the pioneer settlers of this country. It was their province to lay the foundations morally, politically and religiously, which have developed into such grand success in all the industrial departments of agriculture, mechanical arts and commerce, as well as in all its educational, social, religious, political and state departments. In fact, it was theirs to lay the foundation of that which has developed into the grandest success ever recorded in the world's history. In all that goes to make up national greatness as well as in all their individual enterprises, they built both wisely and well.

We say, study the history of our ancestors in their early pioneer life, that we may, by emulating their virtues and adopting their habits of industry, frugality and sterling integrity, lay the foundations of success in this new, undeveloped country as firmly, and build the superstructure as well and as wisely as they. We ought to build better and make

greater progress in this grand, progressive march towards a higher civilization, because we enjoy better advantages than they; science, inventive genius and mechanical skill, have wrought wonders in these latter times, so that with our machinery and improved modes of cultivating the soil, it is made possible for us to supply the world, not only with breadstuffs, but with beef, pork, butter, cheese, and the whole line of agricultural products. These enterprises and industries have brought the railroad track, so that the products of the country, be they lumber, mineral or agricultural, at once find the best market. The progress made in these respects is simply wonderful. We now see accomplished as much in a day as was in former days accomplished in a decade of years.

Now, with these advantages, and these grand possibilities before us as a nation, what is our duty, and what are we to do as subordinate parts of this great whole? We answer, do the very best we can in all things that go to make success. As agriculturalists, we should study to know and do that which is best suited to our soil and climate.

In northern Wisconsin you have a climate unsurpassed in its health-giving principles to both animal and vegetable life. A soil not only rich and capable of producing a large growth of vegetation, but one varied in its nature from the clay to the different grades of the sandy loams. You have also the rich loams, the muckey soils and the more sluggish marly soils of various grades; in fact, you have all the different grades of soil adapted to the growth of the various agricultural products in the northern climate. The unmistakable lessons which the experience of the past has taught, is that we must not depend exclusively upon any one product. The true theory is, we must diversify our crops, and work more in harmony with our climate and soil. True economy, worked out on correct business principles, demands that we should raise all the different crops that are adapted to our soil, so that the failure in yield or the price of any one product, will not materially interfere with the general results of the year's work.

A fair proportion of our lands are well adapted to the growth of wheat, oats and barley, and the home demand for



these staple grains, being more than equal to the supply from your own farms, will for the present continue to be among the leading products of your county.

For spring wheat, early fall plowing is the best, deep plowing always preferable, except in heavy clay soil, as it is the only protection we have against drought. If dry, the plant roots will find the bottom of your furrows, if too wet, the plant roots will graduate towards the surface, and the deep plowing will more readily absorb the water, and act, to a certain extent, as an under drain, and the plant will be made more healthy and vigorous. Before seeding, pulverize the ground well; lumpy half pulverized soil affords scanty food for the plant roots, which means a poor and unsatisfactory yield. Also before seeding, bring the ground as near as possible to a level surface; cover your seed well, but not deep; from one-half to two inches is quite deep enough. Kernels covered three inches or more seldom grow, or if they do, the plant will be weak and sickly.

On your lighter soils that do not pack firmly, a roller may be used, especially in dry seasons, greatly to the advantage of the crop. It breaks the lumps, and packs the soil so firmly about the roots of the plant, giving it more nourishment and better protection against drought. As soon as the kernel is in hard dough, put in the reaper—there is always more loss from late than early cuttings. Shock and cap as fast as cut, and do it well—careless indifferent shocking or stacking often results in great loss. Remember that a loss in grade, always means a loss in price and bushels as well. What I have said about the cultivation of wheat will apply in a general way to the cultivation of all small grains. Always sow the best of seed. Change often from sandy to clay soil. If not convenient to bring seed from a greater distance, an exchange in your own town is desirable. Much of your land is equally as well adapted to the growing of root crops, which, with proper protection from winter frosts, are made very profitable for either market or feeding. Potatoes, turnips, beets and carrots, if properly fed with a little grain, make good beef or pork.

Your sandy soils are well adapted to the raising of winter

rye, which possesses fine fattening qualities, and is very valuable to mix with your coarser grains for feeding.

For winter wheat, select a well-protected spot from the wind, sow early, giving time for it to get firmly rooted before it freezes up.

For corn, select your earlier well-drained sandy loams, and you will have no trouble in raising a good crop of the earlier varieties of small dent.

For corn, I prefer spring plowing, if old land; if sod, it would be better if turned over in the fall.

Fall plowing needs to be cultivated and pulverized thoroughly in the spring. Plant only seed that you have thoroughly tested and know that it will grow. Follow the planting with a small tooth harrow; one with teeth inclining back is preferable, at least once before the corn is up, and twice after, if reasonably dry so the drag will keep from clogging. The drag can be used until the stand is three inches high; after that use the cultivator, hilling up the last time thoroughly. Keep your fields free from weeds, and there is no trouble about getting a crop. I have planted from thirty to forty acres for the past eight years and never had a failure until this year.

Statistics show that the cost of sugar and syrup consumed in the state to be greater than the sum paid out for flour and breadstuffs. To meet this demand, the growing of amber cane and the manufacture of sugar therefrom is receiving a good deal of attention by the general government, and the state is making yearly appropriations for the purpose of experimenting in the growth and manufacture of sugar and syrup from this cane. The third annual meeting of the Wisconsin State Cane Growing Association was held last winter, in Madison. Reports of experiments had demonstrated, beyond a doubt, that the growing of amber cane and the manufacture of sugar and syrup therefrom is fast becoming a profitable industry. Last year 280 manufacturers reported 491,200 gallons of syrup for the season's make, and it was estimated that the total yield of the state was at least 600,000 gallons.

The experimental farmer at Madison, reports having made good raw sugar for three and one-half cents per pound, all

expenses included. Your light sandy loam soils are well adapted to the growing of this cane, and it can, no doubt, be made to class among the profitable industries of your county.

In fruit growing, but little has been done in your county, and perhaps the result of that little has not been very satisfactory. Within the present century, when western New York was counted as the far west, the Genesee valley, then so famous for its production of wheat, was said to be a failure as a fruit-growing country; now the wheat has partly failed, and it has become equally famous as a fruit-growing country. This has been the experience of many sections, that now have fine thrifty orchards. We advise the planting of the hardiest variety of apples. If failure is the result, try again, making such changes in the varieties, location and cultivation as your experience and observation seem to dictate. Not many years will pass before fruit growing will be classed among the leading agricultural industries of the state, and northern Wisconsin will, I think, at least supply its own demands.

In the rotation of crops, never omit the seeding to grass; this overcropping to grain is ruinous to the success of any farmer, as it robs the soil of its plant food. Therefore, we say, never omit to seed down to timothy and clover—two quarts of clover and six quarts of timothy seed to the acre, I have found to be about right. Good judgment will, however, vary the quantity more or less, to suit the character of your soil. Two crops of hay, we think enough to take from our tillable lands before turning to pasture; one or two years to pasture and it is again ready for cropping. If you plow early, say in June, after the grass is well started, and then again in early fall, your ground is well fitted for a crop of wheat. If you keep in pasture and plow in the fall, it will be suitable for a crop of corn, or any hoed crop.

We recommend seeding with clover—first, because it gives you a larger yield, and mixed with timothy, gives you excellent hay for all kinds of stock—second, it starts earlier than other grasses, giving valuable green feed for cattle early in the season—third, its roots are long and fibrous, penetrating deep into the soil for nourishment, and then its

large shady tops are a protection against drought, affording feed after other grasses have dried up — fourth, from its great power to gather from the air and store up a large amount of nitrogen, holding it in solution for the growth of future crops, makes it a great fertilizer of the soil. Its chief value is thought, by some, to be in the richness and fertility it gives to the soil. Old, and what we call worn out lands, are brought into a higher state of cultivation by seeding to clover and plowing it under. I think it better when sown as a fertilizer, to take a crop of hay early, or as soon as in the flower, and then turn under the second growth as early in July as it gets a vigorous growth. Plow again in October, and your ground is well fitted for a good crop of wheat. Or you can take a crop of seed from the second growth, and then plow late in the fall, or the next spring, and your ground will be in shape for a good crop of corn.

Most of your lands are yet new, and clover sown, as I have indicated, with your timothy, will give you excellent crops of grass and good pasturage, and, at the same time, keep your soil in a healthy, vigorous condition for cropping. If your soil is light or impoverished, sow clover more freely, but under no consideration should we allow clover or any other fertilizer to take the place of manure. The habit of burning straw and allowing manure to waste about your barnyards only tends to poverty. With a stock of cattle, the straw and coarse fodder can be worked into manure, and if put back on the land, will partly compensate for the crop taken from it. However, your own experience and observation will be the best schoolmaster to teach you how to cultivate your farm to produce the best results. Different soils require different modes of culture, and no one theory will suit all conditions of soil and climate.

Rotation of crops and mixed husbandry necessarily includes a stock of cattle. No farmer can succeed and keep up his farm without live stock. They are not only the great fertilizers, but they diversify the work of the farm, filling up the time with profitable employment for both hand and mind. They afford the best of all markets for your hay and pasturage, your coarse grain, coarse fodder and root crops. The only question to be settled is, what kind of stock will

pay best? This must depend upon circumstances and the character of your farm. You want your cows for stock-raising and dairy purposes. The dairy business of the state has had a steady and rapid increase, and is fast taking its place among the leading agricultural industries of the state. In 1870, the product of butter was, in round numbers, twenty-two millions of pounds. In 1880, sixty-five millions of pounds. The production of cheese in 1870 was one-half million pounds; in 1880, twenty-seven million pounds. The export of dairy products is very large, and the demand increasing. Wisconsin, for the quality of her dairy products, ranks with the first states in the Union.

The profits of stock raising and dairying are shown—first, in the reclaiming of worn out grain farms to a productive and prosperous condition—second, in substantial improvements made, and the advanced price of lands that follow dairy farming. Whether it will pay, is no longer a question, and the only thing for us to decide is, what breeds of cattle will best assimilate food, working it into butter and beef. Here we open a large field of inquiry. If you wish to combine dairying qualities with beef, breed your common cows to a full-blooded short-horn Durham, which will give you size, beef-making qualities, and fair milk-producing qualities. For second cross, breed your grade heifers to a full blood Ayrshire or Holstein; this will perfect the milk-producing qualities.

The Jerseys are great favorites with some breeders—if we only consider the butter-making qualities, they stand as high as any. The Holstein, or Dutch cattle, are now receiving a great deal of attention by breeders, and are said to combine, in great perfection, both the beef and dairy qualities. The Devons are handsome red cattle, not large, mature early, are hardy and well adapted to our climate, have fair milk and beef qualities; they are quick and active, and make excellent oxen for farm work. There are other breeds with which I am not familiar, which, however, are said to possess great merit. Whichever may be your preference, always breed to a thoroughbred, or as near as you can. This can be done by joining with your neighbor in the purchase of a thoroughbred animal.

Raising horses is now receiving attention by our Wisconsin farmers. Where conditions favor it, it is made very profitable. Sheep are profitable where conditions and surroundings are favorable.

With pork, hams and lard at present prices, hogs can be made very profitable. The same rules that apply to the breeding and care of cattle, apply equally well to hogs—the Poland China, Suffolk and Berkshire are among the best breeds. Have your pigs come in November; the milk and slop from the house, with boiled potatoes and a little ground feed added, will take through with little cost until your clover pasture is ready. If reasonably well fed and kept warm (conditions which are always essential to the growth of any stock), they will make shoats weighing one hundred pounds or more when turned out. One acre of good clover will pasture from five to seven shoats well without any feed except slop from the house. Take them up in four months and you will find that they have made at least five hundred pounds in weight to one acre of clover. They will be in perfect health and in just the condition to eat well, digest and assimilate their food perfectly. Commence feeding by boiling your small potatoes and roots, adding the slop of the house, with corn, rye or barley meal. Sweet corn cut up and fed green, stalks and all, makes excellent feed, and it is well to plant for that purpose. As your hogs fatten, feed more grain and less of other food, until you finally finish off with corn or corn meal. It will always pay to cook your feed. In December, you can, with this breeding and feeding, butcher hogs that will weigh three hundred pounds.

I have thus far given you a few hints, which are mainly the results of my own observation and experience.

I am aware that the most of your farms are yet small and new; some have just begun to fell the trees and open them up. Your beginning in every department of farm work is necessarily small, but the germ of success lies in the soil, and it is for you to develop and bring success out of it. We live in an age of invention and experiments, not less in the line of agricultural pursuits than in other industries. The results of these inventions and experiments are given to us through the press. We say then, next to taking your own local paper,

take one especially devoted to agriculture as a means of enlightenment and improvement. There is no occupation in life where there is a wider field to learn from experience and observation, for studying the laws of nature and the principles of life and growth in the animal and vegetable kingdom. Success in your calling as farmers, does not depend so much upon bone and muscle as upon the action and guidance of enlightened thought upon all the subjects that pertain to it.

But there are other things that need your attention if you would attain to the highest success. Our systems of education are the pride of America. In them is the germ life of our national and individual success. The establishment of district and higher schools and giving to them a liberal support is among the first duties we owe our families and society. You need also to cultivate proper social relations. Yourself and families all need the cultivation and refinement which can only come to you through the social relations of life, and a free interchange of thought with your neighbors and townsmen, and it is especially your duty to raise high the standard of moral and religious life. Among the first things done by our pilgrim forefathers was to build churches and school houses. They were, no doubt, rude in their construction, but they have become the corner-stone upon which this government has been built.

The germ of all our success and greatness, of all our liberty, the purity of our national life, and of our national and individual manhood, was planted way back in those little churches and school houses. We cannot trace all the benefits resulting from this education there commenced. But this we know, that there went forth from it an influence for good which impressed a likeness more or less permanent, not only upon the nation — shaping its destiny — but upon every mind with which it came in contact, and they in turn impressed the same likeness upon other minds — and so on down through the generations, multiplying itself in an ever expanding geometrical ratio, until the mind refuses to trace its further progress — lost as it is in the traceless wastes of numberless infinity. It is for us, and it is our duty to impress a likeness of these great truths that have come to us,

upon the minds of our children, that they in turn may impress them upon theirs, and so be transmitted down through the line of generations that are to follow us. Through these channels alone can we be co-workers with men of this generation in the great work of carrying on and perfecting our system of government and education. In this way alone can we keep step in the grand march towards a higher civilization, which leads up to a higher life and a nobler manhood. We say, then, in your pioneer work, do not neglect to build the church and the school house.

There are also business relations that need to be considered. While agriculture is necessarily the pioneer industry of a new country, it is soon followed by the merchant, mechanic and manufacturer; all these depend one upon another for support. We wish to say to you, farmers, patronize the merchants, mechanics and manufacturers of your own town and county; and to the merchant, mechanic and manufacturer, I would say, patronize the farmers of your own county to the fullest extent of their ability to supply your wants. There is no principle in political economy more fully demonstrated than this—the nearer you can get supplies and find a market for what you have to sell to the place of production, the better for both producer and consumer.

In all the enterprises started for building up and improving your towns, work together harmoniously. Let no one class say to another we have no need of thee. Never let jealousy stand in the way of public improvement. In building up your towns and county you need the combined effort of all classes.

