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## **Transactions of the Wisconsin State Agricultural Society, including the proceedings of the state agricultural convention held in February, 1886, together with other practical papers. Vol. XXIV 1886**

Wisconsin State Agricultural Society  
Madison, Wisconsin: Democrat Printing Company, State Printers,  
1886

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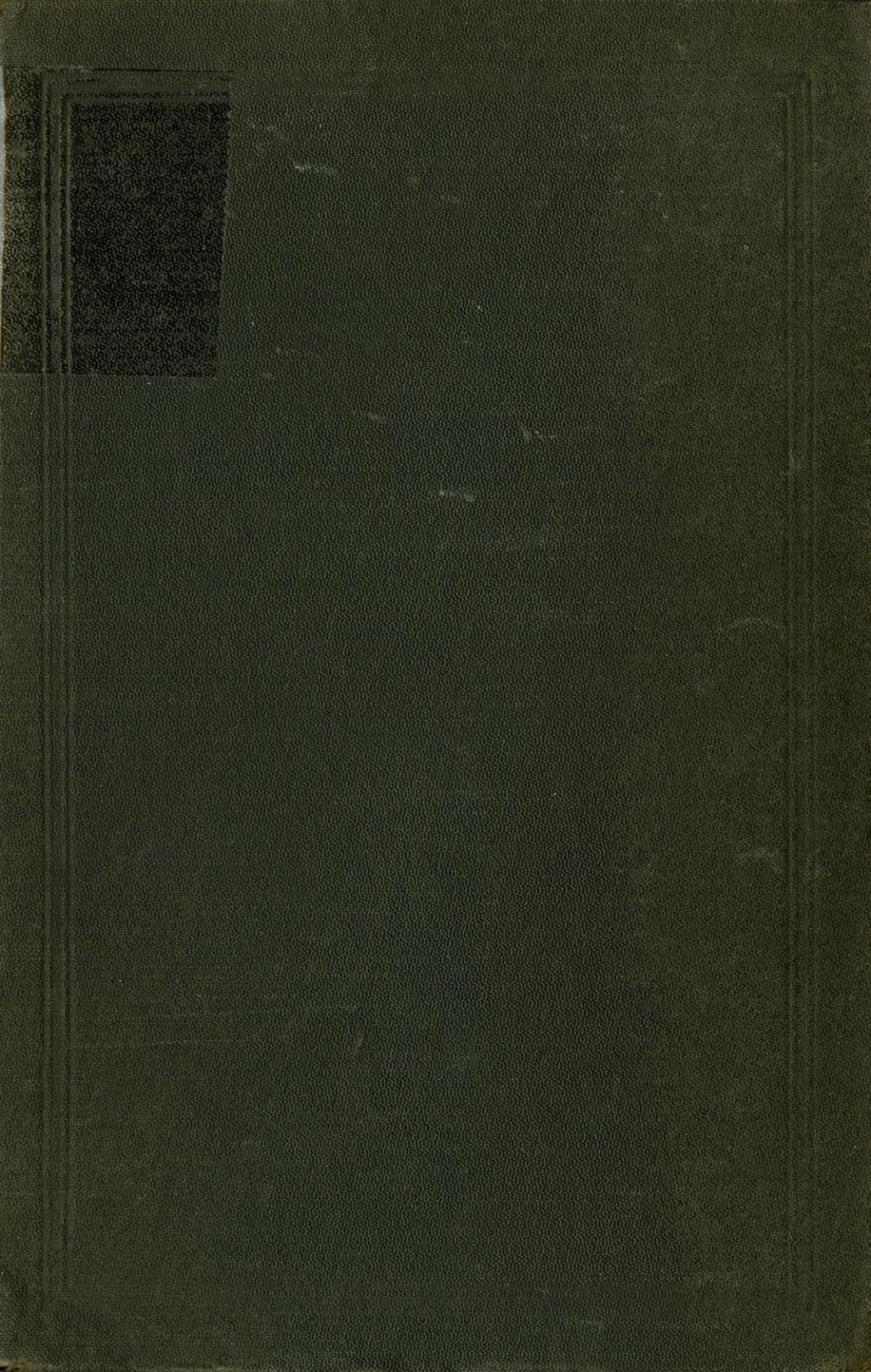
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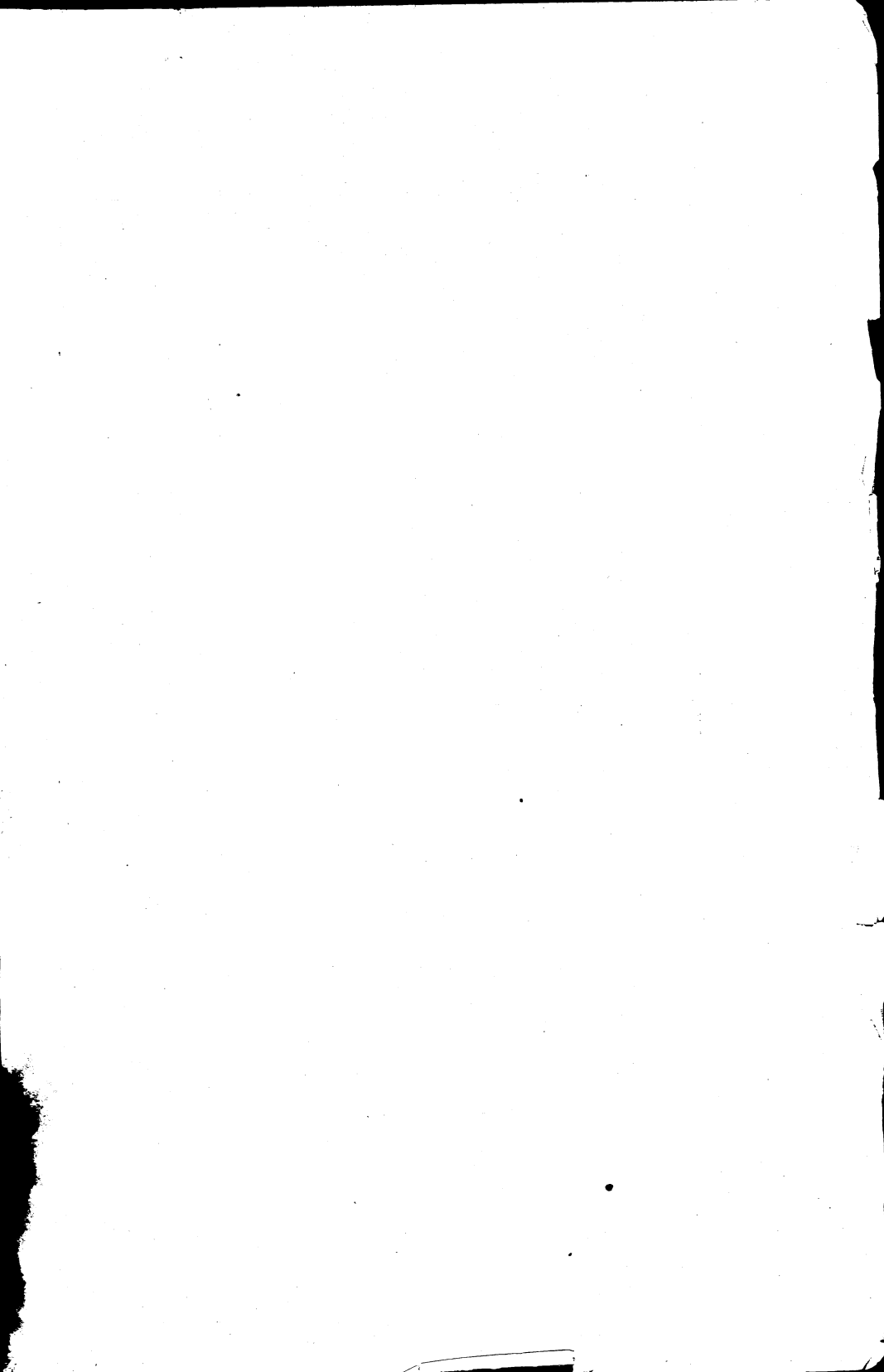


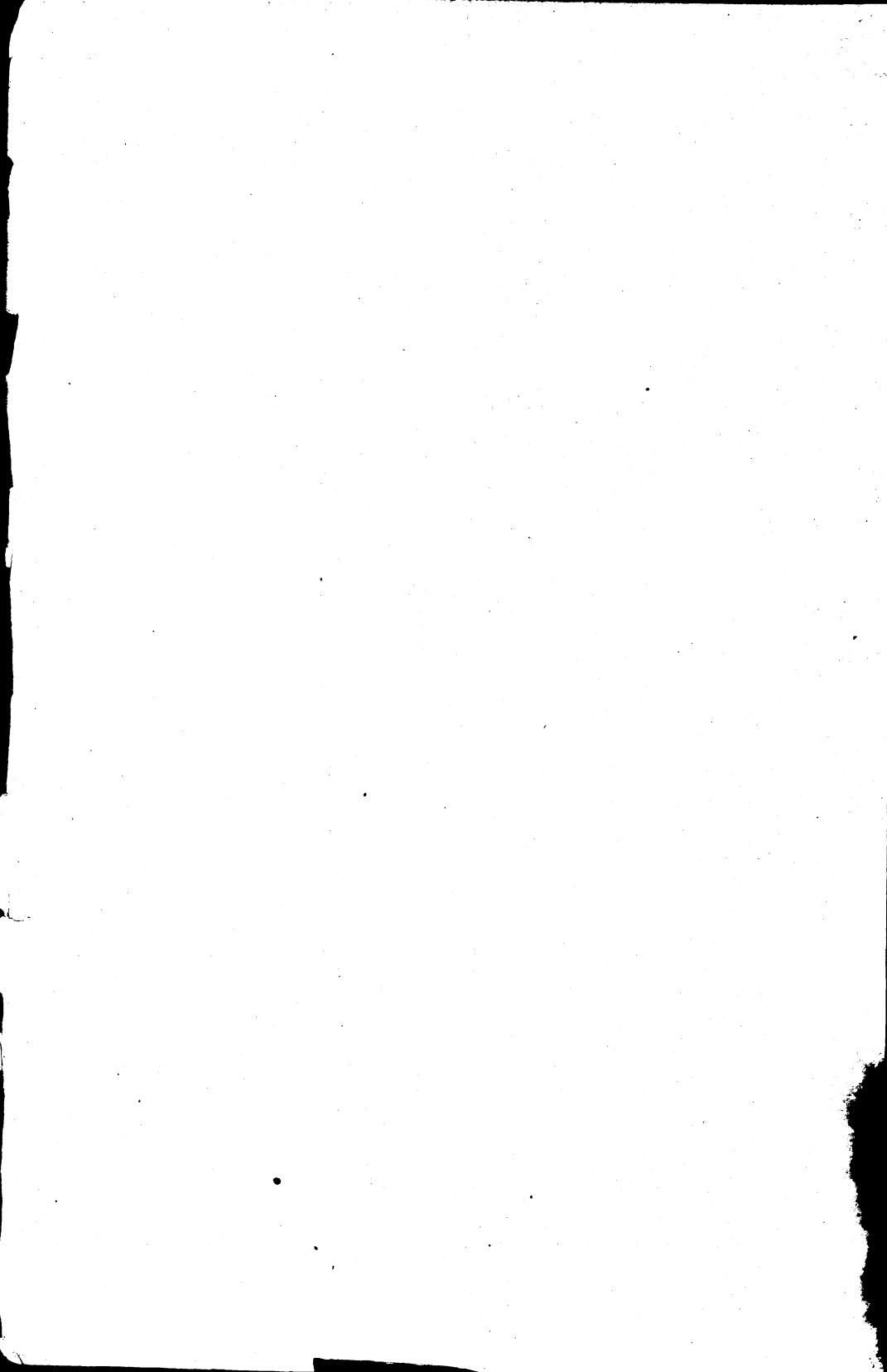
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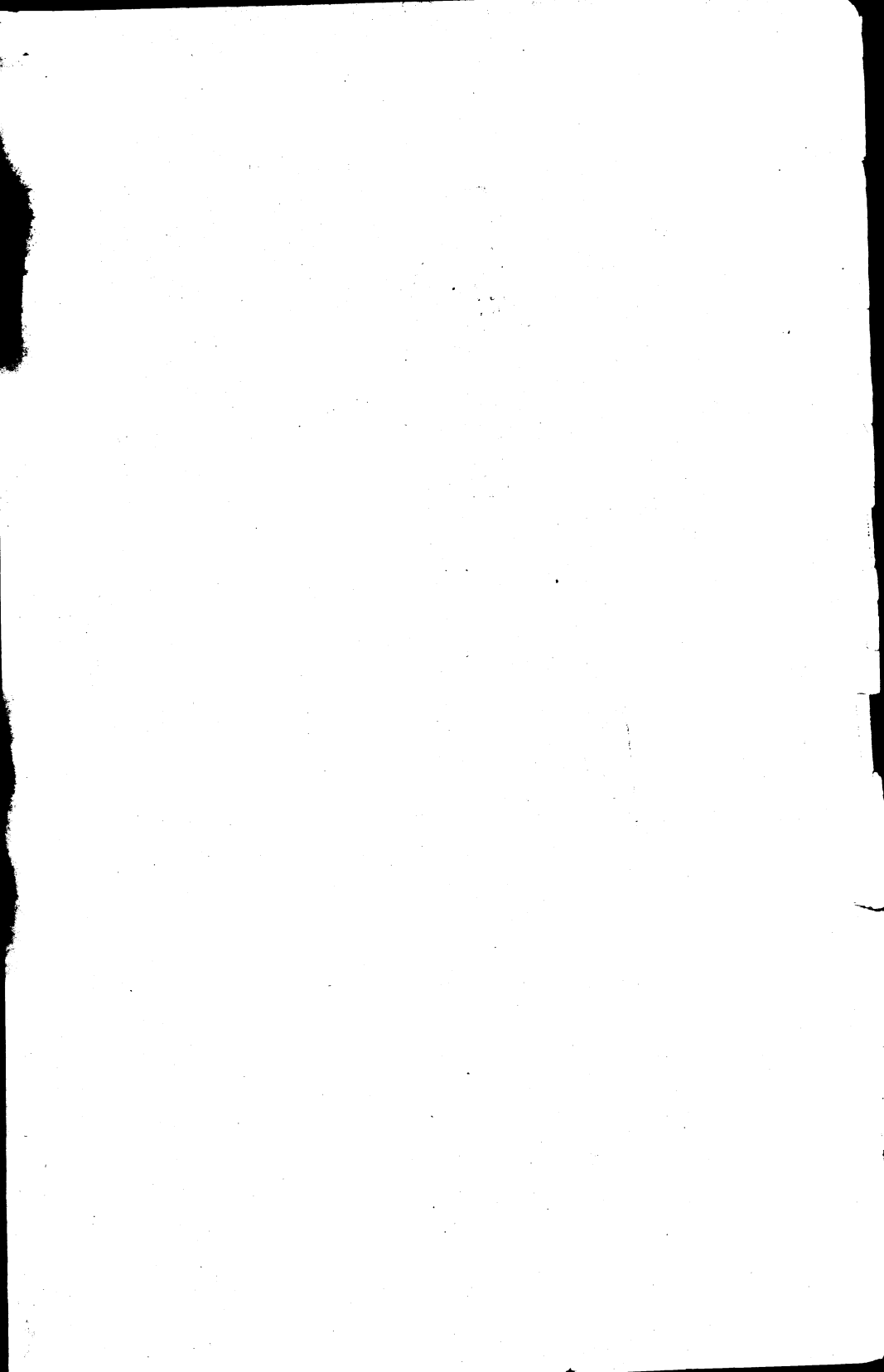
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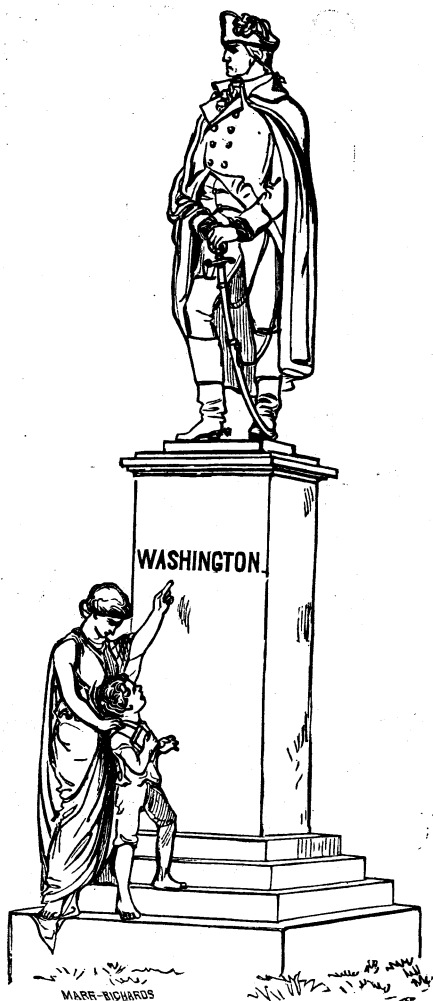
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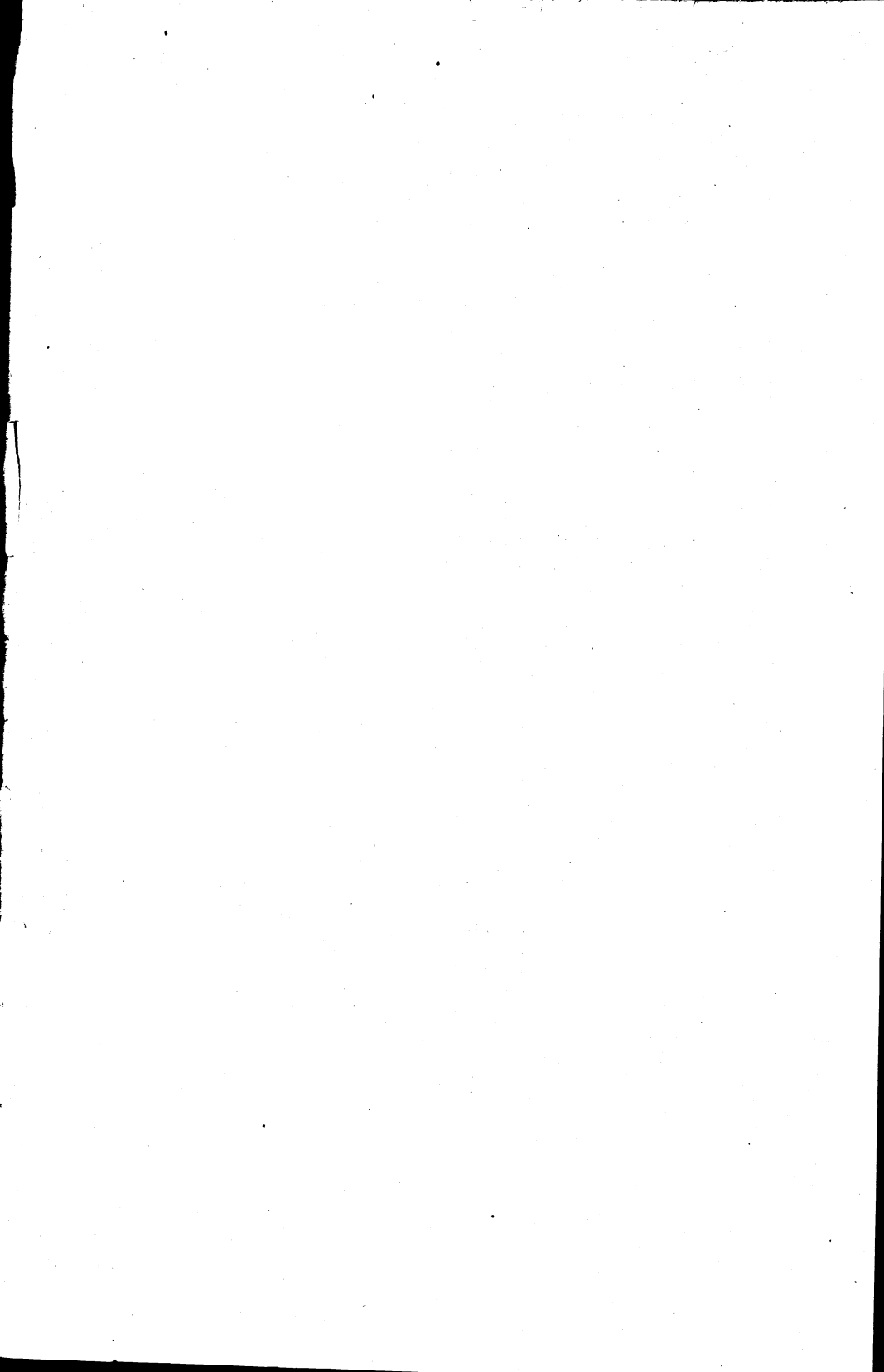
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This mute and impressive statue and its teachings to the young American is worthy of this special notice.

AGRICULTURAL  
Experiment Station,

MADISON, - WIS.





TRANSACTIONS  
OF THE  
WISCONSIN  
STATE AGRICULTURAL SOCIETY,

INCLUDING THE

PROCEEDINGS OF THE STATE AGRICULTURAL CONVENTION  
HELD IN FEBRUARY, 1886, TOGETHER WITH  
OTHER PRACTICAL PAPERS.

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VOL. XXIV.

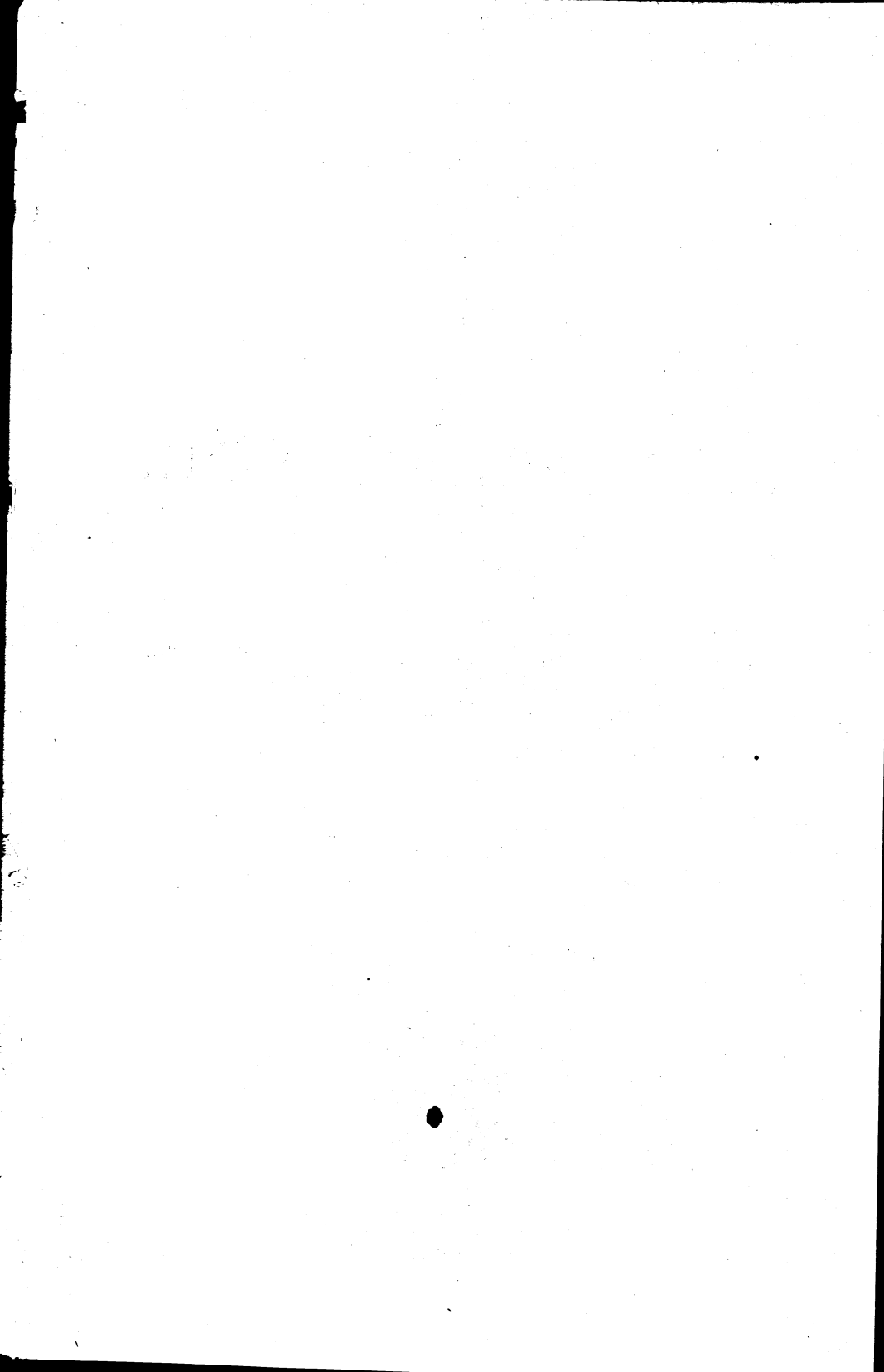
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PREPARED BY  
CLINTON BABBITT, SECRETARY.



MADISON, WIS.:  
DEMOCRAT PRINTING COMPANY, STATE PRINTERS.  
1886.

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JEREMIAH M. RUSK,

*Governor of Wisconsin:*

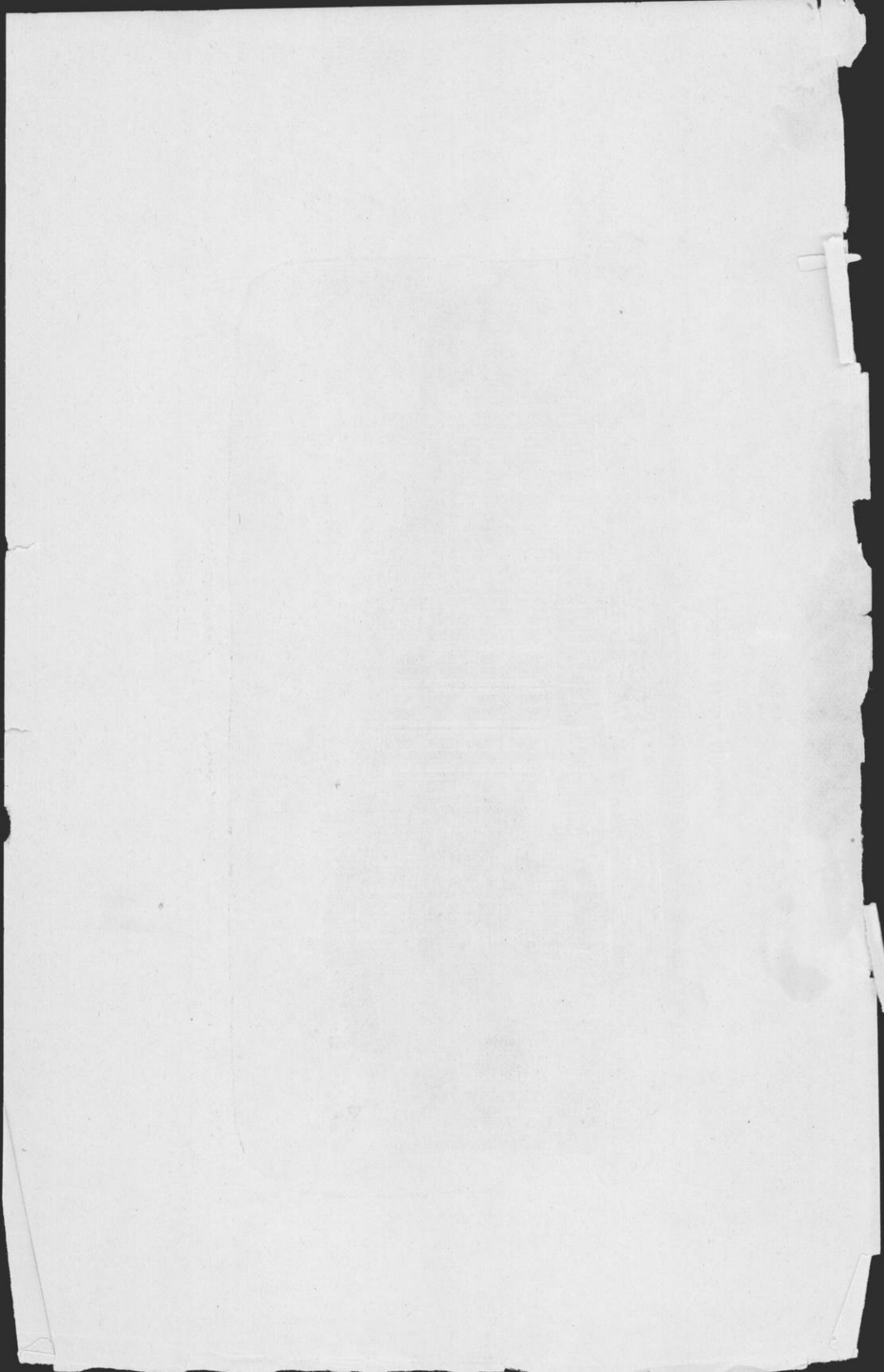
In submitting Volume XXIV of Transactions of Wisconsin State Agricultural Society and accompanying papers, I cannot withhold congratulations to you as Governor of a State ranking so high in agricultural development, and in behalf of the farmers of this great commonwealth, thank you in their name for generously putting the rooms granted by the State Legislature of 1866 for the use of this society, in the Capitol building, in so complete and attractive condition.

CLINTON BABBITT,

*Secretary of Wisconsin State Agricultural Society.*

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Plankinton House, Milwaukee.

# BOARD OF AGRICULTURE, 1886.

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HON. N. D. FRATT, RACINE,

*Ex-President of the Wis. S. A. S.*

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## *Post-Office Address.*

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MADISON.

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*Pres. Wis. Academy Sciences, Arts and Letters.*

E. A. BIRGE, MADISON,

*Sec. Wis. Academy Sciences, Arts and Letters.*



# CONSTITUTION.

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## ARTICLE I.

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

This Society shall be known as the "Wisconsin State Agricultural Society." Its 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 objects 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 deliver 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 for-

eign lands, and to preserve a journal of such correspondence in the archives of the Society.

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

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

5. To institute, and collect reports therefrom, needed experiments relative to the preparation of the various soils of the state for 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 when-ever 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 whatsoever 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 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 to 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 the 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. Communication 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 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 members thereof.

## LAW AUTHORIZING PUBLICATION OF TRANSACTIONS.

Sections 7, 8 and 9, of chapter 320, of the Laws of Wisconsin, give the following rules for the publication and distribution of the reports of the State Agricultural, Horticultural and Dairymen's Associations, and of the Agricultural Experimental Station of the State University:

SECTION 7. There shall be printed annually by the state printer, and on the order of the commissioners of public printing, the following documents:

1. Thirteen thousand copies of the transactions of the Wisconsin State Agricultural Society, together with abstracts of the reports of the county and other agricultural societies and such other matter pertaining to the industry of the state as shall be deemed important; provided, the number of pages shall not exceed five hundred.

2. Sixteen thousand five hundred copies of the transactions of the Wisconsin State Horticultural Society, together with such other abstracts of reports of county and other horticultural societies, and such other matters pertaining to fruit growing and other horticultural interests of the state as shall be deemed important; provided the number of pages shall not exceed three hundred.

3. Eighteen thousand copies of the transactions of the State Dairymen's Association, and such other matters pertaining to the dairy interests of the state as shall be deemed most important; provided the number of pages shall not exceed two hundred and fifty.

4. Eighteen thousand copies of the report of the Agricultural Experimental Station of the State University; provided, the number of pages shall not exceed two hundred.

SECTION 8. Thirteen thousand volumes of said report shall be bound in cloth, uniform in style with volumes previously published, each volume to contain such part of one copy of each of the reports designated in the preceding section, as the compiler shall select, the size of said joint report not to exceed one thousand pages; and shall be distributed as follows: Thirty copies to each member of the legislature; one hundred copies to the State Historical Society; twenty-five copies to each county agricultural society and district industrial association which embraces two or more

counties, and furnishes the State Agricultural Society a report of its proceedings; one hundred copies to the State Horticultural Society; thirty copies to each county horticultural society; two hundred copies to the State Dairymen's Association; one hundred copies to the Experiment Station of the State University; twenty-five copies to the library of the State University; five copies to the Wisconsin Humane Society. To the governor, lieutenant-governor, secretary of state, state treasurer, attorney-general, state superintendent of public instruction, railroad and insurance commissioners, twenty-five copies each; to each public library in the state two copies; and the remaining copies to the State Agricultural Society for distribution by its secretary.

SECTION 9. Twenty-five hundred copies of the transactions of the State Horticultural Society shall be bound singly in cloth, and one thousand in paper. Twenty-five hundred copies of the State Dairymen's Association shall be bound in cloth and twenty-five hundred in paper. Twenty-five hundred copies of the report of the Agricultural Experiment Station of the State University, shall be bound in cloth, and twenty-five hundred in paper, for the use of these several societies and departments for distribution or exchange.



## LIFE MEMBERS.

Names.	Residence.	Names.	Residence.
Adams, James.....		Boyce, A. A.....	Lodi.
Adams, L. L.....	Stoner's Prairie	Boyd, R. B.....	Milwaukee.
Alexander, O.....		Bowman, J. M....	Madison.
Allen, J. W.....	Janesville.	Bradley, C. T....	Milwaukee.
Allen, W. C.....	Delavan.	Braley, A. B.....	Madison.
Allis, Edward P...	Milwaukee.	Brazen, Benj.....	Wauwatosa.
Anderson, Matt....	Cross Plains.	Brichener, G. H..	Sheboygan Fa's
Angell, R. R.....	Janesville.	Brabazon, J. R...	Delavan.
Angell, W. H.....	Sun Prairie.	Brockway, E. P..	Milwaukee.
Atkins, Albert R...	Milwaukee.	Brodhead, E. H..	Milwaukee.
Atwood, David....	Madison.	Brown, Jas. J....	Madison.
Atwood, Wm. T....	Portland, Org.	Brown, Jas. A....	Milwaukee.
Atwood, R. J.....	Madison.	Brown, Frank G.	Madison.
Armour, P. D.....	Milwaukee.	Bruce, A. T.....	Madison.
Armstrong, L. G...	Boscobel.	Bryan, John.....	Cross Plains.
Arnold, A. A.....	Galesville.	Bryant, F. H.....	Madison.
Aspinwall, D. M...	Farmington.	Bryant, D. D....	Madison.
		Bryant, G. E.....	Madison.
Babbitt, A. O.....	Beloit,	Bryant, Jr., G. E.	Madison.
Billings, Carl....	Madison.	Bull, Stephen....	Racine.
Blossom, Levi....	Milwaukee.	Bullard, James ..	Bridgewater, Da
Briggs, F.....	Madison.	Bump, N. P.....	Janesville.
Babbitt, Clinton...	Beloit.	Bunker, Geo.....	Madison.
Babbitt, D. H.....	Auburn, N. Y.	Burgess, J. M....	Janesville.
Bacon, I. P.....	Waunakee.	Bush, Samuel....	Milwaukee.
Bacon, W. D.....	Waukesha.	Button, Henry H.	Milwaukee.
Bailey, A. P.....	Oshkosh.	Burnham, Jr., A.	
Bailey, M. T.....	Madison.	Burnham, J. L....	Milwaukee.
Barlass, Andrew...	Emerald Grove.	Burnham, Miles...	Bl'ng Pr., Minn.
Barlass, David....	Emerald Grove.	Byrne, John A...	Madison.
Barrows, E. S.....		Brand, F. C. G...	Milwaukee.
Baxter, Geo.....	Windsor.		
Bates, A. C.....	Janesville.	Carey, E. I. A....	Fond du Lac.
Bement, E. R.....	Oregon.	Camp, H. H.....	Milwaukee.
Bemis, Jervis....	Footville.	Cantwell, M. J...	Madison.
Benedict, J. D....	Bristol.	Capron, Geo....	Boston, Mass.
Benedict, S. G....		Carleton, W. D...	Sun Prairie.
Benedict, W. G....	Milwaukee.	Carpenter, J. E...	Windsor.
Benson, S. W.....		Carpenter, J. H..	Madison.
Biglow, F. G.....	Milwaukee.	Carpenter, S. D...	Carthage, Mo.
Bliss, C. M.....		Carr, N. B.....	Madison.
Bird, I. W.....	Jefferson.	Carr, Joseph S...	
Bird, T. E.....		Carter, A. M.....	Johnstown.
Bishop, J. C.....	Fond du Lac.	Carver, P. S.....	
Black, John.....	Milwaukee.	Case, J. I.....	Racine.
Blair, F. W.....	Milwaukee.	Clark, C. H.....	Madison.
Blanchar, Willard..	Madison.	Clark, D. J.....	Milwaukee.
Bostwick, J. M....	Janesville.	Chandler, J. C...	Madison.
Bostwick, R. M....	Janesville.	Chandler, S.....	Milwaukee.
Bonnell, James....	Milwaukee.	Chapman, T. A...	Milwaukee.
Bonnell, L.....		Chase, Enoch....	Milwaukee.
Boorse, Henry.....	Granville.	Chase, H.....	Milwaukee.
Brown, W. W.....	Merton.	Cheney, Rufus...	Evanston, Ill.
Barry, A. C.....	Lodi.	Chipman, A.....	Sun Prairie.

LIFE MEMBERS.