We hear now-a-days a great deal about strikes and the oppression of labor by capital. There may be some ground for these complaints in large manufacturing districts, but never in a new, undeveloped country like this. In all new districts, like this, capital is more dependent upon labor than labor is upon capital. Should labor be worth more to clear up these lands, that are so urgently inviting you to ownership and a home, than it is to capital, we advise you to take a homestead, buy a pair of steers and go to work upon it, and in five years you will be more independent, in your own



home and possessions, than any capitalist seeking to do business among you.

But the need of this and every new country, is capital; its resources cannot be developed without it. It has already come and built two substantial lines of railroad through your county, annihilating the long distance that lays between you and the outer world. These roads are bringing in immigration and settling up your county. They have doubled the value of your property. They have brought the markets and luxuries of the world to your doors. It is the railroad that made this gathering possible and brought whatever of pleasure or profit you may derive from it. More than this, the building of these roads has made it possible and profitable for capital to come and buy your lands, build mills and start lumbering and other enterprises equal to any in the state; not only affording you the best markets for your farm products, but has made valuable every stick of your timber, and will, in the near future, make valuable every stick of your cord wood.

Your county abounds in magnificent water-powers. The railroads have made them available for manufacturing and other purposes. We say encourage capital, by a wise and liberal policy, to come and take possession of these water-powers and utilize them to their profit, and to your profit by making a better market for your farm products and everything you have to sell; by adding to the value of your property; by the help it will give you in building up your towns, schools and churches, and all the enterprises that go to make you prosperous and happy.

There is a general mania in the state, among those who are seeking homes, to go further west. The prairie lands of Minnesota and Dakota are spoken of as the garden of the world. My interests are quite large in the state of Minnesota. I am not here to deny or affirm statements made in relation to these states. But I do wish to say this, unless you have money to build a house, buy a team, wagon, machinery, farming utensils, and at least one year's provisions, you are far better off here.

I want to say another thing. In all my travels, all things considered, I have never seen any new country that, in my

judgment, equaled the north and northwestern parts of Wisconsin for a man, with limited means, to settle in and make a home. Here you have abundance of good water, timber and fuel; a healthy climate and soil well adapted for growing a diversity of crops. Added to these advantages, I may say that nature has been lavish in the bestowal of her gifts upon this northern Wisconsin. The hills and valleys, lakes and rivers, all blend together to enrich the landscape and the fertility of your soil.

The magnitude of your resources are equal to the best that can be obtained on this continent. If you must seek to better your condition on the broader fields of a prairie country, I would advise you to leave your homes here so you can return to them.

The finest and richest states in the Union, among them New York and Ohio, were less than a century ago, more densely covered with timber than Barron county is to-day. Timber then was a burden to the soil, and had to be chopped, hauled together, piled and burned at heavy expense. Yours is a source of wealth. If your coming here, and taking these timbered lands, was, with you, a venture, it was in my judgment a lucky one. If from choice, it was a wise one. Not only have you come to a good county, but to a good state as well. Wisconsin is fast taking its place in the first rank of states. There is no state in the Union that is acquiring wealth faster or enjoying a greater degree of prosperity than this, according to its age and population.

If you point us to the soil, climate or products of Minnesota, Dakota, Iowa, Kansas, Nebraska, or Illinois, we say, in the product of corn, beef and pork, some of those states lead us. In everything else we lead them. But when we throw into the scales the vast wealth of our lumber products, it makes Wisconsin the unquestioned peer of them all, and we hope in the near future, when our resources shall have reached the climax of their development, that no state in the Union will surpass us in anything that goes to make up material wealth and greatness. In proof of this we point to our location which makes us the highway to the states of the great Northwest, which on their way to the markets of the

world must pay us tribute; to our railroads which in magnitude and efficiency already surpass most of the states in our Union; to our charitable and benevolent institutions, which are not in any particular surpassed by any state in the Union; to the rapid growth of our agricultural, commercial and manufacturing interests, all of which point in this one direction.

We may also point with pride to the fact that to-day no state in the Union, of its age, can write the names of great and good men higher in the annals of fame than Wisconsin. Of statesmen now gone, but whose fame is world wide and world renowned, who does not speak proudly and reverently the names of Howe, Carpenter and Washburn.

But, we must not be unmindful of the fact that the prosperity of the county and state depends, and will depend, upon individual energy and enterprise, and no less upon individual characters, lived out in honest and honorable lives.

Our fathers and early settlers of the state have acted wisely and well in their legislative capacity, in the encouragement given to the various internal improvements and the fostering care they exercised over all the interests of the state. The future of Wisconsin depends upon us. If we act wisely and well in our efforts to build up and push forward the great enterprises of the state, it will have a bright future, and our highest hopes will be realized and Wisconsin will proudly stand in the front rank of states—there to do us and the nation honor. Thus standing, we shall have well earned the right to citizenship and the rich legacy of American institutions, and American liberty, bequeathed to us through the heroism, the sacrifice and blood of our ancestors. Thus standing we have earned the right to live in this land of liberty, and plenty and beauty. Yes, earned the rights guaranteed to American citizens, and the protection of that emblem of America's power and greatness, which is alike feared and respected by all nations—the American flag of Stars and Stripes.

With such facts before us, let us be satisfied with our homes in Wisconsin. The sun does not shine upon a better land, or a more intelligent, benevolent, industrious people. With a purpose and will, join the busy throng in the work of building

and beautifying your homes and farms in Barron county, making them to you, and yours, a joy forever. As you add to the beauty and attractiveness of your homes, farms and farm life, so you add to the beauty and attractions of your county and state, and in no way can we add to the wealth and prosperity of the community in which we live as well as by improving and beautifying our own farms and homes.

This work of beautifying and improving depends as much upon you, ladies, as upon the husband and father. Indeed, there is no business in which men engage where success so much depends upon the wife as that of farming. The house, home and family are more especially under your control. It is a beautiful saying, and as true as beautiful, that "The Mother holds the key of the Soul." It is the mother that stamps the coin of character. In view of these responsibilities, I would say to you, mothers, be true to those noble sentiments, remembering that you are to guide the minds of your children up through boyhood and girlhood to manhood and womanhood, to take our places in society and live out the principles of your teaching and influence. See to it that you stamp their characters with all that is good, and true, noble and manly. These your sons and daughters, whom I see here to-day, represent the best product of your county. They are true types of your home character and home life. They represent the moral and intellectual product of your schools and home circles.

I wish to say to you, young people, that you have duties and responsibilities as well as your parents. You have largely to do with making these, your homes in Barron county, pleasant homes, and the years of your parents prosperous and happy ones. In the performance of the various duties which are already upon you, gather up, as a guide and help, the strength which the principles of obedience, honesty, temperance, frugality and industry will bring to your aid. Thus working together — the father and son, the mother and daughter, each striving to do his or her share in the great duties of life, you will not only bring prosperity and happiness to your own household, but to the community in which you live as well.

Let us, then, following the inspirations of our own better natures, work together harmoniously—each family and community building up within its own borders, and bringing as results well prepared material for the building of the great center temples of prosperity, which are marking progress and improvements everywhere, and making the inner temple of our own hearts an acceptable offering to the Great Giver of all the good we have and enjoy.

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### PRINCIPLES OF BREEDING.

By J. H. SANDERS.

CHICAGO, Ill., January 8, 1884.

C. BABBITT, Madison, Wis.

*Dear Sir*—I send you by to-day's mail the address on "Principles of Breeding," which was prepared for your Society. I would like to make some sort of a compromise with you about this address. I really am very much opposed to having it printed. It forms a most important part of a book which I expect to have issued before long, and I really do not want to have it appear in print elsewhere. Can you not compromise the matter with me and with your Society by having it read at your meeting this year, and by special request withheld from publication? I made the same arrangement with a society in Minnesota last winter, with an address which I sent them. If, however, nothing will do except its publication, please mention the fact that, in a somewhat modified form, it will appear in my book upon Heredity which will be given to the public at no distant day. As a matter of business, however, I would not for *any reasonable consideration* consent to its publication, and I only do so now under protest, on account of the letter which you wrote me some time ago, stating the feeling of your Society upon the subject. I think I may be permitted to say, without egotism, that nothing has ever been written or published in the world which so concisely and clearly presents the vital points evolved in stock breeding as this paper. Wishing you and your Society a happy and prosperous year, I am

Yours truly,

J. H. SANDERS.

This paper being "prepared for our Society," I do not feel at liberty to withhold it from the farmers of our state, whose interests we represent.

CLINTON BABBITT,

*Secretary.*

All our domestic animals have been, to a great degree, moulded and fashioned by the hand of man.

The same uniformity that now characterizes the bison, the

elk and the deer, probably belonged to the horse, the cow, the sheep and the hog, in a state of nature. The ponderous English cart horse, the fleet courser and the diminutive Shetland pony, are all supposed to have descended from originals that were as uniform in their characteristics as are the members of a herd of bison upon our Western prairies. The Short-horn, the Hereford, the Devon, the Jersey and all of the various breeds into which our cattle are now divided, are descended, it is believed, from the same original type. The changed conditions of life to which they have been subjected by domestication—the variety of uses to which they have been put, the food upon which they have subsisted, the climate in which they have been reared, and selection for especial uses, have produced the variations which are now so apparent.

Very much of this divergence is due to climatic influences, which alone are sufficiently powerful, in the changes of food and of habit which necessarily follow, to account for nearly all the varieties which have been produced.

A warm climate and a bountiful supply of nutritious food from birth to maturity, promote growth and development, while a scanty supply of nutrition and a vigorous climate, have a positive tendency in the opposite direction.

A knowledge of the effect of heat and cold upon growth and development, has been taken advantage of by breeders for the purpose of producing dwarf specimens. The breeder of Bantam fowls is careful to have his chicks hatched late in the season, so that the early approach of cold weather may arrest development. The bleak, barren and tempestuous islands—lying in the high latitude of fifty-nine and sixty degrees—north of Scotland, with their scanty subsistence and long winters, has dwarfed the horse of that country until he appears as the diminutive Shetland pony, while, from probably the same original, the rich herbage, nutritious grains and mild climate ten degrees further south, on the coast of France, has given us the immense draft horses of Normandy and Flanders.

But while the climate and the necessarily accompanying influences have done much to cause the divergence which now exists in races that were once uniform, selection by the

hand of man has also been actively at work, in some cases co-operating with the influences of climate, thereby accelerating the transformation, and in others, counteracting its effect. We have an illustration of this in the horses of Canada. It is quite evident that the causes that have given us the tough, shaggy pony of lower Canada, if continued without interruption for a succession of generations, and accelerated by the efforts of breeders in selecting animals for the purpose of reproduction, with the same object constantly in view, would, in the course of time, give us a race as diminutive as the ponies of the Shetland islands. But this climatic influence has been retarded and counteracted by Canadian breeders, who have rejected the smaller specimens for breeding purposes, and have constantly drawn upon the large draft breeds of Europe for fresh crosses. To such an extent has this infusion of fresh blood been carried for twenty-five years past, especially in upper Canada, or Ontario, as it is now called, that the influences of climate have been overpowered, and the progression has been decidedly in the opposite direction.

The efforts of Canadian breeders in this direction have been aided materially by the improved condition of agriculture in the Dominion, which has led to a more liberal system of feeding, and more thorough protection from the rigor of the climate. And thus the forces and influences of nature, in some cases aided and in others counteracted by the efforts of man, have constantly been at work breaking up the uniformity which originally characterized all our domestic animals, until divergence from the original type has become, in many instances, truly wonderful.

The influences of selection, in creating divergence from a type singularly uniform, finds a most striking illustration in the case of the domestic pigeon, of which there are now nearly three hundred known varieties, more or less distinct, and all probably descended from the common wild rock-pigeon.

Among these varieties the divergence is remarkable, not only in the color of the plumage, which in the original is uniform, but in the shapes and markings of the various parts.

Who would imagine, at first thought, that the Pouters, the Carriers, the Runts, the Barbs, the Fantails, the Owls, the Tumblers, the Frill-backs, the Jacobins, the Trumpeters, etc., and all their sub-varieties, with difference so strongly marked, are descended from one common parent stock? Yet, that this is true, and that all the varieties from the original type have resulted from changed conditions of life, climatic influences and artificial selection and crossing, is generally admitted by naturalists.

It is one of the principles of heredity, that when there is great uniformity in a species, divergences from the usual type in the offspring are slight and rare; but when this uniformity, from no matter what cause, has been broken up, divergences in the offspring are frequent and great, although there is always present a tendency, more or less powerful, to revert to the original type. This tendency is most frequently manifested when breeds or races, widely differing in their present forms, are crossed upon each other. In such cases, or violent crosses as they are called, it frequently happens that the progeny resembles neither parent, but shows strong marks of the type from which both of its ancestors originally sprung. Darwin gives numerous illustrations of this tendency to reversion, in his experiments with pigeons of various breeds and colors, one of which I quote as follows:

“I paired a mongrel female barb-fantail with a mongrel male barb-spot; neither of which mongrels had the least blue about them. Let it be remembered that blue barbs are excessively rare; that spots, as has been already stated, were perfectly characterized in the year 1676, and breed perfectly true; this likewise is the case with white fantails, so much so that I have never heard of white fantails throwing any other color. Nevertheless, the offspring from the above two mongrels were of exactly the same blue tint as that of the wild rock-pigeon, from the Shetland Islands, over the whole back and wings; the double black wing-bars were equally conspicuous; the tail was exactly alike in all its characters, and the croup was pure white; the head, however, was tinted with a shade of red, evidently derived from the spot, and was of a paler blue than in the rock-pigeon, as was the stomach.”

So that two black barbs, a red spot, and a white fantail, as



the four purely-bred grand-parents, produced a bird of the same general blue color, together with every characteristic mark, as in the wild Columbalivia, or rock-pigeon.

This tendency to reversion in different breeds of domestic animals when crossed, accounts for many of the disappointments which breeders experienced in their efforts to improve their stock, and serves greatly to complicate the breeding problem.

It is quite certain, from what we know of the effect of climate and of changed habits upon animals in a state of domestication, that, if two branches of the same tribe or species, essentially alike in every feature, should, by some chance, become separated and compelled to subsist under widely differing conditions of life, being left entirely to themselves and the operations of natural laws, in course of time a very marked difference would occur in their structure or habits. There is a tendency in all animal life to adapt itself to the conditions under which it must exist; but a change may be so abrupt and complete, as to overcome this tendency, and under such a condition, the race would speedily become extinct, or gradually die out with a few generations of sickly and enfeebled descendants; but, under circumstances less abrupt and unfavorable, a few might survive, being those individuals that, from some peculiarity of organization, suffered least from the change. These animals, in their turn, would reproduce the peculiarities of their race, modified to some extent, by the new conditions which environed them; and these again would produce animals still better adapted to the new order, until, in course of time, we should have a race widely differing from the original type, created or evolved by a survival of those best fitted to exist under the new order of things, and remoulded and refashioned by the changed conditions of life.

If we accept the commonly received doctrine of the origin of the human race—that is, that all mankind are descended from a common parentage—we are driven to the conclusion that all the differences which are so apparent in the human family, at the present day, are the result of the operation of the law of adaptation to changed conditions, and of climate influences, to which I have just referred. And yet there is

as great a divergence from a uniform type in the human race as in any of the lower orders of animals that are recognized as belonging to a single species.

An illustration of this law of adaptation may be found in the cattle of Texas. These animals, which we call "native Texans," are undoubtedly descended from the Spanish cattle brought, at a very early day, to Louisiana and Mexico, but in form and habit they have been greatly changed from their Spanish ancestry. They roam over the plains of Texas, eat its grasses and drink its waters with impunity, and, under these conditions, increase and multiply at a prodigious rate, enjoying a remarkable degree of immunity from disease of any kind. But let the cattle of any other region be taken to that state, and the result is almost certain death, from what is commonly known as Texas fever. It is not my intention, at this time, to go into an account of the nature or cause of this disease. It is sufficient for any purpose to state the simple and well known fact, that all attempts at the introduction of a new race of cattle upon the plains of Texas have been attended with very serious losses. The proportion that have been found able to survive, under the conditions to which they are there subjected, has been found to be so exceedingly small that few breeders or herdsmen will take the risk of bringing valuable cattle into that state. And yet a *few* do survive, and their descendants are as free from liability to the disease as are the native Texans themselves. The Spanish cattle, when first brought to that region, undoubtedly had to submit to the same fatal ordeal, and the thousands upon thousands of their descendants which to-day are found in that state, afford us a striking illustration of the ability of a race to adapt itself to conditions which, at first, threatened it with extinction. The silent and invisible processes of nature so change the system and adapt it to the new order of things, that, what was a deadly poison to the ancestor, is comparatively harmless to the progeny.

I might multiply illustrations of a like character, from the human race as well as from the lower order of animals; but the principle is so well known, and so universally recognized, that it is useless to discuss it farther; and I have only alluded

to it here as tending to show how numerous and powerful are the agencies that are constantly at work producing variations and changes in animal life.

In the practical business of breeding domestic animals, it is important that due prominence be given to the operation of the laws to which I have alluded; for it follows, that a race or breed most perfectly adapted to a certain locality, a certain mode of life, conditions of climate, and character of subsistence, may, in time, when transported to a distant clime, or even when subjected to changed conditions of life in the same locality, lose all its distinguishing characteristics, and become practically worthless. On the other hand, a race of but little value in its native state may be so modified by a change in climatic conditions, or by the character, quality, and quantity of the aliment furnished, as to become of the highest value to the breeder; and these modifications, although frequently so slow as to be almost imperceptible in a single generation, are accelerated by the powers of inheritance under a continuation of the conditions which inaugurated them.

A high or low temperature, and abundant or scanty nutrition, will affect physical development either favorably or unfavorably. Elevated plains, low marshes, and mountain ranges, are each adapted to support a species of animal life in some respects distinct from the others; and hence a knowledge of the effects of the various climatic conditions, and of the different kinds of food, becomes of the utmost importance to the breeder in determining the kinds of stock which he can produce with profit.

Where animals in a state of nature are not disturbed in the enjoyment of the conditions under which they have existed for ages, as the American bison, or buffalo, the elk, the deer, the wolf, etc., the uniformity which prevails among all the individuals of the race is remarkable; and all of the peculiarities of structure, color, and character are transmitted from generation to generation with almost unerring certainty; and here the maxim of the breeder, that "like produces like," scarcely ever meets with an exception. Such animals are, in the truest sense of the word, *thoroughbred*, or purely bred. There has been no commingling of blood, or

crossing of various strains to give the race a composite character, and hence, when we have seen the sire and dam, we can tell with certainty what the progeny will be. Were any of our domesticated animals *thoroughbreds*, in the sense that the bison, the elk, or the deer are thoroughbreds, the breeding problem would be a simple one, and like would invariably produce like so long as the conditions of life remained the same. The same principle holds true in the reproduction of *vegetable* life. An absolutely pure seed reproduces its kind, but when cross-fertilization has once taken place, the result is uncertain. If the flower of the Baldwin apple tree be fertilized by the pollen of a Winesop, the seed from this union will produce neither the one nor the other. It will be an *apple*, because both of its parents were apples; but as they were of different varieties, or forms, or characters, so the produce will have a character of its own, differing from both of its ancestors.

But, notwithstanding the uniformity of which I have spoken, in the produce of absolutely pure or unmixed races, there arises occasionally what is termed an accidental variation from the established type — a *sport*, as it is frequently called. The color of the American deer is of a fixed type, and a departure from uniformity in this particular is very rare; yet, a white deer is occasionally found; and so of other animals in which the color is an equally well-established characteristic. Man has five fingers on each hand and five toes on each foot, and in this particular the race is uniform; yet a “sport” is occasionally found, where the number of fingers or toes is increased to six. When these accidental variations once occur, they are liable, under favorable conditions, to be transmitted by inheritance; but under the ordinary operations of nature’s laws, when the conditions of life remain unchanged, these anomalies usually disappear within one or two generations, and the normal and characteristic type of the race is assumed. A well-authenticated instance of the transmission of accidental variations is found in the oft-quoted case of Edward Lambert, whose whole body, with the exception of the face, the soles of the feet, and the palms of the hands, was covered with a sort of horny excrescence, which was periodically moulted. His six sons all inherited

the same peculiarity, and the only one of the six that survived transmitted it, in turn, to all his sons. This abnormal character was transmitted through the male line for six generations, and then disappeared. It is a very remarkable illustration of the peculiarities of heredity that the female members of this family should have failed to inherit this peculiarity. Another very remarkable case of this nature that has come under my own observation is that of a family at Knoxville, Ia., where the mother and three grown daughters are entirely destitute of hair, but the sons all have the usual supply. We have also several well-authenticated cases of the transmission, for a few generations, of an abnormal number of fingers or toes; as in the case of the Colburn family where each of the members had a supernumerary toe and finger, which anomaly was transmitted, although irregularly, for four generations before it entirely disappeared. The writer is personally cognizant of a case in which the second and third toe of each foot were united, and which anomaly has been transmitted for three generations to one only, out of an average of eight descendants in each family. But as before remarked, when the conditions of life remain unchanged, these anomalies almost invariably disappear, and the descendants ultimately resume the typical character of the race.

From the fact that these accidental variations have shown themselves to be, in a limited degree, transmissible by heredity, we may infer that if selections were made with a view to their perpetuation, they might ultimately become fixed characters.

Indeed, there is a considerable weight of evidence tending to show that even variations produced by mutilation, or by other artificial means, are sometimes transmitted, especially when the mutilation has been intimately connected with the nervous system. Dr. Prosper Luca gives numerous, well-authenticated instances of this character, and is decidedly of opinion that variations or mutilations that are the result of diseases, are transmissible. That eminent scientist, Dr. Brown Sequard, gives an interesting account of some experiments with Guinea pigs. By an operation upon a certain nerve, he produced epileptic convulsions; and the produce of the animals upon which this operation was per-

formed manifested the same symptoms. But notwithstanding the numerous instances given by the eminent authorities above quoted, I am of the opinion that the cases of the transmission of these artificially produced variations are so rare as to be practically of no account in the calculations of the breeder.

The law which governs the transmission of these accidental variations, whether they be the result of a "sport," or of external influences, appears to be, that when such variations from the common type, are in antagonism to the conditions of life to which the individual is subjected, the variations are not perpetuated, while, on the other hand, if they are in conformity to the existing wants or conditions, thereby better fitting the individual to succeed in the struggle for existence, natural selection, and a survival of the fittest will tend to perpetuate them. From all this, it is evident that the laws of heredity tend to reproduce in the progeny the character of the ancestors; and that when the ancestry is of a fixed and uniform type, the maxim that "like produces like" admits of few exceptions. Yet there are exceptions even here, as we have seen in the case of "sports;" and the modifications produced by changed conditions of life, adaptation to new uses, and new modes of subsistence, tend to vary what, under the operation of the unrestricted laws of heredity, would fix a given type, and leave the breeder's art powerless to effect change or improvement.

Heredity, which makes of every individual the sum, or essence of that which has lived before him, is essentially a conservative force, and opposes all change, all progress, all improvement; but evolution, which compels heredity to give way to internal and external causes, and modifies both the physical and mental organism, places in the breeder's hands the means of effecting wonderful changes.

I have spoken of two forces that, in their effects, appear to be diametrically opposed to each other. Heredity, which "makes of every individual the sum, or essence of that which has preceded it," and evolution or spontaniety, which constantly tends to give animal life new forms, and to each individual peculiarities which belong to it alone.

Of these, heredity is unquestionably the stronger force,

because, as we have before remarked, when uniformity has once been established, the general principle that like produces like, finds very rarely an exception. In fact, the influence of heredity is *always* present, and in the reproduction of animal life, never fails to assert itself, in a greater or less degree. Every living thing brings forth young after its own kind — in some cases the exact counterpart of the parent, and in others slightly modified, but always showing more or less of the parent type. Men do not gather grapes of thorns, nor figs of thistles, neither do short-horn cows bring forth buffalo calves, nor draft mares produce thoroughbred race-horses. White women do not produce negro children when the father is a white man, and no one expects to see a white child from the union of a male and female of the Indian race. Hence, although we may frequently meet with very apparent differences between the parent and the progeny, yet a moment's reflection will show us that the points of resemblance are always very much greater than those of difference. We are so accustomed to look at the operation of this law in its *details*, that we overlook the aggregate of results. We mate a purely-bred Essex sow and boar, and look upon it as a matter of course that the pigs produced will all be black, and possess the general characteristics of the Essex breed; but if, having selected our breeding pair with a view to the transmission of a peculiar form of the head or shape of the ear, we find in the produce that few, and possibly none possess the peculiarity which we have sought to perpetuate, we are apt to lose faith in the power of heredity. And yet it would be an argument *against* the uniform operation of this law were the produce all to possess the peculiarity which distinguished the sire and dam, for this was, in them, an exceptional feature; and the fact that the pigs possessed, in lieu of this peculiar mark, the character that belonged to their ancestors in general, is rather a testimony to the inherent power of heredity than otherwise. Were our pair of pure Essex swine to produce Poland-China or Berkshire or Yorkshire pigs, there would be room for suspicion or for complaint that the laws of heredity had been violated; but such a transgression of nature's law so rarely occurs, that when it does take place, we may properly call the result a "sport."

Hence the failure of an individual to reproduce features that are peculiar to itself, or of a pair of individuals, distinguished for the same peculiarity, to transmit it to the offspring, should excite no surprise in the mind of the breeder. Let it be remembered *always* that *heredity transmits with certainty only what has become a fixed character in the race*. Sports, accidental variations, and individual peculiarities, only occur in opposition to this law, and their transmission is at best uncertain. Heredity may be depended on to govern the general characteristics which determine the species, and the less general ones, which distinguish the breed or race, but when we come to individual characteristics, which have never acquired a general character in the ancestry, it frequently fails. In short, *the transmission of the greater share of all the characteristics is a thing of universal occurrence*, but their transmission *in toto* is an ideal conception that is never realized; and only in proportion as the ancestry has assumed a fixed and unvarying type, do we find this ideal of the effect of heredity approximated.

That peculiarity called atavism, or reversion, so often noticed in our domesticated animals, and which has so frequently set at naught the calculations of the breeder, has often been quoted as an illustration of the failure of the law of heredity; but it is, in fact, only a tribute to its power. By selection, change of climate or of nutrition, or by crossing, or by all of these means combined, we may succeed in obliterating certain well-defined characteristics, and in modifying a given type, until the new form or character that we have created will, in its turn, be transmitted with reasonable certainty; but suddenly the germ that has lain dormant for so many generations asserts itself, and, greatly to our surprise, the characteristics of the original stock will reappear. As I have before remarked, these cases of reversion most frequently occur when cross-breeding is resorted to. The counter currents of hereditary influence, which are by this means brought into contact, having a common origin, awaken to life the germ which has for generations been a silent factor in each of the newly-created breeds, and enables it to assume control of the organism.

In addition to the general and well-defined operation of



the laws of heredity to which I have alluded, its operations in the transmission of individual characteristics, although not clearly defined, and never to be depended upon, are often wonderful. The son is frequently, in some respects, the exact duplicate of the father, and the daughter of the mother. Sometimes a peculiarity which belonged to the grand-sire lies dormant in the son, but crops out as strong as ever in the second or third generation. Again, we find peculiarities transmitted from father to daughter, and from mother to son, and even especial sexual characteristics transmitted by the father through a daughter to a grandson, or by the mother through a son to a granddaughter; but it is worthy of remark, that in no case are all the peculiarities of any one individual transmitted. Indeed, it would be strange were it otherwise, because each individual is the joint product of two other individuals, each endowed with peculiarities of its own; and that each should transmit itself as an entirety is absolutely impossible. Rarely do we find in the individual so produced a blending of these peculiarities in exact proportion — as one might theoretically argue would be the result were the parents of equally well-established types — but rather that in some respects the offspring resembles the father, in others the mother; in some forming a partial or exact mean between the two; and in still others we find the produce utterly unlike either, but possessing an individuality or character peculiarly its own. I might illustrate this by instances from the experience of every breeder, but it is not necessary. The effect has been observed by all who have given any attention whatever to the subject of breeding.

I now propose to consider how these known laws and forces may be utilized in the formation of breeds; and, at the threshold of this division of my subject, it is necessary that we should understand what is meant by the terms used.

The Animal Kingdom is divided by naturalists into four great branches, *Radiata*, *Mollusca*, *Articulata*, and *Vertebrata*. These branches are again divided into classes. The *Vertebrata*, to which branch all our domesticated animals belong, are divided into eight classes, the last of which are the *Mammalia*, embracing all animals that give suck to their young. These classes are divided into genera, and these

again into species. For example: we have the genus *Equus*, of which the horse, the ass, the zebra, and the quagga are species; and these different species are again divided, with reference to certain peculiarities, into breeds. A breed, therefore, is a classification by which we distinguish a group of animals possessing qualities which are not common to all animals of the same species, and which peculiarities have become so firmly established that they are uniformly transmitted by heredity. Thus, we have the Shetland ponies, a breed of horses possessing all the general characteristics of the species to which they belong, but especially distinguished from other breeds by their diminutive size; and the Devons, a breed of cattle uniformly of deep red color, and possessing other distinctive features that are not uniformly found in any other breed of cattle.

It will be observed, that these divisions, from first to last, are more or less arbitrary; and, as it is impossible to define exactly the point where the mineral kingdom leaves off and the vegetable kingdom begins, or to distinguish positively the line of demarcation between vegetable and animal life, so throughout the entire animal kingdom the various divisions or classes approach each other by almost imperceptible gradations, until in many cases it is impossible to locate the dividing line. This is especially true of breeds. We may assume any standard that our fancy may dictate, as the color or texture of the hair; the shape or size of any particular part of the body, as the head or the ear; any particular function, as the quality of the milk in cattle; peculiarities of locomotion, as the trot or pace in the horse; of habit or instinct as exemplified in the setter or in the shepherd's dog, etc.; and classifying with reference to the possession of any of these assumed peculiarities, we may divide a species into breeds. Theoretically, there is no limit to the extent to which this division into breeds might be carried; but practically it is confined to marked difference in *appearance, function, use, disposition* or *equality*. And whenever we have, by any means, produced a group or family of animals that possess and transmit uniformity in any particular in which there is

a lack of uniformity in the species to which they belong, they are fairly entitled to be classed as a breed.