Names.	Residence.	Names.	Residence.
Children, E. ....	E. Dabuque, Ill.	Delaplaine, G. P. .	Madison.
Chipman, C. R. ....	Waunakee.	De Mor, A. B. ....	.....
Church, W. W. ....	.....	Dewey, Nelson ...	Cassville.
Clark, C. R. ....	Madison.	De Wolf, E. ....	.....
Church, Wm. A. ....	.....	Devoe, A. B. ....	McFarland.
Clapp, G. W. ....	Oregon.	Dickerman, J. A. .	Verona.
Clark, C. M. ....	Whitewater.	Dodge, H. S. ....	Milwaukee.
Clark, Lewis. ....	Beloit.	Doolittle, W. J. .	.....
Cochrane, John. ...	Waupun.	Dore, J. S. ....	Neillsville.
Coggswell, A. W. .	Galesburgh, M.	Doris, John. ....	.....
Colby, Charles. ....	Janesville.	Dorn, M. M. ....	Madison.
Coleman, W. W. ...	.....	Dousman, T. C. ...	Dousman.
Colman, Ed. ....	Fond du Lac.	Dow, O. P. ....	Palmyra.
Colladay, Wm. M. .	Stoughton.	Drakely, S. ....	.....
Colton, John B. ....	Madison.	Dunlap, S. ....	Token Creek.
Cooper, E. J. ....	Des Moines, Ia.	Durkee, H. ....	Kenosha.
Cornell, James. ....	Oakfield.	Dutcher, J. A. ...	Milwaukee.
Cornwell, H. H. ...	.....	Dwinnell, J. B. ...	Lodi.
Corrigan, John. ....	Cedarburg.	.....	.....
Cottrill, J. P. C. ...	Milwaukee.	Eaton, J. O. ....	Lodi.
Cottrill, W. H. ....	Appleton.	Echlin, J. C. ....	Janesville.
Cottrill, C. M. ....	Milwaukee.	Edgerton, E. W. .	Milwaukee.
Crampton, N. B. ...	Madison.	Elderkin, Ed. ....	Elkhorn.
Crawford, J. B. ....	De Smet, Dak.	.....	.....
Crawl, John. ....	Center.	Elliott, E. ....	.....
Crilly, John J. ....	Milwaukee.	Elliott, Jas. T. ...	Racine.
Crocker, Hans. ....	Milwaukee.	Ellis, J. A. ....	.....
Crosby, J. B. ....	.....	Edmunds, F. W. .	.....
Crossett, B. F. ....	Janesville.	Ellsworth, L. ....	Milwaukee.
Culver, Caleb E. ...	Shopiere.	Ellsworth, W. J. .	Madison.
Cummings, Wm. ...	Randolph, Ia.	Elmore, A. E. ....	Green Bay.
Curtis, F. C. ....	Rocky Run.	Elmore, R. P. ....	Milwaukee.
Curtis, D. W. ....	Fort Atkinson.	Eldred, John. ....	Milwaukee.
Curtis, Dexter. ....	Madison.	Elson, Charles. ...	Milwaukee.
Cutting, J. W. ....	.....	Emmons, N. J. ...	Milwaukee.
Coon, H. C. ....	Albion.	Enos, Elihu. ....	Waukesha.
Cook, W. H. ....	West Point.	Esterly, Geo. W. .	Whitewater.
Crawford, E. B. ...	.....	.....	.....
.....	.....	Falk, Frank R. ...	Milwaukee.
Doyon, M. R. ....	Madison.	Farnsworth, J. H. .	Fond du Lac.
Dousman, H. L. ...	Pra. du Chien.	Farwell, L. J. ....	.....
Davis, Patrick. ....	.....	Fenn, G. W. ....	Janesville.
Dexter, W. W. ....	Janesville	Ferguson, D. ....	Milwaukee.
Dahlman, Anthony	Milwaukee.	Ferguson, Benj. .	Fox Lake.
Dahlman, John. ...	Milwaukee.	Field, Martin. ...	Muckwanago.
Dann, Obed. ....	.....	Field, W. W. ....	Odebolt, Ia.
Danks, E. P. ....	Stoughton.	Fifield, L. ....	Janesville.
Daniels, W. W. ....	Madison.	Fifield, D. E. ....	Janesville.
Darling, K. A. ....	Fond du Lac.	Fifield, E. G. ....	Janesville.
Darwin, A. G. ....	.....	Finch, Lorin. ...	Janesville.
Daubner, Geo. H. .	Brookfield, C.	Firmin, F. H. ....	Hasting <sup>s</sup> , Neb.
Davidson, Adam. ...	Verona.	Fisher, C. C. ....	Center.
Davis, N. P. ....	.....	Fischer, Elijah. ...	.....
Davis, W. ....	Center.	Fisher, Seth. ....	Center.
Dean, E. B. ....	Madison.	Fitch, D. ....	Madison.
Dean, John S. ....	Madison.	Fitch, W. F. ....	.....
De Hart, J. L. ....	West Lima.	Fitch, W. G. ....	Milwaukee.
De La Matyr, W. A.	Stoughton.	Fitzgerald, R. P. .	Milwaukee.
.....	.....	Fletcher, John. ...	.....

Names.	Residence.	Names.	Residence.
Flint, Jr., J. G. ....	Milwaukee.	Hanks, A. S. ....	Milwaukee.
Folds, Geo. H. ....	Sioux Falls.	Hammond, L. M.	
Foot, E. A. ....	Footville.	Hammond, E. S. .	Fond du Lac.
Foot, H. E. ....	Milwaukee.	Harrington, N. M.	Delavan.
Ford, J. C. ....	Madison.	Harris, Jas. ....	Janesville.
Fowler, James S. .	Milwaukee.	Harvey, J. N. ....	Kn'xville, Tenn.
Fox, A. O. ....	Oregon.	Hasbrouck, W. . .	
Fratt, N. D. ....	Racine.	Hastings, S. D. . .	Madison.
Frank, A. S. ....		Hausman, Jos. . . .	Madison.
Frank, Geo. R. ....	Boscobel.	Hawes, J. T. ....	Wil'wLake, Da.
Frankfurth, Wm. . .	Milwaukee.	Hawes, W. N. ....	East Middleton.
Freeman, C. F. ....	Milwaukee.	Hayes, A. J. ....	Milwaukee.
Friedman, Ignatius	Milwaukee.	Hazelton, Geo. C.	Boscobel.
French, Jonathan. .		Hazen, Chester . .	Ladoga.
Fuller, M. E. ....	Madison.	Holmer, A. M. ....	Waukesha.
Fuller, F. D. ....	Madison.	Hempsted, H. N. .	Milwaukee.
Fuller, E. M. ....	Madison.	Hinks, J. H. ....	Oshkosh.
Furlong, John. ....	Milwaukee.	Hibbard, W. D. . .	Milwaukee.
		Hibbard, W. B. . .	Milwaukee.
Gates, D. W. C. ....		Higby, A. T. ....	Ft. Atkinson.
Galbraith, Jas. ....	Janesville.	Hill, H. J. ....	
Gammons, Warren.	Middleton.	Hill, J. P. W. ....	Belleville.
Gaylord, Aug. ....		Hill, Robert . . . .	
Gernon, Geo. ....	Madison.	Hill, J. H. ....	Madison . .
Gibbs, Chas. R. ....	Whitewater.	Hinckley, B. R. . .	Summit.
Gilbert, Thos. ....	Oregon.	Hitt, H. D. ....	Oakfield.
Giles, H. H. ....	Madison.	Hodson, C. N. ....	Janesville.
Gilman, H. ....	Sun Prairie.	Hoeflinger, Carl. .	Wausau.
Gleason, H. B. ....	Madison.	Hogan, Gilbert. . .	Eleria, O.
Goodenow, H. D. . .	Madison.	Holister, R. M. . .	Dakota.
Goodrich, Ezra . . .	Milton.	Holmes, A. M. ....	
Gould, L. D. ....		Holton, Edward D.	Milwaukee.
Grady, F. M. ....	Madison.	Hoven, Matt. ....	Madison.
Graham, Alex. ....	Cedar Rapids, Ia.	Hopkins, B. B. ....	Milwaukee.
Grant, Albert. ....	Milwaukee.	Hopkins, E. E. ....	Milwaukee.
Graves, R. T. ....	Ripon.	Hopkins, James. .	
Graves, S. W. ....	Rutland.	Hoskins, J. W. . . .	
Green, Geo. G. ....	Milwaukee.	Hoskins, Alfred . .	Janesville.
Green, Richard. . . .	Middleton.	Hoyt, J. W. ....	
Green, N. S. ....	Milford.	Hoyt, F. E. ....	Rochester.
Greenleaf, E. B. . .	Milwaukee.	Hurlbut, E. . . . .	Oconomowoc.
Greenman, C. H. . .	Dov'r Cen., Min.	Hume, Wm. ....	Oshkosh.
Greenman, H. D. . .		Hutchins, C. A. . .	Fond du Lac.
Gregory, J. C. ....	Madison.	Hutson, J. S. ....	Stoughton.
Grinnell, J. F. ....	Farmers Grove.	Hudson, John. ....	Madison.
Groom, J. ....		Huntley, D. ....	Appleton.
Grubb, W. S. ....	Baraboo.	Hyde, Edwin. ....	Milwaukee.
Gurnee, J. D. ....	Madison.		
		Isley, Chas. F. . . .	Milwaukee.
Haight, Nicholas . .	Madison.	Inbush, J. H. ....	Milwaukee.
Haight, J. M. ....		Ingram, A. C. ....	
Hall, Augustus . . .			
Hallock, Youngs. . .	Middleton.	Jacobs, Wm. ....	Madison.
Hall, H. P. ....		Jackman, Hiram. .	
Hall, S. H. ....	Madison.	Jeffery, Geo. ....	Milwaukee.
Hanchett, A. M. ....	Milwaukee.	Jenks, S. R. ....	
Hatch, Eugene. ....	Jefferson.	Johnston, W. A. . .	Galesville.
Hancock, Brad. ....	Chicago.	Jenkins, J. C. ....	Janesville.

Names.	Residence.	Names.	Residence.
Jerde, L. P. ....	Madison.	Lynch, T. M. ....	Janesville.
Jerde, M. P. ....	Madison.	Lynde, W. P. ....	Milwaukee.
Johnson, John, Jr..	Madison.	Lysaght, Wm. ....	Monroe.
Johnson, M. B. ....		Lesley, John. ....	
Johnson, Joseph ...	Hartland.		
Johnson, John V ...		Mann, J. E. ....	Sun Prairie.
Johnson, John A ...	Madison.	Main, Alex. H. ....	Madison.
Johnson, Hugh L ...	Milwaukee.	Mann, A. L. ....	Madison.
Johnston, John ...	Milwaukee.	Mann, Henry. ....	Sun Prairie.
Jones, E. D. ....	Fond du Lac.	Mann, Curtis ...	Oconomowoc.
Jones, C. H. ....	Sun Prairie.	Manwaring, Wm.	Black Earth.
Jones, John N. ....	Madison.	Marshall, Samuel	Milwaukee.
		Martin, A. C. ....	Ashton.
Kellogg, Geo. J. ....	Janesville.	Martin, C. L. ....	Janesville.
Keiwert, Emil. ....	Milwaukee.	Martin, Nathaniel	
Kent, A. C. ....	Janesville.	Martin, S. W. ....	
Kershaw, C. J. ....	Milwaukee.	Mason, Geo. A. ....	
Keyes, E. W. ....	Madison.	Mathews, A. R. ....	Milwaukee.
Kimball, M. G. ....		Maxson, O. T. ....	Evanston, Ill.
Kingsley, Geo. P. ...		May, A. C. ....	Milwaukee.
Kingston, J. T. ....	Necedah.	Mayhew, T. W. ....	
Kiser, W. C. ....	Tetonka, D. T.	Mayhew, F. L. ....	
Kiser, J. C. ....	Oregon.	Mayhew, J. L. ....	
Klauber, Samuel ...	Madison.	McCarty, F. D. ....	
Knight, E. ....	Myrtle, D. T.	McComber, S. D. ...	New Lisbon.
Kneeland, James ...	Milwaukee.	McConnell, W. N. ...	Dartford.
Knowles, Geo. P. ...	Fond du Lac.	McConnell, T. J. ...	Madison.
Knowles, Geo. ....	Milwaukee.	McCormick, J. G. ...	Madison.
Knapp, G. A. ....	Fond du Lac.	McDermott, Wm.	Fond du Lac.
Knapp, J. G. ....	Tampa, Florida.	McDonald, A. ....	Alloa.
Knapp, Wm. A. ....	Fond du Lac.	McDonald, J. S. ...	Fond du Lac.
Koss, Rudolph. ....	Milwaukee.	McDowell, H. C. ...	Oconomowoc.
		McGeogh, P. ....	Milwaukee.
Ladd, M. L. ....	Mendota, Ill.	McIndoe, N. D. ...	Wausau.
Lamb, F. J. ....	Madison.	McKenna, Martin	Madison.
Landa, Max. ....	Milwaukee.	McLaren, Wm. P.	Milwaukee.
Lapham, Henry. ....	Summit.	McNeil, David. ....	Stoughton.
Larkin, B. F. ....	Madison.	McPherson, J. P.	Springdale.
Larkin, C. H. ....	Milwaukee.	Merrill, Alf. ....	Madison.
Larkin, Daniel. ....	Madison.	Miller, C. B. ....	Madison.
Larkin, Wm. ....	Madison.	Miller, John. ....	
Lawrence, W. A. ...	Janesville.	Millett, Chas. O. ...	Beloit.
Lawton, J. G. ....	De Pere.	Mills, Simeon ...	Madison.
Lazier, Ed. ....	Madison.	Miner, Cyrus ...	Janesville.
Learned, J. M. ....	California.	Miner, John B. ...	Milwaukee.
Leidersdorf, B. ....	Milwaukee.	Mitchell, Alex. ...	Milwaukee.
Leitch, W. T. ....		Michell, J. L. ....	Milwaukee.
Leitch, Jr., W. T. ...		Moore, B. F. ....	Fond du Lac.
Lester, Waterman. ...		Morden, E. ....	Madison.
Lewis, John L. ....	Madison.	Moorehouse, L. H.	Milwaukee.
Lindsay, E. J. ....	Milwaukee.	Morrison, W. H. ...	Elkhorn.
Lloyd, Lewis. ....	Cambria.	Moseley, J. E. ...	Madison.
Lockin, John. ....	Pueblo, Col.	Moxley, A. R. ....	
Lockwood, John. ...		Mullen, James ...	
Ludington, H. ....	Milwaukee.	Murray, Geo. ....	Racine.
Ludington, James. ...	Milwaukee.		
Ludlow, A. ....	Monroe.	Nason, S. L. ....	Nasonville.
Lucy, O. K. ....	Columbus.	Nash, C. D. ....	Milwaukee.
Lyman, H. ....	Dakota.		

Names.	Residence.	Names.	Residence.
Nazro, John .....	Milwaukee.	Pres. St Peter's Val Farmer's Club ..	Springfield.
Needham, E. G. ....	Elm Grove.	Pritchard, P. M. ...	Fitchburg.
Newcomb, S. B. ....	Cold Spring.	Pratt, Orris. ....	Spring Prairie.
Newton, J. S. ....	Middleton.	Power, D. J. ....	
Nicholas, L. T. ....	Janesville.		
Norris, C. W. ....	Milwaukee.		
Norton, J. B. ....	Madison.	Ray, Chas. ....	Milwaukee.
Nowell, W. A. ....	Milwaukee.	Raymond, S. O. ...	Geneva.
Nelson, C. B. ....	Madison.	Riordan, Chas. ....	
Newton, T. L. ....	Beaver Dam.	Reed, Harrison ...	Jacksonv'l, Fla.
		Ressigue, A. C. ...	Janesville.
Ober, R. P. ....		Reynolds, Thos. ...	Madison.
Ogilvie, Robert .....	Madison.	Reynolds, John ...	Kenosha.
Olcott, J. B. ....	Oshkosh.	Rexford, J. D. ....	Janesville.
Oliver, Joseph B. ...	Milwaukee.	Rice, E. M. ....	Whitewater.
Olney, C. W. ....	La Cygne, Kan.	Richards, Richard.	Racine.
Orr, G. H. ....		Richardson, D. ....	Middleton.
Ott, Geo. V. ....	Lawtey, Fla.	Richardson, Jas. ...	
		Richardson, R. J. ...	Janesville.
Page, H. M. ....	Baraboo.	Richardson, H. ....	Janesville.
Palmer, H. L. ....	Milwaukee.	Richmond, A. ....	Whitewater.
Palmer, J. Y. ....	Oregon.	Riebsam, C. R. ....	Madison.
Palmer, O. M. ....	Oregon.	Robbins, J. V. ....	New York.
Palmer, Henry .....	Verona.	Rodgers, L. ....	
Park, Wm. J. ....	Madison.	Roe, J. P. ....	
Parker, C. H. ....	Beloit.	Rogers, C. H. ....	Milwaukee.
Parmley, Ira .....	Center.	Rodgers, D. G. ....	Milwaukee.
Parsons, P. B. ....		Rogers, J. S. ....	Burlington.
Paul, John H. ....	Genesee.	Rogers, Anson. ....	Janesville.
Partridge, J. S. ....	Whitewater.	Rogers, H. G. ....	Milwaukee.
Patten, L. F. ....	Janesville.	Rowe, Richard W. ...	Madison.
Patton, Jas. E. ....	Milwaukee.	Rowe, W. E. ....	Arena.
Paul, Geo. H. ....	Milwaukee.	Ruggles, J. D. ....	San Francisco.
Payne, Wm. ....	Janesville.	Ryder, James K. ...	Waterloo.
Payne, H. C. ....	Milwaukee.	Rawson, C. A. ....	
Peffer, G. P. ....	Pewaukee.		
Pember, R. T. ....	Janesville.	Shaw, Geo. B. ....	Eau Claire.
Perkins, P. M. ....	Burlington.	Sherman, Amaziah ...	La Prairie.
Perrine, L. W. ....		Stevens, J. T. ....	Madison.
Perry, B. F. ....	Madison.	Sherman, Adelmarr	La Prairie.
Pfister, Guido. ....	Milwaukee.	Stanley, Wm. ....	Vienna.
Pier, C. K. ....	Fond du Lac.	Sprecher, John ...	Madison.
Pierce, C. L. ....	Milwaukee.	Sage, E. C. ....	Faulton, D. T.
Pilgrim, D. T. ....	Wauwatosa.	Salisbury, R. W. ...	Paoli.
Page, H. L. ....	Milwaukee.	Salisbury, D. F. ...	Oregon.
Palmer, E. W. ....	Madison.	Sanderson, Ed. ....	Milwaukee.
Pinney, S. U. ....	Madison.	Sanderson, R. B. ...	
Plankinton, John ..	Milwaukee.	Sarles, John H. ....	Boscobel.
Plumb, J. C. ....	Milton.	Schute, Charles. ...	
Plumb, T. D. ....	Madison.	Seville, James. ...	Lodi.
Plummer, B. C. ....	Wausau.	Sexton, W. F. ....	Milwaukee.
Pond, Samuel A. ...	Janesville.	Simmons, C. J. ....	Monroe.
Porter, Wm. H. ....	Mashall.	Sharp, J. W. ....	Iowa.
Porter, G. E. ....	Eau Claire.	Shaw, J. B. ....	
Powers, W. J. ....		Sheldon, A. H. ....	Janesville.
Paulsen, Aug. ....	New Holstein.	Sheldon, D. G. ....	Madison.
Pabst, Fred. ....	Milwaukee.	Seaver, J. E. ....	Darien.
Pratt, E. E. ....		Sheldon, S. L. ....	Madison.

Names.	Residence.	Names.	Residence.
Shepard, C. ....	Milwaukee.	Twining, M. S. ....	Brodhead.
Spipman, S. V. ....	Janesville.	Van Brunt, W. A. ....	Horicon.
Skelly, Charles. ....	Sioux F'ls, Dak.	Van Cott, Albert B. ....	Madison.
Skinner, Geo. J. ....	Sioux C'ty, Ia.	Van Etta, Jacob. ....	Madison.
Skinner, E. W. ....	Madison.	Van Kirk, N. ....	Milwaukee.
Sloan, I. C. ....	Chicago.	Van Schaick, J. W. ....	Milwaukee.
Slocum, J. A. ....	Milwaukee.	Van Slyke, N. B. ....	Madison.
Smith, Winfield. ....	Milwaukee.	Vaughn, A. W. ....	Lodi.
Smith, Angus. ....	Janesville.	Vial, Andrus. ....	Madison.
Smith, H. L. ....	Janesville.	Vilas, Chas. H. ....	Chicago.
Smith, M. C. ....	Janesville.	Vilas, L. M. ....	Eau Claire.
Smith, S. B. ....	.....	Vilas, Wm. F. ....	Madison.
Smith, J. Maurice. ....	Green Bay.	Ward, A. J. ....	Madison.
Smith, J. M. ....	Madison.	Waggstaff, S. ....	.....
Snell, H. ....	Wauwatosa.	Wackerhagen, E. ....	Racine.
Stickney, J. S. ....	Milwaukee.	Wait, J. B. ....	.....
Spencer, James C. ....	Milwaukee.	Warren, Albert. ....	Madison.
Spencer, R. C. ....	Waterloo.	Warrea, J. H. ....	Janesville.
Squier, Thomas H. ....	Milton.	Welch, W. ....	Madison.
Stannard, A. C. ....	Milwaukee.	Werner, John. ....	Sauk.
Stark, Chas. A. ....	Marinette.	West, Henry. ....	Madison.
Steele, Chester. ....	Madison.	West, S. C. ....	Milwaukee.
Stevenson, Isaac. ....	Karson, Minn.	West, Henry M. ....	Milwaukee.
Steenland, H. ....	Col. Spr'gs, Col.	Whaling, J. W. M. ....	Waukesha.
Stewart, C. R. ....	Oshkosh.	Wheeler, Geo. F. ....	Milwaukee.
Stewart, G. H. ....	Oshkosh.	Wheeler, Guy. ....	La Prairie.
Stilson, Edgar. ....	Janesville.	Wheeler, L. A. ....	Milwaukee.
Stilson, Adelbert. ....	Milton Junct'n.	Wheelock, W. G. ....	Janesville.
St. John, J. W. ....	Beloit.	Wheelwright, J. ....	Middleton.
Stockman, John. ....	Madison.	Whitney, W. F. ....	Milwaukee.
Stone, Gustavus. ....	Sun Prairie.	Wicks, Thomas. ....	Milwaukee.
Storm, Wm. ....	Waukesha.	Wight, O. W. ....	.....
Stowe, La Fayette. ....	Syene.	Wightman, H. ....	.....
Street, Richard. ....	Madison.	Wilcox, C. T. ....	Janesville.
Sutherland, C. ....	Baraboo.	Wilkins, A. W. ....	Milwaukee.
Swain, Wm. W. ....	Baraboo.	Wiley, O. S. ....	Benn Har. Mich.
True, John M. ....	Janesville.	Williams, C. H. ....	Baraboo.
Tuttle, A. G. ....	Mukwanago.	Williams, D. ....	Darien.
Tallman, W. H. ....	Cottage Grove.	Williams, Daniel. ....	Summit.
Taylor, E. T. ....	Madison.	Williams, J. P. ....	.....
Taylor, W. R. ....	Madison.	Williams, G. G. ....	Whitewater.
Tenney, H. A. ....	Hartland.	Williams, Randall. ....	Janesville.
Tenney, D. K. ....	Syene.	Williams, S. B. ....	Madison.
Tenney, Samuel. ....	Milwaukee.	Wilson, Wm. ....	Windsor.
Terwilliger, Jas. ....	Milwaukee.	Wilson, Zebina. ....	Palmyra.
Thorson, John. ....	Milwaukee.	Wood, J. W. ....	Baraboo.
Tibbits, Geo. M. ....	California.	Wootton, Robert. ....	Madison.
Tierney, K. ....	.....	Worthington, B. M. ....	.....
Thompson, W. H. ....	Eau Claire.	Wright, D. H. ....	Madison.
Thorp, J. G. ....	Janesville.	Wright, Geo. ....	Mt. Horeb.
Todd, J. G. ....	Neillsville.	Wright, J. S. ....	Emerald Grove.
Toiford, J. W. ....	Madison.	Wright, Josiah T. ....	Janesville.
Torgerson, Lars. ....	Racine.	Wylie, Geo. W. ....	Elkhorn.
Torrey, R. D. ....	Moundville.	Zweitusch, Otto. ....	Milwaukee.
Townley, John. ....	.....		
Treat, R. B. ....	Milwaukee.		
Treat, George E. ....	Milwaukee.		

## MORTUARY.

J. M. Arnold,  
Isaac Adams,  
Chauncey Abbott,  
Chas. D. Atwood,  
J. W. Ayres,  
H. M. Allen,  
Robert Baker.  
Timothy Brown,  
James Barry,  
Fred. Bemis,  
W. G. Beecroft,  
George Barnes,  
A. A. Bennett,  
H. M. Billings.  
Perry Bostwick,  
W. A. Briard,  
B. F. Brown,  
H. D. Barron,  
J. B. Bowen,  
Guy Carter,  
Wm. Casar,  
C. M. Campbell,  
C. B. Chapman,  
John Child,  
D. R. Colt,  
B. F. Catlin,  
A. J. Craig,  
J. B. Crass,  
Satterlee Clark,  
L. S. Curtiss,  
Seymour Curtiss,  
J. Cary,  
J. A. Carpenter,  
G. L. Davis,  
S. B. Davis,  
S. S. Daggett,  
E. P. Doty,  
J. B. Dousman,  
Andrew Dunn,  
J. P. Dickson,  
Wm. Dunn,  
E. W. Drury,  
Abel Dunning,  
Chas. Durkee,  
N. W. Dean,  
John Davis,  
J. E. Dodge,  
O. Ellsworth,  
S. S. Fisher,  
J. T. Furlong,  
Sidney Foote,  
Jacob Fowle,  
E. Fairbanks,  
W. H. Fox,  
Jonn Fernley,

S. B. Grant,  
Samuel Green,  
Anthony Green,  
Eleazer Grover,  
Joseph Goodrich,  
C. Goodrich,  
Orrin Guernsey,  
R. E. Gillett,  
H. D. Greenman,  
Peter Houston,  
J. A. Helfenstein,  
P. B. Hill,  
L. J. Hobart,  
David Holt,  
W. H. Hiner,  
L. P. Harvey,  
B. F. Hopkins,  
Wheldon Hughes,  
John W. Hunt,  
E. Hulbert,  
Sol. Hutson,  
N. W. Harrington,  
Robert Hodge,  
A. G. Hanford,  
J. C. Hopkins,  
E. H. Jansen,  
Paul Juneau,  
H. C. Jacobs,  
J. C. Johnson,  
John Kimball,  
Wm. J. Kershaw,  
Moses Kneeland,  
S. P. Kingsley,  
L. F. Kellogg,  
L. H. Kellogg,  
A. C. Kent,  
J. A. Lapham,  
Jas. R. Larkin,  
Herbert Lewis,  
J. D. Mosher,  
J. H. B. Matts,  
Clinton Matterson,  
E. D. Masters.  
Samuel Morse,  
And. McColough,  
Alex. McGregor,  
E. F. Mabie,  
John B. Macey,  
Alex. McBride,  
A. S. McDill,  
David McKinna,  
Wm. A. Mears,  
Ira Miltmore,  
G. F. Moseley,  
D. S. Morse,

Geo. W. McDougal,  
S. S. Merrill,  
B. F. Nott,  
E. Newton,  
George Paddock,  
George Paine,  
W. F. Porter,  
David Post,  
John W. Park,  
Andrew Proudfit,  
D. G. Power,  
B. Pinckney.  
W. A. Phelps,  
John Reynolds,  
M. Reynolds,  
Herbert Reed,  
J. O. Rezer,  
John Rodermund,  
N. C. Rowley,  
Simon Ruble,  
Jas. H. Rogers,  
R. Roddis,  
Jas. Ross,  
Harvey G. Russell,  
Wm. B. Slaughter,  
Jas. Sullivan,  
Geo. B. Smith,  
Frank Scollan,  
L. Sexton,  
M. Spaulding,  
A. C. Shipman,  
Kellogg Sexton,  
J. M. Sherman,  
Joseph Spaulding,  
Geo. C. Stevens,  
S. B. Scott,  
W. E. Smith,  
H. P. Strong,  
Adam Smith,  
J. B. Smith,  
S. W. Smith,  
Wm. Spaulding,  
Geo. Sherman,  
Jeff. Sinclair,  
Geo. H. Slaughter,  
U. Schutt,  
J. E. Sherwood,  
Wm. Thompson,  
John J. Talmadge,  
M. J. Thomas,  
Ole Thompson,  
B. Troop,  
W. H. True,  
A. H. Terry,  
Joseph Utter,

L. B. Vilas,  
Henry Vilas,  
A. H. VanNorstrand,  
E. B. Woolcott,  
J. F. Willard,  
Dennis Worthington,  
Charles Weed,  
C. L. Williams,

Wm. A. White,  
Jas A. Webb,  
A. White,  
T. L. Whittlesey,  
H. O. Wilson,  
N. A. Wright,  
W. R. Warren,  
James Webster,

S. G. Williams,  
Geo. Worthington,  
J. F. Woolley,  
Martin Webster,  
Wm. A. Wheeler,  
A. H. West,  
D. L. Wells,  
J. E. Young.



## EXHIBITION OF 1885, OPENING ADDRESS.

BY HON. A. A. ARNOLD.

*Fellow Members of the State Agricultural Society, Ladies and Gentlemen:*

Amidst engagements that allow but little time for preparation, it is more from a sense of duty, and as an evidence of readiness to contribute to the cause, than of confidence in the contribution, that I undertake to perpetuate the custom of delivering an opening address.

Spared in the Providence of God through another changing year, we gather once more, as has been our wont for over a quarter of a century, to exchange congratulations and shout the triumph of the "Harvest Home."

The harvest has been plenteous and the laborers have not been wanting, as is evidenced by the attractions at this exhibition.

Let the eye glance over these beautiful grounds so nicely prepared for this occasion, owned in fee simple by our society, and see here portrayed the evidences of thrift, the results of manly and womanly industry, and intelligent enterprise as therein manifested; and the beholder if a citizen of our state may well be proud that this is our fair; these are our exhibits; these are our productions; these are the results of our enterprise. We the people of this state all alike have an interest in these, and in their educating influence.

The society, and I as one of its representatives, have no more interest in this, than any one of you, be you either the poorest lad or the richest man in the state.

As president and in behalf of the society, I gladly welcome you to this our annual festival, and hope that from it you may cull much that is good and useful, little that will injure or demoralize.

Ladies, farmers, mechanics, fellow-citizens, this is your fair. You have placed these articles and animals on exhibition, you have all in some way or other helped make this

fair a success or failure. I want you to understand that all the efforts put forth by individuals or associations are fully appreciated by the executive board, and notwithstanding we are only your agents, you have our hearty thanks.

We propose to work hand in hand with you, and together we can make the state fair of Wisconsin as good as the best in the nation, yes, and be classed as the best, as our literary productions, as they appear in our transactions, are classed as the best of their kind in America. There is some honor in being the official head of such an institution, and that it may grow to better results and keep pace with other advancements is my highest ambition. Farmers of the state of Wisconsin, your pride should be to make the state fair as good as it can be made. Other fairs and associations of the kind in the state are also doing good work, but it matters not how well these may succeed, our state, our attractions as a state, and our advancement must and will be measured to a great extent by the reputation of our state fair. You may not have realized that the reputation of the state fair affects your pockets. If, however, you will consider, you will quickly see that directly or indirectly it does.

The object of these associations is to educate. This more particularly to educate the farmer in his business that he may make his occupation more pleasurable and profitable. This is accomplished by his relief from toil for these few days, when the mind is taken away from the ordinary routine of farm life. He meets his friends and acquaintances, and here together, so to speak, they go to school, learning from what they see and hear at the fair such things as may be of use in their calling. He sees some fine specimens of stock, he naturally desires to know the breed, and how they were reared to show such fine proportions. He compares the fruits and vegetables with those on his farm, and he naturally inquires their variety and how they were produced. He discovers a new labor saving machine; he inquires into its practicability. Here we all come, young and old, rich and poor, to learn and for diversion. From the ample show before you, you will have an opportunity to thus recreate and improve. These considerations make

your presence in large numbers all the more pleasant to us, and that you appreciate and enjoy it, will be our ample recompense.

The field of agriculture is broad and in all its details we may not expect to have in any one arrived at perfection and from the very vastness of the theme the mind appalls. No particular theme or part is taken up in the ordinary address at these gatherings and the speaker usually goes into generalities, and eulogies on our profession, thus pandering to the pride or pleasing the fancy of the hearer. In this way we have been educated, and the farmer expects to be praised at least once a year for his shrewdness in selecting a calling wherein they say lies most of the virtue, integrity, sobriety, morality, independence and intelligence of the nation. Thus pandered to, no wonder that this, together with its necessary isolation from other pursuits, the farmer in too many cases imagines that he has found the hen that laid the golden egg, and that whatever other men may think he knows.

I will not attempt an address on agriculture. It is too old a subject; too large a theme; especially on this occasion wherein I desire to be brief.

It was known, such as it was, before the maiden, Rachael, at the well, gave Jacob (the destined patriarch) of its waters to drink. At present it may be called a science; but it existed long before a principle upon which it really rests was known. It is older than philosophy and it is interesting to see that chemistry a science of yesterday at the very time it is wanted steps in as a handmaid to give it strength and vigor, to explain processes which were dark, to suggest new methods, which agriculturists would never have thought of. Science is not a parent of agriculture yet in this case a nurse. It has not grown out of any of the sciences that lay at its foundation. It was a necessity at its inception, and is a necessity still, for man cannot work until he eats, and no enterprise can prosper unless agriculture first furnishes it bread; thus in this sense and in this sense alone, it is at the bottom of all prosperity. The sentiments that "agriculture is the foundation of all health;" "agriculture feeds the

nation;" "no country can prosper unless it encourages agriculture;" have engendered in the minds of some men an opinion that those engaged in other pursuits, are mere parasites or drones in the hive.

Machinery, it is estimated, has within the past twenty-five years increased the powers of man by their use on the farm five fold, so if this be true, agriculture is indebted to mechanics alone eighty per cent. of her present productions. The farmer has not time to preach, to doctor or to practice law. He cannot build his house or make his plow. He cannot teach the school nor manufacture his coat, yet he cannot well do without either of these; in fact he, under our present civilization, is as dependent on them as either of these is upon. His success depends upon the success of others, and thus we are all interested upon the general welfare, and the welfare of the whole depends upon the welfare of each. Thus it is that these gatherings are enjoyed by all, and no one calling can claim all the credit, for whatever of existence there may be in the exhibits each is in some way or other indebted to, or dependent upon some other distinct pursuit, calling or science that has aided in its development.

It being conceded that all men are interested in the success of the farmer, in my few remarks I will attempt to draw your minds briefly and directly to a few subjects of practical importance.

First the importance of farmers knowing how to market their produce. As much of his success depends upon this as in raising the crops. A railroad corporation could not succeed unless it studied the wants of the people and prepared accommodations suitable to these wants. A factory could not run without putting its goods in the best market. Financial success can be attained by none save they have what others want, and place their wares where they are wanted, and where they are wanted most they will pay the best price.

Many a farmer works hard the year round and knows nothing of the market. He takes what the speculator chooses to give and asks no questions. So long as this is the

case among so large a class, we may never expect a sure and adequate compensation for our products.

He should study the laws of supply and demand. Know as much as he can of the probable supply before he raises a crop, and some idea of where it can be sold for a reasonable profit. If the supply is great an early marketing will be to his profit; if a scanty supply holding will pay as well. Suit his crops to the soil, climate and the market. All these considerations grow out of his knowing how, when and where to market his crops. A few years since there was a general failure in the potato crop; any farmer at that time that chose to investigate could have learned from the crop reports of the scarcity, and if so that the price of potatoes would be more than an average. Other men study these reports, and on their knowledge thus gained, make their living from the producers. There is no exact way how to tell you when and where and all about marketing produce; each man must study this for himself. Study on this subject and become self reliant, for in the end any man's success in any industry depends upon self-reliance. This, however, cannot come to other than those that know what they are doing. This idea of self-reliance is one of the things first to be learned and without it even the child could never learn to walk. Self-reliance is the result of practical knowledge. The child with no reasoning faculties and no knowledge of handling his limbs would never walk. So the man that knows nothing of the market will never sell his wares. He will never set the price. The buyers *will*, however, and the farmer will take just what they chose to give.

#### EDUCATION.

There is no need at this time to preach education, for in the popular sense, the people are full of it already; but what I want is a practical and special business education for the coming farmer.

*Practical thinking* men throughout our state irrespective of profession, see the importance of a more direct special education for all classes. This to a limited extent is supplied to the professions; and in mechanics; but in agricul-

ture, in *one* state at least, it is practically not supplied at all, except, such as can be got on the farm. Study and instruction in any direction strengthens the reasoner's faculties, and to this extent there is nothing in the college curriculum but what may benefit a farmer; but the same drill in the line of his calling, especially when his time and means are limited, would give far better practical results. Men of all professions and occupations in order to have their fullest and best influence in society, and in their profession, must have this special education in some way or other, in school or otherwise. If not in the rough and tumble of actual life, after school days are over, they will have to take back seats. They will be classed as the unsuccessful, and if so, not influential. There is many a man with but little book knowledge, but large practical knowledge that does vastly more to shape public sentiment, than those about them that are full of book learning, but have neglected the practical parts of their education. There is nothing that gives a man influence like the confidence of the people in his opinions.

The well balanced man that has made a success of something, some one thing will perhaps give him a monopoly of the opinions of the people in his particular specialty. No man respects the opinions of another unless he can prove and substantiate his theories, and he knows whereof he speaks.

So likewise capital if not profitably invested in any one line of industry, that industry must languish or at the least lose the influence that capital alone can give. Thus you see that except there are intelligent men on the farm (intelligent in their calling), the farmer must lose his influence; *and*, if so much of the morality, sobriety and industry of the people are concentrated in the farmers and so little can be found elsewhere, then the better elements of society will be at the mercy of the worst.

However this may be, when the intelligence of the farmer is gone, and his capital is gone, and he no longer helps shape intelligent, moral, public sentiment in these United States, God help us! If farming cannot be made to pay as well as the average of other callings, capital will seek better chances

for investment, and here again the farmer loses his proper enhanced influence that, as I have said before, capital alone can give.

For the proper education of such of our boys as have a taste for farm life, let not a voice from a farmer in our beautiful state ever be raised.

It is time, and I believe that the clogs of idleness are being cast off. The *do nothings* are being classed with their compeers, the *good for nothings*. We approach an era when labor will be recognized as the only *legal tender* with God in exchange for benefits. That His fiat, "in the sweat of *thy* face shalt thou eat bread;" is *personal*, and that not *penalty* only to be avoided, but *command* to be obeyed, and to *disobey* is *sinful*.

The false standard of white hands and delicate features, by which man and womanhood has been too often adjudged, is being amended, and Democratic justice, whose bandaged eyes sees not their effeminate externals, adjudges and prizes men for their *bones* their *muscles* and their *brains*. We begin to esteem "The glorious privilege to do as man's most noble dower." The orthoology of true *manly* fellowship is not even now tested by *creeds* or *birth* or *fortune*; but *intent ability*, *execution*. "By their fruits" *we know them*.

The world is getting to realize, that *industry*, not idleness is the true elevation of the race; that *it* is the great prerequisite to any good; that there can be no excellency, in any department of life *physical*, *intellectual* or *moral*, without it; that no man can be a power in any profession or calling, until he has learned the relations of labor.

Manual labor is the great *primal* authority—to which all professions are but auxiliaries, and how shall they aid if they know not the requirements.

The profession of *law*, *medicine* or *Gospel* are not intended to live *upon*, but *for* the laborer, should be valued in any community *only* as they conserve the *peace*, *health* and *moral elevation* of labor.

To make these sentiments as much a part of the constant flow of public sentiment as abundance is a necessary and component part of the blood coursing through our veins I

would have you fathers and mothers, you farmers and mechanics, you teachers and preachers, you lawyers and law makers, recognize their prime importance.

We should again lead the world in agriculture. We should lead the world in our manufactures, and lastly, we should lead the world in our commerce. If political economy is true, we cannot reach the height of our prosperity until these three elements of wealth enter into our economy. Now we are at the mercy of foreign nations as far as our commerce is concerned. This will remain the same until better results can be realized from investments in ships, which will be the case when there is less chance for jobbing and speculation, when men are judged more for their true worth than for their stocks or bonds. Agriculture demands better transportation facilities and I hope the time will soon come when our commerce will be in proportion to our agriculture and manufactures.

It has long been the settled policy of our government to improve the water ways of the country in the interests of commerce, both foreign and domestic, and in pursuance thereof, there has been expended in the improvement of the rivers and harbors of our country one hundred and fifty million of dollars, or thereabouts, the most of which has been expended in the older states and along the coast line. Such appropriations should be made to apply where relief is most needed, and commence, where the commerce of the country originates, the center of the continent and working outward. Heretofore it has been the reverse, most of the appropriations having been made on the exterior lines; not recognizing the fact that commerce among the states (when under our constitution there can be no restriction) constitutes the larger proportion of our carrying demand. With an expense of fifteen cents per bushel from Iowa to Chicago, and another eighteen from there to the seacoast, most of the profit of raising grain in the Mississippi Valley is eaten up by the middlemen before it really starts for a foreign market; and any section that has not a home consumption is practically worthless, except to keep men from the poor house.