Taking advantage of the almost numberless shades of divergence from the original type to be found among the different species of domesticated animals, the laws of heredity and spontaneity enable man to work wonderful transformations and improvements, by selecting such individuals as most nearly approximate to his ideal, and which manifest a tendency to assume the desired form. By coupling such individuals, there is a probability that the quality for which they were selected will be reproduced in the offspring, and that it will be even more prominent than in the parents. I say there is a *probability* that this will be the result; but it is by no means certain, for as I have remarked only the general and firmly fixed characteristics which distinguish the species are transmitted with absolute certainty; and the transmission of accidental qualities, or especial excellence in any given particular, while always possible, can never be depended upon with certainty. If, however, we select parents both distinguished for the same accidental variation or accidental excellence, the chances that it will be transmitted to the offspring are, theoretically, twice as great as when only one of the parents is in possession of the desired quality. And if in the produce from this coupling we see manifestations of the desired tendency, we may unite animals so bred with an increased probability that they, in turn, will transmit it to their offspring. It is mainly by this process of careful selection and coupling with a view to the possession of certain desirable qualities, persevered in for many generations, that all noted breeders have succeeded in moulding the forms or establishing the breeds that have given them celebrity.

It must be borne in mind that the very processes of nature which make it possible for man to effect improvement in any species of domesticated animals, conspire to make the work of creating a new type from heterogeneous materials extremely difficult. In making selections with a view to perpetuating any variation from an established type, we must always begin with such individuals as have manifested a tendency to assume the desired form and

transmit it to their offspring. With a mixed and heterogeneous ancestry, representing various shades of divergence from the original type of the species, progress in any given direction, by selection, will, under the most favorable circumstances, be slow, and the results will frequently be anything but satisfactory. There is always a tendency in the offspring of a mixed or unimproved race to revert to the original form of the species from which it is derived. This I have shown is most apparent when animals of a widely different character are coupled, as in the case of cross-breeding with distinct varieties or breeds, which, although not without its compensating advantages, in many cases introduces new elements of divergence. Hence the breeder will often find failure where he most expected success. The force of heredity is usually exerted to compel the progeny to adhere to the character which has become fixed in the species, rather than to follow variation from the established type that was accidental or spontaneous in the immediate ancestry; but when, through selection of both parents with reference to this particular for several generations, the influence of heredity has once been enlisted in the transmission of an accidental variation, it lends its powerful aid in favor of the perpetuation of the improved form. Spontaneity may occasionally interpose a new feature, or atavism turn us back toward the original; but by continuing to select from the families which have been bred with reference to the desired form, we shall eventually succeed in fixing the new type so firmly, that its transmission will be the rule, and failure the exception; and when this point has been reached we have succeeded in forming what may justly be called a breed.

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## OUR DAIRY INTEREST.

By T. D. CURTIS, Syracuse, New York.

This is not only a leading interest in Wisconsin, but in this great country. But it is yet far from being developed, and placed on a scientific foundation. It is still in an empirical condition, and very little is known to a certainty.

And this is not at all strange; for the problems involved are various and difficult of solution.

Milk is a very complex, delicate and unstable product. It is an animal elaboration and secretion from elements contained in the food and drink of the cow, combined with the air she breathes, and influenced by her associations and all her surroundings. According to the fullest analysis which I have seen, it is composed of no less than nine fats, five gasses and eight minerals—in all twenty-two elements, some of which are compounds. For aught I know, there may be more ingredients—probably as many in all as are found in the animal organism.

These elements are: Of fats—stearine, palmitin, olein, buty-  
rin, caproin, caprolin, caprin, arachin and myristin; of gasses,  
—carbonic acid, nitrogen, hydrogen, chlorine, and oxygen;  
of minerals—potassium, sodium, calcium, magnesium, iron,  
phosphorus, sulphur and silica. These elements are held  
together by a very weak affinity; and the marvel is, consid-  
ering the popular ignorance of its composition and nature,  
that milk is so successfully handled and forms so important  
a part of human food. It is extremely sensitive, and not  
only rapidly changes from the moment it leaves the cow's  
udder until it reaches dissolution, but undergoes changes in  
the udder from the time it is secreted until it is drawn. This  
latter fact is demonstrated by the superior richness of the  
strippings as compared with the first milk taken from the  
udder. Hence, milk is not only of various qualities, but is  
manufactured into butter and cheese under various condi-  
tions, few of which are known and understood by the man-  
ufacturer.

So we have manifold qualities of milk, which must produce  
manifold qualities of butter, even under like conditions, and  
these qualities are varied by the manifold circumstances of  
methods and surroundings. Who can indicate the best  
method, and the best train of conditions and details, to pro-  
duce the best butter? There are almost as many answers to  
this question as there are butter makers—or, at least, as  
many practices and variations of practices.

And butter varies in quality almost infinitely. We have the  
variations caused by breed, feed, care and condition of the

cows, the length of time from calving, the water they drink, exposure to the weather, shelter, the atmosphere the cows breathe, the more or less cleanliness in milking and handling the milk, the mode of setting, exposure or non-exposure to air, degrees of light and temperature, the time between setting and skimming, the greater or less degrees of souring the cream, or acid and non-acid, and all the circumstances attending the handling of the milk and its product.

Nobody will plead guilty to the charge of making poor butter. Yet, somehow, ninety per cent. of the butter in market is inferior, if we can believe the estimates of dealers and the confirmatory observation of every *pater familias* when he goes out to purchase the family supplies. And it is really astonishing what poor butter finds its way to the prominence of an exhibition at dairy fairs, to be passed upon by judges who at the best make but shrewd guesses. The extremely good and extremely bad are easily determined. But when it comes to grades that are fresh and fit for human food, the differences are not readily recognized by even the average expert, and the best, in the estimation of many, is often made to give way for high color and fancy style of putting up. Since the Jersey boom began, injustice has been done to many good samples of butter by judging it by the Jersey as a standard.

Let us consider some of the methods of setting milk for cream, and of handling the cream until it is churned and the butter product is ready for market.

Years ago, in the days of our mothers and grandmothers, the old fashioned four to six quart pans were the only vessels used in which to set milk for cream. In these it was never set to exceed much over three inches in depth, and in many instances not over two. A room on the north side of the house was usually devoted to this purpose, and no other advantages than the shade thus secured were available for keeping the room cool in the summer. Sometimes a place in the cellar was provided for setting milk, and this never had an atmosphere any too pure — but at that time little was known about the affinity of the fats of milk for odor. Occasionally, a large dairyman had a milk-house separate from the dwelling. This was usually wholly or partly under

ground; and now and then one had a cold spring in it. Very rarely some enterprising dairyman had an arrangement for running cold water around his milk pans.

In those days some very good and some very bad butter was made, as I remember from my boyhood observations. But there was a great lack of uniformity of product in the same dairy, a change in the temperature of the atmosphere affecting the character of the product to such an extent that the season's make of a dairy was a very good meteorological record. These were the days of private dairying.

In winter, the milk was generally set in a buttery adjoining the kitchen and sitting room, if it was not set on shelves put up for the purpose in the kitchen. Winter butter was then white and flavorless, though often bitter, owing to the poor feed and lack of shelter of the cows, and the variable temperature of the room in which the milk was set, the temperature often ranging in twenty-four hours from 70° to 80° down to freezing, and below—for there were no base burners in those days, and the wood fire went out at night and had to be kindled anew every morning.

With the introduction of associated dairying, came the method of deep setting milk for cream. This was done in pails eighteen or twenty inches deep, and eight inches in diameter, set in pools of water. Then began the practice of robbing Peter to pay Paul—of taking the cream off a portion of the milk for making butter, and making the impoverished milk into cheese. The establishments in which this was done were called “creameries.” The cream was churned sweet, and we heard for the first time of sweet-cream butter. It was pronounced good when first churned, but the complaint soon rose that it lost its flavor and would not keep. No such complaint was ever heard before. The best butter was always the longest-keeping, the conditions being the same. But here was a good butter going off flavor, if not rapidly hastening to decay.

At first, the verdict was, that churning the cream sweet was the cause of the short life of the butter. Little or no sweet cream butter had ever before been made—at least not enough to attract attention. The public mind accepted this hasty and superficial view, and henceforth sour-cream

butter became the rage and is clung to now with almost superstitious tenacity.

There was another difference in condition which was entirely overlooked. That was the difference in the mode of setting. The old-fashioned tin pans exposed a large surface of cream to the atmosphere; the deep pails exposed but little surface. The only thing that the difference in depth suggested to the popular mind was the question as to whether all the cream would rise in the deep pails. This was decided in the affirmative as only a question of time; and the cool-water pool system afforded the requisite of keeping the milk sweet for a sufficient period.

But comparatively recent experiments made at Cornell University, New York, demonstrated the fact that in the absence of oxygen, no butter or cheese flavor proper is developed. These flavors are not in the milk, but are the product of oxidation. In cheese, this oxidation is subsequent to manufacture, but in butter it must be prior to manufacture, and be secured by exposure of the cream to the air, from which it absorbs oxygen. It will be seen that the old-fashioned shallow pans exposed a large amount of surface to the air, and thus furnished the requisite condition for oxidation. Prof. L. B. Arnold says this is best accomplished while the cream is rising.

The deep setting, on the contrary, exposed little surface to the air, and from the fact of churning the cream sweet, it appears the time of exposure was shortened. The flavor of the butter churned from it must have been a very mild creamy one, pleasing only to delicate palates, and the sequel showed it was very evanescent.

Souring, it would seem, imparts a flavor of its own, according to the degree of souring; so that the cream from the shallow setting had the advantage not only of flavor imparted by oxidation, but that added, or the modification produced by souring. The practice of souring the cream before churning was soon adopted by the creameries. From this point they began to lead the private dairies in price, because of uniformity of product, if for nothing else, and this practice of souring cream is now carried on to an astonishing extreme in some of the western creameries and butter factories.



But notwithstanding the lead taken by the deep setting creameries, the idea of shallow setting still possessed the public mind. The economy of setting in fewer vessels, however, was recognized; and to meet both the feeling in favor of shallow setting and the demand for economy in labor, the large, shallow pan was devised for setting the entire milking in one mass. At first, water running under the pan was considered indispensable; then the water was run around the sides; and finally the idea of controlling the temperature of the milk room by the use of ice was brought into practice, and the milk allowed to cool down gradually, without the use of water. This system is adopted by some of the best butter makers.

It was found that cream rises best when the temperature of the milk is falling, because the water and casein in the milk cool much more rapidly than the cream, thus making wider the relative gravity and hastening the ascent of the cream. The result has been, slow cooling in shallow setting, and rapid cooling in deep setting. This discrimination very generally if not universally prevails.

There is one objection to the process of cooling in water which does not appear against the process of cooling in air. With water-cooling, the milk soon becomes colder than the surrounding air of the room, and hence condenses the vapors in the air, which fall like dew on the surface of the cream, which absorbs whatever odors the condensed vapors may contain. With air kept colder than the milk — or at least as cold, which will always be the case when the air is the cooling medium — there is a constant exhalation from the milk, which is absorbed by the surrounding air. Thus a process of purification of the milk is all the while going on; while with water-cooling the action is exactly reversed, and the milk, to its own injury, after it reaches a certain relative temperature, is all the while purifying the air. This is a fact which seems entitled to no small consideration.

There are bureaus contrived for setting milk that cut off all exposure to the air. One completely submerges the milk in water, thus preventing all ingress of air or odors, while likewise preventing egress. Another cools the milk in ice water, the can having a ventilator at the top, which may be

kept open while vapors are escaping from the milk, and closed as soon as the milk gets as cool as the atmosphere. Both these bureaus are economizers of space, but as both exclude all possibility of oxidation by exposure to the atmosphere, the cream raised by both has to be soured before churning. There are other inventions for setting milk for cream which it is not necessary for my purpose to mention here. I am only considering conditions which I think must affect quality and flavor.

Let us now consider for a few moments the question of acidity. I drop the question of which is the better, sweet-cream or sour-cream butter, and confine myself to the question of the degree of acidity and the effect of acid on the product.

The advocates of souring cream are widely apart. Their positions may be summarized thus:

1. Skim as soon as the milk begins to change and shows a little loppering on the bottom of the pan, and churn as soon as the cream is slightly sour.

2. Skim after the milk loppers, and churn at once.

3. Skim sweet, and churn the cream when it turns positively sour.

4. Skim sweet, and let the cream stand until it begins to lopper.

5. Skim sweet, and churn the cream "just twelve hours after loppering."

6. Skim sweet, and let the cream stand until the whey begins to separate; then draw off the whey and churn.

Thus we see there is a wide difference in the degree of acidity. We are told by good authority, that the more the acid is developed the more it consumes the flavoring oils of the butter, and the less the yield. This, it would seem, must affect both quality and flavor. Yet the extreme degree of souring is practiced by some of the creameries and private dairymen of the northwest who get the highest prices for their butter.

But, taking a common sense view of the matter, it would appear that butter churned from loppered and wheyed cream must have a large amount of casein mingled with it, and that there is not only a great loss of butter flavor proper,

but an addition of cheesy or sour milk flavor. Indeed, there is good authority for saying that much of the high-priced fancy butter, fresh from the churn, sold in the cities, is flavored principally with buttermilk, and is inferentially very short-lived. But some people have acquired a relish for this new buttermilk flavor and are willing to pay a high price to get it on their tables fresh every day.

It hardly seems possible that butter made from cream so far gone on the road to decay can be as good-flavored or as long keeping as butter churned from properly oxidized sweet cream — unless, by souring, we get rid of some element of decay, or the acid developed takes on a comparatively permanent form, like vinegar, and resists further change. The flavor of sour-cream butter is certainly different from that of sweet-cream, and consumers have the right to their preferences. But can the scientists throw any light on the subject, so that we may know precisely, or even approximately, what effects are produced by the different degrees of souring and whether there is any difference, so far as wholesomeness is concerned, in the products of the different degrees of acidification?

Temperatures range quite widely in setting milk, and these may have something to do in modifying flavor. We have not only slow and rapid cooling, but in rapid cooling the temperature is often run down to near the freezing point. This produces a frothy, bulky cream; but no one yet seems to positively know how flavor and keeping quality are affected by this low temperature. It is admitted by dealers that goods kept at a low temperature, in cold storage, have to be soon consumed when taken out, to avoid deterioration. Does low cooling produce a corresponding effect on the materials out of which dairy goods are made? It is reasonable to suppose that it may. It may be found that there is a medium temperature at which milk should be set, cream kept, and the product stored.

Churning is usually done at about sixty-two degrees Fahrenheit. Yet I know a successful dairyman, who always churns at sixty-four degrees, and I heard one declare, at the National Butter, Cheese and Egg Convention, held in Milwaukee last December, that he always churned at fifty-

eight degrees. We may infer from this that different temperatures are required for different conditions. In one instance, at least, a different temperature was demanded for sweet cream. John Gould, agricultural editor of the *Cleveland Herald*, relates the case of a neighboring creamery, in which the buttermilk was churned in order to get all the butter. The cream was churned sweet, at the usual temperature, or about sixty-two degrees. It was suggested that the churning be done at ten degrees lower temperature. This was tried, and resulted in getting all the butter the first time churning. This was a wide difference, and a low temperature for churning. It might not work in all cases. But this instance unmistakably points to a lower temperature for churning sweet cream than for churning sour. It is a mistake to treat cream in all conditions by one unvarying rule, regardless of the differences. So of other variations, produced by breed, feed, time from calving, season of the year, etc., and the milk and cream from different cows, and even from different herds, may require different treatment, to secure the best results.

• At the late convention of the Butter, Cheese and Egg Association, held in Milwaukee, the buyers of the east cautioned the butter makers about high coloring. They had been troubled about high, artificially-colored butter quickly going off flavor. They did not appear to know the reason for this; but it is not unlikely that the coloring matter acts as a ferment. All artificial butter colors are of vegetable origin. I have personal knowledge of the smoky-like flavor imparted by carrots, which soon becomes unbearable. Most of the commercial colors for butter are prepared from annato, which is cut with oil. This oil mingles with the butter, carrying the color with it. It may also aid in hastening rancidity. But whatever the cause, the hints of the dealers are worth heeding. At best, artificial coloring can gratify only the æsthetic taste, as it has no flavor to impart but a bad one, which, if not at first recognized, is imperceptible simply because of the small amount used. But this small amount may very soon become an active leaven.

There is one fallacy which ought to be dispelled for the benefit of all dairymen — and that is the idea that the qual-

ity of dairy goods depends on the brand of salt used. Good butter makers will make good butter, no matter what brand of refined dairy salt is used; and if they are not good butter makers, salt will not save their butter. It has much to do in seasoning butter and qualifying flavor. It may even, by excessive use, destroy fine flavor, or cover up a mildly bad one. Chloride of sodium is the same everywhere on the face of the earth; and if injurious impurities — which are of the same kind everywhere — are carefully eliminated, no harm can come from its proper use. There is no foreign salt made that is better than our own chemically purified American; and since this is cheaper than any foreign salt, both pride and patriotism ought to induce American dairy-men to give it the preference, while common sense and business shrewdness ought to prevent their being imposed upon by the misrepresentations of the agents of foreign salt companies. We, as Americans, can not do too much to encourage and protect our home industries and develop our natural resources.

I have not said anything about cheese making which is much better understood than butter making. Still there are many undetermined points about cheese making.

What I have said about milk will apply to cheese as well as to butter, and when we solve the problem as to the best way of handling milk we shall improve both branches of dairying.

But how are we to get out of the wilderness, and place dairying on something like a scientific basis? Shall it be done by individual effort, going on in the old hap-hazard way? By no means. This is not only a slow, uncertain and unsatisfactory, but a very extravagant and costly one.

Without some concert of action, the waste will be enormous, and our progress very slow indeed.

The proper way is to have institutions, run by trained minds, for making all necessary investigations and experiments. This is the quickest, the surest and the cheapest way.

We are already getting our agricultural colleges and experimental stations, and these are doing a grand work. Let us sustain them heartily and generously, and not to expect

too much of them at once. We are but just on the threshold of scientific agriculture, feeling our way along new paths never trod before. We shall often go wrong, and the best men cannot avoid mistakes; and these are often more instructive than our successes. Let us proceed carefully and slowly, thoroughly examining everything, until we are familiar with what is around us, and then in the light of our knowledge let us push on a little farther, step by step, making our progress sure. Little by little is nature's method and we cannot do better than to follow nature.

Our agricultural colleges and experimental stations have a new field before them. Our professors have very little to guide them. They have no text-books for their classes, nor teachers to aid them. These are to be prepared and furnished by careful and thorough work. But give them a chance, hold up their hands, and in time they will supply deficiencies and bring order out of chaos.

Do not add to their burdens by ignorant criticism, and unreasonable faultfinding, nor cripple them with narrow penuriousness.

I have one fear about our agricultural colleges. I am afraid they are pitched on a too high key, and will prove beyond the reach of the mass of our farmers' sons.

They not only run to the classics, but require a qualification for admission that few working farmer boys can get. We need something preparatory and intermediate. I have thought that the elements of botany, geology, entomology, physiology, etc., so far as they bear on agriculture, might be taught in our common schools; leaving grammar, and all but simple arithmetic, to a later day, when the mind is more developed and stronger to grasp abstractions.

But we must not neglect spelling, reading, writing and arithmetic. These are essential to all callings, and are the keys to all knowledge. Still, I believe a course could be marked out for our common schools that would make them much more efficient than they now are.

Even then it is a long jump from the common school to the college, and we need some sort of a high school or academy for agricultural students, where they may at once begin the application of the simple principles of science to

agriculture. I believe such an institution will yet be provided, and that our farmer boys can at once avail themselves of all its teachings, as soon as they pass the common school. If they then want to go farther, the college is still open to them and they will be prepared to enter it.

I may be wrong, but I have faith that the agricultural high school or academy, surrounded by its broad acres, devoted to scientific agriculture according to the latest developments and methods, is a thing of the near future. Will the farmer demand it?

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### THE FARMER'S GARDEN.

By J. M. SMITH.

[By courtesy of *The Prairie Farmer*, Chicago.]

A few years ago it was necessary for me to call upon a gentleman upon some business. After my business was completed and I was about to leave, I started toward the garden. He called to me, saying, "Do not go there—you cannot get through the garden." I arrived at the border and stopped. He had evidently complied with one of the necessities of a good garden, viz.: plenty of manure, for it is simply impossible for weeds to grow at the rate, or attain the size they had there, except upon very rich land.

Rabbits would have been perfectly secure from foxes and foxes from dogs, in that immense and tangled growth of weeds.

The owner of that garden was one of the best and most enterprising farmers in the state. He had at one time been president of his state agricultural society.

Many years ago I visited a friend living upon a 160 acre farm. It was one of the most beautiful section farms that I have ever seen either in this or any other state. While there I was speaking of a splendid crop of melons that were just then ripening. He said, in rather a fretful manner, "I do not see why my melons do not grow. I know the land is rich, and there are no weeds in the hills. I hoed them all up only a few days ago." I walked out to his garden with him, and there were his poor, puny vines struggling for life. As he said, there

were no weeds in the hills, a little circle of perhaps two or three feet in diameter had been hoed out, and the balance of the land was covered with a dense growth of weeds from two to six feet in height.

He had a most industrious and refined lady for a wife, and young children growing up around him, and, as before stated, a most excellent as well as valuable farm. Yet not one early pea or one ear of sweet corn; not even early potatoes or a tomato, or, in fact, anything that by any stretch of the imagination could be called a garden bed — yet the man has been to college.

Another gentleman said in my presence, "In the spring, at the proper time, I purchase cabbage seed and sow them; when it is time to set them out I buy the plants and plant them; when it is time for cabbage they are *there*, and so I always have cabbages."

He is among the very best farmers in the state. He teaches others how to farm, and does it well. The man who attacks him in a convention needs a strong cause and a ready tongue, or he will be apt to consider his own cause a very poor one before he gets through with it. This man has been president of a state dairymen's association.

One case more: Another gentleman, who is far above the average farmer, and who has also been president of a state dairymen's association, as well as a public teacher, as he was going out to attend a farmers' meeting or convention, where he was expected to be teacher, happened to look out over the place where his garden should have been, and saw an immense growth of weeds going to seed. He said to his sons and hired men, "Boys bring out a team and hitch to the mower, and mow off the garden; I can not conscientiously go and teach others how to farm with that crop of weeds going to seed in my garden." The work was done. "There," said he, "I can now go and teach without a troubled conscience. There are no weeds going to seed in my garden."

I have strong hopes of this gentleman. He has a conscience. He attends church; and although I consider him intellectually as far superior to most of the preachers of the day, yet if the right man should become his pastor, I fully believe that there is salvation for him even in this life.



As to the other three the case seems at least to be a very doubtful one. One cannot but be reminded of the anecdote of the three little boys who had commenced studying at catechism. Some one asked them if they had learned any of it? "Oh, yes," said one of them, "I'm past justification." A second one says, "I'm past sanctification." The third jumps up and says, "I have beat them all; I'm clear past redemption." It is much to be feared that the three first described gentlemen are all of them clear past redemption.

Let us turn for a moment to a farmer's garden of another order. He has a beautiful as well as an excellent farm. Around his house are quite a number of handsome trees that stood there when the Indians were the proprietors of the soil. The present owner has added such other trees as he thought would add both to its beauty and comfort. The house is a number of rods from the highway, and in the summer is one of the most beautiful rural homes that I ever saw. Back of, and near by, is his garden. It is so arranged that most of its crops can be cultivated with a horse and cultivator. A nice asparagus bed furnishes not only himself and family an abundant supply of this, the first as well as one of the best of the products of the outdoor garden, but also a quantity to sell. His strawberry beds, containing only a few of the standard varieties and a very few plants of some of the most promising of the new ones, were models of both beauty and economy in their arrangement for cultivating both well and cheaply. The same was true of his peas, beans, sweet corn, cabbages, potatoes, etc. His raspberries, both red and black caps, furnished an abundant supply for the family during their season. The same is true of his blackberries and grapes.

A short distance from these well cared for necessities and luxuries of his farm is a moderate-sized and well cared for orchard. I have no doubt he can, if he wishes, have some of the products of his orchard or garden, or both, upon his table every day of the year.

The gentleman who owns and controls this farm has never been president of any state dairymen's association, nor has he ever been sent to congress. But, gentlemen, he is one of

the most thoroughly wide awake and enterprising, as well as one of the very best farmers that Wisconsin can boast of; and we have some good ones.

The question very naturally arises, why is it that so many, not only of our common, but of our very best farmers, fail to have anything that can be called even a poor garden? It is not because they do not like its products.

Time and again have men who were good farmers, when looking over my grounds, said: "Well, it is too bad that I have not had a decent garden; but I am determined to have one after this, and will neglect it no longer." I have no recollection of any farmer's family among my acquaintances who would not enjoy its products. Perhaps the best reason, and often the only one, that can be given for so many almost entire failures in this respect is the want of time. It is a well-known fact that almost all of our farmers are short of the help they really need to keep their farms in good condition. Something is sure to be neglected, and, in three cases out of four, if not in nine out of ten, the poor garden is the first thing that is left to care for itself, which it generally does by growing a tremendous crop of weeds.

It is perfectly useless to attempt to have a respectable garden, unless arrangements are made in the spring for its planting and cultivation with the same care that arrangements are made for the care of the wheat, oats, corn, or potato crop, or the care of the dairy.

When these arrangements are made and faithfully carried into execution during the season, then shall we see good gardens upon our farms; and not only that, but, as a rule, they will be the best paying piece of land upon the farm, not only in the comfort they give to the family, but in the profit as well.

I do not propose at this time to give you a treatise upon gardening. A few hints that may be of value to those who wish to make some improvement, is all that will be attempted.

In the first place, select, if you can have a choice, a piece of light, loamy soil, with a little sand, if you can get it. A heavy clay soil will raise as large a crop as the one above mentioned, but it is not as early, and is much more expensive

and difficult to work. In laying out a garden on a farm take plenty of room, and arrange the grounds in such a manner that the greatest possible amount of work can be performed with the horse.

The selection of seeds is to me the most annoying and perplexing job of the season. The circulars come pouring in, and are filled with the names of new varieties of this and that and the other, each better than any other of its kind, and so very desirable that you are apt to think that you must have a few of the seeds just to try them.

Of course, there is occasionally some improvement made in vegetables and plants but it is safe to say that in nineteen cases out of twenty the farmer or the amateur who invests in some new varieties of seeds or plants upon the recommendation of his circular, loses both money and time by the operation. If I should record my own experience in this line during the past twenty-five years, the result would show that I have drawn an occasional prize and a marvelous number of blanks, and some of them very annoying, as well as expensive ones.

I will give you a list of such seeds as have proven themselves to be about the best that I can find, after years of experience:

Asparagus — Conover's Colossal.

Beets — Early Egyptian for first early; Early Blood Turnip for fall and winter.

Carrots — Early Scarlet-Horn.

Parsnips — Common Dutch Hollow-crown.

Ruta Baga — American Purple Top, imp.

Turnips — Flat Dutch.

Bush Beans — German Dwarf, Black Wax.

Pole Beans — Lima.

Cucumbers — White Spine.

Cabbage — First early, Jersey Wakefield; fall and winter, Premium Flat Dutch.

Celery — Golden Dwarf.

Muskmelons — Early White, Japan and Hackensack.

Watermelons — Mountain Sweet.

Cauliflower — Early Dwarf, Eurfurt.

Peas — Extra Early Dan O'Rourke, American Wonder, Champion of England.

Summer Squash — Round Scallop, American Turban, Hubbard.

Lettuce — Curled Simpson and Boston Market.

Pepper — Large Bell and Butternosed.

Tomato — Trophy and Acme.

Sweet Corn — Early Minnesota, Crosby's Early, Stowell's Evergreen.

These, if planted at same time, will give proper succession.

Radishes — French Breakfast and Covent Garden.

When we come to the small fruits I will recommend as follows: Strawberries — Wilson's Albany Seedling for main crop. If a few very large ones are wanted, try the No. 30 and the Sharpless. With me they are both worthless except for the purpose of producing a few very large berries. To lengthen out the season, the Kentucky is the best of any that I know of. Downer's Prolific is also a fair bearer of excellent quality. I am constantly trying those of the new varieties that seem to me most likely to do well, but almost invariably lose both time and money. I have some twelve or fifteen varieties of these now on trial, but presume the result with nearly or quite all, will be the same as with hundreds of others I have had during the last twenty-five years, viz., after two or three years of trouble and expense, plow them under for manure.

For raspberries, the Doolittle and the Mammoth Cluster have done nicely among the black-caps. The Gregg is also highly recommended by those who have tried it. I have not tried it a sufficient time to tell what it will do with me. The Philadelphia is a standard among the reds, and justly so. After two or three years' trial I think very highly of the Cuthbert, although with me it is not as hardy as the Philadelphia. In fact, they all do better for being covered in winter.

Blackberries. For this portion of the state I know of nothing that I believe would give better satisfaction than Stone's Hardy.

Among currants, the Red and White Dutch are still the standards.

The Concord grape is yet among grapes about what the Wilson is among strawberries — the standard for the mill-ion. The Worden, a seedling of the Concord, is very promising, and may yet prove to be a strong competitor in the race. The Delaware does splendidly in the Fox River Val-

ley, but is not as reliable in all parts of the state as the above named varieties.

I have tried to recommend nothing but what will do well with good fair cultivation upon any good soil. Yet you will often be annoyed in selecting seed, from the fact that the same seed is sent out by different seedsmen under different names. For instance, I have had early peas sent to me under different names and by different seedsmen, and all planted on the same day, side by side, all cared for precisely alike, and all alike claiming to be remarkably early and prolific as well as excellent in quality, and yet every one of them precisely like the old Extra Early Dan O'Rourke that I used to grow, I do not know how many years ago.

The American Wonder is the only one of the new varieties that I have tried in many years that really seems to be an acquisition to our list. It is a dwarf about second early, and with me a good bearer, and of excellent quality. I mention this to show the farmer that as a rule it is better for him to rely upon the old standard list, until some grower with whom he is acquainted with has fairly tested the new variety, and ascertained whether or not they are worthy of cultivation, and some good common sense is all that is needed to insure a good farmer's garden. In twenty-five years I have failed but once to harvest at least a paying crop of strawberries, and most of the time they have been both large and profitable. During that time I have failed once to have a corn crop, and have failed a number of times to have a paying crop of potatoes; in fact, I have failed oftener with my potatoes than with any other of the long list of crops that I attempt to grow. Yet if I should say to the farmers of this audience that they did not know how to grow a crop of potatoes, they would consider themselves insulted, though I presume that not one of them has had complete success with them for any long series of years.