If water lines can be made to transport produce cheaper than the railroads, it is the evident duty of the government to improve the navigability of our interior rivers. This is one of the best ways to distribute the extra money of the government, and like the distribution of pensions help trade and builds up pleasant homes for the laboring classes.

There is a class of persons, companies and corporations, domestic and foreign, that have to a large extent monopolized the public domain for the purpose of raising stock.

Investments in private enterprises are legitimate, and whether the profits are large or small it is no man's business. Competition will soon bring any enterprise to a proper average paying level; but when investments are made through public benefactions or permits, it is proper for the public to enquire whether or no they interfere with the property of other individuals in similar enterprises on their own private property. Opportunities thus given by allowing the public lands to be used as feeding grounds for large herds of cattle found in, and thus priority settlement is equivalent to a franchise bestowal; and should be subject to the same laws of equity.

It is not a question for the executive to enquire what is best for these cattle kings, but what is for the general prosperity of the people of these United States.

Young men study these and similar questions. Learn to do your own thinking. No man has any business to live in free America that has his wits, whether he is a farmer or mechanic, that allows another man to decide a moral or political question for him. Visit the library and the debating club. Read up on all questions of public importance, discuss them in the grange and club room. You will thus learn to be ready in debate and can lead rather than be led. It is the *man* that gives dignity to the profession, not the profession to the man.

No man requires a profession to advertise his ability or his integrity. He will be measured by society, and if found wanting, professions will avail nothing.

Boys, go slow, remember that it takes time to construct a

valuable edifice. Some ninety-nine times out of one hundred the wise young man is the weak old man. Old men that are farmers be content. Remember that while in other pursuits there may be shorter roads to wealth, yet there is no surer road to a competency, that while you may not be clothed in soft raiment and fine linen, you may have good, comfortable, happy homes, and send out in the world young men and women, your off-springs, that will be built up from infancy to habits of industry and economy, which with proper education may fill any station in life, thus benefiting the world and making you happy in your old age.

By an act of the legislature passed last winter each county agricultural society is entitled to a representative through its president at the state fair, and for which he receives a proper compensation, to be paid by this society. It is made the duty of those representatives to assist this society during the fair by acting as called upon on committees of award and also to participate in the election of our officers, thus making up a representative body. This I believe will bring us nearer the people, and the board thus elected in every material point will be a state board of agriculture selected by the people.

Of these representatives that are here are all welcome; report yourselves to the secretary's office and help make this fair a grand success.

Under the same law it is made the duty of the officers of the state fair, to prevent and exclude all gambling and gambling devices, also the sale of all intoxicating liquors from the fair grounds. On the faithful execution of this law depends the receipt of our annual appropriation from the state. While it may be unnecessary to mention this at this time in the presence of such an intelligent law-abiding assemblage, I will say that this law will be faithfully and honestly enforced.

Knowing that speeches are not appreciated at fairs, I all the more esteem your kind attention and will close by again bidding you all a most hearty welcome, hoping that this ex-

hibition may confer upon all social enjoyment and profitable instruction.

I now declare the thirty-second annual exhibition of the State Agricultural Society open to the public.

# PREMIUM AWARDS.

## DEPARTMENT A — HORSES.

### CLASS 1 — *Roadsters.*

Best stallion 4 years old and over, 17 entries, J. A. Gilman, Sparta,	\$25 00
Second best, F. J. Hollis, Beloit.....	15 00
Best stallion 3 years old and under 4, 7 entries, W. M. Ormond, Milwaukee .....	20 00
Second best, L. A. Squires and A. J. Brown, North Leeds ....	10 00
Best stallion 2 years old and under 3, 7 entries, David Johnson, Jefferson .....	15 00
Second best, John E. Chadwick, Juda.....	10 00
Best stallion 1 year old and under 2, 2 entries, Barber Randall, Hustisford.....	10 00
Best sucking stallion foal, 2 entries, Ed. Torealt, Sparta.....	10 00
Second best, H. M. Bock, Richland City.....	5 00
Best brood mare 4 years old and over with foal by her side, 2 entries, Ed. Torealt, Sparta .....	15 00
Best filly 3 years old and under 4, 2 entries, J. A. Gilman, Sparta.	15 00
Second best, David Johnson, Jefferson.....	10 00
Best filly 2 years old and under 3, 6 entries, Geo. Ryder, Lake Mills	15 00
Second best, J. A. Gilman, Sparta .....	10 00
Best filly 1 year old and under 2, 4 entries, Barber Randall, Hustis- ford .....	10 00
Second best, J. A. Gilman, Sparta .....	5 00
Best sucking filly foal, 1 entry—no award .....	
Best stallion and five of his colts at 4 years of age and under, 3 entries, F. J. Hollis, Beloit.....	15 00

### CLASS 2 — *Horses for Work.*

Best stallion 4 years old and over, 5 entries, D. Mosier, Beloit.....	\$15 00
Second best, Harvey Marr, Whitewater .....	7 00
Best stallion 3 years old and under 4, 4 entries, D. Mosier, Beloit..	12 00
Second best, August Preim, Dane Station .....	6 00
Best stallion 2 years old and under 3, five entries, Geo. Warren & Sons, Fox Lake .....	8 00
Second best, Bowles & Hadden, Janesville .....	4 00
Best stallion 1 year old and under two, 5 entries, Dan Hagan, Poy- nette .....	5 00
Second best, E. N. Ranney, Token Creek.....	3 00
Best sucking stallion foal, 4 entries, F. M. Sutherland, Syene ....	4 00
Second best, Wm. Forest, Poynette .....	2 00
Best brood mare 4 years old and over with foal by her side, 8 en- tries, J. Terwilliger, Oregon.....	15 00
Second best, Jerome Bixby, Stoughton .....	7 00
Best filly 3 years old and under 4, 1 entry. No award.	
Best filly 2 years old and under three, five entries, Burrington Bros., Sun Prairie .....	8 00
Second best, Jerome Bixby, Stoughton .....	4 00

Best filly, one year old and under two, 5 entries, Burrington Bros. Sun Prairie .....	\$5 00
Second best, E. N. Ranney, Token Creek .....	2 00
Best sucking filly foal, 4 entries, Jerome Bixby, Stoughton .....	4 00
Second best, J. Terwilliger, Oregon .....	2 00

### CLASS 3 — *American Bred Trotting Stock.*

Best stallion any age, 2 entries. No award.	
Best stallion, 4 years old and over, 2 entries, John C. Chadwick, Juda .....	Diploma.
Best stallions 3 and 1 years old. No entries.	
Best stallion 2 years old and under 3, 1 entry, H. M. Bock, Rich- land City .....	Diploma.
Best stallion and 5 of his colts, 3 entries, J. A. Gilman, Sparta. Grand Silver Medal.	
No other awards in this class.	

### CLASS 4 — *Draft Horses — Pure Bred.*

Best Clydesdale or English Shire Stallion, 4 years old and over, 6 entries, Galbraith Bros., Janesville .....	\$25 00
Second best, Galbraith Bros., Janesville .....	15 00
Best Norman Stallion, 4 years old and over, 4 entries, Bowles & Hadden, Janesville .....	25 00
Second best, Bowles & Hadden, Janesville .....	15 00
Best Clydesdale or English Shire Stallion, 3 years old and under 4, 6 entries, Galbraith Bros., Janesville .....	25 00
Second best, Burrington Bros., Sun Prairie .....	10 00
Best Norman Stallion, 3 years old and under 4, 2 entries, Bowles & Hadden, Janesville .....	25 00
Second best, Bowles & Hadden, Janesville .....	10 00
Best Stallion 2 years old and under 3, 11 entries, Galbraith Bros., Janesville .....	20 00
Second best, Galbraith Bros., Janesville .....	10 00
Best Stallion 1 year old and under 2, 1 entry .....	
Second premium, Burrington Bros., Sun Prairie .....	5 00
Best Sucking Stallion Foal, 1 entry, R. B. Kellogg, Green Bay .....	10 00
Best Norman Mare, 4 years old and over, 4 entries, R. B. Kellogg, Green Bay .....	15 00
Second best, R. B. Kellogg, Green Bay .....	10 00
Best Clyde Mare, 4 years old and over, 1 entry, Galbraith Bros., Janesville .....	15 00
Best filly 3 years old and under 4, 5 entries, Galbraith Bros., Janes- ville .....	15 00
Second best, R. B. Kellogg, Green Bay .....	10 00
Filly 2 or 1 year old. No entries.	
Best sucking filly foal, 2 entries, J. Sprecher, Madisen .....	10 00
Second best, R. B. Kellogg, Green Bay .....	5 00
Best stallion and 5 of his get. No entries.	

### CLASS 5.—*Cleveland Bays — Pure Bred.*

Best stallion any age, 3 entries, S. D. McMillan, West Salem .....	Diploma.
Best stallion 4 years old and over, 1 entry, Galbraith Bros., Janes- ville .....	Diploma.
Best stallion 3 years old and under 4, 2 entries, S. D. McMillan, West Salem .....	Diploma.

- Best stallion 2 years old and under 3, 2 entries, Geo. Warren & Sons, Fox Lake.....Diploma.  
 Best stallion 1 year old and under 2, 1 entry, Geo. Warren & Sons, Fox Lake .....Diploma.  
 No other entries in this class.

CLASS 6—*Matched Horses and Mares.*

- Best pair of carriage horses or mares, 13 entries, J. B. Hull, Evansville ..... \$15 00  
 Second best, S. Crouch, Baraboo..... 10 00  
 Best pair of roadsters, 9 entries, J. M. Johnson, Prairie du Sac... 15 00  
 Second best, S. D. Macomber, New Lisbon..... 10 00  
 Best pair of farm horses, 1 entry, Jerome Bixby, Stoughton..... 15 00  
 Pair of draft horse?. No entry.

CLASS 7—*Geldings or Mares for Single Harness.*

- Best gentlemen's roadster for single harness, 4 years old and over, 18 entries, David Johnson, Jefferson..... \$15 00  
 Second best, S. D. Macomber, New Lisbon..... 10 00  
 Best thoroughbred stallion, any age, 3 entries S. D. Macomber, New Lisbon ..... 15 00  
 Second best, W. H. Cook, West Point..... 10 00  
 Thoroughbred mare. No entries.  
 Best gentlemen's riding horse, 1 entry, J. Terwilliger, Oregon...Diploma.

CLASS 8—*Horses for Speed.*

*Three Minute—Purse \$300.*

- First, Atwood & Roundtree, Platteville, "Jack Cutler"..... \$150 00  
 Second, S. Silvernail, Waukesha, "Daisy S" ..... 75 00  
 Third, J. C. McKesson, Sharon, "J. C"..... 45 00  
 Fourth, G. H. Pilling, Beaver Dam, "Golddust"..... 30 00

*Free for all Trotters and Pacers—Purse \$300.*

- First, H. P. Oberman, Milwaukee, "Bay Diamond"..... \$150 00  
 Second, David Johnson, Jefferson, "Foxey V"..... 75 00  
 Third, J. H. Paul, Waukesha, "Sweigart Jr"..... 45 00  
 Fourth, David Johnson, Jefferson, "Betsey Ann"..... 30 00

*Two-Forty—Purse \$300.*

- First, S. D. Macomber, New Lisbon, "Horry Mills"..... \$150 00  
 Second, Dan. Campbell, Madison, "Burdette"..... 75 00  
 Third, Atwood & Roundtree, Platteville, "Commit Cutler"..... 45 00  
 Fourth, G. H. Pilling, Beaver Dam, "Golddust"..... 30 00

*State Fair Trotting Stakes, Foals of 1881.*

- First, Geo. E. Bryant, Jr., Madison, "Hope" ..... \$84 00  
 Second, J. Demerit, Aztalan, "Vasco"..... 50 74  
 Third, S. T. Saudon, Windsor, "Billy Chief"..... 32 24

*State Fair Trotting Stakes, Foals of 1882.*

- First, Frank Millard, Lake Mills, "Rival"..... \$82 00  
 Second, F. J. Hollis, Beloit, "Briggie S"..... 49 20  
 Third, J. Demerit, Lake Mills, "Bevis"..... 31 52

## DEPARTMENT B—CATTLE.

CLASS 9—*Short Horns.*

Best bull 3 years old and over, 6 entries, J. M. Scoville, Lowville..	\$20 00
Second best, J. C. Kiser, Oregon .....	10 00
Best bull 2 years old and under 3, 6 entries, Geo. Harding, Waukesha.....	20 00
Second best, C. M. Clark, Whitewater .....	10 00
Best bull 1 year old and under 2, 10 entries, J. M. Scoville, Lowville .....	15 00
Second best, Chas. Collard, Edmund.....	10 00
Best bull calf over 6 and under 12 months, 10 entries, J. M. Scoville, Lowville .....	10 00
Second best, J. C. Kiser, Oregon.....	5 00
Best bull calf under 6 months old, 11 entries, J. Spracher, Madison .....	10 00
Second best, J. M. Scoville, Lowville .....	5 00
Best cow 3 years old and over, 22 entries, J. C. Kiser, Oregon ....	15 00
Second best, Seth Fisher, Center.....	10 00
Best heifer 2 years old and under 3, 10 entries, J. C. Kiser, Oregon .....	15 00
Second best, J. M. Scoville, Lowville.....	10 00
Best heifer 1 year old and under 2, 8 entries, J. C. Kiser, Oregon..	15 00
Second best, J. M. Scoville, Lowville .....	10 00
Best heifer calf over 6 and under 12 months old, 9 entries, J. C. Kiser, Oregon .....	10 00
Second best, J. C. Kiser, Oregon.....	5 00
Best heifer calf under 6 months old, 7 entries, Geo. Harding, Waukesha.....	10 00
Second best, Seth Fisher, Center.....	5 00
Best display in entire class, Seth Fisher, Center.....	25 00

CLASS 10—*Jerseys.*

Best bull 3 years old and over, 8 entries, M. R. Doyan, Madison..	\$20 00
Second best, N. N. Palmer, Brodhead .....	10 00
Best bull 2 years old and under 3, 4 entries, H. S. Durand, Racine.	20 00
Second best, Edmund King, Whitewater .....	10 00
Best bull 1 year old and under 2, 8 entries, R. S. Kingman, Sparta.	15 00
Second best, H. S. Durand, Racine.....	10 00
Best bull calf over 6 and under 12 months old, 8 entries, T. L. Hacker .....	10 00
Second best, N. N. Palmer, Brodhead .....	5 00
Best bull calf under 6 months old, 8 entries, H. S. Durand, Racine.	10 00
Second best, H. S. Durand, Racine.....	5 00
Best cow 3 years old and over, 24 entries, T. L. Hacker, Madison..	15 00
Second best, H. S. Durand, Racine .....	10 00
Best heifer 2 years old and under 3, 17 entries, T. L. Hacker, Madison .....	15 00
Second best, H. S. Durand, Racine.....	10 00
Best heifer, 1 year old and under 2, 12 entries, T. L. Hacker, Madison .....	15 00
Second best, R. S. Kingman, Sparta.....	10 00
Best heifer calf over 6 and under 12 months old, 9 entries, N. N. Palmer, Brodhead.....	10 00
Second best, C. B. Miller, Madison .....	5 00
Best heifer calf under 6 months old, 9 entries, R. S. Kingman, Sparta.....	10 00
Second best, N. N. Palmer, Brodhead.....	5 00
Display in entire class, 5 entries. No awards.	

CLASS 11 — *Ayrshires.*

Best bull 3 years old and over, 1 entry, Chester Hazen, Brandon..	\$29 00
Best bull 2 years old and under 3, 1 entry, Chester Hazen, Brandon .....	20 00
Bull 1 year old. No entry.	
Bull calf over 6 months old. No entry.	
Bull calf under 6 months old. No entry	
Best cow 3 years old and over, 4 entries, Chester Hazen, Brandon.	15 00
Second best, Chester Hazen, Brandon.....	10 00
Best heifer 2 years old and under 3, 2 entries, Chester Hazen, Brandon .....	15 00
Second best, Chester Hazen, Brandon.....	10 00
Best heifer 1 year old and under 2, 2 entries, Chester Hazen, Brandon .....	15 00
Second best, Chester Hazen, Brandon.....	15 00
Second best, Chester Hazen, Brandon.....	10 00
Best heifer calf over 6 and under 12 months old, 1 entry, Chester Hazen, Brandon.....	10 00
Best heifer calf under 6 months old, 1 entry, Chester Hazen, Brandon .....	10 00
Best display in entire class, 1 entry. No award.	

CLASS 12.— *Devons.*

Best bull, 3 years old and over, 2 entries, J. W. Morse & Son, Verona .....	\$20 00
Second best, E. E. Curtis, Berlin, Wis.....	10 00
Best bull 2 years old and under 3, 1 entry, E. E. Curtis, Berlin....	20 00
Best bull 1 year old and under 2, 1 entry, J. W. Morse & Son, Verona .....	15 00
Best bull calf over 6 and under 12 months old, 1 entry, J. W. Morse & Son, Verona.....	10 00
Best bull calf under 6 months old, 1 entry, J. W. Morse & Son, Verona .....	10 00
Best cow 3 years old and over, 5 entries, J. W. Morse & Son, Verona .....	15 00
Second best, J. W. Morse & Son, Verona.....	10 00
Best heifer 2 years old and under 3, 2 entries, J. W. Morse & Son, Verona .....	15 00
Second best, J. W. Morse & Son, Verona.....	10 00
Best heifer 1 year old and under 2, 1 entry, J. W. Morse & Son, Verona .....	15 00
Best heifer calf over 6 and under 12 months old, 1 entry, J. W. Morse & Son, Verona.....	10 00
Best heifer calf under 6 months old, 4 entries, J. W. Morse & Son, Verona .....	10 00
Second best, E. E. Curtis, Berlin.....	5 00
Best display in entire class, 2 entries. No awards.	

CLASS 13 — *Galloways and Polled Angus or Polled Norfolks*

Best bull 3 years old and over, 1 entry, Wm. Steele, Merton.....	\$20 00
Best bull 2 years old and under 3, 1 entry, S. H. & A. E. Joiner, Janesville.....	20 00
Best bull 1 year old and under 2. No entry.	
Best bull calf over 6 and under 12 months old. No entry.	
Best bull calf under 6 months old, 2 entries, Wm. Steele, Merton.	10 00
Second best, Wm. Steele, Merton.....	5 00



Best cow 3 years old and over, 2 entries, Wm. Steele, Merton.....	\$15 00
Second best, Wm. Steele, Merton.....	10 00
Best heifer 2 years old and under 3. No entry.	
Best heifer 1 year old and under 2, 1 entry, Wm. Steele, Merton..	15 00
Best heifer calf over 6 and under 12 months. No entries.	
Best heifer calf under 6 months old. No entries.	
Best display in entire class. No entries.	

CLASS 14—*Herefords.*

Best bull, 3 years old and over. No entry.	
Best bull, 2 years old and under 3, 1 entry, John J. Williams, Berlin	\$20 00
Best bull, 1 year old and under 2. No entry.	
Best bull calf over 6 and under 12 months old, 1 entry, John J. Williams, Berlin .....	10 00
Best bull calf under 6 months old. No entry.	
Best cow, 3 years old and over, 2 entries, J. J. Williams, Berlin....	15 00
Best heifer, two years old and under 3. No entry.	
Best heifer, 1 year old and under 2. No entry.	
Best heifer calf, over 6 and under 12 months old, 1 entry, John J. Williams, Berlin .....	\$10 00
Best heifer calf, under 6 months old. Two entries. No award.	
Best display in entire class. Two entries. No award.	

CLASS 15—*Holsteins.*

Best bull 3 years old and over, 4 entries, John Urquhart, Rio.....	\$20 00
Second best, A. Myers & Son, Beloit.....	10 00
Best bull 2 years old and under 3, 5 entries, F. W. Maxon, Walworth.....	20 00
Second best, Barber Randall, Hustisford.....	10 00
Best bull 1 year old and under 2, 9 entries, John Bremner, Idaho..	15 00
Second best, Gillett & Moore, Rosendale.....	10 00
Best bull calf over 6 and under 12 months old, 5 entries, L. C. Morse, Sparta .....	10 00
Second best, L. C. Morse, Sparta.....	5 00
Best bull calf under 6 months old, 15 entries, F. W. Maxon, Walworth.....	10 00
Second best, Chester Hazen, Brandon.....	5 00
Best cow 3 years old and over, 19 entries, Heath Bros. & Davis, Madison .....	15 00
Second best, F. W. Maxon, Walworth.....	10 00
Best heifer 2 years old and under 3, 15 entries, John Urquhart, Rio .....	15 00
Second best, L. C. Morse, Sparta .....	10 00
Best heifer 1 year old and under 2, 12 entries, Gillett & Moore, Rosendale.....	15 00
Second best, F. W. Maxon, Walworth.....	10 00
Best heifer calf over 6 and under 12 months old, 4 entries, L. C. Morse, Sparta .....	10 00
Second best, Barber Randall, Hustisford .....	5 00
Best heifer calf under 6 months old, 10, entries, S. Wintermute, Whitewater.....	10 00
Second, best, I. L. Curtis, Poynette.....	5 00
Best display in entire class, 7 entries. No awards.	

CLASS 16—*Guernseys.*

No entries.

CLASS 17 — *Fat Cattle.*

Not less than 5 heads, 3 entries, best A. Ludlow, Monroe.....	\$50 00
Second best, C. M. Ciark, Whitewater.....	30 00
Best single head fat cattle, 4 entries, A. Ludlow, Monroe .....	10 00
Second best, A. Ludlow, Monroe.....	5 00

DEPARTMENT C—SHEEP.

CLASS 18 — *American Merinos.*

Best buck, 2 years old and over, 2 entries, R. H. Mill, Palmyra....	\$12 00
Second best, J. H. Pitcher, Eagle.....	7 00
Best buck, 1 year old and under 2, 4 entries, J. H. Pitcher, Eagle.	12 00
Second best, R. H. Mill, Palmyra.....	7 00
Best pen 3 buck lambs, 2 entries, R. H. Mill, Palmyra.....	7 00
Best pen 3 ewes, 2 years old and over, 2 entries, J. H. Pitcher, Eagle	12 00
Second best, R. H. Mill, Palmyra.....	7 00
Best pen 3 ewes, 1 year old and under 2, 2 entries, J. H. Pitcher, Eagle.....	12 00
Second best, R. H. Mill, Palmyra.....	7 00
Best pen 3 ewe lambs, 2 entries, R. H. Mill, Palmyra.....	7 00
Second best, J. H. Pitcher, Eagle.....	3 00
Best buck and 5 ewes, R. H. Mill, Palmyra.....	8 00

CLASS 19 — *American Merinos and others.*

Best buck, 2 years old and over, 2 entries, J. H. Pitcher, Eagle... ..	\$12 00
Second best, R. H. Mill, Palmyra.....	7 00
Best buck 1 year old and under 2, 3 entries, R. H. Mill, Palmyra..	12 00
Second best, J. H. Pitcher, Eagle.....	7 00
Best pen 3 buck lambs, 1 entry, J. H. Pitcher, Eagle.....	7 00
Best pen 3 ewes, 2 years old and over, 2 entries, R. H. Mill, Palmyra .....	12 00
Second best, J. H. Pitcher, Eagle .....	7 00
Best pen 3 ewes, 1 year old and under 2, 1 entry, J. H. Pitcher, Eagle.....	12 00
Best pen 3 ewe lambs, 1 entry, J. H. Pitcher, Eagle.....	7 00
Best buck and 5 of his get, J. H. Pitcher, Eagle.....	8 00

CLASS 20—*Long Wool.*

Best buck, 2 years old and over, 5 entries, Nicholas Jewell, Mineral Point .....	\$12 00
Second best, George Harding, Waukesha.....	7 00
Best buck, 1 year old and under 2, 5 entries, Nicholas Jewell, Mineral Point.....	12 00
Second best, George Harding, Waukesha.....	7 00
Best pen 3 buck lambs, 3 entries, Nicholas Jewell, Mineral Point.	7 00
Second best, Jos. O'Malley, Waunakee .....	3 00
Best pen 3 ewes, 2 years old and over, 4 entires, Nicholas Jewell, Mineral Point.....	12 00
Second best, George Harding, Waukesha.....	7 00
Best pen 3 ewes, 1 year old and under 2, 2 entries, Jos. O'Malley, Waunakee.....	12 00
Second best, George Harding, Waukesha.....	7 00

Best pen 3 ewe lambs, 3 entries, Jos. O'Malley, Waunakee .....	7 00
Second best, Nicholas Jewell, Mineral Point .....	3 00
Best buck, with 5 of his get, 3 entries, Nicholas Jewell, Mineral Point.....	8 00

## CLASS 21—Downs.

Best buck, 2 years old and over, 5 entries, Chas. Collard, Edmund	\$12 00
Second best, Chas. Collard, Edmund.....	7 00
Best buck, 1 year old and under 2, 6 entries, Charles Collard, Edmund.....	12 00
Second best, Charles Collard, Edmund.....	7 00
Best pen 3 buck lambs, 6 entries, Chas. Hill, Brookfield .....	7 00
Second best, Chas. Collard, Edmund.....	3 00
Best pen 3 ewes, 2 years old and over, 6 entries, Chas. Hill, Brookfield .....	12 00
Second best, Chas. Collard, Edmund.....	7 00
Best pen 3 ewes, 1 year old and under 2, 2 entries, Chas. Hill, Brookfield .....	12 00
Best pen 3 ewe lambs, 4 entries, Chas. Collard, Edmund .....	7 00
Second best, Chas. Hill, Brookfield.....	3 00
Best buck and 5 of his get, 3 entries, Chas Collard, Edmund.....	8 00

## DEPARTMENT D — SWINE.

## CLASS 22 — Large breeds — Poland China.

Best boar 2 years old and over, E. Wait & Sons, La Grange.....	\$12 00
Second best, D. T. Ross, Janesville.....	8 00
Best boar 1 year old and under 2, 2 entries, A. A. Munger, Brooklyn .....	6 00
Second best, B. T. Fowler, Hart Prairie.....	4 00
Best breeding sow 2 years old and over, 3 entries, E. Wait & Sons, La Grange.....	10 00
Second best, A. A. Munger, Brooklyn.....	8 00
Best breeding sow, 1 year old and under 2, 1 entry, A. A. Munger, Brooklyn .....	7 00
Best breeding sow and litter of sucking pigs, 2 entries, A. A. Munger, Brooklyn .....	10 00
Best boar pig over 6 months and under 1 year old, 1 entry, D. T. Ross .....	6 00
Best sow pig over 6 months and under 1 year old, 2 entries, D. T. Ross, Janesville.....	6 00
Second best, B. T. Fowler, Hart Prairie.....	3 00
Best boar pig under 6 months old, 19 entries, D. T. Ross, Janesville	6 00
Second best, B. T. Fowler, Hart Prairie.....	3 00
Best sow pig under 6 months old, 9 entries, D. T. Ross, Janesville.	6 00
Second best, E. Wait & Sons, La Grange.....	3 00
Best boar any age, 6 entries, E. Wait & Sons, La Grange.....	10 00
Best sow any age, 4 entries, E. Wait & Sons.....	10 00

CLASS 23 — *Large Breeds — Chester White and others.*

Best boar 2 years old and over, 3 entries, M. J. Green, Oshkosh...	\$12 00
Second best, E. R. Bement, Oregon .....	8 00
Best boar 1 year old and under 2, 3 entries, M. B. Green, Oshkosh .....	6 00
Second best, J. N. Chamberlain, Beloit .....	4 00
Best breeding sow 2 years old and over, 5 entries, M. B. Green, Oshkosh .....	10 00
Second best, John N. Chamberlain, Beloit.....	8 00
Best breeding sow 1 year old and under 2, 5 entries, Jerome Bixby, Stoughton .....	7 00
Second best, M. B. Green, Oshkosh .....	4 00
Best breeding sow with litter of sucking pigs, 5 entries, M. B. Green, Oshkosh .....	10 00
Second best, Jerome Bixby, Stoughton .....	8 00
Best boar pig over 6 months old and under 1 year, 5 entries, E. R. Bement, Oregon .....	6 00
Second best, Jerome Bixby, Stoughton.....	3 00
Best sow pig over 6 months old and under 1 year, 5 entries, M. B. Green, Oshkosh.....	6 00
Second best, E. R. Bement, Oregon .....	3 00
Best boar pig under 6 months old, 4 entries, M. B. Green, Oshkosh .....	6 00
Second best, Jerome Bixby, Stoughton.....	3 00
Best sow pig under 6 months old, 6 entries, M. B. Green, Oshkosh, .....	6 00
Second best, E. R. Bement, Oregon .....	3 00
Best boar, any age, 7 entries, M. B. Green, Oshkosh.....	10 00
Best sow, any age, 7 entries, M. B. Green, Oshkosh.....	10 00

CLASS 24 — *Middle Breeds — including Berkshires.*

Best boar two years old and over, 3 entries, J. E. Owens, Brooklyn	\$12 00
Second best, Wm. Forrest, Poynette.....	8 00
Best boar 1 year old and under 2, 2 entries, J. E. Owens, Brooklyn	6 00
Best breeding sow 2 years old and over, 3 entries, J. E. Owens, Brooklyn .....	10 00
Second best, John N. Chamberlain.....	8 00
Best breeding sow 1 year old and under 2, 4 entries, J. E. Owens.	7 00
Second best, Barber Randall, Hustisford.....	4 00
Best breeding sow with litter of sucking pigs, 2 entries, Barber Randall, Hustisford .....	10 00
Second best, J. E. Owens, Brooklyn .....	8 00
Best boar pig over six months old and under 1 year, 1 entry, J. E. Owens, Brooklyn.....	6 00
Best sow pig over six months old and under 1 year, 1 entry, J. E. Owens, Brooklyn.....	6 00
Best boar pig under 6 months old, 7 entries, J. E. Owens, Brooklyn	6 00
Second best, J. E. Owens, Brooklyn.....	3 00
Best sow pig under 6 months old, 8 entries, Barber Randall, Hustisford.....	6 00
Second best, Barber Randall, Hustisford.....	3 00
Best boar, any age, 4 entries, J. E. Owens, Brooklyn.....	10 00
Best sow, any age, J. E. Owens, Brooklyn.....	10 00

CLASS 25 — *Small breeds — Essex, Suffolk and others.*

Best boar, 2 years old and over, 2 entries, S. H. & A. E. Joiner, Janesville.....	\$12 00
Second best, S. H. & A. E. Joiner, Janesville.....	8 00
Best boar 1 year old and under 2, 3 entries, I. L. Curtis, Poynette.....	6 00
Second best, S. H. & A. E. Joiner, Janesville.....	4 00
Best breeding sow 2 years old and over, 2 entries, S. H. & A. E. Joiner, Janesville.....	10 00
Second best, S. H. & A. E. Joiner, Janesville.....	8 00
Best breeding sow 1 year old and under 2, 5 entries, Geo. H. Schurman, Richland Center.....	7 00
Second best, I. L. Curtis, Poynette.....	4 00
Best breeding sow with litter of sucking pigs, 2 entries, S. H. & A. E. Joiner, Janesville.....	10 00
Second best, S. H. & A. E. Joiner, Janesville.....	8 00
Best boar pig over 6 months old and under 1 year, 3 entries, G. H. Schurman, Richland Center.....	6 00
Best sow pig over 6 months and under 1 year old, 3 entries, G. H. Schurman, Richland Center.....	6 00
Second best, S. H. & A. E. Joiner, Janesville.....	3 00
Best boar pig under 6 months old, 4 entries, G. H. Schurman, Richland Center.....	6 00
Second best, I. L. Curtis, Poynette.....	3 00
Best sow pig under 6 months old, 6 entries, Geo. H. Schurman, Richland Center.....	6 00
Second best, Geo. H. Schurman, Richland Center.....	3 00
Best boar any age, 4 entries, Geo. H. Schurman, Rich'd Center	10 00
Best sow any age, 4 entries, Geo. H. Schurman, Rich'd Center	10 00

CLASS 26 — *Jersey Reds.* No entries.

## DEPARTMENT E — POULTRY.

CLASS 27 — *Asiatics.*

Best trio Light Brahma fowls, 8 entries, Chas. H. Belding, Shopiere.....	\$2 50
Second best, W. T. Baker, Evansville.....	1 50
Best trio Light Brahma chicks, 8 entries, W. T. Baker, Evansville.....	2 00
Second best, Geo. Harding, Waukesha.....	1 00
Best trio Dark Brahma fowls, 1 entry, J. R. Brabazon, Delavan, second premium.....	1 50
Best trio Dark Brahma chicks, 2 entries, J. R. Brabazon, Delavan.....	2 00
Second best, C. H. Belding, Shopiere.....	1 00
Best trio Buff Cochín fowls, 5 entries, W. H. Dumond, Madison.....	2 50
Second best, J. R. Brabazon, Delavan.....	1 50
Best trio Buff Cochín chicks, 4 entries, J. R. Brabazon, Delavan.....	2 00
Second best, W. H. Dumond, Madison.....	1 00
Best trio Partridge Cochín fowls, 5 entries, J. R. Brabazon, Delavan.....	2 50
Second best, Mrs. G. W. McDougal, Madison.....	1 50
Best trio Partridge Cochín chicks, 4 entries, J. R. Brabazon, Delavan.....	2 00
Second best, Mrs. H. E. Munger, Oregon.....	1 00

PREMIUMS AWARDED.

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Best trio White Cochín fowls, 3 entries, Chas. H. Belding, Shopiere.....	2 50
Second best, J. R. Brabazon, Delavan.....	1 50
Best trio White Cochín chicks, 1 entry, J. R. Brabazon, Delavan..	2 00
Best trio American Dominique fowls, 2 entries, J. R. Brabazon, Delavan .....	2 50
Second best, Mrs. H. E. Munger, Oregon.....	1 50
Best trio American Dominique chicks, 2 entries, J. R. Brabazon, Delavan .....	2 00
Second best, Mrs. H. E. Munger, Oregon.....	1 00
Best trio Plymouth Rock fowls, 10 entries, Geo. Harding, Waukesha .....	2 50
Second best, Mrs. G. W. McDougal, Madison .....	1 50
Best trio Plymouth Rock chicks, 7 entries, Geo. Harding, Waukesha .....	2 00
Second best, Chas. H. Belding, Shopiere.....	1 00
Dorking fowls and chicks. No entries.	
Best trio Langshan fowls, 4 entries, Mrs. G. W. McDougal, Madison .....	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best trio Langshan chicks, 4 entries, Mrs. H. E. Munger, Oregon..	2 00
Second best, Geo. Harding, Waukesha.....	1 00

*Spanish.*

Best trio Black Spanish fowls, 2 entries, Mrs. H. E. Munger, Oregon .....	2 50
Second best, J. R. Brabazon, Delevan.....	1 50
Black Spanish chicks. No entries.	
Best trio White Leghorn fowls, 3 entries, C. H. Belding, Shopiere. ....	2 50
Second best, J. R. Brabazon, Delavan.....	1 50
Best trio White Leghorn chicks, 10 entries, Mrs. H. E. Munger, Oregon .....	2 00
Second best, L. B. Leonard, Lake Mills.....	1 00
Best trio Brown Leghorn fowls, 8 entries, Chas. H. Belding, Shopiere.....	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best trio Brown Leghorn chicks, 9 entries, Clark & Chamberlain, Beloit.....	2 00
Second best, Mrs. H. E. Munger, Oregon.....	1 00
Best trio Black Hamburg fowls, 1 entry, J. R. Brabazon, Delavan, 2d premium .....	1 50
Best trio Black Hamburg chicks, 1 entry, J. R. Brabazon, Delavan, 2d premium .....	1 00
Best trio Silver Spangled Hamburg fowls, 3 entries, Mrs. H. E. Munger, Oregon .....	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best trio Silver Spangled Hamburg chicks, 2 entries, Mr. H. E. Munger, Oregon .....	2 00
Second best, J. R. Brabazon, Delavan.....	1 00
Silver Spangled Hamburg, no entries.	
Golden Spangled Hamburg fowls, no entries.	
Best trio Golden Spangled Hamburg chicks, 1 entry, J. R. Brabazon, Delavan, 2d premium.....	1 00

*French.*

Best trio Houdan fowls, 4 entries, J. R. Brabazon, Delavan....	\$2 50
Second best, Mrs. G. W. McDougal, Madison .....	1 50
Best trio Houdan chicks, 2 entries, J. R. Brabazon, Delavan....	2 00
Second best, Mrs. H. E. Munger, Oregon.....	1 00

*Polish.*

Best trio Black Polish fowls, 3 entries, J. R. Brabazon, Delavan	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best trio Black Polish chicks, 3 entries, Mrs. H. E. Munger, Oregon.....	2 00
Second best, Mrs. H. E. Munger, Oregon.....	1 00
White Polish fowls and chicks, no awards.....	2 50
Best trio Silver Polish fowls, 2 entries, Mrs. H. E. Munger, Oregon	1 50
Second best, Chas. H. Belding, Shopiere.....	2 00
Best trio Silver Polish chicks, 2 entries, Mrs. H. E. Munger, Oregon.....	2 50
Best trio Golden Polish fowls, 3 entries, Mrs. H. E. Munger, Oregon.....	1 50
Second best, Chas. H. Belding, Shopiere.....	2 00
Best trio Golden Polish chicks, 3 entries, Chas. H. Belding, Shopiere.....	1 00
Second best, Mrs. H. E. Munger, Oregon.....	

*Bantams.*

Best trio Golden Seabright fowls, 3 entries, Charles H. Belding, Shopiere.....	2 50
Best trio Golden Seabright chicks, 2 entries J. R. Brabazon, Delavan.....	2 00
Second best, Chas. H. Belding, Shopiere.....	1 00
Best trio Silver Duckwing fowls and chicks. No entries.	
Best trio any other variety Bantam fowls, 2 entries, J. R. Brabazon, Delavan.....	1 50
Best trio any other variety Bantam chicks, 3 entries, Mrs. H. E. Munger, Oregon.....	2 00
Second best, Charles H. Belding, Shopiere.....	1 00

*Game*

Best pair Brown Red fowls, 2 entries, Clark & Chamberlain, Beloit.....	2 50
Second best, W. T. Baker, Evansville.....	1 50
Best pair Brown Red chicks, 2 entries, W. T. Baker, Evansville, second premium.....	1 00
Best pair black breasted red game fowls, 5 entries, J. R. Brabazon, Delavan.....	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best pair black breasted red game chicks, 4 entries, W. T. Baker, Evansville.....	2 00
Second best, J. R. Brabazon, Delavan.....	1 00

*Pyle Fowls and Chicks.*

No entries.	
Best pair game any other variety, fowls, 3 entries, 1 award, Clark & Chamberlain, Beloit.....	1 50
Best pair game any other variety, chicks, 3 entries, J. R. Brabazon, Delavan.....	2 00
Second best, W. T. Baker, Evansville.....	1 00

*Turkeys.*

Best pair bronze turkey fowls, 6 entries, J. R. Brabazon, Delavan.....	2 50
Second best, Mrs. H. E. Munger, Oregon .....	1 50
Best pair bronze turkey chicks, 3 entries, J. R. Brabazon, Delavan.....	2 00
Second best, E. W. Palmer, Madison.....	1 00
Best pair common turkey fowls, two entries, E. W. Palmer, Madison.....	2 00
Second best, J. R. Brabazon, Delavan.....	1 00
Best pair common turkey chicks, 2 entries, E. W. Palmer, Madison.....	1 50
Second best, J. R. Brabazon, Delavan.....	1 00
Best pair Rocky Mountain turkey fowls, 1 entry, J. R. Brabazon, Delavan.....	2 50
Best pair Rocky Mountain turkey chicks, J. R. Brabazon, Delavan.....	1 00

*Water Fowls.*

Best pair geese, 6 entries, J. R. Brabazon, Delavan.....	\$2 00
Second best, Clark and Chamberlain, Beloit.....	1 00
Best pair Aylesbury ducks, 3 entries, J. R. Brabazon, Delavan.....	2 00
Second best, Chas. H. Belding, Shopiere.....	1 00
Best pair Rouen ducks, 4 entries, J. R. Brabazon, Delavan.....	2 00
Second best, Chas. H. Belding, Shopiere.....	1 00
Best pair Muscovy ducks, 3 entries, J. R. Brabazon, Delavan.....	2 00
Second best, David Piper, Madison.....	1 00
Best pair Cayuga ducks, 3 entries, E. W. Palmer, Madison.....	2 00
Second best, J. R. Brabazon, Delavan.....	1 00
Best pair Pekin ducks, 12 entries, J. R. Brabazon, Delavan.....	2 00
Second best, J. E. Owens, Brooklyn.....	1 00
Best pair Pea fowls, 3 entries, Mrs. G. W. McDougal, Madison.....	2 50
Second best, Mrs. G. W. McDougal, Madison.....	1 50
Best pair Guinea fowls, 5 entries, Mrs. G. W. McDougal, Madison.....	2 50
Second best, Chas. H. Belding, Shopiere.....	1 50
Best pair Guinea chicks, 3 entries, J. R. Brabazon, Delavan.....	2 00
Second best, Chas. H. Belding, Shopiere.....	1 00
Best and greatest variety poultry shown by one person, J. R. Brabazon, Delavan.....	5 00
Best exhibition fancy pigeons, 5 entries, M. Breitenbach, Madison.....	5 00
Second best, John L. Butler, Madison.....	3 00
Best show of rabbits, 3 entries, H. C. Wilson, Madison.....	3 00
Second best, Artie Lazier, Madison.....	1 50
Greatest variety pigeons and rabbits, Madison, 2 entries. Premium protested.	