Peas and onions should be put in as early as the land is in good condition to work in the spring. If the ground freezes hard soon after they are sprouted it will not injure them. Parsnips, beets, carrots, radishes, turnips, cabbage, cauliflower, lettuce and salsify will all bear a little frost after they come up, but not much.

Corn, beans, peppers, tomatoes, vines of all kinds require a warm soil and will do their best in no other.

A place for the wife and children's flowers should not be forgotten nor neglected. Give them a place, furnish help to prepare and care for it, and do not complain about the little time and expense it takes, either. Probably you will neither eat nor sell the flowers, but they will pay you better than a few extra bushels of wheat would. We are apt to hear complaints at our conventions that the young men will persist in leaving their farm home and seeking a new one in some of the towns or cities. Well, when I am traveling in our own and in other states and see so many desolate, dreary places that are called farm houses — no trees, no shrubbery, no fruit, no flowers, no garden, in fact, nothing but a shell of a house, and some land, and it is fair to suppose that it is about as cheerless inside the house as it is dreary outside of it, I often wonder how, or why, any bright, active, wide awake young man can stay there one day after he is at liberty to leave.

Gentlemen, I know that there are many beautiful exceptions to the above described homes, and that they are yearly becoming more numerous. If the exceptions could become the universal rule, what a glorious northwest we should have! Presidents of state agricultural societies would not have to warn their friends against attempting to get through the tangled mass of weeds called the garden. The man who has been to college would no longer fret because his vines could not grow. The president of the state dairymen's association would no longer buy cabbage plants or cabbage. Neither would he be compelled to order out his team and mow his garden before his conscience would allow him to teach others how to farm.

Instead of these, should be homes beautiful, homes bright, homes happy — so happy that the young would be loth to leave and glad to return. As our northwest is the grandest portion of our republic, so should our homes be the most beautiful, and the inmates thereof the most intelligent as well as the happiest and most contented citizens of our wide domain.

## REMARKS ON THE PHYSIOLOGY OF BREEDING.

By S. L. GOODALE,\*

Upon few subjects connected with rural economy, probably upon no single one, is there greater need of diffusion of knowledge than in regard to the principles of breeding. Many engaged, more or less, in stock husbandry are utterly ignorant of them. With others who have studied somewhat, or perhaps have written upon the subject, the alpha and omega of their philosophy is embraced in the axiom that "like begets like."

Now, this axiom is a very good one, *as far as it goes*; and if our farm animals were now in the condition in which nature produced them, and if this condition best subserved the wants of the agriculturist, it would approximate nearer to a sufficient guide in breeding; but with domestication came in disturbing influences, and the effects of these have been deviations numerous and great; changes external and internal in form and in constitution.

By virtue of some of these changes, great improvement has been attained. Our most valuable animals are, in some sense, a manufactured article; and the skill which originated them is needful to continue and increase them, while ignorance of the physiological laws connected with their reproduction and improvement will serve to perpetuate and multiply lamentable deficiencies, defects and general unprofitableness.

The object of the husbandman, like that of men engaged in other avocations, is *profit*; and, like other men, the farmer may expect success in proportion to the skill, care, judgment and perseverance with which his operations are conducted.

The better policy of farmers generally, is to make stock husbandry, in some one or more of its departments, a prominent aim — that is to say, while they shape their operations according to the circumstances in which they are situated, these should steadily embrace the conversion of a consid-

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erable portion of the crops grown into animal products, and this because by so doing they may not only secure a present livelihood, but best maintain and increase the fertility of their lands. In fertile grain-growing districts, like our prairie states, the importance of *maintaining* fertility is often unheeded; but the deterioration, by undue cropping, is not less sure, although tardier in manifesting itself, than where the natural resources of the soil are less abundant.

The object of the stock-grower is to obtain the most valuable returns from his vegetable products. He needs, as Bakewell happily expressed it, "the best machine for converting herbage and other animal food into money." He will therefore do well to seek such animals as are most perfect in their kind — such as will pay best for the expense of procuring the machinery, for the care and attention bestowed, and for the consumption of raw material. The returns come in various forms. They may or may not be connected with the ultimate value of the carcass. In the beef-ox and the mutton-sheep, they are so connected to a large extent; in the dairy cow and the fine-wooled sheep, this is a secondary consideration; in the horse, valued as he is for beauty, speed and draught, is not thought of at all.

Not only is there a wide range or field for operations, from which the stock-grower may select his own path of procedure, but there is a demand that his attention be directed *with a definite aim and towards an end clearly apprehended.*

The first question to be answered is, What do we want? and the next, How shall we get it? What we want depends wholly upon our situation and surroundings, and each must answer it for himself. In England, the problem to be solved by the breeder of neat cattle and sheep is how "to produce an animal or a living machine, which with a certain quantity or quality of food and under certain given circumstances, shall yield in the shortest time the largest quantity and best quality of beef, mutton, or milk, with the largest profit to the producer and at least cost to the consumer." But this is not precisely the problem for American farmers to solve, because our circumstances are different. Few, comparatively, at least in the northern states, grow oxen for beef alone, but for labor and for beef, so that earliest possi-



ble maturity may be omitted and a year or more of labor intervene before conversion to beef. Many cultivators of sheep, too, are so situated as to prefer fine wool, which is incompatible with the largest quantity and best quality of meat. Others differently situated in regard to a meat market, would do well to follow the English practice, and aim at the most profitable production of mutton. A great many farmers, not only of those in the vicinity of large towns, but of those at some distance might, beyond doubt, cultivate dairy qualities in cows to great advantage, and this too, even if necessary, at the sacrifice to considerable extent of beef-making qualities. As a general thing, dairy qualities have been altogether too much neglected in years past. Whatever may be the object in view, it should be clearly apprehended, and striven for with persistent and well-directed efforts.

To buy or breed common animals of mixed qualities, and use them for any and for all purposes, is too much like a manufacturer of cloth procuring some carding, spinning, and weaving machinery adapted to no particular purpose, but which can, somehow, be used for any, and attempting to make fabrics of cotton, or wool, and of linen with it. I do not say that cloth would not be produced, but he would assuredly be slow in getting rich by it.

The stock-grower needs not only to have a clear and definite aim in view, but also to understand the means by which it may best be accomplished. Among these means a knowledge of the principles of breeding holds a prominent place, and this is not of very easy acquisition by the mass of farmers. The experience of any one man would go but a little way towards acquiring it, and there has not been much published on the subject in any form within the reach of most. Indeed, from the scantiness of what appears to have been written, coupled with the fact that much knowledge must exist somewhere, one is tempted to believe that not all which might have done so, has yet found its way to printer's ink. That a great deal has been acquired we know, as we know a tree by its fruits. That immense achievements have been accomplished is beyond doubt.

The improvement of the domestic animals of a country so

as greatly to enhance their individual and aggregate value, and to render the rearing of them more profitable to all concerned, is one of the achievements of advanced civilization and enlightenment, and is as much a triumph of science and skill as the construction of a railroad, a steamship, an electric telegraph, or any work of architecture. If any doubt this, let them ponder the history of those breeds of animals which have made England the stock-nursery of the world, the perfection of which enables her to export thousands of animals at prices almost fabulously beyond their value for any purpose but to propagate their kind; let them note the patient industry, the genius and application which have been put forth to bring them to the condition they have attained, and their doubts must cease.

Robert Bakewell, of Dishley, was one of the first of these improvers. Let us stop for a moment's glance at him. Born in 1725, on the farm where his father and grandfather had been tenants, he began at the age of thirty to carry out the plans for the improvement of domestic animals upon which he had resolved as the result of long and patient study and reflection. He was a man of genius, energy and perseverance. With sagacity to conceive and fortitude to perfect his designs, he laid his plans and struggled against many disappointments, amid the ridicule and predictions of failure freely bestowed by his neighbors, often against serious pecuniary embarrassments, and at last was crowned by a wonderful degree of success. When he commenced letting his rams (a system first introduced by him and adhered to during his life in place of selling), they brought him 17s. 6d. each for the season. This was ten years after he commenced his improvements. Soon the price came to a guinea, then to two or three guineas, rapidly increasing with the reputation of his stock, until in 1774, they brought him a hundred guineas each! Five years latter his lettings amounted to \$30,000.

With all his skill and success he seemed afraid lest others might profit by the knowledge he had so laboriously acquired. He put no pen to paper, and at his death left not even the slightest memorandum throwing light upon his operations, and it is chiefly through his cotemporaries, who gathered some-

what from verbal communications, that we know anything regarding them. From these we learn that he formed an ideal standard in his own mind and then endeavored, first by a wide selection and a judicious and discriminating coupling, to obtain the type desired, and then by close breeding, connected with rigorous weeding out, to perpetuate and fix it.

After him came a host of others, not all of whom concealed their light beneath a bushel. By long-continued and extensive observation, resulting in the collection of numerous facts, and by the collation of these facts of nature, by scientific research and practical experiments, certain physiological laws have been discovered and principles of breeding have been deduced and established. It is true that some of these laws are as yet hidden from us, and much regarding them is but imperfectly understood. What we do not know is a deal more than what we do know; but to ignore so much as has been discovered and is well established, and can be learned by any who care to do so, and to go on regardless of it, would indicate a degree of wisdom in the breeder on a par with that of a builder who should fasten together wood and iron just as the pieces happened to come to his hand, regardless of the laws of architecture, and expect a convenient house or a fast-sailing ship to be the result of his labors.

Is not the usual course of procedure among many farmers too nearly parallel to the case supposed? Let the ill-favored, chance-bred, mongrel beasts in their barnyards testify. The truth is—and it is of no use to deny or disguise the fact—the *improvement* of domestic animals is one of the most important and, to a large extent, one of the most neglected branches of rural economy. The fault is not that farmers do not keep stock enough; oftener they keep more than they can feed to the most profitable point, but the majority neither bestow proper care upon the selection of animals for breeding, nor do they appreciate the dollars and cents difference between such as are profitable and such as are profitless. How many will hesitate to pay a dollar for the services of a good bull when some sort of a calf can be gotten for a "quarter?" and this, too, when one by the good male would be worth a dollar more for veal and ten or twenty dollars more when grown

to a cow or an ox. How few refuse to allow to a butcher the cull of his calves and lambs for a few extra shillings, and this when the butcher's difference in shillings would soon, were the best kept and the worst sold, grow into as many dollars and more? How many are there who esteem size to be of more consequence than symmetry, or adaptation to the use for which they are kept? How many ever sit down to calculate the difference in money value between an animal which barely pays for keeping, or perhaps not that, and one which pays a profit? Let us reckon a little. Suppose a man wishes to buy a cow. Two are offered him, both four years old, and which might probably be serviceable for ten years to come. With the same food and attendance, the first will yield for ten months in the year an average of five quarts per day, and the other for the same term will yield seven quarts and of equal quality. What is the comparative value of each? The difference in yield is six hundred quarts per annum. For the purpose of this calculation we will suppose it worth three cents per quart, amounting to eighteen dollars. Is not the second cow, while she holds out to give it, as good as the first, and three hundred dollars at six per cent. interest besides? If the first just pays for her food and attendance, the second, yielding two-fifths more, pays *forty per cent. profit* annually; and yet how many farmers having two such cows for sale would make more than ten, or twenty, or, at most, thirty dollars difference in the price? The profit from one is eighteen dollars a year; in ten years, one hundred and eighty dollars, besides the annual accumulation of interest. The profit of the other is nothing. If the seller has need to keep one, would he not be wiser to give away the first than to part with the second for a hundred dollars? Suppose, again, that an acre of grass or a ton of hay cost five dollars, and that for its consumption by a given set of animals the farmer gets a return of five dollars' worth of labor, or meat, or wool, or milk. He is selling his crop at cost, and makes no profit. Suppose by employing other animals, better horses, better cows, oxen, and sheep, he can get ten dollars per ton in return. How much are the latter worth more than the former? Have they not doubled the value of the crops, and increased the profit

of farming from nothing to a hundred per cent? Except that the manure is not doubled, and the animals would some day need to be replaced, could he not as well afford to give the price of his farm for one set as to accept the other as a gift? Among many who are, in fact, ignorant of what goes to constitute merit in a breeding animal, there is an inclination to treat as imaginary and unreal the higher values placed upon well-bred animals over those of mixed origin, unless they are larger and handsomer in proportion to the price demanded. The sums paid for qualities which are not at once apparent to the eye are stigmatized as *fancy prices*. It is not denied that fancy prices are sometimes, perhaps often paid, for there are probably few who are not willing occasionally to pay for what pleases them, aside from any other merit commensurate to the price. But, on the other hand, it is fully as true that great intrinsic value for breeding purposes may exist in an animal and yet make very little show. Such an one may not even look so well to a casual observer as a grade, or cross-bred animal, which, although quite as valuable to the grazier or butcher, is not, for breeding purposes, worth a tenth part as much.

Let us suppose two farmers to need a bull. They go to seek, and two are offered, both two years old, of similar color, form, and general appearance. One is offered for twenty dollars; for the other a hundred is demanded. Satisfactory evidence is offered that the latter is no better than any or all of its ancestors for many generations back on both sides, or than its kindred; that it is of a pure and distinct breed; that it possesses certain well-known hereditary qualities; that it is suited for a definite purpose; it may be a short-horn, justly noted for large size and early maturity; it may be a Devon, of fine color and symmetry, active and hardy; it may be an Ayrshire, esteemed for dairy qualities, or of some other definite breed, whose uses, excellencies, and deficiencies are all well known. The other is of no breed whatever. The man who bred it had rather confused ideas, so far as he had any, about breeding, and thought to combine all sorts of good qualities in one animal, and so he worked in a little grade Durham or Hereford, to get size, and a little Ayrshire for milk, and a little Devon for color, and so on, in-

corporating also a good share of the "native" element in his stock, because "it was tough, and some folks thought natives were the best after all." Among its ancestors and kindred were some good and some not good, some large and some small, some well-favored and fat, and some ill-favored and lean, some profitable and some profitless. The animal now offered is a great deal better than the average of them. It looks, for aught they can see, about as well as the one for which five times his price is asked. Perhaps he served forty cows last year, and brought his owner as many quarters, while the other only served five. The question arises, which is the better bargain?

After pondering the matter, one buys the low-priced and the other the high-priced one, both being well satisfied in their own minds. What did results show? The low-priced one served that season perhaps a hundred cows; more than ought to have done so came a second time. Having been overtaken as a yearling, he lacked some what of vigor. The calves came of *all sorts*—some good, some poor, a few like the sire, more like the dams—all mongrels, and showing mongrel origin more than he did. There seemed in many of them a tendency to combine the defects of the grades from which he sprung rather than their good points. In some the quietness of the short-horn seemed to have degenerated into stupidity, and in others the activity of the Devon into nervous viciousness. Take them together, they perhaps paid for rearing, or nearly so. After using him another year, he was killed, having been used long enough. The other, we will say, served that same season a reasonable number—perhaps, four to six in a week, or one every day—not more. Few came a second time, and those for no fault of his. The calves bear a striking resemblance to the sire. Some from the better cows look even better in some points than himself, and few much worse. There is a remarkable uniformity among them; as they grow up they thrive better than those by the low-priced one. They prove better adapted to the use intended. On the whole, they are quite satisfactory, and each pays annually in its growth, labor, or milk, a profit over the cost of food and attendance.

of five or ten dollars or more. If worked enough to furnish the exercise needful to insure vigorous health, and no harm befalls him, the bull may be as serviceable and as manageable at eight or ten years old as at two; meantime he has got, perhaps, five hundred calves, which in due time become worth ten or twenty dollars each more than those from the other. Which now seems the wiser purchase? Was the higher estimate placed on the well-bred animal based upon fancy or upon intrinsic value?