DEPARTMENT F—AGRICULTURE.

CLASS 28—*Field Products.*

Best sample spring wheat (Rio Grande or China Tea), 3 entries, D. T. Pilgrim, Wauwatosa.....	\$5 00
Second best, C. E. Angell, Oshkosh.....	3 00
Best sample spring wheat (fife), 4 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim Wauwatosa.....	3 00
Best sample blue stem spring Wheat, 2 entries, C. E. Angell, Oshkosh.....	5 00
Second best, C. E. Angell, Oshkosh.....	3 00



Best any other variety spring wheat, 10 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best white winter wheat, 2 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim.....	3 00
Best red winter wheat, 6 entries, M. E. Spring, Baraboo.....	5 00
Second best, W. W. Flinn, Chetek.....	3 00
Best rye, 4 entries, D. T. Pilgrim, Wauwatosa.....	5 00
Second best, J. C. Davis, Oshkosh.....	3 00
Best oats, 15 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best white Schonen oats, 4 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best barley, 7 entries, D. T. Pilgrim, Wauwatosa.....	5 00
Second best, M. E. Spring, Baraboo.....	3 00
Best buckwheat, 6 entries, G. P. Peffer, Pewaukee.....	4 00
Second best, D. T. Pilgrim, Wauwatosa.....	2 00
Best flax seed, 4 entries, C. E. Angell, Oshkosh.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best bale of hops, 2 entries, M. E. Spring, Baraboo.....	5 00
Best timothy seed, 7 entries, J. E. Owens, Brooklyn.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best clover seed, 6 entries, Abraham Jacket, Riley Station.....	5 00
Second best, C. E. Angell, Oshkosh.....	3 00
Best variety of red top, 3 entries, G. P. Peffer, Pewaukee.....	3 00
Best Hungarian Millet, 4 entries, D. T. Pilgrim, Wauwatosa.....	3 00
Best any other variety, 2 entries, C. E. Angell, Oshkosh.....	3 00
Best field peas, 6 entries, J. C. Davis, Oshkosh.....	5 00
Best yellow field peas, 2 entries, C. E. Angell, Oshkosh.....	3 00
Second best, C. E. Angell, Oshkosh.....	2 00
Best peas of any other variety, 7 entries, W. H. Cook, West Point.....	3 00
Second best, C. E. Angell, Oshkosh.....	2 00
Best navy beans, 7 entries, Geo. Jeffrey, Milwaukee.....	5 00
Second best, J. F. Jackson, Marshall.....	3 00
Best beans of any other variety, 8 entries, C. E. Angel, Oshkosh,.....	5 00
Second best, D. N. Piper, Madison.....	3 00
Best dent corn, white, 5 entries, H. J. Hill, Madison.....	5 00
Second best, John N. Chamberlain, Beloit.....	3 00
Best dent corn, yellow, 15 entries, H. C. Hiestand, Madison.....	5 00
Second best, Geo. W. Baker, Madison.....	3 00
Best flint corn, white, 6 entries, O. C. Gray, Brooklyn.....	5 00
Second best, J. C. Davis, Oshkosh.....	3 00
Best flint corn, yellow, 13 entries, Jas. B. Stone, Oregon.....	5 00
Second best, Abram Jacket, Riley Station.....	3 00
Best bushel corn in the ear, any variety, 20 entries.....	
Second best, Warren Jacket, Riley Station.....	5 00
Best bale broom corn, 1 entry, C. E. Angell, Oshkosh.....	5 00
Best quality and display of tobacco leaf, 6 entries, H. C. Hiestand, Madison.....	15 00
Second best, L. F. Biglow, Brooklyn.....	10 00
Best six pumpkins, 8 entries, Abram Jacket, Riley Station.....	3 00
Second, W. H. Cook, West Point.....	2 00
Best exhibition of field products grown in the state, 4 entries, C. E. Angell, Oshkosh.....	20 00
Second best, D. T. Pilgrim, Wauwatosa.....	10 00

CLASS 29—*Garden and Vegetable Produce.*

Best Early Rose or Ohio potatoes, 15 entries, Abram Jacket, Riley Station.....	\$3 00
Second best, Mrs. C. W. Mead, Sun Prairie.....	2 00

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Best Beauty of Hebron potatoes, 14 entries, Mrs. C. W. Mead, Sun Prairie .....	3 00
Second best, Frank Frazer, Sun Prairie.....	2 00
Best any other variety early potatoes, 21 entries, H. A. Tenney, Madison .....	3 00
Second best, C. E. Angell, Oshkosh.....	2 00
Best Snowflake potatoes, 16 entries, Mrs. C. W. Mead, Sun Prairie.....	3 00
Second best, M. E. Spring, Baraboo.....	2 00
Best any other variety of late potatoes, 32 entries, D. N. Piper, Madison .....	3 00
Best and largest variety of potatoes, 5 entries, H. C. Wilson, Madison .....	5 00
Yellow Nansemond sweet potatoes, 1 entry. No award.	
Best Red Bermuda sweet potatoes, 1 entry, C. J. Simmons, Monroe	3 00
Best four quarts Lima beans, shelled, 5 entries, E. R. Bement, Oregon .....	3 00
Second best, S. Geo. Stang, Madison.....	2 00
Best turnip beets, 5 entries, W. H. Cook, West Point.....	3 00
Second best, Abram Jacket, Riley Station .....	2 00
Best long blood beet, 8 entries, S. Geo. Stang, Madison .....	3 00
Second best, Abram Jacket, Riley Station .....	2 00
Best mangel wurzel, 4 entries, C. B. Miller, Madison .....	3 00
Second best, H. A. Tenney, Madison.....	2 00
Best red Wethersfield onions, 6 entries, M. A. Holt, Madison.....	3 00
Second best, Henry Taylor, Madison .....	2 00
Best yellow Danver's onions, 5 entries, H. A. Tenney, Madison....	3 00
Second best, S. Geo. Stang, Madison .....	2 00
Best white variety of onions, 2 entries, H. A. Tenney, Madison....	3 00
Second best, S. Geo. Stang, Madison.....	2 00
Best drumhead cabbage, 3 entries, J. W. Wood, Baraboo .....	3 00
Second best, J. W. Wood, Baraboo.....	2 00
Best 3 cabbages of any other variety, 7 entries, S. H. Hall, Madison	3 00
Second best, Fred Schmidt, Madison.....	2 00
Best long orange carrots, 5 entries, Abram Jacket, Riley Station..	3 00
Second best, W. H. Cook, West Point .....	2 00
Best horn carrots, 5 entries, Wm. Forrest, Poynette .....	3 00
Second best, Warren Jacket, Riley Station .....	2 00
Best head cauliflower, 5 entries, J. W. Wood, Baraboo.....	3 00
Second best, J. W. Wood, Baraboo .....	2 00
Best 10 head celery, 4 entries, Fred Schmidt, Madison .....	3 00
Second best, S. Geo. Stang, Madison .....	2 00
Best 12 ears early sweet corn, 12 entries, Mrs. S. A. Sutherland, Syene.....	3 00
Second best, D. S. Wilson, Madison.....	2 00
Best 12 ears late sweet corn, 15 entries, S. H. Hall, Madison.....	3 00
Second best, Burrington, Bros., Sun Prairie.....	2 00
Best sample egg plant, 4 entries, J. W. Wood, Baraboo.....	2 00
Second best, S. Geo. Stang, Madison.....	1 00
Best six watermelons, 1 entry, Lorin Finch, Janesville.....	3 00
Best six nutmeg melons, 3 entries, M. W. Hopson, Fort Atkinson.	3 00
Second best, M. W. Hopson, Fort Atkinson.....	2 00
Best parsnips, 6 entries, S. Geo. Stang, Madison.....	3 00
Second best, J. W. Wood, Baraboo.....	2 00
Best 12 large red peppers, 5 entries, Philip Smith, Madison.....	2 00
Second best, H. A. Tenney, Madison.....	1 00
Best 12 large yellow peppers, 1 entry, H. A. Tenney, Madison.....	2 00
Best peck vegetable oysters, 6 entries, S. Geo. Stang, Madison.....	2 00
Second best, H. A. Tenney, Madison.....	1 00
Best six Hubbard squash, 12 entries, H. C. Wilson, Madison.....	3 00
Second best, W. H. Cook, West Point.....	2 00
Largest squash of any variety, 5 entries, W. H. Cook, West Point.	3 00
Second best, S. H. Hall, Madison.....	2 00

Best 12 tomatoes, 15 entries, Philip Smith, Madison.....	3 00
Second best, S. Geo. Stang, Madison.....	2 00
Best flat turnips, 1 entry, Mrs. H. Sylvester, Madison.....	3 00
Best rutabagas, 2 entries, Mrs. H. Sylvester, Madison.....	3 00
Second best, H. A. Tenney, Madison.....	2 00
Best exhibition in this class by professionals, 1 entry, M. W. Hopson, Fort Atkinson.....	5 00
Best exhibition in this class by non-professionals, 6 entries, S. Geo. Stang, Madison.....	5 00
Second best, Abram Jacket, Riley Station.....	3 00

CLASS 30 — *Factory Cheese.*

1 Exhibit of 3 cheese, etc., 11 entries. Premiums pro rated among the following:	
H. Z. Fish, Richland Center.....	6 shares
Chester Hazen, Brandon.....	2 shares
M. N. Seward, Harvey.....	1 share
Harris & West, Elkhorn.....	2 shares
Schweizer Kaes, 1 entry, Rud Regez, Montrose.....	5 00
2 Limburger Kaes, 1 entry, Rud Regez, Montrose.....	5 00
Creamery butter, 2 entries. Premium pro rated between H. Dane, Woodland. Wm. Everson, Lake Mills.	
Best roll, print or package, not less than 20 pounds, 11 entries, Mrs. C. N. Rice, Madison.....	20 00
Second best, Jas. B. Stone, Oregon.....	5 00

*Honey, Sugar and Syrup.*

Best sample 10 pounds of honey in best marketable shape, 3 entries, L. F. Biglow, Brooklyn.....	3 00
Second best, E. A. Morgan, Columbus.....	2 00
Best practical bee hive, 7 entries, E. A. Morgan, Columbus.....	2 00
Second best, David H. Wright, Madison.....	1 00
Best honey extractor, 3 entries, David H. Wright, Madison.....	2 00
Second best, D. D. Danihar, Madison.....	1 00
Best extracted honey, 5 entries, L. F. Biglow, Brooklyn.....	2 00
Second best, D. D. Danihar, Madison.....	1 00
Best method of handling bees, to be demonstrated on grounds, D. D. Danihar, Madison.....	5 00
Best Italian bees, D. D. Danihar, Madison.....	3 00
Second best, David H. Wright, Madison.....	2 00
Best and largest display Aparian supplies and fixtures, D. D. Danihar, Madison.....	4 00
Second best, E. A. Morgan, Columbus.....	2 00
Best 10 pounds maple sugar, 1 entry, L. F. Biglow, Brooklyn.....	3 00
Best gallon maple syrup, 3 entries, E. P. Copp, Madison.....	2 00
Best gallon amber cane syrup, 3 entries, D. S. Wilson, Madison.....	3 00
Second best, L. F. Biglow, Brooklyn.....	1 00

CLASS 31 — *Household Products.*

Best loaf graham bread, 17 entries, Mrs. E. R. Shepard, Madison.....	3 00
Best loaf white bread—hop yeast, 19 entries, Miss Betsey Johnson, Madison.....	3 00
Best loaf Indian bread, 18 entries, H. Taylor, Madison.....	3 00
Best sponge cake, 11 entries, Mrs. S. A. Sutherland, Syene.....	2 00
Best pound cake, 14 entries, Mrs. J. R. Hiestand, Madison.....	2 00

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Best jelly cake, 14 entries, H. Taylor, Madison.....	2 00
Best chocolate cake, 17 entries, Mrs. S. J. Askew, Madison.....	2 00
Best cocoanut cake, 12 entries, Mrs. E. Lazier, Madison.....	2 00
Best fruit cake, 16 entries, Mrs. A. Corcoran, Madison.....	2 00
Best and largest exhibition of articles of above sorts, 7 entries, H. Taylor, Madison.....	5 00

*Sealed and Preserved Fruits.*

Best canned peaches, 10 entries, Mrs. N. B. Carr, Madison....	2 00
Best canned plums, 14 entries, Frank B. White, Janesville.....	2 00
Best canned currants, 8 entries, Clara R. Henry, Madison.....	2 00
Best canned tomatoes, 14 entries, Mrs. G. P. Pepper, Pewaukee....	2 00
Best canned gooseberries, 7 entries, Emelie T. Steinle, Madison...	2 00
Best canned raspberries, 14 entries, Mrs. E. M. Myers, Baraboo....	2 00
Best canned strawberries, 11 entries, Frank B. White, Janesville..	2 00
Best canned grapes, 7 entries, Mrs. Augustus Van Dusen, Madison.	2 00
Best canned blackberries, 12 entries, Mrs. R. J. Atwood, Madison.	2 00
Best canned pears, 6 entries, Mrs. Augustus Van Dusen, Madison..	2 00
Best canned Hyslop or Transcendant crabs, 15 entries, Frank B. White, Janesville.....	2 00
Best plum jelly, 17 entries, N. R. Bailey, Sun Prairie.....	2 00
Best currant jelly, 10 entries, Mrs. C. W. Mead, Sun Prairie.....	2 00
Best red raspberry jelly, 10 entries, Mrs. C. W. Mead, Sun Prairie.	2 00
Best crab apple jelly, 18 entries, Emelie T. Steinle, Madison.....	2 00
Best marmalade, 12 entries, Mary E. Hall, Madison.....	2 00
Best raspberry jam, 9 entries, Mrs. C. W. Mead, Sun Prairie.....	2 00
Best blackberry jam, 10 entries, Mrs. C. W. Mead.....	2 00
Best peaches, 7 entries, Mrs. N. B. Carr, Madison.....	2 00
Best apples, 8 entries, Mrs. C. W. Mead, Sun Prairie.....	2 00
Best apple butter, 5 entries, Emelie T. Steinle, Madison.....	2 00
Best tomato catsup, 11 entries, Mrs. N. B. Carr, Madison.....	2 00
Best cucumber pickles, 10 entries, R. E. Tipple, Madison.....	2 00
Best mangoes, 5 entries, Mrs. J. W. Wood, Baraboo.....	2 00
Best red cabbage, 6 entries, Mrs. C. W. Mead, Sun Prairie.....	2 00
Best pickled cauliflower, 7 entries, Emelie T. Steinle, Madison....	2 00
Best pickled onions, 7 entries, Mrs. J. W. Wood, Baraboo.....	2 00
Best mixed pickles, 9 entries, Miss Georgia Hough, Madison.....	2 00
Best and largest exhibition fruits, jellies, jams and pickles in glass jars, 6 entries, Mrs. C. W. Mead, Sun Prairie.....	5 00

DEPARTMENT G — FRUITS AND FLOWERS.

CLASS 32 — *Fruits by professional cultivators.*

Apples, best display of varieties, not to exceed 20, 7 entries, A. G. Tuttle, Baraboo.....	\$10 00
Second best, Geo. P. Pepper, Pewaukee.....	7 50
Third best, Geo. J. Kellogg, Janesville.....	3 00
Apples, best 10 varieties adapted to northwest, 7 entries, A. G. Tuttle, Baraboo.....	7 00
Second best, Geo. J. Kellogg, Janesville.....	5 00
Third best, Geo. P. Pepper, Pewaukee.....	2 00
Apples, best 5 varieties adapted to northwest, 7 entries, N. N. Palmer, Brodhead.....	3 00
Second best, A. G. Tuttle, Baraboo.....	2 00
Third best, Geo. P. Pepper, Pewaukee.....	1 00

Apples, best variety winter, not to exceed 10, 7 entries, A. G. Tuttle, Baraboo .....	5 00
Second best, C. Hirschinger, Baraboo .....	3 00
Third best, Wm. Reed, North Prairie .....	1 00
Apples, best 5 varieties, winter, 7 entries, Geo. P. Pfeffer, Pewaukee .....	3 00
Second best, Wm. Reed, North Prairie .....	2 00
Third best, J. C. Plumb, Milton .....	1 00
Best plate Duchess of Oldenburg, 7 entries, Geo. P. Pfeffer, Pewaukee .....	1 00
Best plate of Famuse, 6 entries, Geo. P. Pfeffer, Pewaukee .....	1 00
Best plate of Golden Russet, 7 entries, Wm. Reed, North Prairie .....	1 00
Best plate of Pewaukee, 4 entries, Geo. J. Kellogg, Janesville .....	1 00
Best plate of St. Lawrence, 7 entries, C. Hirschinger, Baraboo .....	1 00
Best plate of Tallman Sweet, 6 entries, J. C. Plumb & Son, Milton .....	1 00
Best plate of Utter, 6 entries, J. C. Plumb & Son, Milton .....	1 00
Best plate of Alexander, 5 entries, G. P. Pfeffer, Pewaukee .....	1 00
Best plate of Plumb Cider, 6 entries, J. C. Plumb & Son, Milton .....	1 00
Best plate of Wealthy, 6 entries, Geo. P. Pfeffer, Pewaukee .....	1 00
Best plate of McMahon's White, 3 entries. No awards.	
Best plate of Orange Winter, 3 entries, C. Hirschinger, Baraboo ..	1 00
Pears, best display of varieties, 2 entries, Geo. P. Pfeffer, Pewaukee ..	5 00
Second best, Wm. Reed, North Prairie .....	2 00
Pears, best 3 varieties, 2 entries, Geo. P. Pfeffer, Pewaukee .....	2 00
Second best, Wm. Reed, North Prairie .....	1 00
Pears, best Flemish Beauty, 3 entries, Geo. P. Pfeffer, Pewaukee ..	2 00
Second best, Wm. Reed, North Prairie .....	1 00
Pears, best plate Beurre d'Anjon, 2 entries, G. P. Pfeffer, Pewaukee ..	2 00
Second best, Wm. Reed, North Prairie .....	1 00
Pears, best plate Clapp's Favorite, 1 entry, G. P. Pfeffer, Pewaukee ..	1 00
Best variety of plums, 5 entries, Geo. P. Pfeffer, Pewaukee .....	3 00
Second best, Geo. J. Kellogg, Janesville .....	2 00
Best 3 varieties of plums, 4 entries, Geo. P. Pfeffer, Pewaukee .....	2 00
Second best, Geo. J. Kellogg, Janesville .....	1 00
Best collection of native plums, 4 entries, Geo. J. Kellogg, Janesville ..	2 00
Best plate of native plums, 5 entries, Geo. J. Kellogg, Janesville ..	1 00

CLASS 33 — *Grapes and Crabs by professional cultivators.*

Grapes, best display of varieties, 3 entries, Wm. Reed, North Prairie ..	10 00
Second best, Geo. P. Pfeffer, Pewaukee .....	7 00
Third best, Geo. J. Kellogg, Janesville .....	3 00
Grapes, best 10 varieties, 3 specimens, 3 entries, Wm. Reed, North Prairie ..	5 00
Second best, Geo. P. Pfeffer, Pewaukee .....	3 00
Third best, Geo. J. Kellogg, Janesville .....	1 00
Grapes, best 3 varieties, 4 entries, Wm. Reed, North Prairie .....	3 00
Second best, N. N. Palmer, Brodhead .....	2 00
Third best, Geo. P. Pfeffer, Pewaukee .....	1 00
Grapes, best single variety, 4 entries, Wm. Reed, North Prairie ..	2 00
Second best, Geo. P. Pfeffer, Pewaukee .....	1 00
Grapes, best 3 bunches Concord on one cane, 3 entries, Wm. Reed, North Prairie ..	2 00
Second best, Geo. J. Kellogg, Janesville .....	1 00
Grapes, best 3 bunches Delaware on one cane, 3 entries, Wm. Reed, North Prairie ..	2 00

Best 3 bunches, Worden on 1 cane, 3 entries, 2d premium, G. P. Peffer, Pewaukee.....	1 00
No first award.	
Best 3 bunches Wilder on 1 cane, 3 entries. No award.	
Grapes, best single variety, quality to rule, 4 entries, Wm. Reed, North Prairie.....	3 00
Second best, N. N. Palmer, Brodhead.....	2 00
Crabs, best variety named, 8 entries, A. G. Tuttle, Baraboo.....	3 00
Second best, A. J. Phillips, West Salem.....	2 00
Third best, Geo. P. Peffer, Pewaukee.....	1 00
Best plate Hyslop, 8 entries, A. J. Phillips, West Salem.....	1 00
Best plate Transcendent crabs, 7 entries, J. C. Plumb & Son, Milton.....	1 00
Best Whitney, No. 20, 7 entries, A. G. Tuttle, Baraboo.....	1 00
Best seedling crab, 7 entries, C. Hirschinger, Baraboo.....	2 00
Sweepstakes on fruits of all kinds, 6 entries, C. Hirschinger, Baraboo.....	7 00
Second best, Geo. P. Peffer, Pewaukee.....	5 00
Best bushel Cranberries, 2 entries, Albion Improvement Co., Black River Falls.....	5 00

CLASS 34—*Fruits by non-professional cultivators.*

Apples, best display of varieties, H. H. Howlett, Baraboo.....	\$10 00
Second best, Geo. Jeffrey, Milwaukee.....	7 00
Third best, Franklin Johnson, Baraboo.....	3 00
Apples, best 10 varieties adapted to northern Wisconsin, Franklin Johnson, Baraboo.....	7 00
Second best, Geo. Jeffrey, Milwaukee.....	5 00
Third best, H. H. Howlett, Baraboo.....	2 00
Apples, best show, 10 varieties, large and showy, 5 entries, H. H. Howlett, Baraboo.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Third best, Geo. Jeffrey, Milwaukee.....	1 00
Apples, best 5 varieties adapted to northwest, 10 entries, Franklin Johnson, Baraboo.....	3 00
Second best, Geo. Jeffrey, Milwaukee.....	2 00
Third best, D. T. Pilgrim, Wauwatosa.....	1 00
Apples, best variety winter, not to exceed 10, 5 entries, Geo. Jeffrey, Milwaukee.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Best 5 varieties winter, 8 entries, D. S. Wilson, Madison.....	3 00
Second best, D. T. Pilgrim, Wauwatosa.....	2 00
Third best, Franklin Johnson, Baraboo.....	1 00
Best plate of Duchess of Oldenburg, 13 entries, H. C. Wilson, Madison.....	1 00
Best plate of Famuse, 13 entries, Mrs. R. J. Atwood, Madison.....	1 00
Best plate of Golden Russet, 9 entries, D. N. Piper.....	1 00
Best plate of Pewaukee, 4 entries, Geo. Jeffrey, Milwaukee.....	1 00
Best plate of St. Lawrence, 9 entries, H. C. Wilson, Madison.....	1 00
Best plate of Tallman Sweet, 14 entries, H. C. Wilson, Madison.....	1 00
Best plate of Utter, 9 entries, S. N. Piper, Madison.....	1 00
Best plate of Alexander, 8 entries, John Dais, Madison.....	1 00
Best plate of Plumb's Cider, 7 entries, D. S. Wilson, Madison.....	1 00
Best plate of Wealthy, 7 entries, D. N. Piper, Madison.....	1 00
Pears, best display of varieties, 2 entries, Geo. Jeffrey, Milwaukee.....	5 00
Second best, D. T. Pilgrim, Wauwatosa.....	3 00
Pears, best 3 varieties, 2 entries, Geo. Jeffrey, Milwaukee.....	2 00
Second best, D. T. Pilgrim, Wauwatosa.....	1 00
Best Flemish Beauty, 2 entries, Geo. Jeffrey, Milwaukee.....	2 00
Second best, D. T. Pilgrim, Wauwatosa.....	1 00

Best plate Beurre d' Anjon, 2 entries Geo. Jeffrey, Milwaukee....	1 00
Best plate Clapp's Favorite, 2 entries, Geo. Jeffrey, Milwaukee..	1 00
Best variety of plums, 3 entries, Geo. Jeffrey, Milwaukee .....	2 00
Best collection native plums, 5 entries, H. C. Wilson, Madison....	2 00
Best plate of native plums, 8 entries, Henry Schuster, Middleton.	1 00

CLASS 35.— *Grapes and Crabs by Non-Professional Cultivators.*

Grapes, best display of varieties, 4 entries, Wm. Fox, Baraboo....	\$10 00
Second best, Geo. Jeffrey, Milwaukee.....	7 00
Third best, Henry Schuster, Middleton.....	3 00
Grapes, best 10 varieties, 4 entries, Wm. Fox, Baraboo.....	5 00
Second best, Geo. Jeffrey, Milwaukee.....	3 00
Third best, Henry Schuster, Middleton.....	1 00
Grapes, best 5 varieties, 4 entries, Wm. Fox, Baraboo.....	3 00
Second best, Geo. Jeffrey, Milwaukee.....	2 00
Third best, Henry Schuster, Middleton.....	1 00
Grapes, best single variety, 12 entries, Wm. Fox, Baraboo.....	2 00
Second best, John Dais, Madison.....	1 00
Grapes, best 3 bunch Concord on 1 cane, 5 entries, John Dais, Madison .....	2 00
Second best, Geo. Jeffrey, Milwaukee.....	1 00
Grapes, best 3 bunches of Delaware on 1 cane, 3 entries, Wm. Fox, Baraboo .....	2 00
Second best, Geo. Jeffrey, Milwaukee.....	1 00
Grapes, best 3 bunches Worden on 1 cane, Geo. Jeffrey, Milwaukee	2 00
Second best, Wm Fox, Baraboo.....	1 00
Grapes, best 3 bunches Wilder on 1 cane, 2 entries, Geo. Jeffrey, Milwaukee .....	2 00
Second best, Wm. Fox, Baraboo.....	1 00
Grapes, best single variety, quality to rule, 3 entries, Geo. Jeffrey, Milwaukee .....	3 00
Second best, Wm. Fox, Baraboo .....	2 00
Crabs, best variety named, 10 entries, George Jeffrey, Milwaukee.	3 00
Second best, D. T. Pilgrim, Wauwatosa .....	2 00
Third best, D. S. Wilson, Madison .....	1 00
Best plate of Hyslop, 10 entries, M. A. Holt, Madison .....	1 00
Best plate of Transcendents, 14 entries, P. W. Brown, Madison ...	1 00
Best plate of Whitney, No. 20, 13 entries, D. T. Pilgrim, Wauwatosa.....	1 00
Best seedling crab, 4 entries, No award.	
Best collection fruits of all kinds, 4 entries, Geo. Jeffrey, Milwaukee .....	7 00
Second best, Wm. Fox, Baraboo.....	5 00

CLASS 36 — *Seedling Apple, 5 entries.*

No awards.

CLASS 37.

No entries.

CLASS 38 — *Flowers by professional cultivators.*

Best and most artistically arranged floral design, 1 entry, G. W. Ringrose, Wauwatosa .....	\$5 00
Best and most tastefully arranged basket of flowers, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00

Best and most tastefully arranged collection of cut flowers, 1 entry, G. W. Ringrose, Wauwatosa, second premium.....	3 00
Best pyramidal bouquet, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00
Best pair flat table bouquets, 1 entry, G. W. Ringrose, Wauwatosa.....	2 00
Best bouquet everlasting flowers, 1 entry, G. W. Ringrose, Wauwatosa.....	1 00
Best 10 named dahlias, 2 entries, C. Hirschinger, Baraboo.....	2 00
Best display of roses, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00
Best 5 named varieties of roses, 1 entry. No award.	
Best display of verbenas, 1 entry, G. W. Ringrose, Wauwatosa....	2 00
Best show of pansies, 1 entry, Wm. Toole, North Freedom.....	3 00
Best show of double petunias, 1 entry, G. W. Ringrose, Wauwatosa.....	1 00
Best show of gladiolus, 2 entries, C. Hirschinger, Baraboo.....	2 00
Best show of lilies, 1 entry, C. Hirschinger, Baraboo.....	1 00
Best show of tube roses, 1 entry, G. W. Ringrose, Wauwatosa....	1 00
Best show of green house plants, not less than 50 nor more than 100, 1 entry, G. W. Ringrose, Wauwatosa.....	7 00
Best 20 varieties of green house plants in bloom, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00
Best 10 Geraniums, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00
Best 6 Fuchsias, 1 entry, G. W. Ringrose, Wauwatosa.....	2 00
Best display of flowers of all kinds grown by exhibitor, 1 entry, G. W. Ringrose, Wauwatosa.....	5 00
Best display of ornamental foliage plants, 1 entry, G. W. Ringrose, Wauwatosa.....	3 00

CLASS 39 — *Flowers by non-professional cultivators.*

Best and most artistically arranged floral design, 8 entries, Miss Lou Pilgrim, Wauwatosa.....	\$5 00
Second best, Mrs. J. R. Hiestand, Madison.....	3 00
Best and most tastefully arranged collection of cut flowers, 8 entries, P. W. Brown, Madison.....	4 00
Second best, Mrs. Geo. Memhard, Madison.....	3 00
Best and most tastefully arranged basket of flowers, 11 entries, Mrs. A. H. Main, Madison.....	3 00
Best pyramidal bouquet, 8 entries, Clara Peffer, Pewaukee.....	3 00
Second best, Mrs. J. W. Wood, Baraboo.....	2 00
Best pair of round bouquets, 8 entries, Miss Lou Pilgrim, Wauwatosa.....	2 00
Best pair of flat table bouquets, 7 entries, Miss Lou Pilgrim, Wauwatosa.....	2 00
Second best, Mrs. J. R. Hiestand, Madison.....	1 00
Best bouquet everlasting flowers, 3 entries, Mrs. J. H. Wood, Baraboo.....	1 00
Best display of dahlias, 3 entries, Clara Peffer, Pewaukee.....	2 00
Best 10 named dahlias, 3 entries, Clara Peffer, Pewaukee.....	2 00
Best display of roses, 3 entries, Mrs. Geo. Memhard, Madison.....	3 00
Best 5 named varieties of roses, 3 entries, Mrs. E. Morden, Madison.....	3 00
Best display of verbenas, 4 entries, Mrs. Geo. Memhard, Madison.....	2 00
Best show of asters, 7 entries, Fred. Schmidt, Madison.....	2 00
Best show of parennial phlox, 5 entries, Mrs. Geo. Memhard, Madison.....	1 00
Best show of pansies, 5 entries, Mrs. J. W. Wood, Baraboo.....	2 00
Best show of double petunias, 2 entries, Mrs. Geo. Memhard, Madison.....	1 00
Best show of dianthus, 3 entries, P. W. Brown, Madison.....	1 00
Best show of gladiolus, 4 entries, Mrs. Martha Wayman, Madison.....	2 00
Best show of phlox drumondi, 4 entries, Wm. Reed, North Prairie.....	1 00
Best show of tube roses, 3 entries, Mrs. J. W. Wood, Baraboo.....	1 00



Best show of lilies, 3 entries, Mrs. Martha Wayman, Madison . . . . .	1 00
Best show of balsams, 5 entries, Fred Schmidt, Madison . . . . .	1 00
Best show of greenhouse plants, 2 entries, Mrs. Geo. Memhard, Madison . . . . .	5 00
Second best, Miss Lou Pilgrim, Wauwautosa . . . . .	3 00
Best 10 varieties greenhouse plants in bloom, 2 entries, Miss Lou Pilgrim, Wauwautosa . . . . .	3 00
Second best, Mrs. E. M. Myers, Baraboo . . . . .	2 00
Best 10 geraniums, 2 entries, Mrs. Geo. Memhard, Madison . . . . .	3 00
Best 6 fuchsias, 2 entries, Miss Lou Pilgrim, Wauwatosas . . . . .	2 00
Best 6 carnations, 2 entries, Miss Lou Pilgrim, Wauwatosas . . . . .	2 00
Best display of ornamental grasses, 2 entries, Mrs. J. W. Wood, Baraboo . . . . .	2 00
Best display of flowers raised by exhibitor, 7 entries, Mrs. Geo. Memhard, Madison . . . . .	5 00
Second best, Miss Lou Pilgrim, Wauwatosas . . . . .	3 00
Best show ornamental foliage plants, 4 entries, Miss Lou Pilgrim, Wauwatosas . . . . .	3 00

## DEPARTMENT H—MACHINERY.

CLASS 40—*No premiums offered.*

## DEPARTMENT I.—MANUFACTURES.

CLASS 41.—*Stone cutters' work and other building material.*

Stencil and stone cutting, no entries.	
Best sample brick, 1 entry, D. Stephens, Madison . . . . .	\$2 00
Fire brick and metallic cornices, no entries.	
Best drain tile, 1 entry, Wm. D. Gates, Nunda, Illinois . . . . .	3 00
No further entries in class 41.	

CLASS 42.—*Metallurgic products.*

No entries.

CLASS 43.—*Stoves, furnaces, hollow ware.*

Best ornamental parlor stove, 1 entry, no award.	
Best display of stoves, 1 entry, Sumner & Morris, Grand Silver Medal.	
Best steel hammers in variety, 2 entries, Daniel Greatsinger, Baraboo . . . . .	\$2 00
Best horse shoes in variety, 2 entries, T. Brady, Madison . . . . .	2 00
Best display of shelf ware, 1 entry, Sumner & Morris, Madison, Grand silver medal.	
Best refrigerators, 1 entry, H. Dane, Woodland . . . . .	3 00
No other entries in class 43.	

CLASS 44.—*Silver, Britannia and Crockery Ware.*

Best collection glass, china and earthenware, 1 entry, J. H. D. Baker, Madison, diploma.	
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CLASS 45.

No entries.

CLASS 46.— *Chemical Manufacture.*

Best mineral paint, 1 entry, Sheasby & Grey, Madison, diploma.  
 Best show of fancy soaps and perfumery, 1 entry, A. H. Hollister,  
 Madison ..... Silver Medal.  
 No other entries in Class 46.

CLASS 47— *Carriages, Wagon Work, etc.*

Best double carriage, 3 entries, Henny Buggy Co., Freeport, Ill. . . .	5 00
Best double top carriage, 7 entries, Abbott Buggy Co., Chicago, Ill . . .	5 00
Best single top buggy, 21 entries, Herman Buchholz, Janesville. . . .	5 00
Best open buggy, 7 entries, S. L. Sheldon, Madison . . . . .	5 00
Best phaeton, 4 entries, Henny Buggy Co., Freeport, Ill. . . . .	5 00
Best double sleigh, 4 entries, Aug. Schmidt & Co, Madison. . . . .	5 00
Best single sleigh, 5 entries, Aug. Schmidt & Co., Madison. . . . .	3 00
Best common farm wagon, 3 entries, T. G. Mandt Mf'g Co., Stough- ton . . . . .	3 00
Best fancy lumber wagon, 3 entries, John Reiner, Madison. . . . .	3 00
Best 3 spring and 3 seated wagon, 5 entries, Wisconsin Wagon Co., Madison . . . . .	3 00
Best display of hubs, spokes, felloes, etc., H. A. Webster & Co., Pittsfield. . . . .	3 00

CLASS 48.

No entries.

CLASS 49 — *Leather and Leather Manufacture.*

Best six sides harness leather, 1 entry, Chas. Hoebel, Madison. . . .	Diploma.
Best carriage harness, 2 entries, Chas. Hoebel, Madison. . . . .	5 00
Best wagon harness, 2 entries, Jerome Bixby, Stoughton. . . . .	3 00
Best single harness, 5 entries, Chas. Hoebel, Madison. . . . .	3 00
Best gent's saddle, 1 entry, Chas. Hoebel, Madison. . . . .	3 00
Best ladies' saddle, 1 entry, Chas. Hoebel, Madison. . . . .	3 00
Best three trunks, 1 entry, Chas. Hoebel, Madison. . . . .	3 00
Best four horse collars 1 entry, Chas. Hoebel, Madison. . . . .	3 00

No other entries in class 49.

CLASS 50— *Paper, Printing and Book-binding.*

No entry.

CLASS 51— *Textile Fabrics, Clothing.*

Best fleece wool (American Merino), C. E. Angell, Oshkosh. . . Dip. and 2 00	
Best fleece long wool, C. E. Angell, Oshkosh. . . . .	Diploma and 2 00
Best exhibition of furs and fur goods, 1 entry, Peter Murray, Mad- ison . . . . .	3 00

## DEPARTMENT K—FINE ARTS.

CLASS 52—*Music, Musical Instruments and Sewing Machines.*

No premiums offered in this class.

CLASS 53—*Works of Art.*

Best portrait in oil not heretofore exhibited, 5 entries, Jas. R. Stuart, Madison.....	\$10 00
Second best, Jas. R. Stuart, Madison.....	5 00
Best original landscape in oil, 17 entries, Mrs. M. E. Warren, Fox Lake.....	10 00
Second best, Mrs. E. Y. Richmond, Appleton.....	5 00
Best landscape in oil, 18 entries, Mrs. Clarence Clark, Janesville..	5 00
Second best, Mrs. C. A. Shaw, Madison.....	3 00
Best painting of horse from life, 1 entry, Jas. R. Stuart, Madison..	10 00
Best painting of cow from life, 1 entry, Jas. R. Stuart, Madison...	10 00
Best painting of sheep from life, 2 entries, Jas. R. Stuart, Madison.	8 00
Best painting of hog from life, 1 entry, Jas. R. Stuart, Madison..	7 00
Best painting still life in oil, 9 entries, Mrs. Clarence L. Clark, Janesville.....	10 00
Best painting still life in water colors, 1 entry, C. A. Shaw, Madison.....	5 00
Best specimen of etching by etcher, 1 entry, C. A. Shaw, Madison	5 00
Best specimen of charcoal or free hand drawing (pupil), 1 entry, Mrs. H. D. Goodnow, Madison.....	3 00
Best crayon from photograph, 3 entries, C. L. Burdick, Madison..	5 00
Best marine painting in oil, 4 entries, Mrs. E. Y. Richmond, Appleton.....	10 00
Second best, Miss Fannie Walker, Lodi.....	5 00
Best portrait in water colors, 2 entries, C. L. Burdick, Madison....	5 00
Best India ink portrait, 2 entries, C. L. Burdick, Madison.....	10 00
Second best, C. L. Burdick, Madison.....	5 00
Best plaque painting in oil, 6 entries, Mrs. E. Y. Richmond, Appleton.....	3 00
Best collection of China painting, 1 entry, Mrs. E. Y. Richmond, Appleton.....	5 00
Best single piece of China painting, 5 entries, Mrs. E. Y. Richmond, Appleton.....	3 00
Best oil painting on silk or satin, 2 entries, Mrs. Clarence L. Clark, Janesville.....	3 00
Best panel painting in oil, 8 entries, Mrs. D. Stephens, Madison...	3 00
Best specimen of flower painting in oil, 13 entries, Mrs. A. A. Bancroft, Madison.....	3 00
Best specimen of flower painting in water colors, two entries, Florence A. Cox, Madison.....	3 00
Best pencil drawing, 2 entries, Mrs. E. Y. Richmond, Appleton...	2 00
Best crayon drawing by exhibitor, 1 entry, C. L. Burdick, Madison.....	2 00
Best collection paintings, water colors, 3 entries, Florence A. Cox, Madison.....	15 00
Second best, C. L. Burdick, Madison.....	5 00
Best collection of oil paintings, 3 entries, Jas. R. Stuart, Madison.	25 00
Second best, Mrs. Clarence L. Clark, Janesville.....	10 00
Best collection of photographs, 1 entry, A. C. Isaacs, Madison.....	8 00

CLASS 54 — *Needle, Shell and Wax Work.*

Best sample of plain sewing, 3 entries, Mrs. L. R. Burgess, Madison	2 00
Best fancy knitting work, 6 entries, Mrs. J. W. Wood, Baraboo....	2 00
Best cotton tidy, 8 entries, Mrs. R. Gumbert, Madison.....	1 00
Best worsted tidy, 6 entries, White Sewing Machine Co., Madison..	1 00
Best specimen embroidered slippers, 2 entries, Mrs. S. J. Askew, Madison .....	1 00
Best specimen of worsted embroidery (hand made), 1 entry, Miss Ida E. Martin, Hudson.....	2 00
Best specimen worsted embroidery (machine made), 3 entries, White Sewing Machine Co., Madison.....	2 00
Best raised worsted embroidery, 4 entries, Miss Ida E. Martin, Hudson.....	2 00
Best needle work or floss embroidery, 4 entries, Mrs. L. R. Burgess, Madison .....	2 00
Best silk embroidery (hand made), 4 entries, Mrs. C. Mears, Madison .....	2 00
Best silk embroidery (machine made), White Sewing Machine Co., Madison .....	2 00
Best specimen applique embroidery, 4 entries, Domestic Sewing Machine Co., Madison .....	2 00
Best exhibition of applique embroidery, 1 entry, Domestic Sewing Machine Co., Madison.....	2 00
Best exhibition Cretonne embroidery, 1 entry, Mrs. L. R. Burgess, Madison .....	2 00
Best picture embroidery, 3 entries, Domestic Sewing Machine Co., Madison .....	2 00
Best Kensington embroidery, 6 entries, Mrs. A. H. Main, Madison	2 00
Best chenille embroidery, 3 entries, Mrs. S. J. Askew, Madison....	2 00
Best silk embroidered child's dress (hand made), Mrs. S. J. Askew, Madison .....	2 00
Best arasene embroidery, 6 entries, White Sewing Machine Co., Madison .....	1 00
Best lady's work box, 1 entry, John H. Housel, Milwaukee .....	1 00
Best pin cushion, 3 entries, Mrs. Mary Thoms, Madison.....	1 00
Best ottoman cover (upholstered), 1 entry, Mrs. D. Bare, Hubble- ton .....	2 00
Best ottoman cover (not upholstered), 2 entries. No awards.	
Best sofa cushion (upholstered) 3 entries, Mrs. L. R. Burgess, Mad- ison .....	2 00
Best sofa cushion (not upholstered), 3 entries, Mrs. M. A. Burgess, Madison .....	1 00
Best set of embroidered underclothes (machine made), 3 entries, H. A. Craven and Mrs. F. Reynolds, Madison .....	2 00
Best infant's robe and skirt, 2 entries, H. A. Craven and Mrs. F. Reynolds, Madison.....	2 00
Best exhibition of any kind of lace, work of exhibitor, 3 entries, Mrs. S. J. Askew, Madison.....	3 00
Best specimen darned lace, 1 entry, F. L. Fuller, Madison.....	2 00
Best specimen Macrami lace, 2 entries, Mrs. S. J. Askew, Madison.	2 00
Best specimen of etching on silk, satin or linen, 6 entries, Mrs. Clarence L. Clark, Janesville.....	2 00
Best specimen hand braid work, 2 entries, Miss Ida E. Martin, Hud- son .....	1 00
Best specimen machine braid work, 2 entries, White Sewing Ma- chine Co., Madison.....	1 00
Best specimen pillow shams (hand made), 3 entries, Emma Nunns, Madison .....	1 00
Best specimen pillow shams (machine made), 3 entries, White Sew- ing Machine Co., Madison .....	1 00

Best specimen table scarf, 6 entries, White Sewing Machine Co., Madison .....	2 00
Best table spread, 4 entries, Domestic Sewing Machine Co., Madison .....	2 00
Best wall banner, 4 entries, White Sewing Machine Co., Madison .....	1 00
Best mantle lambrequin, 5 entries, White Sewing Machine Co., Madison .....	1 00
Best window lambrequin, 2 entries, Mrs. S. J. Askew, Madison .....	1 00
Best gent's dressing gown, 2 entries, H. A. Craven and Mrs. F. Reynolds, Madison .....	3 00
Best sample of work in wax, 2 entries, Mrs. M. Carse, Madison .....	1 00
Best shell work, 1 entry, Mrs. M. Carse, Madison .....	1 00
Best leather work. One entry. No award.	
Best bead work, 2 entries, Mrs. Clarence L. Clark, Janesville .....	2 00
Best collection of hair work, 2 entries, Mrs. G. H. Williams, Madison .....	2 00
Best toilet set, 2 entries, Mrs. L. R. Burgess, Madison .....	2 00
Best afghan, 1 entry, Mrs. M. A. Burgess, Madison .....	2 00
Best air castle, 1 entry, Mrs. N. B. Carr, Madison .....	2 00
Best sample fancy netting, 2 entries, Mrs. H. D. Goodnow, Madison .....	2 00
Best display in entire class, 4 entries, White Sewing Machine Co., Madison .....	5 00

*For Boys and Girls under fifteen years of age.*

Best collection of bracket work, 1 entry, Lewis Olson, Madison ...	3 00
Best single piece of bracket work, 1 entry, Lewis Olson, Madison ..	1 00

*CLASS 55—Domestic Manufacture.*

Best Kersey blanket, 2 entries, Mrs. D. S. Wilson, Madison .....	4 00
Second best, Mrs. L. R. Burgess, Madison .....	2 00
Best exhibit home-made linen articles, Mrs. D. S. Wilson, Madison ..	3 00
Best rug of any material, 8 entries, Mrs. S. J. Askew, Madison .....	4 00
Second best, White Sewing Machine Co., Madison .....	2 00
Best drawn rug, 6 entries, Mrs. H. E. Munger, Oregon .....	2 00
Best silk rug, 4 entries, Miss Georgia Hough, Madison .....	2 00
Best braided rug, 3 entries, Mrs. J. W. Wood, Baraboo .....	2 00
Best 15 yards rag carpet, 9 entries, R. E. Tipple, Madison .....	4 00
Second best, Mrs. H. E. Munger, Oregon .....	2 00
Best woolen stockings, 3 entries, Geo. Jeffrey, Milwaukee .....	2 00
Best woolen socks, 1 entry, Mrs. D. Bare, Hubbleton .....	2 00
Best two pounds of woolen yarn, 4 entries, Mrs. Youngs Hallock, Middleton .....	2 00
Best woolen mittens (men's), 1 entry, Mrs. D. Bare, Hubbleton .....	2 00
Best woolen mittens (ladies), 4 entries, Miss Ida E. Martin, Hudson ..	2 00
Best silk mittens, 4 entries, Miss Ida E. Martin, Hudson .....	2 00
Best hand knit or crotched ladies' skirt, 2 entries, Mrs. C. Mautz, Madison .....	4 00
Best white quilt (hand made), 2 entries, Mrs. L. R. Burgess, Madison ..	4 00
Second best, Mrs. N. R. Bailey, Sun Prairie .....	2 00
Best silk quilt, 8 entries, L. C. Morse, Sparta .....	4 00
Second best, Mrs. M. A. Burgess, Madison .....	2 00
Best log cabin quilt (not silk), 6 entries, Mrs. Ada Fuller, Madison ..	4 00
Second best, Mrs. J. G. Carr, Milton .....	2 00
Best silk log cabin quilt, two entries, Mrs. C. Mears, Madison .....	4 00
Second best, Mrs. D. Bare, Hubbleton .....	2 00
Best patch work quilt, 10 entries, Mrs. Wm. Rabb, Mazomanie ..	4 00
Second best, Mrs. Philip Kiehl, Nashotah .....	2 00
Best knit counterpane, 3 entries, Mrs. D. Bare, Hubbleton .....	4 00
Second best, Mrs. N. B. Carr, Madison .....	2 00

PREMIUMS AWARDED.

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Best wrought counterpane, 1 entry, Mrs. N. B. Carr, Madison.....	4 00
Best worsted scarf, 4 entries, Miss Ida E. Martin, Hudson .....	3 00
Best wrought shawl, 3 entries, Mrs. Mary Thoms, Madison .....	4 00
Best window or door curtain, 4 entries, White sewing machine Co., Madison .....	2 00
Best exhibition of ladies' dress, made by professional, 1 entry, Mrs. Philip Kiehl, Nashotah.....	4 00
Best exhibition of ladies' dress, made by non-professional, two entries, Mrs. L. R. Burgess, Madison .....	4 00
Best specimen of gent's shirt, 2 entries, Mrs. L. R. Burgess, Madi- son .....	2 00
Best specimen of darning, 5 entries, N. R. Bailey, Sun Prairie....	2 00
Best specimen of patched mending, 3 entries, Miss Mary Hallock, Middleton.....	2 00
Best ladies' cloak, domestic manufacture, 2 entries, Mrs. Mary Thoms, Madison .....	4 00
Best ladies' saque, domestic manufacture, 3 entries, H. A. Craven and F. Reynolds, Madison.....	3 00
Best display in entire class by one exhibitor, 1 entry, H. A. Craven and F. Reynolds, Madison .....	5 00

CLASS 56.—*Natural History.*

Best botanical display of noxious weeds of Wisconsin, 1 entry, Mrs. N. B. Carr, Madison .....	\$5 00
Best collection illustrating the Botany of Wisconsin, 2 entries, Walter H. Chase, Madison.....	10 00
Mrs. N. B. Carr, Madison, honorable mentions.	
Best display of coins, 2 entries, Copp and Waldschaky, Madison..	5 00
Best display of Indian relics, 3 entries, Walter H. Chase, Madison,	5 00

CLASS 57.—*Commercial Schools and Colleges.*

Best display of books, products of pupils, 1 entry, North West- ern Business College, Madison.....	10 00
Best display of penmanship, 1 entry, North Western Business Col- lege, Madison .....	3 00

## REPORTS OF SUPERINTENDENTS.

### DEPARTMENT A.—HORSES.

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

Superintendent of Department A, Horses, submits the following report:

Surrounded as the society was by multiplied discomforts of a three days pelting rain storm, and the bad condition of roads, had the tendency to make the fair anything but a glorious success. The holding of the Minnesota state fair at the same date, also seriously interfered with the exhibits and receipts of this department. The action of our executive board at its last meeting in excluding from purse and premium all but our own state horses, decreased the number somewhat, but it gave to our horsemen a new born hope in the interests of the fair. The tumbled down condition of our stalls was another drawback. It is an admitted fact, to say the least, that the owners of fine horses are men of kind hearts and tender feelings. They would no sooner subject their horses to the untempered blasts and pelting storms, than they would their own household. Too much credit can not be given them for the good natured manner in which they accepted their situation. Had the weather and other conditions been favorable our accommodations would have proved too limited for the promised outlook of the previous week. Our state takes rank among the first for its fleetly steppers and pure bred draft horses, and we can not but feel an honest pride in our breeders for the victories, medals, sweepstakes, premiums and purses won by them at the World's Fair at New Orleans and many state fairs.

Even under the most trying circumstances we were still victorious. There were nearly three hundred horses exhib-

ited, all classes were well represented. Although the number was somewhat less than the preceding year, we suffered nothing in comparison. Many of the horses exhibited were very much the superior of those in the same class of '84 as judges of both years universally admitted, and did great credit to our state and breeders.) The races were better than the most sanguine could have expected, taking into consideration the condition of the track as it must necessarily have been after the flood. The receipts from stalls were \$285; entry fees in speed department \$545; total, \$830.

Great improvement must be made in the stalls by shingling and other repairs, or new ones built, as the larger portion of them are unfit for use, except in fair weather.

I would recommend a careful revision of the premium list. That separate classes be made for pure bred draft horses, in accordance with the recently adopted stud books. The society must ever be grateful to the awarding committee for their faithful, painstaking and conscientious discharge of their duty and the unbiased judgment that characterized their awards. I most heartily tender them my sincere thanks for their kind assistance. I shall ever remember with pleasure the uniform courtesy extended to me by exhibitors. I am also under great obligation to the experienced, impartial starter and judges who assisted me in the races; also, my assistants and clerks come in for their full share of remembrance and thanks.

T. L. NEWTON,  
*Supt. Dept. A, Horses.*

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#### DEPARTMENT B—CATTLE.

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

The exhibit at our last State Fair in "Department B—Cattle" was *grand*, considering the entire show was made up by the breeders of the Badger state *alone*. In numbers it surpassed any former year by 150 head. This being my first year in Department "B," I was put to my wit's end



what to do with all the cattle. All the cattle stalls were filled and crowded; then I was obliged to borrow from my brother superintendents, horse and sheep stalls, which is not pleasant to do, as it divides the classes and injures the show.

At the rate the fair is increasing we *must this year* build suitable stalls. We must make room for all; we want all here. Wisconsin's *bread* and *butter* depends largely upon the *dairy* and *beef*, and we, as members of this board, should look well that there are no stumbling blocks thrown in the way.

Everything passed off so smoothly last year, I have but few recommendations to make. I believe in letting well enough alone. Necessities we *must* have and luxuries when we can afford them.

1st. Make the wording of the premium list so *plain* that it cannot be misunderstood by any. This one thing last year caused more trouble in my department than all others (mud included). I have reference to the wording of the herd premium.

Best display in *entire* class.

I would have it read: "Best display in class not less than eight head in number."

2d. Would recommend for 1886 to throw our fair open to the world. Departments A and B are the only *two* that need fear, and why cripple the whole fair to screen these?

At New Orleans, Wisconsin horses carried off many a blue ribbon. There are not many J. I. C.'s in the land.

We have as well bred cattle in Wisconsin as any state in the union. I know the gentlemen that exhibited here last year are men of *pride*, *ambition*, and many of them men of *means*, and will not allow Illinois, Iowa or Minnesota breeders to come here and carry off our blue ribbons. If we are really behind, it is for *our good* to know it, and improve our herds and come to the *front*. We can not afford to be behind our sister states. We will keep on climbing until we reach the top round of the ladder, which is *perfection*.

Many of our county fairs are open to the world. Yes, Trempealeau county, where I live, throws her banner out inviting the world to compete.

If our fair is not what it should be, it is our *fault*, we *must* shoulder the responsibility and do the work. To have a successful fair there is plenty for both mind and muscle to do; it cannot be done by one. We must all put our shoulder to the wheel and make it *roll*, and when we have done our full duty, we will then go to the Wisconsin legislature and ask for a suitable appropriation for *grounds* and *buildings*, and I am *sure* it will be readily granted.

All of which is respectfully submitted.

W. A. JOHNSTON,  
*Superintendent Department "B," Cattle.*

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#### DEPARTMENT G—FRUITS AND FLOWERS.

*Mr. President and Gentlemen of the Executive Committee*—Your superintendent for Department G would respectfully report as follows:

Owing to the almost unprecedented and long continued cold of the winter of 1884 and 1885, and the additional fact of a very large apple crop in 1884, it could scarcely be expected that the exhibition of fruits would be equal to that of 1884, and yet the fact remains that the list of entries were fully up to that of any preceding year. The quality of the fruit upon exhibition was very fair though not quite up to that of the previous year. Our fair is held too early in the fall to have grapes, except in a very immature condition; hence our grape exhibition must impress strangers with the idea that our state is a very poor one for grape growing; while the facts are, that for a number of the quick growing varieties, there is no better soil or climate in the United States than Wisconsin. The Flower and Plant Department was placed entirely in charge of Mrs. Alexander Kerr, and Miss Jessie Lewis. It is only justice to them to say that they did the work most thoroughly, and with that refined taste and nice arrangement that all who have the pleasure of their acquaintance would have expected from them.

The building in which this portion of our state exhibition is held, is sadly out of repair, and your superintendent would suggest that repairs and improvements be made upon it at the earliest date possible.

Yours respectfully,

J. M. SMITH,

*Superintendent of Department G, at State Fair of 1885.*

## EXECUTIVE BOARD MEETINGS.

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STATE AGRICULTURAL ROOMS,  
MADISON, WISCONSIN, September 11, 1885.

The Executive Board met at 7:30 P. M.

President Arnold in the chair.

Quorum present.

On motion of N. D. Fratt, seconded by T. L. Newton, it was unanimously voted to authorize the president, secretary and treasurer to borrow a sum of money sufficient to pay the present indebtedness of the society and its current expenses for the ensuing year.

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## DECEMBER MEETING.

STATE AGRICULTURAL ROOMS,  
MADISON, WISCONSIN, December 2, 1885.

The Executive Board of the Wisconsin State Agricultural Society met in the rooms of the Society at 9 A. M., as required by the by-laws of the Society.

No quorum present.

On motion of C. Babbitt, meeting adjourned until December 8th, at 9 A. M.

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## ADJOURNED MEETING.

The Executive Board met as per adjournment, at 9 A. M.

Quorum present.

President Alex. A. Arnold in the chair, who stated that the meeting was for the purpose of settling with the treasurer and comparing his vouchers with the warrants drawn by the secretary.

Treasurer Miner presented his report for the fiscal year ending December 2, 1885, which was referred to a commit-

tee composed of the president, Messrs. Hitt, Babbitt and Doyon, by whom, after examination and comparison with the warrants of the secretary, it was reported correct.

On motion of Mr. Babbitt, committee report was adopted.  
Adjourned.

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### FEBRUARY MEETING.

STATE AGRICULTURAL ROOMS,  
MADISON, February 1, 1886.

In accordance with the requirements of the by-laws, the Executive Board of the Agricultural Society met in their rooms, at 7:30 P. M. President Arnold in the chair.

Present Messrs. Fratt, Fisher, Hitt, Doyon, Pilgrim, Smith, Vaughn, Johnson, Miner, Clark, Cox, Newton, Curtis, True, Austin and Babbitt.

Reports were read by superintendents of the horse and cattle departments.

Verbal reports were made by superintendents of swine and poultry departments, and superintendent of forage.

On motion of Mr. Fratt the regular order of business was suspended for the purpose of allowing the presentation of propositions from the National Percheron Association.

It was decided to establish a class for Percheron horses.

Messrs. Newton, Fratt, True, Arnold and Babbitt were appointed a committee to revise entire list for horse department. Amounts offered to be decided upon by said committee.

Adjourned till 9 o'clock Tuesday morning.

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STATE AGRICULTURAL ROOMS,  
TUESDAY, February 2, 1886, 9 o'clock A. M.

President Arnold in the chair.

Present Messrs. Fratt, Fisher, Hitt, Doyon, Pilgrim, Vaughn, Johnson, Miner, Clark, Cox, Newton, Curtis, True, Austin and Babbitt.

Prof. Armsby presented a proposition from the Experimental Station, that premiums be offered:

For the best milk cow of any breed, to be tested on the grounds during the fair, in accordance with the Society's rules.

For the best butter cow of any breed, to be tested on the grounds, etc.

For the best cheese cow of any breed, to be tested on the grounds, etc.

Messrs. Babbitt, Austin, Johnston, Fisher and Curtis were appointed a committee to confer on said proposition. They reported favorably and their report was adopted by the board.

Messrs. Johnson, Fisher, Austin, Babbitt and Curtiss were appointed to revise list for Department B — Cattle.

Their report was adopted by the board.

Premiums on fat cattle were changed to:

Best exhibit of fat cattle, not less than 4 head.....	\$25 00
Second best.....	15 00

HERD PREMIUMS OFFERED ON BEEF BREEDS.

*Shorthorns, Poles and Herefords.*

First.....	\$40 00
Second.....	30 00
Third.....	20 00
Fourth.....	10 00

MILK BREEDS.

*Jerseys, Ayrshires, Devons, Holsteins and Guernseys.*

First.....	\$40 00
Second.....	30 00
Third.....	20 00
Fourth.....	10 00

Herd consisting of not more than ten nor less than five head, including one male.

Messrs. Johnson, Pilgrim, Hatch, Wilson and Vaughn were appointed committee to revise list in Department C — Sheep.

Sweepstakes in Class 18 were changed to agree with Classes 19, 20 and 21.

Amounts offered were reduced and classes added for South and Oxford Downs, and for Shropshires. The latter to be recorded or eligible of record.

Class 22—Poland China, were on motion required to be recorded or eligible of record.

On motion, suggestions of Mr. Doyon for additions in poultry department were adopted.

On motion of Mr. Pilgrim premium on Yellow Field Peas in Class 28, was stricken out.

On motion of Mr. Babbit the quantity of Seeds and Grains were required to be: Corn, one bushel; Grains and Grasses eight quarts.

Premium on Corn changed to 1st, \$10.00; 2d, \$5.00.

Tobacco, 1st, \$10.00; 2d, \$5.00.

List on Honey, Maple Sugar and Syrup was referred to Bee-Keepers Association for revision, with instructions not to increase premiums over 25 per cent. on those now offered.

Revision of list for Department I, Manufactures, was left to Superintendent Hitt.

List for Department K, Fine Arts, left to Mr. Doyon, Misses Fuller and Peffer for correction without increasing amount offered.

On motion of Mr. Austin it was decided to offer for equestrian display an amount not to exceed \$50.

In the matter of contested premium on best bushel of corn in the ear, any variety. It was decided that Messrs Johnston and Fisher officiate as a committee, conferring with the judges who made awards in class 28, and from their evidence decide to whom first premium rightly belongs.

Adjourned till 2 P. M.

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TUESDAY, February 2d, 1886,

2:30 P. M.

Ex-President Fratt in the chair.

Messrs. Austin, Wilson and Fisher were appointed a committee to arrange for premiums to be offered on best display from any county.

They made the following report:

In departments A, B, C, D, E, F and G a premium of \$25 be offered to that county that has taken the greatest number of first premiums as awards in said department. The county in which the fair is held not being allowed to compete. This premium to be awarded and paid to the county agricultural society.

Mr. True presented the following resolution:

*Resolved*, That the generous offer of the American Percheron association of a gold medal to be offered at our next fair, for the best pure bred Percheron stallion, bred in this state, be accepted, and the thanks of this board be extended to that association for such offer.

Adopted.

Secretary Babbitt read the following communication from Capt. Pabst:

*To the Wisconsin State Board of Agriculture:*

GENELEMEN— I am informed that you are anxious to secure the American Percheron Horse Breeders' Asssocation exhibition for 1886, for the state of Wisconsin.

And to assure you of the interest the breeders of Percherons in this state feel in the matter, I will guarantee you a donation of one thousand dollars for that purpose, and further; if you will give a similar sum of \$1,500, I will agree to raise our donation to \$1,500.

Yours very truly,

FRED PABST.

MADISON, Wis., Feb. 2, 1886.

The proposal of Capt. Pabst was referred to the committee on Department A.

On motion of Mr. Doyon it was decided to have the Horse Department open to the world.

Messrs. Fratt, Arnold, Babbitt, Newton and Miner, were appointed a committee to decide upon the location of the fair, with instruction to report before April 1st.

On motion of Mr. Wilson, the date of holding the next state fair was fixed at September 20th to 24th inclusive, granting the committee on location the privilege of changing the dates if in their judgment it would be desirable to do so.

The following resolution, presented by Mr. True, was adopted:



*Resolved*, That any regularly organized state association of breeders of farm stock, classified in our premium list, be allowed to procure one or more expert judges, to pass upon the stock in their respective classes, at our next fair; provided that such association bear the expense made necessary by such action.

*Resolved*, That associations availing themselves of this privilege be required to notify the secretary of this society of their action at least two weeks before the time of holding the fair.

On motion of Mr. True, Secretary Babbitt was instructed to pay J. C. Kiser the 1st, and J. Scovill second premium on 2 year old heifer in class 9.

On motion of Mr. Fisher, superintendents of departments were instructed to put prize badges on articles awarded premiums themselves, as far as practicable.

On motion of Mr. Clark, Rule 8 was made not to apply to Fat Cattle.

Rule 4, of entries, was stricken out.

Messrs. Hitt, Fratt and Johnson were appointed a committee to revise the constitution and by-laws. They recommended the following changes:

In Article III, of the constitution, after the words, "regular meeting," be inserted "The governor of the state, the professor of agriculture at the state university."

In Article III, after the words "seven additional members," the words, "who shall be life members thereof," be added, and at the end of Article III, the words "Executive Board" be erased, and State Board of Agriculture substituted.

In the by-laws, to Article I, under the duties of the treasurer, the words: "To give bonds in double the amount that may be likely to come into his hands as treasurer of said board, said bond to be approved by the president and secretary."

Mr. Hitt moved above corrections be submitted as resolutions at next board meeting. Carried.

The board then proceeded to elect superintendents of the various departments with the following result:

Marshall — Geo. A. Austin, Neillsville.

Horses — T. L. Newton, Beaver Dam.

Cattle — W. A. Johnson, Galesville.

Sheep — C. M. Clark, Whitewater.  
Swine — F. C. Curtis, Rocky Run.  
Poultry — A. F. Marquardt, Wausau.  
Agriculture — Seth Fisher, Center.  
Fruits and Flowers — John M. True, Baraboo.  
Machinery — A. W. Vaughn, Lodi.  
Manufactures — H. D. Hitt, Oakfield.  
Fine Arts — M. R. Doyon, Madison.  
Forage — D. T. Pilgrim, Wauwatosa.  
Gates — N. D. Fratt, Racine.  
Assistant Marshall — Ralph Vernon.  
Adjourned.

# SOCIETY MEETINGS.

## ELECTION OF OFFICERS.

ASSEMBLY CHAMBER,  
MADISON, WISCONSIN, September 10, 1885.

The life members of the Society, including many delegates from County Agricultural Societies, met in the assembly chamber at 7:30 P. M., for the election of officers for the year 1886.

General Geo. E. Bryant moved that an informal ballot be taken for president, secretary and treasurer.

On motion of Hon. N. D. Fratt, the vote was taken separately.

The first informal ballot was for president, and resulted as follows:

A. A. Arnold.....	53
T. L. Newton .....	41
Geo. E. Bryant.....	1
J. W. Wood.....	1

Mr. Newton stated that under no circumstances would he become a candidate for the office of president.

On motion of J. M. Smith the ballot was declared formal, and A. A. Arnold re-elected president.

Ballots were then cast for secretary as follows:

Clinton Babbitt .....	90
T. L. Newton.....	2
W. H. Morrison.....	2

Mr. Babbitt was declared unanimously elected.

The secretary was instructed to cast the vote of the Society for Cyrus Miner for treasurer, and Mr. Miner declared unanimously elected.

Vice presidents were elected by the Congressional District caucuses as follows:

- 1 Seth Fisher, Rock county.
- 2 H. D. Hitt, Fond du Lac.
- 3 Mr. R. Doyon, Dane.
- 4 D. T. Pilgrim, Milwaukee.
- 5 J. M. Smith, Brown.
- 6 A. W. Vaughn, Columbia.
- 7 S. D. Macomber, Juneau.
- 8 W. A. Johnston, Trempealeau.
- 9 A. F. Marquardt, Marathon.

N. D. Fratt, Hans B. Warner and S. L. Sheldon, committee to report seven additional members of the executive board, reported the following names:

- Chas. Clark, Whitewater.
- Geo. C. Cox, Mineral Point.
- T. L. Newton, Beaver Dam.
- F. C. Curtis, Rocky Run.
- A. Ludlow, Monroe.
- J. M. True, Baraboo.
- Geo. A. Austin, Neillsville.

On motion of E. W. Keyes, the report was confirmed.

Cyrus Miner offered the following resolution, which was unanimously adopted:

For the general and unflagging devotion of Dr. C. L. Martin in the interest of the Wisconsin State Agricultural Society since its organization, I move that this Society, in convention assembled, extend to him its hearty, sincere thanks.

Adjourned.

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## ANNUAL MEETING.

STATE AGRICULTURAL ROOMS,

MADISON, Wis., Dec. 2, 1885.

As required by the constitution of the Wisconsin State Agricultural Society, the Society met in their rooms in the capitol at 3 P. M. as per published notice. No quorum present. On motion of Gen. Geo. E. Bryant, meeting adjourned until Dec. 8th, at 7:30 P. M.

## ADJOURNED ANNUAL MEETING.

STATE AGRICULTURAL ROOMS,  
MADISON, Wis., Dec. 8th, 1885.

The adjourned annual meeting of the Society was held in their rooms as per adjournment at 7:30 P. M.

Quorum present. President Arnold in the chair.

Secretary Babbitt read the proceedings of the Executive Board meeting affirming the correctness of the Treasurer's report.

On motion of Gen. Simeon Mills, the Treasurer's report as recommended by the Executive Board, was adopted.

On motion, meeting adjourned.

# TREASURER'S REPORT.

*For the year ending December 2, 1885.*

Approved by the auditing committee, accepted and approved by the society, and the vouchers deposited in the office of the secretary.

STATE AGRICULTURAL ROOMS,  
MADISON, December 2, 1885.

*To the Officers and Members of the Wisconsin State Agricultural Society:*

GENTLEMEN—I have the honor to hand you herewith statement of the receipts and disbursements of your society for the year ending December 2d, 1885.

CYRUS MINER,  
*Treasurer.*

## RECEIPTS.

Amount on hand December 3, 1884 .....	\$4,125 83
Amount received from sale of forage .....	50 00
Amount received from stall rent .....	285 00
Amount received from sale of tickets .....	6,450 49
Amount received from state appropriation .....	4,000 00
Amount received from secretary for ground rent.....	1,102 23
Amount received from secretary for entry fees.....	970 90
Amount received from secretary for membership.....	60 00
Amount received from secretary for railroad rebate.....	10 50
Amount received from secretary for advertising.....	50 00
Amount of loan.....	2,000 00
	<hr/>
	\$19,104 95
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## DETAILED STATEMENT OF DISBURSEMENTS.

No.	To whom and for what.	Amount.
1	Babbitt, C., salary.....	\$150 00
2	Fuller, Frank L., salary .....	35 00
3	Democrat Printing Co .....	115 25
4	Park & Co., W. J., stationery .....	8 08
5	Miner, Floy, treasurer's clerk.....	5 00
6	Parkhurst & Babbitt, bill posting.....	29 00
7	American Express Co., express.....	5 55
8	Newton, Mrs. E., premium in department K.....	4 00
9	Memhard, F., draying .....	1 00
10	Paine, John, police.....	10 00
11	Dodge & Sons, H. G., coal for fair, 1884.....	102 26
12	Svenson, Thos., labor.....	5 00
13	Tyner, A., scraper repairs.....	4 50
14	Babbitt, C., salary.....	150 00
15	Fuller, Frank L., salary.....	35 00
16	Waltzinger, A. F., sundries.....	5 03
17	American Express Co., express.....	5 15
18	Kellogg, Rufus B., premium in department A.....	10 00
19	United States Express Co., express.....	4 85
20	Fredrickson & Fish, lumber.....	25 00
21	Vroman & Mason, lumber.....	25 00
22	Vilas, Wm. F., attorney fees.....	150 00
23	Ogilvie, R. B., sundries.....	213 87
24	Avery, A. A., clerk machinery department.....	9 00
25	Fuller, Frank L., salary.....	35 00
26	Patterson, Etta, clerk.....	18 00
27	Prichard, Minnie E., clerk.....	22 50
28	Bixby, Jerome, return rent money.....	4 50
29	Western Farmer, advertising.....	34 00
30	Western Union Tel. Co., telegraph.....	2 00
31	Prichard, Minnie E., work.....	16 50
32	Martin, C. L., board expense.....	10 00
33	Vaughn, A. W., expense board meeting.....	5 60
34	Curtis, F. C., expense board meeting.....	7 50
35	Pratt, Orris, expense board meeting.....	12 00
36	Newton, T. L., expense board meeting.....	12 00
37	Hitt, H. D., expense board meeting.....	12 66
38	Smith, J. M., expense board meeting.....	10 00
39	Wood, J. W., expense board meeting.....	10 00
41	Pilgrim, D. T., expense board meeting.....	15 00
42	Wood, J. W., additional expense board meeting.....	1 00
43	Johnston, W. A., expense board meeting.....	13 25
44	Bristol & Orvis, premium of 1882.....	7 14
45	Barry, A. C., expenses.....	10 50
46	Davison, A. L., short-hand reporter.....	45 00
47	Democrat Printing Co., printing.....	4 50
48	Pammel, Lewis, premium.....	5 00
49	Campbell, Vie, rebate on fare.....	72
50	Morgan, Tom., lunch for clerks.....	5 50
51	Bullard, Elmer, premium in A.....	12 00
52	Druse, V. G., entry returned.....	25 00
53	Freie Presse, subscription and advertising.....	15 00
54	Journal, subscription.....	5 00
55	Babbitt, C., salary.....	150 00
56	Curtis, F. C., expense special board meeting.....	5 50
57	Smith, J. M., expense special board meeting.....	12 00
58	Vaughn, A. W., expense special board meeting.....	5 00

WARRANTS ISSUED.