#### LAW OF SIMILARITY.

The first and most important among the laws which govern hereditary transmission is the one already referred to, viz.: that of similarity. It is, by virtue of this law, that the peculiar characters, qualities, and properties of the parents, whether external or internal, good or bad, healthy or diseased, are transmitted to their offspring. This is one of the plainest and most certain of the laws of nature. Children resemble their parents, and they do so because these are hereditary. The law is constant. Within certain limits progeny always and everywhere resemble their parents. If this were not so, there would be no constancy of species, and a horse might beget a calf, or a sow have a litter of puppies, which is never the case; for in all time we find repeated in the offspring the structure, the instincts, and the general characteristics of the parents, and never those of another species. Such is the law of nature, and hence the axiom that "like produces like." But while experience teaches the constancy of hereditary transmission, it teaches, just as plainly, that the constancy is not absolute and perfect; and this introduces us to another law, viz.: that of variation, which will be considered by and by; our present concern is to ascertain what we can of the law of similarity.

The lesson which this law teaches might be stated in five words, to-wit: *Breed only from the best*; but the teaching may be more impressive, and will more likely be heeded, if we understand the extent and scope of the law. Facts in abundance show the hereditary tendency of physical, mental and moral qualities in men, and very few would hesitate to admit that the external form and general characteristics of

parents descend to children in both the human and brute races, but not all are aware that this law reaches to such minute particulars as facts show to be the case.

We see hereditary transmission of a peculiar type, upon an extensive scale, in some of the distinct races — the Jews and the Gypsies for example. Although exposed for centuries to the modifying influences of diverse climates, to an association with peoples of widely differing customs and habits, they never merge their peculiarities in those of any people with whom they dwell, but continue distinct. They retain the same features, the same figures, the same manners, customs and habits. The Jew in Poland, in Austria, in London, or in New York, is the same; and the money-changers of the temple at Jerusalem in the time of our Lord may be seen to-day “on ’change” in any of the larger marts of trade. How is this? Just because the Jew is a “thoroughbred.” There is with him no intermarriage with the Gentile — no crossing, no mingling of his organization with that of another. When this ensues, “permanence of race” will cease, and give place to variations of any or of all sorts.

Some families are remarkable during long periods for tall and handsome figures and striking regularity of features, while in others a less perfect form, or some peculiar deformity reappears with equal constancy. A family in Yorkshire is known for several generations to have been furnished with six fingers and toes. A family possessing the same peculiarity resides in the valley of the Kennebec, and the same has reappeared in one or more families connected with it by marriage. The thick upper lip of the imperial house of Austria, introduced by the marriage of the Emperor Maximilian with Mary of Burgundy, has been a marked feature in that family for hundreds of years, and is visible in their descendants to this day. Equally noticeable is the “Bourbon nose” in the former reigning family of France. All the Barons de Vessius had a peculiar mark between their shoulders, and it is said that by means of it a posthumous son of a late Baron de Vessius was discovered in a London shoemaker’s apprentice. Haller cites the case of a family where an external tumor was transmitted from father to son, which always swelled when the atmosphere was moist. The famous Eng-



lish horse Eclipse had a mark of a dark color on his quarter, which, although not a defect, was transmitted to his progeny even to the fifth generation. Very curious are the facts which go to show that acquired habits sometimes become hereditary. Pritchard, in his "Natural History of Man," says that the horses bred on the table lands of the Cordilleras, "are carefully taught a peculiar pace, which is a sort of running amble;" that after a few generations this pace becomes a natural one, young untrained horses adopting it without compulsion. But a still more curious fact is, that if these domesticated stallions breed with mares of the wild herd which abound in the surrounding plains, they "become the sires of a race in which the ambling pace is natural and requires no teaching." Mr. T. A. Knight, in a paper read before the Royal Society, says:

"The hereditary propensities of the offspring of Norwegian ponies, whether full or half-bred, are very singular. Their ancestors have been in the habit of *obeying the voice* of their riders and *not the bridle*, and horse-breakers complain that it is impossible to produce this last habit in the young colts. They are, however, exceedingly docile and obedient when they understand the commands of their masters."

If, even in such minute particulars as these, hereditary transmission may be distinctly seen, it becomes the breeder to look closely to the "like" which he wishes to see reproduced. Judicious selection is indispensable to success in breeding, and this should have regard to *every particular*—general appearance, length of limb, shape of carcass, development of chest; if in cattle, the size, shape and position of udder, thickness of skin, "touch," length and texture of hair, docility, etc., etc.; if in horses, their adaptation to any special excellence depending on form or temperament, or nervous energy. Not only should care be taken to avoid *structural defects*, but especially to secure freedom from *hereditary diseases*, as both defects and diseases appear to be more easily transmissible than desirable qualities. Hereditary diseases not unfrequently have their origin in some faulty or peculiar conformation. Thus horses most disposed to spavins are those having short-pointed hocks, deficient in width and breadth below, and disproportionately small compared with the upper portion of the joint. Those most dis-

posed to ringbones are horses with upright pasterns and high action, etc. On the other hand, there is often no obvious peculiarity of structure or appearance, indicating the possession of diseases or defects which are transmissible, and so special care and continued acquaintance are necessary in order to be assured of their absence in breeding animals; but such a tendency, although invisible or inappreciable to cursory observation, must still, judging from its effects, have as real and certain existence as any peculiarity of form or color. Hereditary diseases are transmitted by either parent, and are doubly severe when both are affected. They are developed, not only in the immediate progeny, but often also in subsequent ones; occasionally the tendency remains latent through one or two generations, and afterwards breaks out again as severely as at first. The diseases which are found to be hereditary in horses, are scrofula, rheumatism, rickets, chronic cough, roaring, ophthalmia, or inflammation of the eye, grease or scratches, bone spavin, curb, etc. Indeed, Youatt says: "There is scarcely a malady to which the horse is subject that is not hereditary. Contracted feet, curb, spavin, roaring, thick wind, blindness, notoriously descend from the sire or dam to the foal." The diseases which are found hereditary in neat cattle are scrofula, consumption, dysentery, diarrhoea, rheumatism, and malignant tumors. Neat cattle being less exposed to the exciting causes of diseases, and less liable to be overtaken or exposed to violent changes of temperature, or otherwise put in jeopardy, their diseases are not so numerous, and what they have are less violent than in the horse, and generally of a chronic character.

Scrofula is not uncommon among sheep; they are also liable to diseases of the brain and of the respiratory and digestive organs. Epilepsy, or "fits," and rheumatism sometimes occur. Swine are subject to nearly the same hereditary diseases as sheep. Epilepsy is more common with them than with the latter, and they are more liable to scrofula than any other domestic animals. With regard to hereditary diseases, it is eminently true that "an ounce of prevention is worth a pound of cure." As a general and

almost invariable rule, animals possessing either defects or a tendency to disease, should not be employed for breeding. If, however, for special reasons, it seems desirable to breed from one which has some slight defect of symmetry, or a faint tendency to disease (although for the latter it is doubtful if the possession of any good qualities can fully compensate), it should be mated with one which excels in every respect in which the other is deficient, and on no account with one which is near of kin to it.

#### THE LAW OF VARIATION.

We come, now, to consider another law, by which that of similarity is greatly modified, to wit: the law of variation or divergence. All organized beings, whether plants or animals, possess a certain flexibility or pliancy of organization, rendering them capable of change to a greater or less extent. When in a state of nature variations are comparatively slow and infrequent, but when in a state of domestication they occur much oftener and to a much greater extent. The greater variability in the latter case is doubtless owing, in some measure, to our domestic productions being reared under conditions of life not so uniform, and different from those to which the parent species was exposed in a state of nature.

Flexibility of organization, in connection with climate, is seen in a remarkable degree in Indian corn. The small Canada variety, growing only three feet high, and ripening in seventy to ninety days, when carried southward, gradually enlarges in the whole plant until it may be grown twelve feet high and upwards, and requires one hundred and fifty days to ripen its seed. A southern variety brought northward gradually dwindles in size, and ripens earlier until it reaches a type specially fitted to its latitude. Variation, although the same in kind, is greater in degree among domesticated plants than among animals. From the single wild variety of the potato, as first discovered and taken to Europe, have sprung innumerable sorts. From the insignificant plant known to botanists as *Brassica oleracea* have been produced, by cultivation, all the varieties of cabbages, kails, broccolis, cauliflowers, and turnips; also the Brussels sprouts, the rape plant,

and the kohl rabi. In brief, it may be said that nearly or quite all the choicest productions both of our kitchen and flower garden are due to variations induced by cultivation in a course of years from plants which, in their natural condition, would scarcely attract a passing glance.

We cannot say what might have been the original type of many of our domestic animals, for the inquiry would carry us beyond any record of history or tradition regarding it; but few doubt that all our varieties of the horse, the ox, the sheep, and the dog, sprang each originally from a single type, and that the countless variations are due to causes connected with their domestication. Of those reclaimed within the period of memory may be named the turkey. This was unknown to the inhabitants of the old continent until discovered here in a wild state. Since then, having been domesticated and widely disseminated, it now offers varieties of wide departure from the original type, and which have been nurtured into self-sustaining breeds, distinguished from each other by the possession of peculiar characteristics.

Among what are usually reckoned the more active causes of variation may be named *climate*, *food*, and *habit*.

Animals in cold climates are provided with a thicker covering of hair than in warmer ones. Indeed, it is said that in some of the tropical provinces of South America there are cattle which have an extremely rare and fine fur in place of the ordinary pile of hair. Various other instances could be cited, if necessary, going to show that a beneficent Creator has implanted, in many animals, to a certain extent a *power of accommodation* to the circumstances and conditions amid which they are reared. The *supply of food*, whether abundant or scanty, is one of the most active causes of variation known to be within the control of man. For illustration of its effect let us suppose two pairs of twin calves, as nearly alike as possible, and let a male and a female from each pair be suckled by their mothers until they wean themselves, and be fed always after with plenty of the most nourishing food; and the others to be fed with skimmed milk, hay tea, and gruel, at first, to be put to grass at two months old, and subsequently fed on coarse and innutritious fodder. Let these be bred from separately, and the same style of treatment

kept up, and not many generations would elapse before we had distinct varieties or breeds, differing materially in size, temperament, and time of coming to maturity.

Suppose other similar pairs, and one from each to be placed in the richest blue-grass pastures in Kentucky, or in the fertile valley of the Tees, always supplied with abundance of rich food. These live luxuriously, grow rapidly, increase in height, bulk, thickness, every way; they early reach the full size which they are capable of attaining; having nothing to induce exertion, they become inactive, lazy, lethargic, and fat. Being bred from, the progeny resemble the parents, "only more so." Each generation acquiring more firmly and fixedly the characteristics induced by their situation, these become hereditary, and we, by and by, have a *breed* exhibiting somewhat of the traits of the Teeswater or Durhams, from which the improved short-horns of the present day have been reared. The others we will suppose to have been placed on the hill-sides of New England, or on the barren isle of Jersey, or on the highlands of Scotland, or in the pastures of Devonshire. These being obliged to roam longer for a scantier repast, grow more slowly, develop their capabilities in regard to size not only more slowly, but, perhaps, not fully at all. They become more active in temperament and habit, thinner and flatter in muscle. Their young cannot so soon shift for themselves, and require more milk, and the dams yield it. Each generation in its turn becomes more fully and completely adapted to the circumstances amid which they are reared; and, if bred indiscriminately with anything and everything else, we, by and by, have the common mixed cattle of New England, miscalled natives; or, if kept more distinct, we have something approaching the Devon, the Ayrshire, or the Jersey breeds.

A due consideration of the natural effect of climate and food is a point worthy the special attention of the stock husbandman. If the breeds employed be well adapted to the situation, and the capacity of the soil is such as to feed them fully, profit may be safely calculated upon. Animals are to be looked upon as machines for converting herbage into money. Now, it costs a certain amount to keep up the motive power of any machine, and also to make good the wear

and tear incident to its working; and in the case of animals it is only so much as is digested and assimilated *in addition* to the amount thus required which is converted into meat, milk, or wool, so that the greater the proportion which the latter bears to the former, the greater will be the *profit* to be realized from keeping them.

In many sections there exists a preference for cattle of large size; and if they possess symmetry and all other good qualities commensurate with the size, and if plenty of nutritious food can be supplied, there is an advantage gained by keeping such, for it costs less, *other things being equal*, to shelter and care for one animal than for two. But if the pastures and meadows be not of the richest, and we select such as required, in order to give the profit which they are capable of yielding, more or richer food than our farms can supply, or than we have the means to purchase, we must necessarily fail to reap as much profit as we might by the selection of such as could be easily fed upon home resources to the point of highest profit. Whether the selection be of such as are either larger or smaller than suit our situation, they will, and equally in both cases, vary by degrees towards the fitting size or type for the locality in which they are kept; but there is this noteworthy difference, that if larger ones be brought in, they will not only diminish, but deteriorate, while, if smaller be brought in, they will enlarge *and improve*. The bestowal of food sufficient both in amount and quality to enable animals to develop all the excellencies inherent in them, and to obtain all the profit to be derived from them, is something very distinct from undue forcing or pampering. This process may produce wonderful animals to look at, but neither useful nor profitable ones, and there is danger of thus producing a most undesirable variation; for, as in plants, we find that forcing, pampering, high culture, or whatever else it may be called, may be carried so far as to result in production of double flowers (an unnatural development), and these accompanied with greater or less inability to perfect seed; so in animals the same process may be carried far enough to produce sterility.

Impotency in bulls of various breeds has not unfrequently

occurred from too high feeding, and especially if connected with lack of sufficient exercise.\*

*Habit* has a decided influence towards inducing variation. As the blacksmith's right arm becomes more muscular from the habit of exercise induced by his vocation, so we find in domestic animals that use, or the demand created by habit, is met by a development or change in the organization adapted to the requirement. For instance, with cows in a state of nature, or where required only to suckle their young, the supply of milk is barely fitted to the requirement. If more is desired, and if the milk be drawn completely and regularly, the yield is increased and continued longer. By keeping up the demand there is induced in the next generation a greater development of the secreting organs, and more milk is given. By continuing the practice, by furnishing the needful conditions of suitable food, etc., and by selecting in each generation those animals showing the greatest tendency towards milk, a breed specially adapted for the dairy may be established. It is just by this mode that the Ayrshires have, in the past eighty or a hundred years, been brought to be what they are—a breed giving more good milk upon a given quantity of food than any other.