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No.	To whom and for what.	Amount.
59	Newton, T. L., expense special meeting.....	\$12 00
60	U. S. Express Co., express.....	2 45
61	Fuller, Frank L., salary.....	40 00
62	American Express Co., express.....	8 15
63	Western Union Telegraph Co., telegram.....	1 35
64	Fuller, Frank L., correcton warrant 61.....	5 00
65	Blackman, C. M., interest on loan.....	210 00
66	Boyce, Reuben, premium.....	10 00
67	Combs, E., directing circulars.....	1 00
68	Fuller, Frank L., extra work.....	25 00
69	Lawrence, Emma, directing circulars.....	1 00
70	Weinberger, Mrs. E. J., directing circulars.....	6 00
71	American Short Horn H. B.....	5 60
72	Carton, Maggie, directing circulars.....	3 00
73	Peffer, Kate, letter writing.....	5 00
74	Stephens, Miss, letter writing.....	1 25
75	Davison, A. L., reporting convention.....	100 00
76	Stoddard, C. C., work at fair of '83.....	12 00
77	Prichard, Minnie, office work.....	23 00
78	Martin, C. L., special board meeting.....	8 00
80	Fuller, Frank L., salary.....	45 00
81	Babbitt, Clinton, salary.....	150 00
82	Avery, Chas. H., hektograph.....	2 00
83	Western Union Telegraph Co., messages.....	3 10
84	A. A. Arnold, expenses to date.....	37 00
85	Bayley, Mr. and Mrs., work in February.....	5 00
86	Fuller, Frank L., salary.....	45 00
87	Babbitt, Clinton, salary.....	150 00
88	Babbitt, Clinton, salary.....	150 00
90	Prichard, Minnie E., work.....	18 00
91	U. S. Express Co., express.....	1 00
92	Fuller, Frank, salary.....	45 00
93	Prichard, M. E., work.....	12 00
94	Babbitt, C., salary.....	150 00
95	American Express Co., express.....	4 35
96	Daily, Wm. paper.....	3 25
98	Babbitt, Clinton, salary.....	150 00
99	Fuller, Frank L., salary.....	45 00
100	Fuller, Frank L.....	45 00
101	Memhard, F., drayage and freight.....	5 95
102	Johnson, Ove, premium.....	6 00
103	Park & Co., W. J., goods.....	7 40
104	Babbitt, Clinton, salary.....	100 00
105	Pollard, W. W., painting.....	2 05
106	Prichard, Minnie E., office work.....	15 00
107	Dodd, H. B., express.....	7 53
108	Babbitt, C., salary.....	50 00
109	Parkhurst, V., advertising.....	8 55
110	Holverson, Ole, work on grounds.....	3 00
111	Prichard, Minnie, office work.....	20 00
112	Fuller, Frank L., office work.....	45 00
113	Brandenburg, C. A., advertising.....	39 35
114	Schmidt, Bertha, sweeping buildings.....	3 00
115	Bookhur, Levi, advertising.....	36 80
116	Taylor, Henry, advertising.....	9 00
117	Fitch, W. D., advertising.....	28 95
118	Shine, W. H., work on ground.....	26 25
119	Merrill, Rob., billing fair.....	39 75
120	Snow, J. H., labor.....	7 50
121	Kinney, John, carpenter work.....	30 00
122	Eastman, John A, work with team.....	3 00
123	Troy, R. F., advertising.....	26 55



No.	To whom and for what.	Amount.
124	Cron, B., county society delegate.....	\$15 50
125	Warner, Hans B., county society delegate.....	21 00
126	Pierce, N. F., county society delegate.....	18 10
127	Copley, J. S., county society delegate.....	23 90
128	Smith, F. B., county society delegate.....	16 40
129	Campbell, Hugh, county society delegate.....	16 20
130	Page, W. W., county society delegate.....	11 30
131	Doxtader, H., county society delegate.....	17 20
132	Meiklejohn, W. A., county society delegate.....	17 00
133	Harns, P. W., county society delegate.....	17 20
134	Dey, John, county society delegate.....	18 40
135	Crane, W. W., county society delegate.....	22 48
136	Marlin, Geo., county society delegate.....	24 80
137	McKenzie, J. J., county society delegate.....	15 40
138	Marquardt, A. F., county society delegate.....	20 00
139	Curtis, F. C., supt. swine.....	20 00
140	Austin, Geo. A., county society delegate.....	19 60
141	Potter, C. W., county society delegate.....	12 68
142	Van Wagner, F. K., county society delegate.....	20 00
143	Cohn, H. H., county society delegate.....	14 50
144	Smith, Green Clay, expenses.....	50 00
145	Cox, F. F., Iowa Co. society delegate.....	10 00
147	Odell, L. L., Iowa Co., society delegate.....	19 00
148	Snow, W. H., carpenter work.....	5 00
149	Eastman, Herbert, carpenter work.....	3 00
150	Halverson, Oley, labor.....	6 00
151	Snow, W. H., carpenter work.....	7 00
152	Grabinska, Wm., watch.....	13 50
153	Hill, H. A., clerk.....	10 00
154	Barry, M. A., work.....	9 00
155	Flinn, W. W., county society delegate.....	23 74
156	Whelan, J. W., county society delegate.....	23 08
157	Squire, L. A., county society delegate.....	7 30
158	Millard, Frank, premium.....	82 00
159	Hollis, F. J., premium.....	49 20
160	Leonard, L. B., premium.....	31 52
161	Seaver, J. E., assistant superintendent machinery.....	56 00
162	Demerit, J., premium.....	50 40
163	Johnson, Dave, premium.....	105 00
164	Obermann, H. P., premium.....	150 00
165	Silervnail, S., premium.....	30 00
166	Silvernail, S., premium.....	45 00
167	Pilling, G. H., premium.....	30 00
168	Pilling, G. H., premium.....	30 00
169	Atwood and Roundtree, premium.....	195 00
170	Horton & Son, G. W., printing.....	45 00
171	Jackson, Albert, labor.....	4 50
172	Doyon, M. R., superintendent department E.....	20 00
173	Smith, J. M., superintendent department G.....	25 09
174	Kerr, Mrs. Alex., assistant superintendent department G.....	17 50
175	Bradley, Chas, work in department K.....	4 00
176	De La Matyr, W. H., assistant marshal.....	26 00
177	Newton, T. L., expenses board meeting March 7th.....	9 00
178	Newton, T. L., circulars department H and A.....	5 75
179	Newton, T. L., expenses board meeting August 26.....	16 15
180	Newton, T. L., expenses board meeting April 30.....	7 00
181	Newton, T. L., expenses board meeting August 11.....	6 25
182	Newton, T. L., superintendent department A.....	36 00
183	Donahue, Terrance, police.....	8 00
184	Terwilliger, Sid., assistant marshal.....	29 00
185	Ruddy, John, labor.....	18 00
186	Fratt, N. D., expenses board meetings February.....	26 50

No.	To whom and for what.	Amount.
187	Fratt, N. D., expenses board meetings April 29.....	\$12 00
188	Fratt, N. D., superintendent gates .....	24 00
189	Smalley, C. F., county society delegate.....	18 20
190	Kenney, John S., carpentering .....	36 00
191	Ellenwood, Mrs. A. P., county society delegate.....	13 18
192	Cowles, L. help and night watch.....	15 00
193	Wood, J. W., superintendent department K.....	40 00
195	Heivly, Eva, clerk.....	9 00
196	Gilman, G. W., show cases.....	2 00
197	Gregory, Fanny, work in department K.....	10 00
198	Peffer, Kate, first assistant in department K.....	17 50
199	Cook, W. H., premium in department A.....	25 00
200	Peffer, Kate, clerk.....	1 50
201	Woodard, S. S., president's clerk.....	8 00
202	Vaughn, A. W., superintendent department H.....	48 00
203	Totto, O., work.....	24 00
204	Arnold, A. A., services as president.....	32 00
205	Bradley, Chas., advertising .....	17 60
206	Bradley, Chas., expenses for billing .....	19 85
207	Snow, J. H., carpentering .....	3 00
208	Slater, D. S., labor.....	30 50
209	Postle, E. S., repairing track.....	10 50
210	Hopson, M. W., premium.....	10 00
211	Findoff, John, labor.....	7 50
212	Whalen, J., forage.....	54 14
213	Drakeley, Robt., police.....	8 00
214	Richmond, Mrs. E. Y., premium.....	28 00
215	Bancroft, A. A., premium.....	3 00
216	Penfield, S., hay and straw.....	46 21
217	Leonard, Mike, labor.....	18 00
218	Smidt, John, labor .....	13 50
219	Diebold, John, labor.....	10 50
220	Johnson, John, assistant sheep department.....	5 00
221	Blanchar, W., superintendent sheep department.....	16 00
222	W. C. T. U., dinner tickets.....	79 60
223	Olin, Mrs. H. R., entertaining band.....	11 20
224	Dais, John, premium.....	4 00
225	Paine, G. E., telegraph operator.....	10 00
226	Snyder, J., carpenter work.....	4 50
227	Rice, Mrs. C. N., premium.....	20 00
228	Crossen, Pat., labor.....	10 50
229	Leonard, Mike, labor.....	6 75
230	Gay, Wm., assistant superintendent department E.....	24 50
231	Hall, S. H., premium.....	8 00
232	Hall, Mary, premium.....	2 00
233	Piper, David, premium.....	10 00
234	McKesson, J. C., premium.....	45 00
235	Caswell, B. A., police.....	8 00
236	Schmidt, Phil., premium.....	5 00
237	Potter, Kate, assistant in department K.....	10 00
238	Burdick, C. L., premium.....	32 00
239	Lueders' Band, music.....	160 00
240	Cox, Miss Florence, premium.....	18 00
241	Sheasby & Grey, signs.....	67 75
242	Wayman, Mrs. Martha, premium.....	3 50
243	Dodd, H. B., express .....	14 00
244	Wilson, D. S., premium.....	7 00
245	Wilson, Mrs. D. S., premium.....	10 00
246	Holt, M. A., premium .....	4 00
247	Van Dusen, Mrs. Aug., premium.....	4 00
248	Richmond, T. C., advertising.....	21 15
249	Mead, C. W., premium .....	25 00

No.	To whom and for what.	Amount.
250	Frazier, Frank, premium.....	\$2 00
251	Sheldon, S. L., supplies 1884 and 1885 .....	39 10
252	Mautz, Mrs. C., premium .....	4 00
253	Sylvester, Mrs. H., premium .....	6 00
254	Gumbert, Mrs. R., premium .....	1 00
255	Stevens, C. C., engineer .....	3 50
256	Morden, Mrs. E., premium.....	3 00
257	Bird, H., straw .....	17 20
258	Gambert, Henry, team .....	2 00
259	Smethurst, Mary, attendant .....	10 00
260	Campbell, Dan, premium.....	75 00
261	Welch, W. hay.....	60 30
262	Nelson, C., hay.....	27 75
263	Plumb & Son, T. D., advertising.....	25 00
264	Stuart, Jas. R., premium.....	75 00
265	Megan, Frank, labor.....	1 50
266	Carse, Mrs. M., premium .....	2 00
267	Brady, T., premium.....	2 00
268	Atwood, R. J., premium.....	3 00
269	Waldschaky & Copp premium.....	5 00
270	Miller, C. B., premium .....	8 00
271	Terwilliger, J., premium.....	17 00
272	Terwilliger, W., police .....	6 00
273	Craven & Reynolds, premium.....	15 00
274	Domestic Sewing Machine Co., premium .....	8 00
275	Rockford Silver Plate Co. ....	360 51
276	Sprecher, John, premium .....	20 00
277	Reiner, John, bill posting .....	6 00
278	Baker, Jas., Indian transportation.....	175 00
279	Isaacs, A. C., premium .....	8 00
280	Doyon, M. R., premium .....	20 00
281	Steinle, Miss E., premium.....	8 00
282	Shaw, C. A., premium.....	13 00
283	Shine, W. H., labor.....	10 50
284	Shine, Mrs., attendant .....	6 00
285	Eugene Roberts, mail carrier .....	7 65
286	Eastman, John S., labor.....	24 00
287	Corry, T., team .....	1 50
288	Adams, John, work with team .....	61 50
289	Adams, John, straw.....	5 95
290	Eastman, John, labor.....	20 00
291	Kentzler, Andrew, livery.....	34 00
292	Fitch, Demming, hay and straw .....	216 44
293	Eastman, John S., fencing, etc.....	14 35
294	Fitch, W., work.....	26 00
295	Patterson, Mary, entry clerk .....	28 00
296	Lazier, Ed., premium.....	3 50
297	N. W. Business College, premium.....	13 00
298	Stone, Jas. B., premium.....	10 00
299	Warren, A., gate-keeper.....	17 50
300	Bull, Jas., police .....	8 00
301	Sullivan, Cor., attendant .....	9 00
302	Sheldon, S. L., supplies for department H.....	109 00
303	Chase, Walter, premium.....	15 00
304	Braze, A., assistant superintendent cattle department.....	24 50
305	Hiestand, H. C., assistant department E.....	2 00
306	Prichard, Miss M. E., office work.....	72 00
307	Baker, Geo. W., premium.....	3 00
308	Patterson, Mary E., clerk.....	20 00
309	Ellsworth, Will., telegraph man.....	6 00
310	Davis, J. C., premium.....	11 00
311	Schuster, Henry, premium.....	6 00

## WARRANTS ISSUED.

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No.	To whom and for what.	Amount.
312	Neihs, John, whitewashing .....	\$145 00
313	Devoe, Jerome, work with team.....	10 25
314	Hungerford, A. M., assistant in department K.....	15 00
315	Thoms, Mary, premium.....	9 00
316	Nunns, Emma, premium .....	1 00
317	Vernon, Ralph, police.....	12 00
318	Olson, Lewis, premium.....	4 00
319	Storm, Wm., material.....	10 70
320	Schmidt, Fred., premium .....	8 00
321	Storm, Wm., labor .....	16 00
322	Burrington Bros., premium.....	30 00
323	Albion Improvement Co., premium .....	5 00
324	Cooley, C. F., wood and coal.....	43 45
325	American Short Horn Breeder's book .....	10 00
326	Mosier, D., premium.....	27 00
327	Clark, C. M., premium.....	40 00
328	Angell, C. E., premium.....	92 00
329	Myers, Mrs. E. M., premium .....	4 00
330	Martin, Miss Ida E, premium .....	12 00
331	Munger, A. A., premium .....	31 00
332	Munger, Mrs. H. E., premium.....	35 00
333	Pitcher, J. H., premium.....	106 00
334	Joiner, S. H. & A. E., premium.....	83 00
335	Hagan, Dan, premium.....	5 00
336	Rabb, Mrs. Wm., premium.....	4 00
337	Chadwick, Jno. C., premium.....	10 00
338	White, Frank B., premium .....	6 00
339	Mears, Mrs. C., premium.....	6 00
340	Wood, J. W., premium.....	18 00
341	Wood, Mrs. J. W., premium.....	14 00
342	Steele, Wm., premium.....	75 00
343	Hough, Miss G., premium.....	4 00
344	Greatsinger, D., premium .....	2 00
345	Ranney, E. N, premium .....	5 00
346	Belding, C. H., premium .....	33 50
347	Stevens, D., premium.....	2 00
348	Ssevens, Mrs. D., premium.....	3 00
349	Stang, S. Geo., premium.....	24 00
350	Askew, Mrs. S. J., premium.....	17 00
351	Sandon, S. T., premium.....	32 24
352	Williams, Mrs. G. H., premium.....	2 00
353	Housel, John H., premium.....	1 00
354	Bock, H. M., premium.....	5 00
355	Buchholz, H., premium .....	5 00
356	Biglow, L. F., premium.....	19 00
357	Breitenbach, M., premium.....	5 00
358	Burgess, Mrs. L. R., premium.....	22 00
359	Bare, Mrs. D., premium.....	12 00
360	Bowles & Hadden, premium.....	79 00
361	Burgess, Mrs. Mary, premium.....	5 00
362	Baker, W. T., premium.....	9 00
363	Bailey, N. R., premium.....	6 00
364	Clark, Mrs. C. L., premium.....	32 00
365	Curtis, E. E., premium.....	35 00
366	Carr, Mrs. J. G., premium.....	2 00
367	Collard, Chas., premium.....	73 00
368	Curtis, I. L., premium.....	18 00
369	Flinn, W. W., premium.....	3 00
370	Ross, D. T., premium.....	32 00
371	Daue, H., premium.....	8 00
372	Dumond, W. H., premium.....	3 50
373	Durand, H. S., premium.....	65 00

No.	To whom and for what.	Amount.
374	Daniher, D. D., premium.....	\$14 00
375	Everson, Wm., premium.....	5 00
376	Fox, Wm., premium.....	31 00
377	Forrest, Wm., premium.....	13 00
378	Fisher, Seth, premium.....	40 00
379	Fish, H. Z., premium.....	30 00
380	Finch, Lorin, premium.....	3 00
381	Fowler, B. T., premium.....	10 00
382	Hollis, F. J., premium.....	26 00
383	Hollis, F. J., premium.....	4 00
384	Green, M. E., premium.....	80 00
385	Gilman, J. A., premium.....	55 00
386	Gillett & Moore, premium.....	25 00
387	Grey, O. C., premium.....	5 00
388	Gates, W. D., premium.....	3 00
390	Hirschinger, C., premium.....	19 00
391	Hacker, T. L., premium.....	55 00
392	Hull, J. B., premium.....	15 00
393	Hill, Chas., premium.....	34 00
394	Howlett, H. H., premium.....	18 00
395	Harding, Geo., premium.....	64 50
396	Haze, Chester, premium.....	150 00
397	Hiestand, Mrs. J. R., premium.....	5 00
398	Hiestand, H. C., premium.....	20 00
399	Harris & West, premium.....	10 00
400	Hallock, Mrs. Youngs, premium.....	2 00
401	Hallock, Miss Mary, premium.....	2 00
403	Kellogg, G. J., premium.....	20 00
404	Mill, R. H., premium.....	86 00
405	Johnson, David, premium.....	40 00
406	Johnson, Franklin, premium.....	14 00
407	Jacket, Abram, premium.....	24 00
408	Jacket, Warren, premium.....	7 00
409	King, Edmund, premium.....	10 00
410	Kingman, R. S., premium.....	35 00
411	Kellogg, R. B., premium.....	50 00
412	Kiser, J. C., premium.....	60 00
413	Keihl, Mrs. Philip, premium.....	6 00
414	Peffer, G. P., premium.....	62 50
415	Peffer, Miss Clara, premium.....	7 00
416	Peffer, Mrs. G. P., premium.....	2 00
417	Ludlow, A., premium.....	65 00
418	Leonard, L. B., premium.....	1 00
419	Memhard, Mrs. Geo., premium.....	23 00
420	Hoebel, Chas., premium.....	20 00
421	Myers & Son, A., premium.....	10 00
422	Macomber, S. D., premium.....	35 00
423	Macomber, S. D., premium.....	150 00
424	McDougal, Mrs. G. W., premium.....	13 50
425	Main, Mrs. A. H., premium.....	5 00
426	Murray, Peter, premium.....	3 00
427	Maxon, F. W., premium.....	50 00
428	Marr, Harvey, premium.....	7 00
429	Morgan, E. A., premium.....	6 00
430	O'Malley, Jos., premium.....	22 00
431	Owens, J. E., premium.....	90 00
432	Preim, Aug., premium.....	6 00
433	Palmer, E. W., premium.....	6 50
434	Plumb, J. C., premium.....	6 00
435	Pilgrim, D. T., premium.....	72 00
436	Phillips, A. J., premium.....	3 00
437	Palmer, N. N., premium.....	37 00

WARRANTS ISSUED.

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No.	To whom and for what.	Amount.
438	Pilgrim, Miss Lov, premium.....	\$21 00
439	Randall, Barber, premium.....	58 00
440	Regez, Rud., premium.....	10 00
441	Rider, Geo., premium.....	15 00
442	Reed, Wm., premium.....	36 00
443	Ringrose, Geo. W., premium.....	47 00
444	Torealt, Ed., premium.....	25 00
445	Troan, I. E., grain.....	50 37
446	Parkinson, John M., 9 days, 5 nights work.....	28 00
447	Wilson, H. C., premium.....	16 00
448	O'Neill, Owen, labor.....	10 50
449	Tipple, R. E., premium.....	6 00
450	Butler, John R., premium.....	3 00
451	Fields, Peter B., Gatekeeper.....	17 50
452	Fuller, Frank L., salary.....	45 00
453	Babbitt, Clinton, salary.....	150 00
454	Fuller, Frank L. extra work.....	25 00
455	Atwood, David, advertising.....	54 50
456	Mayers, A. A., for Gyles' work.....	5 00
457	Ainsworth, H. C., work per bill.....	15 20
458	Sutherland, F. M., premium.....	4 00
459	Sutherland, Mrs. S. A., premium.....	5 00
460	Spring, M. E. premium.....	15 00
461	Simmons, C. J., premium.....	3 00
462	Schurman, Geo. H., premium.....	54 00
463	Schmidt & Co, Aug, premium.....	8 00
464	Squires & Brown, premium.....	10 00
466	Seward, M. N., premium.....	5 00
467	Tenney, H. A., premium.....	17 00
468	Taylor, Henry, premium.....	12 00
469	Toole, Wm., premium.....	3 00
470	Tuttle, A. G., premium.....	33 00
471	Urquhart, John, premium.....	35 00
473	Wisconsin Wagon Co., premium.....	3 00
474	Wintermute, S., premium.....	10 00
475	Williams, John J., premium.....	55 00
476	Wait & Son, E., premium.....	45 00
477	Webster & Co., H. A., premium.....	3 00
478	Warren & Son, Geo., premium.....	8 00
481	Wright, D. H., premium.....	5 00
482	Bremner, John, premium.....	15 00
483	Bixby, Jerome, premium.....	54 00
484	Bement, E. R., premium.....	23 00
485	Brown, P. W., premium.....	6 00
486	Brabazon, J. R., premium.....	70 00
487	Carr, Mrs. N. B., premium.....	19 00
492	Goodnow, H. D., premium.....	5 00
493	Heath Bros. and H. H. Davis, premium.....	15 00
494	Hill, H. J., premium.....	5 00
495	Hiestand, Mrs. J. R., premium.....	1 00
496	Jackson, J. F., premium.....	3 00
497	Morse, L. C., premium.....	39 00
499	Hare, F., premium.....	10 00
500	Bowles, C. C., ticket seller.....	14 00
501	Main, A. H., assistant treasurer.....	30 00
502	Brownell, I. C., ticket seller.....	17 50
503	Main, Geo. C., ticket seller.....	10 50
504	McConnell, R. J., ticket seller.....	14 00
505	Sanborn, C. A., ticket seller.....	17 50
506	Main, E. A., ticket seller.....	17 50
507	Bisshopp, John, pony exhibition.....	140 00
508	Ogilvie & Zehnter, muslin, etc.....	48 97

No.	To whom and for what.	Amount.
509	Tilman, J., drayage.....	\$2 00
510	Galbraith Bros., premium.....	91 00
511	Clark & Chamberlain, premium.....	30 00
512	Taylor, A., carpenter work.....	4 33
513	Saunders & Co., J. H., Breeder's Gazette.....	120 00
514	Hurlbut, Edwin, advertising.....	10 00
515	Wheeler, Miss Emma, expenses, account of Indians.....	25 00
516	Childs & Co., tickets and advertising.....	91 38
517	Bryant, Jr., Geo. E., premium.....	18 36
518	Bryant, Jr., Geo. E., premium.....	84 00
519	Democrat Printing Co., advertising.....	60 65
520	Debolt, Peter, stamp.....	1 80
521	Morse & Son, J. W., premium.....	140 00
522	Jonas Bros., premium ribbons.....	26 00
523	Fowler, B. F., bal. premium.....	2 00
524	Memhard, F., teaming.....	3 00
525	Morden, E., repairing tanks.....	22 00
527	Anderson, Matt., chief marshal.....	17 50
528	Riley & Corcoran, livery.....	34 00
529	Neihs, Kate, washing windows.....	6 50
530	Behmer, Rosa, washing windows.....	3 50
531	Stein & Co., C. R., lumber.....	247 90
533	Spirit of the Turf, advertising.....	25 00
534	Babbitt, A. O., advertising.....	39 00
535	Fisher, Chas., police.....	10 00
536	Hess & Schmitz, horse and buggy for treasurer.....	13 25
537	Gardner, E. W., assistant machinery department.....	15 00
538	Noves, H. C., night watch.....	10 00
539	Pilgrim, D. T., superintendent of forage.....	48 00
540	Pilgrim, Wm., asst. forage dept.....	14 00
541	Pilgrim, J. H., asst. forage dept.....	28 00
542	Hitt, E. T., work, manufacturing dept.....	21 00
543	Jones, E. D., work, manufacturing dept.....	12 00
544	Hitt, H. D., supt. manufacturing dept.....	28 00
545	Johnson, John, police.....	2 00
546	Crotsenberg, N., police.....	10 00
547	West, S. G., gatekeeper.....	17 50
548	Fitzgerald, H. M., gatekeeper.....	17 50
549	Charnley, Isaac, gatekeeper.....	17 50
550	Gale, Geo. W., police.....	10 00
551	Paine, John, police.....	8 00
552	Klener, Matt, police.....	8 00
553	Buttman, Stark, nightwatchman.....	8 00
554	Johnston, W. A., supt. cattle dept.....	28 00
555	Bonner, Jas. police.....	8 00
556	Farwell, John, police.....	8 00
557	Casey, Simon, police.....	8 00
558	Farwell, Jas. J, police.....	8 00
559	Williamson, Geo., police.....	8 00
560	Symons, Patrick, police.....	8 00
561	Robertson, A. J., gatekeeper.....	17 50
562	Pierstoff, W. M., police.....	8 00
563	Palmer, E. W., asst. supt. horse dept.....	20 00
564	Williamson, Henry, nightwatch.....	10 00
565	Lalor, James, nightwatch.....	10 00
566	Williamson, Geo. H, nightwatch.....	10 00
567	Kenyon, Steven, asst. sput. agri. dept.....	17 50
568	Boyd, P., police.....	8 00
569	Cooper, Eli, police.....	8 00
570	McPherson, Geo., police.....	8 00
571	Hazeltine, A. E., night watch.....	8 00
572	Welch, Wm., work in horse department.....	10 00

WARRANTS ISSUED.

No.	To whom and for what.	Amount.
573	Martin, C. L., sup't agricultural department.....	24 00
574	Jeffrey, Geo., pails, labor, etc.....	1 94
575	Halverson, Oby, work in forage department.....	10 00
576	Pilgrim, D. T., expense board meeting, February.....	10 00
577	Palmer, E. W., assistant superintendent horse department.....	8 00
578	Paul, J. H., premium in free for all.....	45 00
579	Beliar, C., police.....	8 00
585	Fuller, F. L., premium.....	2 00
586	Jewell, N., premium.....	54 00
589	Johnson, J. M., premium.....	15 00
590	Babbitt, Clinton, salary.....	150 00
591	Park Hotel, expenses of guests.....	23 25
592	Conlin, Peter, drayage.....	1 00
593	McDougal, Mrs., straw and hay.....	73 58
594	Haskins, Wm., Indian team.....	125 00
595	Haskins, Wm., expenses Indian team.....	145 00
596	Heimstreet, E. B., county agricultural society, delegate... ..	8 40
597	Miner, Cyrus, expense board meetings and sundries.....	72 15
598	Miner, Cyrus, treasurer fair.....	24 00
599	Arnold, A. A., president, expenses.....	16 00
600	Sherman, Amaziah, assistant agricultural department.....	18 00
601	Babbitt, Clinton, salary.....	150 00
602	Wheeler & Babbitt, expenses Indian.....	83 00
603	Babbitt, C., paid sundry items.....	84 00
604	Western Union Tel. Co., telegrams.....	32 70
605	Scott, A., drayage.....	1 00
606	Eastman, John, labor.....	11 33
607	Lahm, P., draying.....	2 00
608	Kentzler, A., livery.....	16 00
609	Fuller, F. L., salary.....	45 00
610	Alford & Wheeler, dinner tickets.....	7 33
611	Burk, M. J., return on ground rent.....	4 00
612	Galbraith Bros, premium.....	34 00

Total amount of orders.....\$16,207 30

Total amount paid on orders of 1885.....\$16,207 30

Amount paid on orders of 1884.....438 96

Cash balance on hand.....2,458 69

\$19,104 95

~~457 69~~

Orders drawn and not presented at date of this report, Nos. 146,  
 194, 389, 402, 465, 472, 479, 480, 485, 490, 491, 498, 526, 532, ~~6, 646 24~~  
 580, 581, 582, 594, 587, 588. Amount.....\$328 38



GOV. RUSK'S SPEECH AT THE STATE FAIR,  
THURSDAY, SEPTEMBER 10th.

You are gathered here to-day for the purpose of becoming more enlightened in the various pursuits of agriculture. There are but few avenues of real wealth, and all have their origin in, and spring from the earth. It was created for man, and the first man was a farmer, and it was said "By the sweat of your brow you must earn your bread." The products of the soil, stock raising, minerals dug from the earth, forests in their natural state and the manufacturing which makes the raw material valuable, all these are the real sources of wealth, and he who engages in their pursuit becomes honestly in possession of what he accumulates. Other pursuits do not add to the material wealth, but live off of it. The speculator does not add a dollar to the actual wealth of the country, but is like a potato bug, he consumes what others produce. Four-fifths of the wealth on which the prosperity of the nation is based, is now in the hands of the farmers, in the various pursuits pertaining to agriculture. 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 relation to society and the business of the world. It is the duty of every farmer to study well and thoroughly the different avenues through which he can accumulate the most for his labor. I give you statistics showing how enormous the dairying interests of the country are, the total value of the butter, cheese and milk products of the United States, in 1884, being over \$900,000,000. By comparing the value of some of the products, these figures are best appreciated.

The annual value of our oat crop is \$150,000,000. The total value of the pig-iron product, reckoning the average price \$20 per ton, is \$85,000,000. Our entire wool product is \$64,000,000. The cotton crop of 6,000,000 bales, averaging a value of \$50 per bale, \$300,000,000, while the entire wheat crop, at eighty cents per bushel, amounted to \$456,-

000,000. The silver product, at gold value, was only \$40,000,000, while the egg crop was something over \$91,000,000. The entire feathered fraternity, with all its cackling, did not buzz congress as much as the silver men. These comparisons show the dairy product for 1884 was double the entire bread product, \$600,000,000 in excess of the cotton crop, \$763,000,000 in excess of the pig-iron and silver combined. These figures only pertain to the products of one year. The amount that is invested in dairy lands, buildings, cows and machinery, to produce these values, is very difficult to ascertain as a whole, but we do know that the amount of money invested in milch cows alone, in 1884, exceeded the enormous sum of \$700,000,000. Some idea of this sum may be gained by comparison. The entire capital stock of the banks of the United States for the year ending Nov. 1, 1884, was \$524,266,345, while the entire capital stock of all the state banks and trust companies in the United States was \$139,958,954, consequently the entire capital stock of all the banking organizations of the states and territories, amounted to \$658,225,299, a sum which is \$41,774,101 less than is invested in dairy cattle alone. With this showing, who will say, if the corn is king, that the cow is not queen.

#### WISCONSIN DAIRY INTERESTS.

The capital that enters into the dairy interests of our state alone is over one hundred millions. Such is the magnitude and importance of the dairy business in this country to-day. Although Wisconsin swept the board at New Orleans last winter at the great Cotton Exhibition, taking more prizes in the dairy department than any other state, we have only commenced this industry. What will it amount to when fully developed? It is no longer a question but is conceded that Wisconsin is the best field for dairying in this country. The climate, the grasses and the pure water keep the animal in a healthy condition, which produces the purest and best of milk, free from odors and impurities, which is no doubt the main reason of our success.]

What I have said in relation to dairy interests might be carried out to other interests, but I deem that this is suffi-

cient to satisfy you that what I stated in the outset, that four-fifths of the wealth on which the prosperity of our people is based is produced from the farm. I would therefore urge upon you as farmers to look into what to you, are your best interests, and see that you are protected and assisted fairly and equally with other industries through the legislation of our country.

#### LEGISLATION FOR THE FARMERS.

In my last message to the legislature I called their attention to the fact that there was no law upon our statute books by which we could protect our domestic animals from contagious and infectious diseases. The legislature provided for the appointment of a state veterinarian. Provision was made for quarantine, where necessary, as a matter of protection against pleuro-pneumonia. This is the first authority of law we have ever had to control the spread of the contagious diseases which threatened at one time to paralyze our leading industry. The state veterinarian's investigations have failed to disclose any cases of pleuro-pneumonia, but have developed many cases of glanders, against the spread of which ample precautions have been made. They also passed a bill providing for farmers' institutes. The assembling of 200 or more farmers from any county to compare results and to discuss important methods of culture and farming, will produce great good. I have faith to believe that these institutes are but the commencement of a series of conventions that will be demanded by the farmers of every county in the state.

This law provides that the regents of the University shall expend \$5,000 in holding these institutes. The regents met and referred to the farm committee of that board the duty of carrying out the law. The farm committee has selected Mr. Morrison, of Elkhorn, Walworth county, who is the president of the Dairymen's association, a man of broad views and clear intellect, who will, no doubt, make these institutes a great success. Farmers will have no difficulty in securing any legislation in their behalf which is presented by them. The great difficulty has been heretofore,

that the farmers could not agree as to what legislation they desired. It is hoped that when they thoroughly understand what they wish they will be able to present it without opposition among themselves.

#### FARMERS' WIVES.

The farmer's wife has a tremendous responsibility resting upon her. She is the presiding genius — whether in the palace or the humble cabin of the pioneer. She is in every sense of the word a home-maker. She molds the character of the girls and boys — trains her girls in all the arts and industries that fit them, when they arrive at the age of womanhood, to create happy homes and firesides for their life partners. It is her training that implants in the hearts of her boys the great moral lessons that cling to them through life, and make them successful, honorable men, and useful members of society. The farmer's daughter who has had a thorough home training, will adorn the finest home in the land, for her education is practical, and not limited to a few accomplishments. The quiet home of the farmer has been the basis of more virtue and wisdom, and better prepared the way for future prosperity to the rising generation than all of the other homes combined.

The true farmer — he who appreciates the nobility of his calling — will not forget the vast labor all these duties entail upon his wife, and will strengthen her hands and lighten her labors in every possible way.

The foundation upon which our national industries rest is agriculture. I desire no coat of arms more significant or emblematic of prosperity and wealth than a well-filled ear of corn. Farmers, become masters of your avocation; surround yourselves with the best literature of the times; enlarge your minds by thought and reflection; develop the intellectual as well as the muscular, and you will become masters of the situation.

LIST OF OFFICERS OF AGRICULTURAL SOCIETIES FOR 1886, WITH THEIR P. O. ADDRESS AND PLACE AND DATE OF HOLDING FAIRS IN 1885.

COUNTIES.	Name of society, and place and date of holding fairs in 1885.	Name and post-office address of President.	Name and post-office address of Secretary.	Name and post-office address of Treasurer.
Adams .....	Adams Co. Agricultural and Mech. Assoc., Friendship, September 23-24.	Geo. M. Witter, Easton.	O. M. Coats, Friendship.	A. F. Hill, Friendship.
Barron .....	Barron County Agricultural Society, Chetek, September 16-18.	W. W. Flinn, Chetek.	N. E. Carver, Chetek.	D. C. Strong, Chetek.
Brown .....	Brown Co. Horticultural & Agricult'l Soc., Nicollet, September 1-4.	John M. Smith, Green Bay.	Werden Reynolds, Green Bay.	A. A. Warren, Green Bay.
Buffalo.....	Buffalo County Agricultural Society, Mondovi, September 16-18.	J. W. Whelan, Mondovi.	W. L. Houser, Mondovi.	F. H. Dillon, Mondovi.
Burnett .....	Burnett County Agricultural Society, Grantsburg, September 23-25.	Geo. Wilson, Grantsburg.	A. Gudmanson, Grantsburg.	John A. Swenson, Grantsburg.
Chippewa ....	Chippewa County Agricultural Society, Chippewa Falls, September 8-11.	E. D. Stanley, Chippewa Falls.	J. W. Thomas, Chippewa Falls.	W. B. Bartlett, Chippewa Falls.
Clark .....	Clark County Agricultural Society, Neillsville, September 16-19.	Jas. Hewitt, Neillsville.	J. A. Kimball, Neillsville.	Chas. Sternitzky, Lyn P. O.
Columbia ....	Lodi Union Agricultural Society, Lodi, September 23-25.	Jas. McCloud, Lodi.	E. W. Gardner, Lodi.	Addison Eaton, Lodi.
Columbia ....	Columbia County Agricultural Society, Portage, September 15-17.	L. A. Squire, Poynette.	Kennedy Scott, Rio.	Geo. Morrison, Portage.
Crawford ....	Crawford County Agricultural Society, Seneca, September 22-25.	Hugh Porter, Seneca.	Fergus Mills, Seneca.	A. E. Mills, Mt. Sterling.
Dodge.....	Dodge County Agricultural Society, Juneau, September 16-18.	J. S. Rowell, Beaver Dam.	W. E. Keeley, Beaver Dam.	S. W. Andrews, Juneau.
Door ....	Door County Agricultural Society, Town Hall town of Sevastopol, Oct. 9-10.	Jas. R. Mann, Sevastopol.	H. B. Stephenson, Sturgeon Bay.	Christ. Leonhardt, Sturgeon Bay.
Fond du Lac .	Fond du Lac Co. Agr'l and Mecha'l Assoc., Fond du Lac, September 22-24.	H. D. Hitt, Oakfield.	Geo. A. Lewis, Fond du Lac.	Geo. Keys, Fond du Lac.

Fond du Lac . . . Ripon Agricultural Society,  
Ripon, September 22-24.

Grant . . . . . Grant County Agricultural Society,  
Lancaster, September 23- 25.

Green . . . . . Green Co. Agricultural So. and Mech. Insti'e,  
Monroe, September 16-19.

Iowa . . . . . Iowa County Agricultural Society,  
Dodgeville, September 15-18.

Iowa . . . . . Southwestern Wisconsin Industrial Assoc.,  
Mineral Point, September 1-4.

Jackson . . . . . Jackson County Agricultural Society,  
Black River Falls, September 23-25.

Jefferson . . . . . Jefferson County Agricultural Society,  
Jefferson, September 15-18.

Jefferson . . . . . Central Wis. Agricultural and Mech. Ass'n,  
Watertown, September 21-25.

Juneau . . . . . Juneau County Agricultural Society,  
Mauston, September 29 to October 1.

Kenosha . . . . . Kenosha County Agricultural Society,  
Kenosha, September 23-25.

Kewaunee . . . . . Kewaunee County Agricultural Society,  
Kewaunee, September 24-26.

La Crosse . . . . . La Crosse County Agricultural Society,  
West Salem, September 23-25.

Lincoln . . . . . Lincoln Co. Agricultural and Driving Asso.,  
Merrill, September 10-11.

Marathon . . . . . Marathon County Agricultural Society,  
On their Fair Grounds, September 17-19.

Marquette . . . . . Marquette County Agricultural Society,  
Packwaukee, September 23-24.

Monroe . . . . . Monroe County Agricultural Society,  
Sparta, September 15-17.

Monroe . . . . . Eastern Monroe County Agricultural Soc'y,  
Tomah, September 22-24.

Outagamie . . . . . Outagamie County Agricultural Society,  
Hortonville, Sept. 30 and Oct. 1-2.

J. Dobbs,  
Ripon.

J. J. McKenzie,  
Lancaster.

W. W. Chadwick,  
Monroe.

Joel Whitman,  
Dodgeville.

Geo. G. Cox,  
Mineral Point.

John Morrill,  
Taylor Station.

John Whitte',  
Busseyville.

S. G. Roper,  
Watertown.

C. W. Potter,  
Mauston.

O. S. Newell,  
Kenosha.

D. W. Stebbens,  
Ahnapee.

Daniel Shane,  
Bangor.

M. H. McCord,  
Merrill.

A. F. Marquardt,  
Wausau.

B. S. Wilber,  
Packwaukee.

L. C. Morse,  
Sparta.

O. M. Hill,  
Tomah.

John Dey,  
Greenville.

T. D. Stone,  
Ripon.

John P. Lewis,  
Lancaster.

A. F. Lichtenwalner,  
Monroe.

Benj. Thomas, Jr.,  
Dodgeville.

Delos P. Beech,  
Mineral Point.

S. D. Blake,  
Black River Falls.

C. F. Bullwinkle,  
Jefferson.

S. M. Eaton,  
Watertown.

W. C. Brawley,  
Mauston.

F. W. Mathews,  
Kenosha.

M. T. Parker,  
Ahnapee.

A. J. Phillips,  
West Salem.

H. E. Howe,  
Merrill.

Wm. Wilson,  
Wausau.

W. W. Page,  
Douglas Center.

H. H. Cremer,  
Sparta.

V. L. Hineman,  
Tomah.

F. W. Harriman,  
Appleton.

J. J. Dillon,  
Ripon.

W. J. McCoy,  
Lancaster.

Fred P. Treat,  
Monroe.

F. W. Stratman,  
Dodgeville.

Thos. Priestley,  
Mineral Point.

John H. Mills,  
Black River Falls.

George J. Kispert,  
Jefferson.

Jos. Salick,  
Watertown.

F. Winsor,  
Mauston.

W. E. Petrie,  
Kenosha.

John Ihlenfeldt,  
Ahnapee.

Wm. Smith,  
Bangor.

H. C. Ross,  
Merrill.

Aug. Kickbush,  
Wausau.

Hugh Hamilton,  
Westfield.

G. A. Richardson,  
Sparta.

L. D. Wyall,  
Tomah.

Mathew McComb,  
Hortonville.

LIST OF OFFICERS OF AGRICULTURAL SOCIETIES, ETC.—Continued.

COUNTIES.	Name of society, and place and date of holding fairs in 1885.	Name and post-office address of President	Name and post-office address of Secretary.	Name and post-office address of Treasurer.
Ozaukee .....	Ozaukee County Agricultural Society, Saukville, September 23-24.	A. M. Alling, Saukville.	L. C. Larsen, Port Washington.	Lorenz Seiberlich, Saukville.
Pepin .....	Pepin County Agricultural Society, Durand, September 9-11.	S. L. Plummer, Arkansaw.	A. G. Kelton, Durand.	Geo. Tarrant, Durand.
Pierce .....	Pierce County Agricultural Society, Prescott, September 17-18.	G. W. McMurphy, Prescott.	Frank A. Ross, Prescott.	T. J. Atwater, Prescott.
Pierce .....	Pierce Co. Central Fair and Stock Exchange, Ellsworth, September 23-25.	H. B. Warner, Ellsworth.	J. C. Denniston, Ellsworth.	J. B. Jensen, Ellsworth.
Portage .....	Portage County Agricultural Society, Amherst, September 22-24.	Ed. Turner, Amherst.	A. J. Smith, Amherst.	A. M. Nelson, Amherst.
Racine .....	Racine County Agricultural Society, Burlington, September 15-18.	A. J. Hannas, Burlington.	C. A. Jones, Burlington.	Thos. H. Marsland, Burlington.
Richland ....	Richland County Agricultural Society, Richland Center, September 16-18.	B. N. Smith, Richland Center.	C. A. Hatch, Ithaca.	W. H. Pier, Richland Cent'r.
Rock.....	Rock County Agricultural Society, Janesville, September 15-18.	R. T. Pember, Johnstown Centre.	W. T. Van Kirk, Janesville.	E. B. Heimstreet, Janesville.
St. Croix.....	St. Croix County Agricultural Society, Hudson, September 16,-18.	Guy Dailey, Hudson.	Theo. F. Young, Hudson.	Robt. Dinsmore, Hudson.
Sauk.....	Sauk County Agricultural Society, Baraboo, September 22-24.	J. M. True, Baraboo.	A. D. McGilvra, Baraboo.	G. C. Grisim, Baraboo.
Sauk.....	Baraboo Valley Agricultural Society, Reedsburg, October 7-9.	Jas. Lake, Reedsburg.	A. F. Lawton, Reedsburg.	A. P. Ellinwood, Reedsburg.
Shawano.....	Shawano County Agricultural Society, Shawano, September 22-24.	Chris. Hill, Shawano.	D. A. McDonell, Shawano.	J. D. Kast, Shawano.
Sheboygan ...	Sheboygan County Agricultural Society, Sheboygan Falls, September 22-25.	G. H. Brickner, Sheboygan Fal!s.	N. F. Pierce, Sheboygan Falls.	J. C. Fairweather, Sheboygan Falls.
Taylor .....	Taylor County Agricultural Society, Medford, September 23-25.	C. C. Palmer, Westboro.	E. T. Wheelock, Medford.	J. H. Wheelock, Medford.

Trempealeau .	Trempealeau County Agricultural Society, Galesville, September 16-18.	L. L. Odell, Galesville.	E. W. Freeman, Galesville.	W. A. Johnston, Galesville.
Vernon .....	Vernon County Agricultural Society, Viroqua, September 16-18.	F. K. Van Wagner, Viroqua.	O. B. Wyman, Viroqua.	Elijah Powell, Viroqua.
Walworth....	Walworth County Agricultural Soc., Elkhorn, September 22-25.	Geo. R. Allen, Genoa Junction.	Levi E. Allen, Elkhorn.	L. G. Latham, Elkhorn.
Waukesha ...	Waukesha County Agricultural Soc., Waukesha, September 29-30, Oct. 1-2	C. M. Sanger, Waukesha.	F. H. Putney, Waukesha.	Geo. Harding, Waukesha.
Waupaca ....	Waupaca County Agricultural Society, Weyauwega, September 22-24.	W. W. Crane, Weyauwega.	A. V. Balch, Weyauwega.	W. Woods, Weyauwega.
Waushara....	Waushara County Agricultural Society, Wautoma, September 22-24.	J. D. Bugh, Wautoma.	J. T. Ellarson, Wautoma.	Gil. Tennant, Wautoma.
Wood .....	Wood County Agricultural Society, Grand Rapids, September 15-18.	G. J. Jackson, Centralia.	F. L. Tibbits, Grand Rapids.	W. T. Jones, Centralia.



PROCEEDINGS  
OF THE  
FARMERS' STATE CONVENTION,

HELD UNDER THE AUSPICES OF THE

*Wisconsin State Agricultural Society, at State Agricultural Rooms and  
Assembly Chamber, in Madison, Feb. 1, 2, 3, 4 and 5, inclusive.*

OPENING ADDRESS.

By Pres. A. A. ARNOLD.

We meet again, after a lapse of one year since our last convention, during which we have had heat and cold, rain and drouth, sunshine and shadows, seed time and harvest—all these in the order of nature, under nature's laws. As a whole it may be classed as a prosperous year for the farmer, for which it becomes us to return thanks to the giver of all good. In behalf of the State Board of Agriculture I welcome you to this our annual mental feast, hoping that the occasion may prove interesting and profitable to us all. The caterers named in the secretary's bill of fare give ample promise of your appreciation, and we may expect much that will be of interest. This annual convention, under the auspices of the Wisconsin State Agricultural Society, is not the creature of law, nor is it a necessity by virtue of any constitution or by-law of the Society. It was inaugurated years ago with the advice and consent of the board in conformity to a felt want on the part of farmers that there should be some central convention of citizens, representing the productive interests of our state wherein such subjects might be presented as appeared to be the most immediate interest to the people in their productive capacity.

For convenience, for the reason that the secretary is by virtue of law made the compiler of the volume of transactions, and for the further reason also that he is the only salaried officer in the society, he has always had the most to do in arranging the programme for the annual convention. Custom, convenience and the popular demand have worked together, until these annual conventions at the capitol of our state have come to be as much a fixture as the annual fair, or any of the regular meetings of the society.

No officer of the society receives compensation from any source for the time or the expenses attendant on these conventions, the society only paying for the reporter, thus giving to the state full reports of the discussions through our next annual volume of transactions. Thus it is that this convention is intended for no one district interest, but for the general welfare of our commonwealth. No one department of the productive interests of our state can claim precedence. We meet here as before intimated, to discuss such topics as the people here assembled deem of most importance at the time, of course limiting the same to such subjects as more particularly interest producers from the soil.

We have several state organizations in the productive interests, among which are the State Grange, the State Horticultural Society, the State Dairyman's Association, the Wisconsin Swine Breeder's Association, the Sheep Breeder's Associations, the Cane Grower's Association, the Shorthorn Breeder's Association and the Tobacco Grower's Association, all state societies, and in the interests of increased production and better methods. I see before me representative men of each of these organizations, and from you we hope to gather some practical thoughts in your various specialties that will be of value to each of us, and to the readers of the Transactions.

This convention belongs to you all. These various associations are all working severally for a particular interest, together for the general good. No one antagonizes another, each for its specialty, together for the good of the whole. Agricultural and industrial associations, and county agricultural societies in particular, have been invited to be rep-

resented and participate in our deliberations. We bid you all a hearty welcome, likewise every man or woman that has any good to impart or wishes any good to learn.

This is a broad platform, broad enough to take on it any citizen of our state, no matter what his creed, politics, social condition or place of nativity.

We cannot afford to be partisan or bigoted, nor can we allow any petty jealousies to influence our actions. These are the outgrowth of narrow minds and the only advantage of their exhibition here would be the betrayal of the narrowness of their possessors. No man can build himself up by pulling another down. So the interests of no society can be advanced by berating another. "By their fruits ye shall know them."

Likewise no class or profession can be benefited by underating the usefulness of another class or occupation. Every pursuit must stand on its own merits.

While we are working for our special interests which are in no way antagonistic to the interests of people of other professions (but ultimately for their benefit) let us not be guilty of any signs of bigotry, or in any way indicate that for the reason that agriculture is the source of all wealth, therefore men engaged in other laudable pursuits (equally necessary in the make-up of our civilization) are not as praiseworthy.

Thus shall we beget no unnecessary antagonisms and the good things that we may say, or the good things that we may hear, will be received in good and honest hearts; they will be like the good seed sown in good ground springing up an hundred fold.

The papers and addresses as named in the program will have precedence in their order allowing as usual suitable time for the discussion of any points made. Also papers and discussions on other topics as far as the time of our sitting will allow, much latitude being given in a convention of this sort. The reporter is paid for his services and will note every word said at this convention. The papers and discussions (if deemed worthy) will be published as usual in our next volume of transactions. We want just as

much grain and as little chaff as possible for the publication. This being the case they will retain their good name and their readers benefited as well as ourselves. I must congratulate the three societies and the officers of the experimental station in having the past year so well appreciated combined reports as compiled by Mr. Babbitt, embellished by fine engravings, that make the book all the more acceptable and worthy to be in the library of any of our people. The tax payers pay for their printing and binding and we should see to it, (so long as this is the law) that their money is not squandered. I could distribute with thanks from the recipients, in my part of the state ten volumes of these combined reports for every one that I can get or ask for. This convention is of too much importance for much generalizing. We want facts, figures, approved rules, and such arguments as drive the mind to some fixed conclusion. Unless we have some of this our meeting will be vain only as it may afford social enjoyment.

Doubtless much will be said that has been said before. This, however, may not detract from its merits, for it often happens that we are as much benefited by being reminded of what we already know as if something new had been said. That which we consider old and well settled is often new to others and *vice versa*.

If there is a man here who can demonstrate what force the proportions and combination of each that give the best results to produce muscle, fat or milk, he will be a public benefactor if he will state the particulars. If there are any that can name hardy varieties of fruit trees that will stand our climate, they will find an attentive audience, for there is nothing the Wisconsin farmer so much desires and that we are so sadly barren of as profitable fruit trees.

We are justly proud of our own Wisconsin, but when we claim it as a good fruit growing state we are claiming too much. For whatever we may have thought of our prospects, however proud we may have been of our fruit victories at the New Orleans Exposition, last winter blighted our fondest hopes, and to-day I will say that I don't know of a single profitable or acceptable variety of peach, pear or apple tree

that can be depended upon in the northwestern part of the state. Here is work for the philanthropist, and whoever discovers or propagates one good winter variety that will prove hardy in all parts of Wisconsin should be amply rewarded. I will here say (and I think I only echo the sentiments of those most competent to judge) that there is not within our borders a class of men that have worked so faithfully, and at the same time been so poorly compensated and their services so poorly appreciated as these same horticulturists. The good and honest nurseryman has too often been rated with the frauds, and on the whole it has been an uphill business. And now that the cold, last winter has worked out of our minds all ideas of which are the hardy varieties, we will have to start from the foundation. Up to last winter we thought we could count on at least ten hardy varieties; now I count on none. However, those that can afford to experiment will probably find this *just the proper time* to start a new orchard. If so, I should say, plant of the old sorts, those that have stood the best, and if we have no more such cold winters as the last, you will probably live long enough to get paid for your trouble and expense. Every family should have plenty of fruit and vegetables during winter, as well as in the summer, and when these are not grown upon the farm, we too often go without. Fruits and vegetables are conducive to good health, especially among children, and no farmer can afford to be without them. Better forego other luxuries than be without these.

In comparing our state with all others in the union none can outrank her as to adaptability, to pasture, and the growing of stock. We do excel in our butter and cheese products, and the awards made at the various international expositions do us no more than justice.

Here is a branch of industry in which, with adequate care and attention, coupled with intelligence, success is morally certain. To fully develop this one line of industry, would put millions in the pockets of our people. To do this, it is not only to be considered how to make the best butter and cheese, but for *permanent* success, how shall we do

this and keep up the proper vitality. Large gross results from single animals or single herds prove nothing in themselves for unless net returns show increase profits, it is of no value to the practical farmer. Stuffing, pampering and stimulating unnatural appetites will do to make a record so as to sell a particular family of a particular breed, but we all know that it is of no practical value. When a man has a cow that will maintain her vitality, her condition and her powers of reproduction on an adequate amount of food and still yield extraordinary net returns from butter, cheese or beef, or from a combination of these, and can demonstrate it so there, will be no chance for doubtings, then will be the time for the average farmer to invest his money. Until that time comes, it will pay to "make haste slowly." It will pay for a dairyman to buy a cow of any breed that is a good milker, whether she has the points that make up a good animal or not; but if he is to breed from her it is quite another question. Beauty, ability, longevity, intrinsic value for beef, hardihood, and inbred powers of producing the same kind, are what is desired, and all enter into the account and afford ample scope for study and investigation.

The butterine men are satisfying the appetite of those that are not too fastidious, and care not whether they eat butter, lard, tallow, or oil. They supply that which in a great measure takes the place of butter and for the time injures the price of the dairy product. Ultimately, however, it cannot seriously effect the price of the best article, but will have the effect of driving the poor butter from the market, which in the end will harm no man, for of all the vile stuff consumed by mankind none excell poor butter.

I would, however, recommend any constitutional restoration that will put a stop to this or any other fraud.

Even a pure article of butterine is preferable to the taste, when by the smell you can't tell whether its odor is most of stable, kitchen, or cook, or by the taste you can't name flavor, whether most of sour-milk, castor oil or sauerkraut. In such case butterine is a God send. People had rather be humbugged with butterine, even if is a counterfeite, than have the real article unless it is equally good.

After this the dairyman must make a good article or he had better quit the business, for unless he does, it won't pay. The Wisconsin Dairymen's Association has done wonders in this line to bring light out of darkness, and they may well be proud of their record.

[The good qualities of our grasses and the healthy climate insure us of always having a good beef producing state, and with the moderately low prices of our lands for some years to come in most parts, taking in consideration that the price of labor in most of these sections is relatively higher on account of the demand for the latter in the woods, mills and mines, probably as much can be made by the average farmer by producing beef in those sections, as from any other branch of husbandry.]

The beef producer has one advantage over the dairyman and that is that there can be no counterfeits in his line as in the butter business. A poor steer like poor butter can be made, but he never will be taken for a good one no matter how he is labeled.]

Good beef cattle give good net returns even where land is higher than in Wisconsin. Of the 140,000 farmers in this state probably one-half of them are more or less in debt. A large proportion have more or less rough or uncultivated lands that cannot be utilized with the means at hand in any way as well as in stock raising. Shall it be utilized by keeping a dairy, raising young cattle or fattening for the shambles. Any man with half an eye must see that all farmers cannot well go into either one of these specialties. If a farmer has a large family of children that he cannot better employ there is no doubt that the dairy should be his specialty. If he has plenty of good lands and means at his command he may do well raising blooded stock. If good lands for raising grain and plenty of pasture that cannot well be otherwise employed with means to purchase, then he should purchase steers and fit them for the market. In this last there is one advantage that may not be said of any other one branch of farming. Fat is mostly carbon which is derived from the air by young plants, where as frame and muscle contain the

phosphates and nitrates, which are the most valuable and elementary elements of the soil.

Thus it is, that the farmer who sells his grain, his hay or even his stock from his farm is certainly to some extent impoverishing his land; whereas, if he only fits for the market after the animal is comparatively mature, he reduces the drain from his land to the minimum. Now there is a large class of farmers that are not cut out for specialists, many more that are new in the business, many very poor, many with no credit. All these are of us. Shall they have no place? He has to have milk, butter and beef for his family. He is not near a creamery or a cheese factory, and now that butter must not be over two weeks old to bring first prices and the poor article will not bring as much as butterine. What is he to do? Why of course he does just what any man of common sense would do, he makes his own butter, eats it when it is good, raises his stock and fattens his beef. He is a stock raiser and beef producer, he is however, no specialist, but these are the men that make up three-fourths of the wealth of the farm products of our state and these are worth looking after. These want encouragement and if anybody has any good advice to give, don't forget these. Cheap lands will afford better net returns from stock husbandry than dear lands. High price lands in order to compete with cheap lands must make the best and for first prices else there will be no greater profits than if located with the same number of acres where lands are cheap. When we make beef, like making butter, we must make the best; for herein lies most of the profits. It costs per pound no more to raise the animal that brings five cents in the market than it does that which will bring only two and one-half cents per pound. Every man that has kept farm accounts and knows what things cost, will confirm what I here say.

This is no visionary scheme, it is in the power of any farmer that raises one steer. If he raises a poor one, sell it as quick as possible for what it will bring; but whenever he gets hold of a good one he should feed him until he gets first price. The father must provide for and make the best



he can of his children. If of a bad breed, with vicious tendencies that are inherited, it can't be helped, he is responsible for their birth, and the law makes him responsible for their maintenance. Not so with our farm animals; we are not obliged to keep vicious, unruly, ill-looking, ill-bred animals unless we choose, and the man that can purchase or raise only a limited number, can do it and have them just as well cared for as if he has a large herd.

[Animals must be well bred, otherwise it is a random operation, as every man will testify that knows his business. Animals well fed will constantly increase in value. If poorly fed and badly cared for, there is a waste just in proportion of the want of food or care. A farmer that is too stingy to feed his stock well, should never aspire to be a stock raiser, dairyman or farmer.]

In this climate winter care has more to do with our success than farther south. Animals fairly sheltered consume from ten to forty per cent. less food, increase more in weight, and come out in the spring far healthier. When you see a cow or steer with rough, ugly horns, with the year wrinkles deep set, be assured that it has seen an undue amount of exposure, and it speaks but illy of its keeper.

Of the food eaten, all animals use up a large percentage in producing the natural heat of the body. Heat enough to keep up 98° all through the body is absolutely essential. Only what food remains after this heat is produced in the system, can go to increase growth and strength, and to the manufacture of milk or other produce. A herd of twenty cows will consume from three to ten tons more hay during the winter if exposed, than if properly sheltered.

There is some alarm manifested about the over production of cattle. With our population doubling every twenty-five years the problem for us to solve is not so much in the future, where we shall market our produce, as it will be how shall we feed those within our borders. In 1860 there was according to the census of that year 814 cattle to every 1,000 people in the United States, and these figures have never since been equalled. In 1870 there was 618 cattle to the 1,000 population. In 1880 about 640 to 1,000 of our population.

For the past five years the increase has been quite rapid. Estimating the cattle in the country at 44,000,000,000, and the population at 55,000,000, we have 800 cattle to the 1,000 of population. At any rate the ratio is less than twenty-five years ago, with the export trade and the increased ratio of home consumption of beef as sold in attendant conditions."

The prevailing depression and the new restrictions thrown around the business of ranching, will naturally curtail the rate of increase, if indeed it does not hold the ratio to population stationary, or change it in an opposite direction. At any rate I have no fears of an over production of cattle as there could not be an over production of legitimate dairy products.

As before intimated, causes are at work which will check the tendency of capital to rush into multiplying herds on the plains.

Population is increasing rapidly, and the state of industrial stagnation in Europe indicates that our accessions from the population of the old world will soon be greater than ever before.

The present dullness in cattle is due to other causes as well as to the increase of market supply.

The conditions named, together with the ever present probability of decimation by disease render it extremely improbable that we will for years to come at least have more cattle than can be profitably produced.

This is a beef-eating nation. There is hardly a family in our land so poor as to not have meat on the table at least once a day.

Plenty of good meats, bread and vegetables are the chief sources of a nation's physical and mental vitality. These, with proper physical exercise, as applied in business with proper education, will perpetuate a race of men that has no superior and a nation that no other on earth can conquer.

The farmer should do his share to maintain our proud position, otherwise all must suffer just in the proportion we are wanting.

It should be the aim of every farmer to obtain sufficient

returns from the soil to secure to himself ease and immunity from toil in declining years. Therefore the object of all these years of toil can be but subserved by not working for ease, but for profit, as the greatest profit will eventually secure the greatest ease.

This is patent to the intelligent farmer, and is regarded as a standard policy by which to direct the management of his farm. It should be the guide in every operation (to secure the greatest profit) whether it be raising fruits, grain, stock or maturing animals for market. Unless each operation in its inception promises at least some profit in a term of years, it should not be undertaken, but attention should be directed to something which gives promise of more fruitful return.

In this way no time will be spent to disadvantage and soon the profits from well directed toil and time will secure to a farmer his desideratum — profit, a competency, ease and comfort in his old age.

This is not always the fastest way to get rich, at least it has not been, but the chances for speculation lessen as the country grows older, and farming is a sure road to a competency. A competency brings relief, great wealth care, and also often engenders so much greed as to render its possession miserable and detested. He is not a bad man that gets suddenly very wealthy, but it is a bad law that gives him the opportunity. The longer I live the more I am confirmed in the belief that if one can be content, farming is one of the best ways to live to a ripe old age.

No man that has had to do in other walks of life or that has had to fill positions of public trust, but must feel when he retires to the circle of home and the dominion of farm a relief, a feeling of contentment and repose that is obtained nowhere else.

This explains why it is that many of the greatest men of earth speak so highly of farm life, and whenever they were able possessed rural homes, a sort of a retreat in their declining years from the strifes of life.

Webster when near his last at his home at Mansfield, desired the oxen driven before his door on the lawn, that he

might see their contented expressions and quiet cropping of the grass.

And Washington after the War of the Revolution after giving up his commission as general of the American army, returned to his rural home at Mt. Vernon, and in writing to his friend the brave and generous La Fayette, says, "At length I am become a private citizen, and under the shadow of my own vine and fig tree, free from the bustle of camp and the busy scenes of a public life, I am solacing myself with those tranquil enjoyments of which the soldier who is ever in pursuit of fame; the statesman, whose watchful days, and sleepless nights are spent in devising schemes to promote the welfare of his own, perhaps the ruin of other countries, as if the globe was insufficient for us all; and the courtier, who is always watching the countenance of his prince, in hopes of catching a gracious smile, can have little conception. Envious of none, I am determined to be pleased with all. And this my dear friend being the order of my march, I will move gently down the stream of life until I sleep with my fathers."

There is great satisfaction in farming if everything that is done, is done in season and well. There is not so much a lack of knowledge as a lack of doing. "Therefore (as said St. Paul) we should give the more earnest heed to those things we have heard."

We should attend conventions (the farmers' revivals) and express our convictions fully. The common-sense will sift the wheat, from the chaff, without difficulty.

Much unkind criticism has been made through the press of the farmers' institutes held this winter, and they, mostly purporting to come from farmers. I notice, however, that the writers usually manifest that they are of the class that presume to have learned all that is worth knowing; therefore it could not be expected that they could be profitably entertained by a class of men that make no such pretensions.

These conventions, this agitation and these criticisms, are all in the right direction, and will work good for the farmer.

A class made up of what there is left after having its

ranks depleted, as it constantly is, to energise all other professions and occupations, does well if it advances equally in the march of civilization.

The necessity of this is imperative, and people of all professions recognize it, as is made manifest by the liberality of legislators from other callings in voting for liberal appropriations for any reasonable enterprise for our benefit whenever we mutually ask it.

As a class we are numerically and financially in the majority in this state, and in politics as pure as any other. With these essentials to recognition and representation, if abuses are not speedily corrected or the state goes far astray the blame will lay at our own doors. As every farmer is a citizen, so every farmer should have an intelligent opinion on subjects of public policy, and thus shall we maintain our proper influence in shaping legislation. Unless this is the case we may not expect our proper influence, for this is only permanently held by those that win it by their manifestations of enterprise, integrity and intelligence.

The farmer in the country now holds his place in every governing board through all gradations of office.

The state government is distinct from that of the general government, so county, town and school districts in nearly the same manner have separate governments, and in these last subdivisions he is almost supreme.

The state legislature, the county board, the town electors and town board, and the school district electors and the school boards, mainly make the appropriations and rule the prosperity of the people.

Places of national trust have more of honor in appearance, but their influence, except in extraordinary emergencies, is far less on the business and social conditions of the people.

We have no direct government tax, likewise at present no state tax, except for public improvements or school purposes, other than what the state tax on railroads, insurance and telegraph companies under present laws pay. So that nearly the whole of our tax levies are instituted by these

county, town and school district organizations, where, as a rule the farmers are in the majority.

The ruling classes of antiquity wronged themselves by degrading labor.

Greece should have been more enlightened, but the ruling classes were bent on wars and politics.

Rome in her palmyest days, was a community of cultivators. About six acres of land was allotted to each which he was expected to till.

However, wars of conquest soon filled the land with slaves captured in battle and these tilled the land and performed the household duties, so labor soon lost caste, and in time Italy, once the garden of Europe, for ages drew her bread from other provinces and feudalism planted itself on the corroded fabric of Roman power.

Guano was not introduced in England until 1841 and up to within a few years, the refuse bones of America were utilized by the British manufacturer and used by the English farmer whereby they were enabled to raise enormous crops on lands that have been under cultivation for centuries. The high price of lands in England, France and Germany has been a constant stimulant to high cultivation whereas, the cheap lands and fertile plains of America have been a constant encouragement to slack husbandry.

In ancient Greece agriculture scarcely attracted the notice of the intellectual, powerful and cultivated minority that ruled the people.

Rome was more fortunate in this regard and her writings on agriculture may still be perused with profit.

So long as Europe bent to the yoke of feudalism, agricultural improvement was scarcely possible. The invention of printing, the discovery of America and mental freedom inaugurated by Martin Luther rung the funeral knell of feudalism.

American agriculture has generally been willing to follow rather than point the way and therefore the substantial triumphs of American agriculture have mainly been the trophies of mechanical genius.

The inventions of Whitney, Morse, Howe, McCormic,

Manning and a host of others in farm machinery especially, have each done more to diffuse comfort and plenty throughout the civilized world than any single achievement of the American farmer. Therefore it becomes us to be modest and not make too much pretension for advancement.

How different in America from the old world. Hear the testimony of those that came from foreign lands, or read the history of rural labor in other countries, and then will we know how well we have maintained ourselves. We are exalted to the dominion of soil, social rank and political power equal to any other class. The scepter of power, if we choose to use it, is in our own hands. With prudence, intelligence and equal regard for the rights of all, no other can suffer. In those states where there are large cities, where the scum of society congregate, the popular sentiment of the moral and intelligent populace may sometimes be thwarted, but in Wisconsin, with large rural districts, small towns and its great diversity of interests, there is little chance for extended plottings or political combinations that will be disastrous.

The Grange has been sneered and laughed at in the past, but its master minds have led it along that wisely that it has outlived its defamers and is to-day recognized as one of the great disseminators of information among the people. "*Granger*," once used for slang and a by-word, has become a new word in the English vocabulary, and is recognized as a title of respect as indicative of the man's profession.

The sentiment that inaugurated the Grange gave us the decision of the highest tribunals in the land, settling the principle that the same power that makes a law or grants a corporate right, can amend or repeal the same. Otherwise, by unwise legislation, the people might be ruled instead of ruling. This principle is the groundwork of our liberties. The interests of our state are so varied that we cannot be too broad in our views. Encouragement should be given to all legitimate interests, oppression to none. Agriculture has more to do with the general prosperity of the state than any other branch of industry; all others are dependent on this, but we have large mining, lumber, manufacturing and

railroad interests that are worthy of our consideration, fostering care and fair treatment. The mines, the lumber interests and the manufacturers of our state are each great sources of wealth, great conveniences, and afford the best market in the world for much of our products, to-wit: a home market, while the railroads are as necessary to all these and this civilization as these and this civilization are to the railroads.

The rich virgin soils of the west, to be had of the government almost for the asking, have ever been an inducement to the oppressed of the old world, and the consequent rapid increase of our population and development of our resources, stimulating invention and manufacture, and thus producing a home market for our products, have been the principle sources of our material prosperity; balancing and counterbalancing each other, benefiting each alike.

The system of a government by the people, of the people and for the people, of each sovereign state, subject only to the general government as defined by our constitution, with free trade between those intended in the compact, and such trade with other people as to us is most profitable, to my mind is the ultimatum of political economy. And I believe the student will get far better and more practical ideas by studying *our* past history, *our* form of government and our *trade* policy, than he will by consulting text-books written on the abstract proposition by possible well meaning philanthropists from an English standpoint.

We can buy for a dollar of our money to day in America almost any thing manufactured more than ever before and all the ultimate result of the continuation of the American policy.

What do we have a national or other legislation for if not to legislate in the interests of this people. Why exist as a nation at all, unless for our special interests.

Free trade between the states must maintain. Whatever of profit or loss this may entail on each is conceded for the good of the whole government, directly for this and no other people.

The object of government is for the protection of person and property. It is for the mutual benefit of all and the



interests of all are served, are *best* served by caring for the interests of each and every department of business. This sentiment guides the wise legislator whether it be in national, state, county, or town affairs. Farmers should see to it that they have their share of national protection and state legislation, likewise they should accord the same to every other legitimate industry; then shall we all prosper, each benefiting the other, ultimately for the welfare of the whole.

Last winter in my address before this convention, I suggested a change in the laws so that each county agricultural society should have a representative in the election of our board, thus making our board a "State Board of Agriculture," elected by the delegates from the county societies. This suggestion met with a hearty response by the law-makers and became a law, at the same time giving us a permanent annual appropriation. Under this law the present board was elected.

I now believe that the next legislature should make a suitable appropriation for the erection of proper exposition buildings, suitable to the importance of a state fair, with such restrictions as shall be deemed advisable for the perpetuity of its usefulness, thus following the lead of sister states which in agriculture are of no more importance than our own commonwealth.

Last fall we had the best exhibits we ever had in most of the departments, a popular program and every promise of financial success, but the rains came every day of the fair but one and left us with a depleted treasury; notwithstanding which we borrowed money and paid every dollar we owed for labor, for delegates from county societies, and for premiums awarded. Had the weather been more propitious and the railroads had been able to accomodnte the people, we should now be out of debt and money to spare.

The state fairs of Wisconsin, Minnesota and Iowa, were held on the same week last year, therefore the roads could not furnish coaches to run many extra trains even if required. This year this will be obviated, as at a convention of the representatives of the various state boards of agri-

culture of the northwestern states, held in Chicago, a circuit of fairs were formed and agreed upon wherein we have a place with no other fair nearer us that week than that of Kansas. I here desire to express our appreciation of the liberal treatment received by our Society and its exhibitors, wherein the various railroads of our state leading to this point, mutually agreed to transport over their lines, free of charge, every article for exhibition, thus materially assisting us in making a creditable exhibit and saving much money to the exhibitor. Fairs are educators. But few attend a fair that do not go away with some new ideas that they desire to utilize in their homes or in their business. Premiums are offered for the best. This excites emulation among individuals, and I see no reason why this may not obtain as between different counties if they will compete against each other for best exhibits in any one of the departments.

In presenting a paper or making an address (unless confined to a particular theme) before a convention like this, wherein the earnest people of our state are gathered for council, there are a multitude of thoughts that crowd themselves forward for expression.

"Brevity, however, is the soul of wit;" so at this convention we hope to have thoughts clothed in as few words as possible, that time may be saved. I will therefore thank you for your kind attention and trespass no farther on your patience. This convention is ready for business.

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## AGRICULTURAL INSTITUTES.

By HIRAM SMITH.

In considering the topic you have assigned me, it is of importance that we all understand alike the meaning of the phraseology, "Agricultural Institutes," the definition of which is described as, "to begin, to commence, to set in operation, or to institute an inquiring," etc.

Therefore Agricultural Institutes are to set in operation inquiries as to the present condition of agriculture in this

state. The term Agricultural Institute as the title of the law, not only answers as a name, in contradiction to other institutions, but there is a philosophy, a logic and a deep significance in the term employed, institute inquiries. It frequently occurs that the appointment of a commission to examine and report on the abuses that have crept into enterprises, such as railroad management, or the management of insurance companies frequently, is all the remedy required to correct the abuses. May we not reasonably hope that an expose of the mismanagement of a large class of hard working farmers, engaged in the various branches of agriculture in the state will effect an improvement. It is well known to many prosperous farmers, that mismanagement, wrong opinions, needless labor, and unprofitable crops, wrongly disposed of productions, and the waste of ignorantly mixed feed, is the chief cause of inforced economy, of unpaid labor, and the universal cry of "hard times."

We cannot hide the fact that a large class of farmers in this state, for the want of the knowledge and practice of the best methods of farming, are receiving no benefit from their invested capital in land and stock for their entire annual gross receipts are less than the ordinary wages of farm hands. They farm as they did twenty years ago, when war prices prevailed, and almost any kind of farming paid some profit, but is not at all suited to the era of low prices prevailing, and bids fair to continue for an indefinite period. Thousands of farmers still continue to throw their manure out of the stable windows, there to remain until the following fall, or longer, the phosphates are washed out by the rains, and the ammonia is burnt up by the fermentations of the pile in summer, and when this almost worthless stuff is spread upon the land, its effect is so dim, that the farmer is often heard to say that his farm is so rich that barn-yard manure is of no use, thus conforming his ignorance of the value of fertilizers, and the neglect of all efforts to save, create, and enrich them. Any farmer not alive to the necessity of constantly enriching his soil, is incapable to properly manage a farm, and should be under the superintendence of some one more intelligent than himself, for

the saving and application of fertilizers is the great substratum on which the success of all branches of agriculture depend. Agriculturally speaking, there is no forgiveness for sin.]

2 [This class of farmers evidently make a very large proportion of the 36,240,000 pounds of butter annually made in Wisconsin, which sells for an average of 16 cents per pound; the creamery grades selling from 18 to 35 cents per pound, and the dairy butter from 10 to 12 cents, and packing stock for 4 to 5 cents. The immense loss on dairy butter alone, annually, in Wisconsin, is over \$3,000,000, and almost exclusively due to a want of the knowledge, how to set milk, separate the cream, and churn the butter. The best methods of which, can be learned in ten days by any one of common intelligence, with a saving of more than one half of the labor over the old methods of making butter.] The immense amount of useless labor expended by the class of farmers referred to, in the cultivation and disposition of crops and in the manufacture of butter, enforces a severe economy, a constant drudgery for man and wife, and a commendable disgust of the children, for farm life; and they make up the statistics that show that but one farmer in fifteen in Wisconsin is a regular subscriber of an agricultural paper.

This condition of things that I have so mildly set forth, furnishes the evidence of the manifest need of the inauguration of Agricultural Institutes.

3 [The object to be kept in mind in holding institute meeting, is clearly set forth in the law, which is to present to those in attendance, the results of the most recent investigations in theoretical and practical agriculture, and will consist mainly in the statements of results obtained, by able and successful men, who have spent the best years of their lives in the particular branch of agriculture they are chosen to represent. It will be an endeavor to correct wrong opinions proved to be such, bring knowledge to the ignorant, save the waste of unproductive labor, save the waste of improperly mixing the food, for the growth of animal or the production of milk; feeding too little of the Nitrogenous, or

an excess of the Carbonaceous, always entails loss of feed, and frequently loss of health of the animal.

The leading thought in holding institute meetings is to instill into the minds of that class of farmers, who have failed from indifference, neglect or other causes to discover benefits that might accrue to them, and do accrue to others by improved methods of farming, and in consequence of this neglect, do not secure remuneration for the use of capital and labor expended, and pinching poverty is the certain result. There is no good reason why a Wisconsin farmer, on a reasonably sized farm, of passibly good land, may not provide all the necessaries and many of the comforts of life. He should not neglect or be unable to provide suitable clothing for himself, his wife and children, so that they might attend such a convention as this, and gather up information that would have a money value in their future business, the many labor saving implements now easily obtained, that lessen the drudgery of farm life, puts it in the power of a farmer, if he has a desire and improves his opportunities, to be as well informed about his own business as that of any other profession. If the practice of severe economy, pinching poverty, uncouth clothing, and uncouth speech was a necessity of farm life, all effort to change it would be abortive, but it being an incident and not a necessity. Agricultural institutes are timely and proper. The pertinent question may be asked, what is meant by improved methods of farming? Without tiring you with numerous applications, I will give an illustration relating to my own business. If a dairy farmer was pasturing fifty cows on forty acres of woods pasture, and an additional pasture of sixty acres of tillable land, as is the old method of dairy farming. Improved farming consists in plowing up twenty acres of his pasture, and sowing winter rye, clover, millett, and planting fodder corn all for soiling purposes, then add twelve more cows and hire one more man. This would cost:

For man and board.....	\$300 00
For interest on twelve cows.....	30 00
	<hr/>
	\$330 00

The income from 12 cows properly managed would be \$60 per cow or \$720, or a net gain of \$390.

Another improved method would be to plow up twenty acres more of the pasture and drill in fodder corn for the silo, or dried for winter feed, and silo the second crop clover, and add 12 cows more, with an additional gain of \$390, and a total gain by improved methods of farming of \$780, a sum sufficient to send a son and daughter to a good school at least one term in the year and leave ample means for the man and wife to take a little recreation and supply themselves with books and papers with which to fertilize the brain while the cows fertilize the land, both indispensibly necessary to any permanent progress.

Such improvements once begun lead on to prosperity and happiness. The acquisition of knowledge, like the acquisition of wealth, constantly calls for more. A prosperous farming community means prosperity to every other industry, commercial and manufacturing, increased railroad accommodations, improved schools and increased attendance, and all that goes to make up a happy and contented people: and to this end agricultural institutes have been inaugurated. The meetings thus far held give unmistakable evidence of their usefulness, far beyond our most sanguine expectations, challenging our gratitude to the author of the bill, Hon. C. E. Estabrook, of Manitowoc, and the efficient superintendent, W. H. Morrison, for the able manner in which they have been conducted. No measure in the history of Wisconsin has received such unqualified praise and good will from the thinking men, the press and business men of Wisconsin, as to its practicability, usefulness and need. It is a measure full of hope and promise, of great agricultural benefits to this and succeeding generations.

## A SEPARATE AGRICULTURAL COLLEGE.

W. D. PARKER, River Falls, Wis.

At present it is sufficient to remark that states and nations in America and Europe, having accepted farming as it is, have established agricultural colleges with the distinct recognition of the isolation of farmers and their corresponding helplessness, and those people have wisely left to the local governments the adaptations that will eventuate in most good to the greatest number of student-farmers.

We have met to discuss some means of making this governmental establishment, this desire of deserving men, a verity in our midst, and while it is the effort of this paper to offer reasons for an agricultural college separate from all other institutions, whose management shall be permanently biased by the farmer's occupation and profession, it is not designed to antagonize the university nor its department of mechanical engineering, and it has to do with individuals only incidentally.

There are fundamental notions that govern people in the organization of successful educational institutions, and among them are the laws relating to the force of repetition and the novel. These two great laws are modified in degree at successive stages of the life of the learner, and they may be recited with inclusion of the time element, thus, — children require the maximum of the novel, but youth and adult admit of its diminution: — repetition in childhood is at the minimum, but must be steadily increased for the education of the youth and adult.

The intellectual life, or the life of letters, and the moral life, exhibit another modification of these great laws, found in the fact that the life of letters, which is a devotion to symbols for intellectual guidance, has to do with consciousness — that great power of the mind which strives to examine the mind itself — a mastery in adult life that implies previous persistent application of the law of repetition, whereas the moral life is so much dependent upon mere

imitation of conventionalities in social life and upon the challenge of material things and of persons in the simple matter of living, that the laws of repetition and novelty are obscured by applications peculiar to lives of letters and of morals — but the laws are only obscured, not suspended.

The character of American political institutions is democratic, wherein the average decision of all, takes the place of the control that might be exercised by the wisest — on the contrary, the tendency of all industrial institutions is toward the division of labor — that great economic function of civilization, which is, in turn, a significant recognition of the potency of the law of repetition — for no excellence is attainable except by repetition, and excellence in specific functions implies division of labor, so the great law of repetition leads to the division of labor. Division thus, for purposes of excellence, is, therefore, founded upon one of the most profound principles that the race has discovered, and hence, the principle must be recognized whenever the best, the cheapest, and, in the long run, the easiest, and therefore, the most general, are to be secured. The agricultural college, therefore, must be specialized, must itself be an integer, and it must be the unchallenged integer for correct, expeditious training of farmers. This logical sequence is in every way the practical one, as is shown by the success which is nearly uniform for independent American agricultural colleges, and stands in bright contrast to the languor of colleges that try to find nourishment as departments of universities.

A school is that place where there is a body of doctrine held and expounded for the high purposes of human souls; it finds all its efforts fruitful with those souls, to the extent that, for the time, by direction or implication, it engrosses attention with worthy aims. What the studies of an agricultural college shall be, is sufficiently suggested by the arts which the student-farmer is to practice and his intellectual capacity requires. It is confessedly true that the isolation of farmers constitutes a serious obstacle to the consolidation of a body of truth that may be called science, or may be treated as that science which denotes the maxi-



num of removal from helplessness,—neither can some other assumed professions claim clear titles, for it must be remembered that the degree of unity of men constitutes the gauge of their force, as it is readily seen that all other men have contributed to the modern gentleman to affect his culture, his dress and address, his implements, his art and literature,—thus raising him from the abject and otherwise persistent helplessness of infancy, to mastery of all things. But the arts in agriculture are governed by the convictions arising or deduced from experiments. The generalization that results from a sufficient number of experiments to lead to conclusions which in turn will predicate the future, is certainly in abundant use by farmers, and that there is a great body of such truth available for forecast which guides men to certain agricultural results, is not challenged by the fact that a minority or a large majority of farmers neglect or violate it.

Farming is natural science at every point, and that other scientists, or that ignorant farmers deny the scientific aspect of successful farming,—farming wherein the end reached is the one sought, does not change the scientific character of such farming. That a school can be so organized as to impart the information relating to plants and animals, by direction and by the pertinence of object lessons, making its students enthusiastic investigators in farmer-lines, is certainly exemplified by the Ontario college, a separate institution.

The college must have, not only the purpose of training men and women for the farm, but it must persistently and zealously keep that purpose before the students, it must allow no other purpose to have such a hearing in its halls as shall proselyte its students or teachers either, and it must create certain habits of patient, intelligent study and of appropriate manual activity; it must invite men with the avowed purpose, faithfully kept, of making them farmers in habit of mind and body. The college must make the men farmers in kind or character, but not endeavor to do so in extent of full farmer knowledge. The course of study therefore, must be such as to spur by nobility of themes, and the

college faculty must diminish obstacles by enthusiasm and by encouraging the feeling of self responsibility, that shall, in turn, lead up to self sustained effort.