It is because the English breeders of modern short-horns generally prefer beef-making to milk-giving properties that they have fostered variation in favor of the one at the expense of the other, until the milk-giving quality in some families is nearly bred out. It was not so formerly. Thirty years ago the short-horns (or, as they were then usually

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\*A *working bull*, though, perhaps, not so pleasing to the eye as a *fat* one (for fat sometimes covers a multitude of defects), is a surer stock-getter and his progeny is more likely to inherit full health and vigor. Another cause of impotency, sometimes temporary and sometimes by neglect becoming permanent, deserves mention. Bulls are liable to an inflammatory disease arising from connection with cows which have been lately driven far or violently exercised. Such cows should not be served until cooled down and comparatively quiet. If the bull has taken the disease, he should be kept from breeding for a while, the parts washed and fomented, and some cooling medicine given. There is also reason to believe that bulls may either contract disease, or the ability to convey the germs of disease *from aborting cows*; so as to induce abortion in other cows subsequently served by him.

called, the Durhams), were not deficient in dairy qualities, and some families were famous for large yield. By properly directed efforts they might, doubtless, be bred back to milk; but of this there is no probability, at least in England, for the tendency of modern practice is very strong towards having each breed specially fitted to its use — the dairy breeds for milk, and the beef breeds for meat only. Climate, food, and habit are the principal causes of variation which are known to be in any marked degree under the control of man, and the effect of these is, doubtless, in some measure, indirect, and subservient to other laws of reproduction, growth, and inheritance, of which we have at present very imperfect knowledge. This is shown by the fact that the young of the same litter sometimes differ considerably from each other, though both the young and their parents have apparently been exposed to exactly the same conditions of life; for had the action of these conditions been specific or direct, and, independent of other laws, if any of the young had varied, the whole would probably have varied in the same manner. Numberless hypotheses have been started to account for variation. Some hold that it is as much the function of the reproductive system to produce individual differences as it is to make the child like the parents. Darwin says: "The reproductive system is eminently susceptible to changes in the conditions of life; and to this system being functionally disturbed in the parents I chiefly attribute the varying or plastic condition of the offspring. The male and female sexual elements seem to be affected before that union takes place which is to form a new being. But, why, because the productive system is disturbed, this or that part should vary more or less we are profoundly ignorant. Nevertheless, we can here and there dimly catch a faint ray of light, and we may feel sure that there must be some cause for each deviation of structure, however slight." It may be useless for us to speculate here upon the laws which govern variations. The fact that these exist is what the breeder has to deal with, and a most important one it is, for it is this chiefly which makes hereditary transmission the problem which it is. His aim should ever be *to grasp and render per-*



manent, and increase so far as practicable, every variation for the better, and to reject for breeding purposes such as show a downward tendency. Among the "faint rays" alluded to by Mr. Darwin as throwing light upon the changes dependent on the laws of reproduction there is one, perhaps the brightest yet seen, which deserves our notice. It is the apparent influence of the male first having fruitful intercourse with a female, upon her subsequent offspring by other males. Attention was first directed to this by the following circumstances, related by Sir Edward Home: A young chestnut mare, seven-eighths Arabian, belonging to the Earl of Morton, was covered in 1815 by a quagga, a species of wild ass from Africa, and marked somewhat in the style of a zebra. The mare was covered but once by the quagga, and, after a pregnancy of eleven months and four days, gave birth to a hybrid, which had, as was expected, distinct marks of the quagga in the shape of its head, black bars on the legs and shoulders, etc. In 1817, 1818, and 1821, the same mare was covered by a very fine black Arabian horse, and produced successively three foals, and, although she had not seen the quagga since 1816, they all bore his curious and unequivocal markings. Since the occurrence of this case numerous others of a similar character have been observed, a few of which may be mentioned. Mr. McGillivray says: "That in several foals in the royal stud at Hampton Court, got by the horse "Actæon," there were unmistakable marks of the horse "Colonel." The dams of these foals were bred from by "Colonel" the previous year. A colt, the property of the Earl of Sheffield, got by "Laurel," so resembled another horse, "Camel," that it was whispered and even asserted at Newmarket that he must have been got by "Camel." It was ascertained, however, that the mother of the colt bore a foal the previous year by "Camel." Alexander Morrison, Esq., of Bognie, had a fine Clydesdale mare which, in 1843, was served by a Spanish ass, and produced a mule. She afterwards had a colt by a horse which bore a very marked likeness to a mule—seen at a distance every one sets it down at once as a mule. The ears are nine and one-half inches long, the girth not quite six feet, stands above sixteen hands high. The hoofs are so long and nar-

row that there is a difficulty in shoeing them, and the tail is thin and scanty. He is a beast of indomitable energy and durability, and highly prized by his owner. A pure Aberdeenshire heifer, the property of a farmer in Forgue, was served with a pure Teeswater bull, to which she had a fine cross calf. The following season the same cow was served with a pure Aberdeenshire bull; the produce was in appearance a cross-bred calf, which at two years old had long horns; the parents were both hornless. A small flock of ewes belonging to Dr. W. Wells, in the island of Grenada, were served by a ram produced for the purpose. The ewes were all white and woolly; the ram was quite different — of a chocolate color, and hairy, like a goat. The progeny were, of course, crosses, but bore a strong resemblance to the male parent. The next season Dr. Wells obtained a ram of precisely the same breed as the ewes, but the progeny showed distinct marks of resemblance to the former ram in color and covering. The same thing occurred on neighboring estates, under like circumstances. Numerous other instances might be stated, both of those recorded by others and of those within the sphere of my own observation, if space would permit, some of which are given in the work alluded to in the note on the first page of this paper. Not a few might also be given showing that the same rule holds in the human species, of which a single one will suffice here: "A young woman residing in Edinburg, and born of white parents, but whose mother previous to her marriage, bore a mulatto child by a negro man servant, exhibits distinct traces of the negro. Dr. Simpson, whose patient at one time the young woman was, recollects being struck with the resemblance, and noticed particularly that the hair had the qualities characteristic of the negro." Dr. Carpenter, in the last edition of his work on physiology, says it is by no means an unfrequent occurrence for a widow who has married again to bear children resembling her first husband. Various explanations have been offered to account for the facts observed, among which the theory of Mr. McGillivray, veterinary surgeon, which is indorsed by Dr. Harvey, and considered as very probable, at least, by Dr. Carpenter, seems the most satisfactory. Dr.

Harvey says: "Instances are sufficiently common among the lower animals where the offspring exhibit more or less distinctly, over and beyond ~~the~~ characters of the male by which they were begotten, the peculiarities also of a male by which their mother at some former period had been impregnated. \* \* \* Great difficulty has been felt by physiological writers in regard to the proper explanation of this kind of phenomena. They have been ascribed by some to a permanent impression made somehow by the semen of the first male on the genital, and more particularly on the ova of the female; and by others to an abiding influence exerted by him on the imagination, and operating at the time of her connection subsequently with other males, and perhaps during her pregnancy; but they seem to be regarded by most physiologists as inexplicable."

Very recently, in a paper published in the "Aberdeen Journal," a veterinary surgeon, Mr. James McGillivray, of Huntly, has offered an explanation which seems to me to be the true one. His theory is, that "*when a pure animal of any breed has been pregnant to an animal of a different breed, such pregnant animal is a cross ever after, the purity of her blood being lost in consequence of her connection with the foreign animal, herself becoming a cross forever, incapable of producing a pure calf of any breed.*" Dr. Harvey, believes "that while, as all allow, a portion of the mother's blood is continually passing by absorption and assimilation into the body of the foetus in order to its nutrition and development, a portion of the blood of the foetus is as constantly passing in like manner into the body of the mother; that as this commingles there with the general mass of the mother's own blood, it inoculates her system with the constitutional qualities of the foetus; and that, as these qualities are in part derived to the foetus from the male progenitor the peculiarities of the latter are thereby so ingrafted on the system of the female as to be communicable by her to any offspring she may subsequently have by other males."

In support of this view, Mr. McGillivray cites a case in which there was presented unmistakable evidence that the organization of the placenta admits the return of the Venus blood to the mother; and Dr. Harvey, with much force, sug-

gests that the effect produced is analogous to the known fact that constitutional syphilis has been communicated to a female who never had any of the primary symptoms. Regarding the occurrence of such phenomena, Dr. Harvey, under a latter date says: "Since then I have learned that many among the agricultural body in this district are familiar, to a degree that is annoying to them, with the facts then adduced in illustration of it, finding that after breeding crosses, their cows, though served with bulls of their own breed, yield crosses still, or rather mongrels; that they were already impressed with the idea of contamination of blood as the cause of the phenomenon; that the doctrine so intuitively commended itself to their minds as soon as stated; that they fancied they were told nothing but what they knew before, so just is the observation that truth proposed is much more easily perceived than without such proposal is it discovered." In the absence of more general and accurate observations directed to this point, it is impossible to say to what extent the first male produces an impression upon subsequent progeny by other males. There can be no doubt, however, but that some impression is made.

The instances where it is of so marked and obvious a character, as in some of those just related may be comparatively few, yet there is reason to believe that although in a majority of cases the effect may be less noticeable, it is not less real, and demands the careful attention of all breeders. Whether this result is to be ascribed to inoculation of the system of the female with the characteristics of the male through the foetus, or to any other mode of operation, it is obviously of great advantage for every breeder to know it, and thereby both avoid error and loss and secure profit. It is a matter which deserves thorough investigation, and the observations should be minute and have regard not only to peculiarities of form, but also to qualities and characteristics not so obvious; for instance, there may be greater or less hardiness, endurance, or aptitude to fatten. These may be usually more dependent on the dam, but the male is never without a degree of influence upon them; and it is well established that aptitude to fatten is usually communicated by the short-horn bull to crosses with cattle of mixed or mon-

grel origin, which are often very deficient in this desirable property. A knowledge of this law gives us a clue to the cause of many of the disappointments of which practical breeders often complain, and to the cause of many variations otherwise unaccountable, and suggests particular caution as to the first male employed in the coupling of animals—a matter which has often been deemed of little consequence in regard to cattle, inasmuch as fewer heifers' first calves are reared than of such as are born subsequently.

#### ATAVISM OR ANCESTRAL INFLUENCE.

It may not be easy to say whether this phenomenon is more connected with the law of similarity or with that of variation. Youatt speaks of it as showing the universality of the application of the axiom that "like produces like;" that when this "may not seem to hold good, it is often because the lost resemblance to generations gone by is strongly revived." The phenomenon, or law, as it is sometimes called, of atavism,\* or ancestral influence, is one of considerable practical importance, and well deserves attention. Every one is aware that it is nothing unusual for a child to resemble its grandfather or grandmother, or some ancestor still further back, more than it does either its own father or mother. The fact is too familiar to require the citing of examples. We find the same occurrence among domestic animals, and oftener in proportion as the breeds are crossed or mixed up. Among our common cattle (*natives* as they are often miscalled), originating as they have done, from animals brought from England, Scotland, Denmark, France and Spain, each possessing different characteristics of form, color and use, and bred indiscriminately together, with no special point in view, no attempt to obtain any particular type, or form, or to secure adaption for any particular purpose, we have very frequent opportunities of witnessing the results of the operation of this law of hereditary transmission. So common is its occurrence that the remark is often made that however good a cow may be, there is no telling be-

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\* From the Latin *atavus*, meaning any ancestor indefinitely, as a grandmother's great grandfather.

forehand what sort of a calf she may have. The fact is sufficiently obvious that certain peculiarities often lie dormant for a generation or two and then reappear in subsequent progeny. Stockmen often speak of it as "breeding back" or "crying back." The cause of this phenomenon we may not fully understand. A late writer says, "it is to be explained on the supposition that the qualities were transmitted by the grandfather to the father, in whom they were *masked* by the presence of some antagonistic or controlling influence, and were thence transmitted to the son, in whom, the antagonistic influence being withdrawn, they manifest themselves."

A French writer on physiology says, if there is not inheritance of paternal characteristics, there is at least an *aptitude* to inherit them, a disposition to reproduce them; and there is always a transmission of this aptitude to some new descendants, among whom these traits will manifest themselves sooner or later. Mr. Singer, let us say, has a remarkable aptitude for music, but the influence of Mrs. Singer is such that their children, inheriting her imperfect ear, manifest no musical talent whatever. These children, however, have inherited the disposition of the father in spite of its non-manifestation; and if, when they transmit what in them is latent, the influence of their wives is favorable, the grandchildren may turn out musically gifted. The lesson taught by the law of atavism is very plain. It shows the importance of seeking "thorough-bred" or "well-bred" animals; and by these terms are simply meant such as are descended from a line of ancestors in which, for many generations, the desirable forms, qualities, and characteristics have been *uniformly shown*. In such a case, even if ancestral influence does come in play, no material difference appears in the offspring, the ancestors being all essentially alike. From this stand-point we best perceive in what consists the money value of a good "pedigree." It is in the evidence which it brings that the animal is descended from a line, all the individuals of which were alike and excellent of their kind, and so is almost sure to transmit like excellencies to its progeny in turn; not that every animal, with a long pedigree, full of high-sounding names, is necessarily of great

value as a breeder, for in every race or breed, as we have seen while speaking of the law of variation, there will be here and there some which are less perfect and symmetrical of their kind than others; and if such be bred from, they may, likely enough, transmit undesirable points; and if they be mated with others possessing similar failings, they are almost sure to deteriorate very considerably. Pedigree is valuable in proportion as it shows an animal to be descended, not only from such as are purely of its own race or breed, but also from such individuals in that breed as were specially noted for the excellencies for which that particular breed is esteemed. Weeds are none the less worthless because they appear among a crop consisting chiefly of valuable plants; nor should deformed or degenerate plants, although they be true to their kind, ever be employed to produce seed. The pertinacity with which hereditary traits cling to the organization in a latent, masked, or undeveloped condition for long after they might be supposed to be wholly "bred out," is sometimes very remarkable. What is known among breeders of short-horns as the "Galloway Alloy," although originating by the employment for only once of a single animal of a different breed, is said to be traceable, even now, after many years, in the occasional development of a "smutty nose" in descendants of that family.

Many years ago there were in the Kennebec valley a few polled or hornless cattle. They were not particularly cherished and gradually diminished in numbers. Mr. Payne Wingate shot the last animal of this breed (a bull calf or a yearling), mistaking it in the dark for a bear. During thirty-five years subsequently, all the cattle upon his farm had horns, but at the end of that time one of his cows produced a calf which grew up without horns, and Mr. Wingate said it was, in all respects, the exact image of the first bull of the breed brought there. Probably the most familiar exemplification of clearly marked ancestral influence is to be found in ill-begotten, round-breeched calves, occasionally, and not very unfrequently, dropped by cows of the common, mixed kind, and which if killed early make very blue veal, and if allowed to grow up become exceedingly profitless and unsatisfactory beasts; the heifers being often sterile, the cows

poor milkers, the oxen dull, mulish beasts, yielding flesh of dark color, ill flavor, and destitute of fat. They are known by various names in different localities, as the "Peter Waldo," "Yorkshire," "Westminster," "Pumpkin Buttocks," etc., etc. It is probable that this peculiarity was first introduced in America by means of some of the early importations of Dutch cattle, or of the old Durham or Teeswater breed. No one who has proved the worthlessness of these cattle would willingly believe that any bull of this sort had been lately kept for service, and yet it is by no means a rare occurrence to find calves dropped at the present time bearing unmistakable evidence of distant ancestral influence.\*

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\*NOTE.—Owing to lack of space here, this article will be concluded in Vol. XXII of the Transactions of the State Agricultural Society.