President Atherton, of Pennsylvania College says, "So far as the almost uniform experience of this country goes, the marked demand for highly educated scientific men is not so great in agriculture as in many other employments." He says, "marked demand," and means that alone. He says, "there is no field of labor in which education and knowledge can be more usefully and productively applied than in agriculture; and if young men starting in life had sufficient capital they would often prefer the life of the farm to any other occupation."

It must be remembered that in the language of the metaphysicians, "The mind presents three well-marked and fundamental departments, to-wit.: the intellect, the emotions and the will. The development of it on any one of these three sides is to a certain extent a separate work, calling for its own particular mode of exercise, and one may add, its own peculiar fitness in the teacher." Now translate the terms "emotions and will" by the equivalents, "aesthetics and choice," and see the farmer student under the supreme motive of choice of a farm for a life occupation, and his present purpose to organize the forces within himself for those activities, and no question of the necessity of a separate college can be successfully raised, if the student is to be moved with greatest celerity and certainty to chosen results. However much we theorize about obtaining liberal culture first and special preparation later, for any profession or art, it is unquestionable that the man that will seek special training in institutions, will be found to possess purposes for other study diminished, if not wholly wanting; hence the agricultural college should be persistent in its effort to do for its students special work in habits of observation, inquiry, and manual industry—it must work a course of study that will draw the men, commencing abreast of common schools and ending at such accomplishment as will insure some facts, and many references in literature to more facts, nearly all of which must be relevant to farm life or to better liv-

ing of farmers—and the course must insure permanent habits of study of things and the literature thereof, of history, and of government. Dr. Bascom says: “The first purpose of instruction, whether it be the instruction of schools or of the world, is to evoke an appetite for truth, and nourish it in one or more ways.”

Senator Morrill said in his speech on the land grant: “They must be institutions accessible to all, but especially to the sons of toil;” and, “To this end,” adds Commissioner Eaton, “they should be so consolidated with the common schools of the rural districts that the pupils who have finished the course in these may be ready for admission to the colleges, where they shall receive training suited to their probable career in life.”

The great caution in all educational expectation is, that men are so small that they can know a few things only, intimately,—and many things superficially, yet they succeed to the extent that the few things have direct bearings upon the life business, whatever that may be.

Few of us know much of the art of telegraphy, of mechanical steam enginery, of treating foods and manufacturing clothing; yet, under our great law of repetition translated into that of division of labor, each of us transforms the labor of which he knows much, whatever his occupation or profession, into the practical utilities of the arts just recited, and upon which he pleads ignorance, and the community grows strong, rich and happy under this anomalous condition of intelligent ignorance. Thus the agricultural college can emphasize some topics that have relevance to farming and that, by selection, find lodgement in the minds of its students, and can thus do a possible work with the assurance that its graduates, whatever they choose finally as an occupation, will persist in the lines in which college efforts create habits,—as Sully says: “We take education as aiming at the shaping of faculty, rather than at the giving of information or the communication of knowledge.”

It is not intended to lay out a course of study nor to refine the limits of a course, but it is the purpose to say that the wise friend of the agricultural college must remember that

the informal instruction of farmers takes much time, that formal instruction as limited herein takes less time, else the institution which gives in has no right to exist; that in order to take less time than the farmer takes without the instruction of an institution, the college must, among other excellent features, limit the things that shall occupy the attention of youth, in order to afford time for attaining better habits of study, and, in the long run to bring more facts into permanent relevancy.

Observance of this caution would lead to the establishment of an agricultural college of wide purpose, in which, as an institution, all organic and inorganic farm relevancy would be treated, but in which, the individual boy-student, would be introduced to the course of training already hinted, to wit: A limited line in which he would be taught much. The incomparable advantage gained by such an organization is readily found in the spirit of the whole institution that trends in one way, instead of leading some other way as a primary thought, with the grudging permission given for some boy to extract a little agricultural knowledge, if he can.

In all this consideration, the probable student of the agricultural college must be held in the foreground. He is essentially the creature of circumstances, and he attends college or another school, chiefly, when impelled by public sentiment local in the family or general in the community, through which alliance he is gradually led to believe in the efficacy of school as you and I do, as tributary to a purpose of life. The remote influences of school are not in his mind — nor are they in the minds of many farmer parents — on the contrary, the learner and parent too, frequently think that school should undertake solely to crowd the learner's mind with facts, and if any sequence is recognized, it is that the accumulated facts are for the sole purpose of making material bread and clothing more abundant for the learner, just as our friend spent his life upon three transmutations, to wit: he envied a forty acre lot that lay adjacent to his own; he wanted that lot to be able to raise more corn; he wanted more corn so as to raise more hogs, and he wanted

more hogs to exchange for more land. All this effort to found an institution can well afford to be made not for hogs and forty acre lots, but to insure a wider range than three transmutations of force and matter, for the great purpose of human intelligence. All agricultural colleges must have men, men of intelligence and great purposes, for Emerson says:

“There is always room for a man of force,  
And he makes room for many.”

In spite of the shortsighted boys and their friends, however, the college is the place for gathering some facts on a few subjects, but immeasurably beyond that function is its power to create habits, to evoke spirit, and to cultivate such acquaintance with men, books and institutions, that the self-sustained aims of life will do all other beneficent things.

The careers of colleges established under the land grant of 1862 are very checkered; all kinds of alliances have been formed and dissolved; the House of Representatives has felt called upon to decide anew the main question of fruitfulness of the gift, but whatever the vicissitudes experienced by other states in handling the trust, Wisconsin has kept right on for twenty years with the college in name and few students as a fact, advertising its endowment, while its annual announcement has shown almost a total want of students.— that other endowment for which it is believed all schools are solely created. The situation in Wisconsin is not simply the misfortune of farmers who, indeed constitute nearly fifty per cent. of all the persons occupied in all gainful pursuits, and whose sons are not deriving advantage from the college,— the condition is serious enough to engage the attention of all persons whose children are eligible to the college, and of the entire people who have accepted a trust so sacred as that of organizing educational means. Let these interested parties compel answers to the following questions: Why do Wisconsin men shun the agricultural college when nearly two hundred men and women in Michigan seek college instruction and more than two hundred are enrolled in Dakota?

Why do two hundred and fifty students in Iowa and four

hundred in Kansas take this short cut to better farm life, while Wisconsin men seem to be satisfied with the mere assurance that its college affords superior advantages, owing to contiguity to the State University? Does something inhere in the grant to Wisconsin that makes it a suitable instrument for doing all things in a series designed, except the essential one of securing the students? Is the legislature of Wisconsin under contract so binding that it cannot, like that of Kentucky, rend assunder the college and university, and inaugurate the college upon an independent footing? The failure of the wheat, hops, and other crops, led to the abandonment, not only of machinery and appurtenances suitable for the outgoing industry, but to that other infinitely more painful process of transformation of personal habit, the abolition of effete notions, in order to give place to vigorous thought of living things.

Is the problem for Wisconsin any more serious in the abandonment of her apparatus and her lethargy, and the substitution of pertinent personal habits for the agricultural college, the man crop?

Let the question of greatest good, of means actually tried and those possible, be historically reviewed in the entire sisterhood of states, and published to the people of Wisconsin and cavil will, unquestionably find rest in appropriate legislation; but to remain quiet, exposes us to a charge of bad faith in handling a trust, to the incalculable disadvantage of farming interests, relatively speaking, to say nothing of the indirect interests that the whole people have in widening the circle of well-informed farmers.

Kentucky and Mississippi organized their agricultural and mechanical colleges under the endowment by the land grant, as departments of their state universities; but owing to the conclusive answers given to questions like the preceding, the Kentucky legislature found sufficient reasons in 1879, for detaching the agricultural college and placing it "under the supervision of the agricultural commission of Kentucky," and the next year two hundred and fifty students were reported in attendance, and in 1883, three hundred and twenty students accepted the privileges of the

fourteen courses offered by the Agricultural and Mechanical College of Kentucky, so recently divorced from the State University. The history of these colleges, in all the states, is filled with obstacles that were studied, met, and overcome by courageous men who kept in mind the fundamental thought that, to justify the school at all, it must be so environed and managed as to draw men, men, not endowments and promises only; and, without attempting to determine the exact number of men, it is not difficult to see that in Wisconsin's quota, is misdirected effort.

What would any true economist do as a preliminary to remedying the difficulties? He would look into the management, he would try to see through the few men who have sought the college halls, what influences debarred them, not only from the course of the agricultural college, but monopolized their attention with other thought, that necessarily alienated them from a life of agriculture. The inquirer would find that the young candidates for the agricultural college have been wrought upon by the most subtle influences that ever place the will in antagonism to its former self— influences that inhere in the attempt to bind together two enterprises when the success of each implies the best effort that the present university faculty or any other body of men is capable of making.

The student finds in the present unfortunate yoking of diverse and antagonistic interests, no sympathetic lodgment of the distinctive habits which his chosen course necessarily creates, in the minds of men and women who are engrossed with literature. If there were no other obstacle to success than this of starvation, it would arrest the attention of the friends of agriculture, and be removed. But there is yet another hindrance that, alone, is sufficient to defeat the present agricultural college, found in that permanent prejudice with which the conservatism of indolence and ignorance block the inauguration of new enterprises, and it is most deadly when the parent-farmer puts his son and himself forward as living examples of what can be done in farming without the help of institutions.

And lastly, it is manifest that many intelligent sons

might find in a strong agricultural college, that force which, added to mothers' intuitions, would carry them to the school, which in turn would be able to command continued attention to its chosen work.

The immediate aim of this paper is to fix attention on the relative failure of Wisconsin's Agricultural College — on the successful plans of remedy for similar conditions employed by other states, through separate institutions, and on the ability Wisconsin has in the conviction of her citizens, to rejuvenate agricultural pursuits by right action now.

Gentlemen — when we remember that the educational means of to-day will, through the zealous lives of students, be wrought as controlling forces into the industries and the institutions of fifteen years hence — a time easily within the observation, if not within the activities of most men here present — when we realize that what the people enact to-day is, if wisely planned, to bias for all time, and when we hope for that approval that is commensurate with our intelligence, may we deliberately study the agricultural college history, may we frame with wisdom the modifications, but let us execute with celerity the scheme which is to add to our personal forces many young men and women too, in the long run, who touched in season by right school influences, shall themselves in turn, vivify communities and ultimately promote the intellectual, moral and material prosperity in our noble state.

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Mr. Kellogg moved a vote of thanks to Hon. Hiram Smith and Prof. Parker for the papers offered by them. Motion carried.

Hon. I. C. Sloan — I desire to say a word in regard to the paper read by Mr. Smith. I am heartily in favor of agricultural education. I believe all the good that can be expected from agricultural teaching which is to benefit generally the farming interest is to be derived from that source. I think the institutes that have been held in the state have done great good throughout the state and I believe they are destined in the future to extend a general



knowledge of the best methods of farming until it will gradually permeate through all the farming districts of the state of Wisconsin. And I trust there will be the most liberal support given, but the question which I rose to ask and the remark which I desire to make is, are the farmers of the state deriving as much benefit from the efforts that have been made and are to be made in the future as they might be. It seems to me that an accurate stenographic report should be taken of all these institutes and all the discussions and that the remarks which are made should be edited by some gentleman of discrimination so that all the facts that are valuable may be sifted out and published and put within the reach of all the farmers of this state who desire to gain that kind of knowledge, and that idea was impressed very strongly upon my mind by an incident which the gentleman, who read that paper, has furnished in regard to his farming operations. I was not aware of the improved methods which he had adopted in farming although I have seen him at many agricultural conventions, and of the success pecuniarily which has attended the intelligent methods which he has adopted upon his own farm and which I think are of themselves, at least the beginning of an agricultural education to a man whose reasons and studies, until I learned they went from Ohio by the way of Albany and came back to Wisconsin; that is to say, one intelligent gentleman who attended these farmers' institutes and himself contributed largely to the valuable knowledge which was disseminated at them wrote an account of Friend Smith's method of farming to the Country Gentleman at Albany, and those who fortunately take that valuable paper were enabled to understand some of the methods and processes by which he had made farming a success and was making money on a dairy farm of ordinary dimensions in Wisconsin, while those large ones which his paper so justly described were perhaps not making enough to clothe or feed their family comfortably or actually losing money. Now, that very instance impressed my mind with this idea; that if we could preserve the valuable experiences of the more advanced farmers of Wisconsin which are related at

these institutes and have them published and widely disseminated, we would have reached about the limit of agricultural education which can be beneficially adopted in the state of Wisconsin; and I think there would be no hesitation on the part of our legislature in appropriating any reasonable amount of money to accomplish that end.

Mr. Sayres — I endorse what has been said by our friend Sloan, that we should have a wider dissemination of the proceedings of these farmers' institutes. I have attended some of those institutes and one thing has pleased me more than any other. We come up here and we see a great many gray heads, but the young men and young women, where are they? These farmers' institutes meet that want. I attended one in Rock county where I think one-half of the entire audience, and the audience was very large, were young men and young women, the very parties that the institute ought to reach, and the very parties who will receive the greatest amount of benefit from those institutes, and that is not merely in that one instance, but that was a marked feature in my experience. It is this class of people that I think the farmers' institutes are reaching while we do not reach them at all. The young people gather in our towns and larger villages at these institutes when they will not come here.

Mr. Wilcox — I want to ask a question of this gentleman or any other who has attended these institutes. It has been my pleasure to read their proceedings as published in the agricultural papers, but there is one thought here — do those institutes continue after the conductors leave? Does their influence continue among the farmers of the community, is there any organization left to commence where the conductors leave off, and keep alive the spirit that is awakened in that community. If they are held at grange halls as they sometimes may be, it occurs to me that the Grange may take it up, but better of course, would be some public organization like the Farmers' Club, or call it by any other name, a company of farmers to be prepared to continue those discussions. I think these institutes should have that in view, not only to incite an interest, but to prepare a way for that

to be continued in that particular spot, and so continue doing where ever they go. I can see clearly how it might be very advantagous, and I would be curious to enquire how that has been where these institutes have been held. Is the subject dropped and forgotten, or is it continued?

Mr. Hinton — Does the gentleman want to know whether these institutes have a protracted influence.

Mr. Wilcox — Yes, I want to know whether the spirit of the institute has been carried along.

Mr. Hinton — I can describe one influence that we have all noticed, at least I have. They say, there is more joy in Heaven over one sinner that repented than all the rest. I have had the pleasure of listening to-night to a gentleman who, not very long ago, in this hall was denouncing everything like protection to farmers and has been in his usual manner marked by that great ability that always characterizes him, and bringing to bear upon the subject all the great advantages of legal lore and trained debating minds. I was very glad indeed to-night to see my friend Sloan get up. I have longed to see him for some time and found at last he had got onto the sound protection platform and was advocating protection against Summatra tobacco. Whether my friend learned it from the institute or not I don't know, but I welcome him back to the old fold. I don't know that I can answer the question of the last gentleman as I have not been to one of the institutes, but I have heard farmers whom I have met, speak of them, and I have yet to find one, and I confess that no man could have been more prejudiced against them when they were first started. I denounced them as a humbug.

Mr. Sloan — Didn't you know that the taxation of tobacco was prepaid doctrine?

Mr. Hinton — No, sir.

Mr. Sloan — Now the principle of free trade is more firmly established in England than any other country, and they tax tobacco at a very high rate (applause).

Mr. Hinton — I have got a British tariff down below, and I want to tell you that the raw leaf, the common tobacco, pays a mere nominal tax, but the tax upon manufactured

tobacco in England runs up to two thousand per cent. The gentleman is mistaken. What I was going to say was, I at first denounced those institutes as a humbug, and I believe that what I said was true. I have conversed with at least fifty farmers from different parts of the state and they have all said substantially that they felt more at home with them; they came into their neighborhoods and brought out the young people. Four or five men I could mention said they gained more information about agriculture in them than in all the agriculture meetings they had ever been to.

Mr. Pilgrim—I have attended ten of the institutes that have been held in the state. Of those ten there were two where a home institute was organized before we dispersed. Three others have called a meeting at a future time for the purpose of organizing a home institute. Two others have been held in neighborhoods where there were granges already existing, and one other was held in Walworth county, where they have a very efficient and interesting farmer's club which has been running for years. So far this city has been left, as we have here these very interesting meetings in the winter that, as Mr. Sayre says, these men that are interested in the better methods of farming attend usually. We have met here for fifteen years in horticultural meetings and agricultural meetings. But, as he says, very few of the young men that are to be the farmers of the state, attend. We have our state fairs and county fairs, and we have these experiments going on at the experiment station here that are carried on at the expense of the tax payers of the state, and which I was going to say not one in a hundred, and I guess that is not too high, of the farmers of the state or their sons know anything about.

Now, there has been nothing done this winter at the institutes that I have attended that has attracted so much attention and especially the attention of the young people of the state, as the food analyses that have been made by Prof. Armsby, of the State University. A great many young men, although they have read of them, have not realized what these things are, and a great many old men have examined those things, and were surprised to find why their

hogs when they fattened them wholly on corn and took them out of the pen, and took them to market, could not stand up; they had not sufficient food of the kind to form bones that would not crack with their weight. A great many had an idea that the new process bran was worthless. They found, on comparing it with the old, in a great many instances it is better than the old process; just so with the oil meal, and also with the butter producing food, and clover hay. These institutes are interesting the young; they are taking these experiments right into their neighborhoods, and this is a fact I have noticed in these institutes — the further you go from the state capitol the further you go from where there are farmers' clubs, and the further from the railroads the more eager the people, and especially the young people are for information. So far as my experience goes the institutes are doing a good work in the state; they are reaching the people that were never reached by this intelligence before.

Mr. Wheeler, of Buffalo County — This institute business, in my opinion, and according to the opinion of a great many intelligent farmers with whom I have conversed, is really the only practical step that the state of Wisconsin has ever taken to enlighten the farmers of the state. Theory is all very well, we can talk as much as we please about fine spun theories; we can give chemical formulas how vegetables grow and how animals grow; it is not worth one cent to the average farmer. The fact is that civilization itself, the present standing of the human race is the result of experiment, of toil, of experience. Theories are the result not the cause, and when you give farmers theories to work upon you are commencing at the wrong end entirely. If the state of Wisconsin could to-day take the experience of the Hon. Hiram Smith, and give it *verbatim* to every farmer in Wisconsin and bring it home to him, you would have made more advance to help the farming community in Wisconsin than if you established fifty colleges. (Applause.) Mr. President, the gist of this matter is just this: If you could get the information to every man, boy and child in the state of Wisconsin, of the best and most advanced methods that

our most experienced men have shown were the best, if you could only bring them home to every individual in the state of Wisconsin, it is one of the best things you could possibly do, and as I look at it, the first step you will have to take will be to get this intelligence scattered over the community and brought home to every man. If you will do that, then from their experience they will derive theories. So will every intelligent being, after he has experience. The history of the race is, that art has preceded science and always will. We do a thing before we commence to reason a great deal about it. The history in Greece of fine art and everything else has been that the art itself has preceded the science of it. Science comes last and art comes first.

Mr. Austin, of Carke Co.—I come from the section where these institutes were first started. When they were new and had no boom, and were a novelty to everybody. The result there of their action is simply this: The men who were in the legislature at the time and those that attended the institute are hugging themselves for the very fact that they were there, the members of the legislature, that they voted for the bill, and those that attended the institutes, that they were there and were benefited by it. It was a surprise party to them. The ones that stayed away are trying to kick themselves; they are mad because they were not there. So much for the interest of the concern. Now, I want to reply to my friend as showing the inexpediency and impossibility of getting all these ways of light upon some minds, and have it stay there. Our friend Hiram Smith is looked upon by certain ones who have read his speeches made at these conventions as the champion liar of America. They do not believe he produces any such thing on his farm or any such thing from his cows, and there is another class that have not read it and never will unless this society or the state or some other organization puts it in very large coarse print and sets it down at their door, postage paid, with the request that it be read in the family circle. They take no paper; they don't take pains to enlighten themselves, and I have some times thought almost that they were not really worthy the effort that would be necessary to im-

prove them. I take that back. My heart and sympathy is with them, but I make this statement to show the effect of the institute work. What its possibilities are is only a matter of conjecture.

Mr. Wilcox — About these institutes, I want to say I know they are a good thing because I have read their proceedings and judge from that. I know, too, that a piece of pie is a good thing for a hungry man, but how long will the effects last; that is what I want to learn. I believe the mind, like the body, should be continually fed to get the greatest good, and it occurred to me that it was possible for these men to encourage an organization of some sort of farmers for the purpose of continuing these discussions and investigations among themselves, and that if they did that they could apply it to any other purpose that would promote mutual improvement and enjoyment.

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## COMING EVENTS CAST THEIR SHADOWS BEFORE.

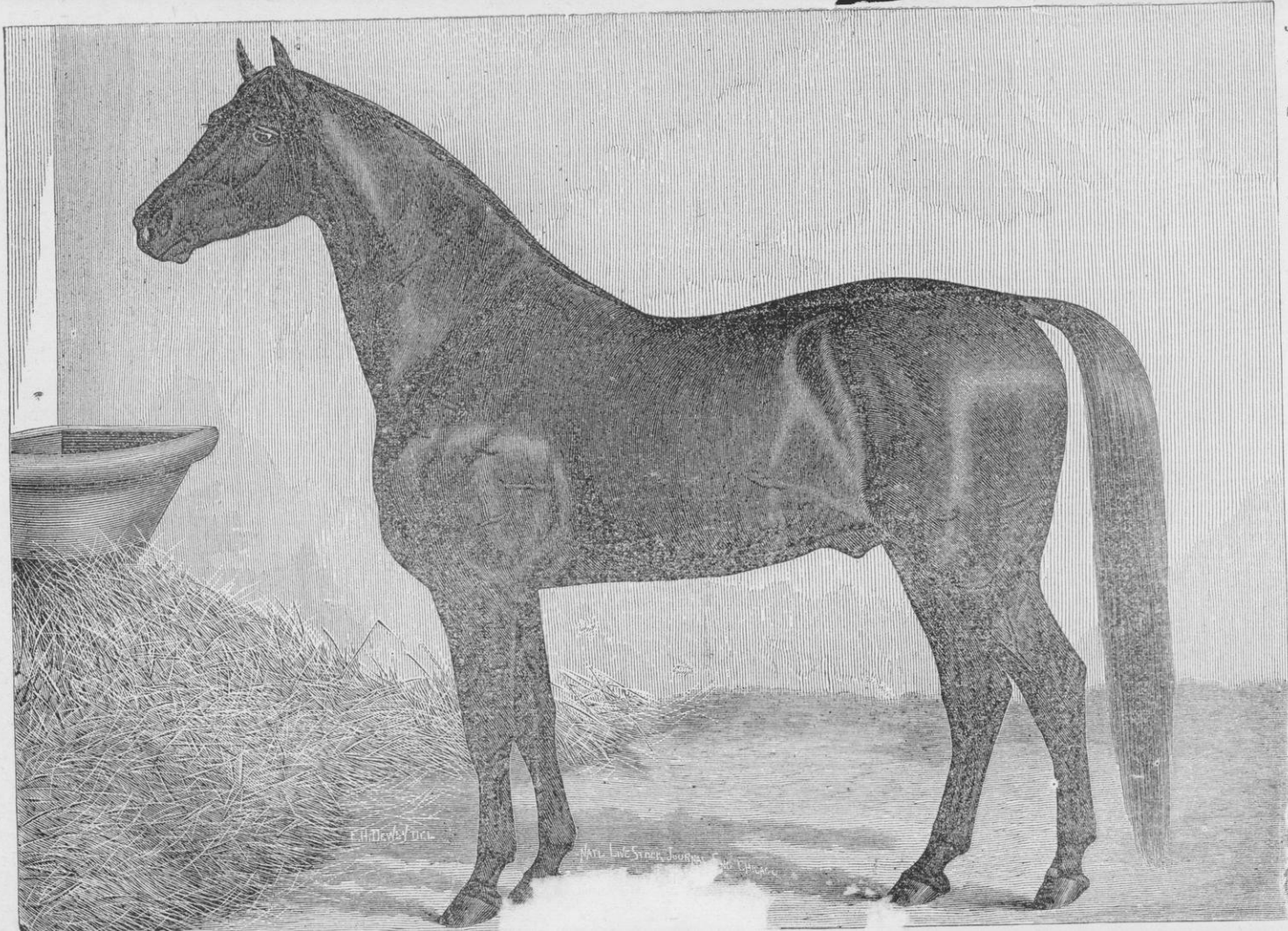
By AARON BROUGHTON.

AN EPISTLE OF SOLOMON, THE SON OF DAVID, AND BATHSHEBA,  
THE WAR WIDOW.

*To the tillers of the soil, greeting:*

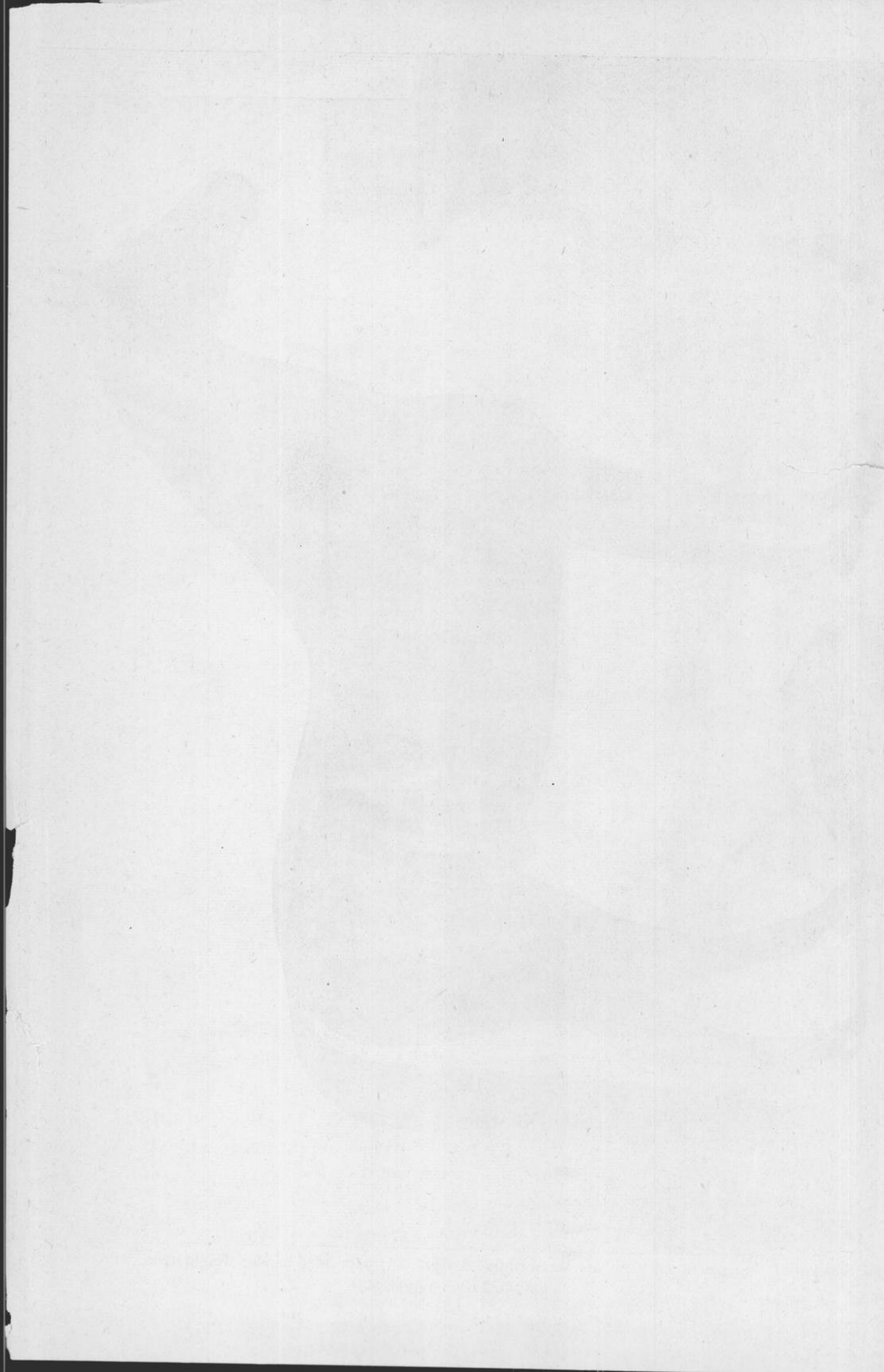
Inasmuch as the lofty mountains and the tall trees cast their wierd shadows over the broad valleys to herald the coming sun, to warn the Granger to bestir himself, and salute the life-giving energy with a salutation fraught with wise beginnings, to result in happy endings.

So should public wisdom overshadow and leaven human conduct, that happiness may be promoted thereby, not only to those in ideal authority, but to those also who are the hewers of wood and the drawers of water, whose hard earnings are often squandered now as in the past to gratify the vain and foolish pride of a vast and motley horde of parasites, that enjoy without earning, that have been educated often at public expense to live by their wit and not work.



# Standard Trotting Stallion, "Wilkes Mambrino," 4 years old; bay; 16 $\frac{1}{4}$  hands; weight 1200. Property of A. O. Fox, Oregon, Wis.





Legislators, considerest thou the shadow of the blind God of Justice, as the agitator and awakener of the dormant soul of the industrial man, who may at any time become his own willing instrument as it were, a Judge Lynch, to smite Shylock in the tabernacle of Moloch.

Politicians, considerest thou, even the shadows of the straws, that thou art vainly trying to catch, to keep thyself from sinking unto thy proper level, into oblivion a place from which there is no shadow of a chance to get out. It is a vast abyss and many postmasters, marshals, congressmen, senators and presidential aspirants and such like are cast, and like the fall of Lucifer rise not again.

Kings and presidents, seest thou the shadow of the sword of Damocles, which at any time may hang over your devoted head, suspended as by a single hair or the dynamite bomb under your throne, and that tyrants never had and never will have rest, also that jealousy and envy is as cruel as a grave in the valley of the shadow of death.

And that the shadows of the divine right of kings and of others in authority, is frail security, against the shadow of manifest destiny. So be thou prepared at any and all the time and with your utmost vigilance, watch for the shadow of the owl of prevision, the bird of fate.

I have seen that the science of all governments, is now and always has been, to oppress the industrial man prudently when they must, and unmercifully when they could, and all in authority may see in glum imagination the shadow of Nero and Pertinax, the Roman tyrants, who had climbed too high to hold on, and to fall was destruction, so they fell, so swiftly that they even cast no shadows in their downward flight.

“When wisdom is in authority the people rejoice, but when the tools of oppression beareth rule the people mourn.” He that hath eyes can see the shadow of the handwriting on the wall. The American House of Lords, the shadow of the British House of Lords, has outlived their usefulness, and must go—as mossback wisdom for the good of the privileged few, to the financial subjugation of the many, even the shadow of such injustice is an abomination in the

sight of all Israel. So let public wisdom freeze them out or public indignation may some time burn them up as it were a brush heap.

Upon even the shadow of coming disaster, afar off, causeth the old rats to leave the rotten ship, even so those of common wisdom will interpret the resignation of Bro. Bascom.

So fraught is destiny with the shadow of disendowment as to the University by the State, Scientific Deception — and much Subversion — will embrace their just doom, consequently those that have character worth saving like Bro. Bascom, will depart in peace, and let those that captained the misfortune one political church, and some of its members upon the shoals of defeat, run the gauntlet of escape, even when by a shadow of common sense would have remained a church triumphant.

I am coming, says the Shadow of Industrial Education, notwithstanding many of those having only Aristocratical Wisdom despise me, and the ignorant and down-trodden do not consider their unfortunate situation — the farmers being a divided house — but the necessities of a free government, will thrust the importance of manual and mental education, for the preservation of self-government upon the body politic, as a guard against the destructiveness of crime and pauperism, and the shadow of the good time coming is at hand even at the door.

The Symbolic Shadow of the Fame of Stephen Girard, Peter Cooper, Leland Stanford, and many other men, made eminent by a wise disposal of riches, cast upon them by the God of Fortune, as if inspired by the Shadow of coming Destiny for this very purpose, will in due season of their own free will and accord, foreshadow and forestall, and without obtrusive asking, and with grateful and courteous acceptance, inaugurate the endowment of a system of education for the public good, that will not despise labor and industry with economy, which are the bed rock of national prosperity, then will applied science and needful mental development become a common possession, and then all men

will know what are the principles of individual happiness and public prosperity.

Then public opinion and public necessity will reach those in power, and will force them to confine themselves within the limits of regular authority.

The things that have been are the shadows of what shall be, and that which is now is also a shadow of what is to be. Therefore, Grangers, be not deluded by vain hopes, for thou art now and ever have been the domains of city domination. Babylon was a rapacious and powerful master, and stood ready to sieze what the shepherds round about the city possessed, and anticipated (shadowed with greedy eyes) what they might get thereafter. So with Rome, so with Paris, so with London, so with New York, and even so with Chicago, also even this beautiful city of Madison, is like the horse-leech, crying, "Give, Give," and judging of the nature of such things, also the future by the past, never will be satisfied.

They all, from village to city, seek to compel tribute and the financial subjugation of the agriculturalists far and near.

And the shadow of the past, which is the shadow of the future, says it must needs be so, unless restrained by equal wisdom, equal energy and equal genius, in country environment to overmatch the city concentrated scientific bamboozlement of the honest and virtuous Granger.

A change is not likely to be, because it has always been as now — for there is no new thing under the sun. No, not even the shadow of a shadow.

Tillers of the Soil? Imagine thou seest the shadow of Hope — a vision of the millenium for the industrial man of which the farmer is chief, when you will have the individual and aggregate wisdom of city life (a state of things that is never to be looked for as the fruit of your own exertions) but from without then a change would gradually or suddenly come over the shadow of your dream, for when men know their true interest, will instinctively pursue it.

For the present, oppression upon agriculture is generally mere imposition upon ignorance and simplicity. For most

grangers firmly believe, now as in the past, that he was born to serve, and his Lord (the city) to rule over him; he believes that his body is made of coarser matter, that his blood is less rich, and that his soul, he being told by authority that he has one, is from a poorer stock of Divine Affatus.

But give the industrial class wisdom, raise him within the proper sphere of intelligence, then all these delusions will vanish like the shadowy remembrance of a foolish dream. He will then see the faults of his government, he will then see the remedy within his reach, will pursue and gain it. Then and not till then, will the industrial masses such as the farmer, the manufacturer, and merchant, and their employes, thrust aside all parasites and devices that stand between themselves and the proper management of their own affairs.

The shadow of the future is also the shadow of the past since Crooked Wisdom has said, that the prevalence of a high type of knowledge in society would tend to sedition, disloyalty, treason and rebellion. Experience has settled this question in the negative.

For if a government is founded and administered in equity, for the manifest benefit of the people, knowledge and mental improvement must conduce to its stability.

And they (the prevalence of which) will at the same time equally tend to excite rebellion against tyranny and oppression.

Then surely it is good policy for tyrants and parasites to keep their subjects in comparative poverty and ignorance.

Therefore if the industrial man is made a servant for the good of the government like a beast of burden, then the industrial man has not the shadow of a ghost of a chance to only know enough to become an obedient and profitable slave.

Written by the Industrial Man, of Old Rock, and dedicated to Bro. Babbitt, the Granger Scribe, In the first year of the Reign of Cleveland I, and in eleventh month thereof, — In the great year of Jubilee (49th) of St. Hickory, whose shadow we all, even the Blind, can see. These

events, made possible by the miraculous intervention by Conkling, the Mug-Wump; St. John, the Saloon Iconoclast; Butler, the Empty Bottle Corked Up, as at Fort Fisher, and Father Burchard and his blunderbus loaded with the three R's, the recoil of which kicked Bro. Burchard into a vast Morass, but loaded the confederates upon the Throne of the Republican Cæsars. Which is the shadow of a new order of things.

*Amen.*

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Mr. Robbins, of Platteville — I do not feel like discussing this question. It is a little too deep for me. But on this solemn occasion I merely want to say that we call this a farmers' convention. I think that is what we call it. I think we are a funeral and I think we have been a funeral for a long time. I am speaking now of the farmer that has not left the farm. The boy that has left the farm is the happiest fellow we ever saw. We heard him down at Platteville and he is a happy fellow. He has left the farm for the farm's good. He is dividing and eating up the profits now with the farmer; he tells you why he left the farm; he says he left the farm to equalize the profits with the farmer; he is settling their debts when they cannot agree among themselves. He is their arbitrator. He stands between the farmer and his paying his debts. I say on this solemn occasion I do not propose to open this ball. I am very highly gratified to think there is a farmer that can stand up here and prophesy not only of the past but of the future, but we do not see anything but others ahead. I am not adequate to this subject and therefore I will sit down.

Mr. Hinton — I would like to say a few words on that. Mr. Broughton and myself are very warm friends, but I don't know whether that address struck this audience as it did me. Now, I am not here to cater to prejudices; I am not here to stoop to flatter any man, but I do think and I must be allowed to think, that Mr. Broughton has put the farmer down altogether too low. I have been engaged in the discussion of a subject I am not going to refer to, but I say

this: that the laboring man, the industrial man — there I am with him in his estimate of him. I learned more from a farmer this morning, that tells me that he cannot spell ten words, but he has independence in his head and as clear thought as any man in the state of Wisconsin. Now, in a country like this the very origin of whose liberty and freedom originated with farmers and not in the cities, I don't like to see them put down so low. I do not think they belong there. His allusion to grand old Peter Cooper can never be too much extolled. When Peter Cooper stood up in his own institute given when he was alive, to benefit the poorer classes of the working people and to impart to them practical education, not theoretical, he inaugurated a system in this country equal to anything in the world, and I told him that whenever I had an opportunity in connection with his name I would never omit mentioning one sentence which he uttered in that Cooper Institute in New York, and it applies to my friend's industrial man, and that was, "we might as well permit our enemies to direct the movements of our armies in time of war as to permit them to direct or control our manufactures and other industries in time of peace." No man on American soil or off of it, ever said anything that surpasses that.

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### THE TARIFF AND FARMERS.

By B. F. SAYERS.

[The following paper was written with no thought of publication, but to combine in a short space and in a simple way the most striking points on the subject, whoever might be the author, or where ever found.]

Some years ago a farmer in Rock County, named Jones, wished to sell a piece of land. A neighbor named Smith wished to buy. The two fixed upon a price (\$10 per acre). A small amount was paid down to bind the bargain, and I was called upon to witness the transaction. The bargain was to be completed and a deed delivered during the week.

On Saturday morning before breakfast Smith came to my house wishing to find Jones. "I wish," he said, "to back out of that bargain; I want him to pay me back the sum advanced and let me off." "Why, Mr. Smith," I replied, "you will be sorry; Jones will sell that tract within a week for more than you gave for it; Mr. Brown, our neighbor—a Scotch farmer—will give a better price for it than you have given." "Oh, no he won't; I have been talking with him, and he says he would not give over \$8 for it." "Well, Mr. Smith, I don't doubt that Jones will pay you back the money and let you off." He started to find Jones. In a little time both came to me, the bargain was rescinded and the money paid back. Before night of that same day Jones sold the land to Brown for \$12.50 per acre, and no time was allowed for the seller to back out. A little while after I met Brown, and said to him: "Mr. Brown, Smith told me that you would not pay over \$8 for that land; how came you to pay \$12.50?" He smiled very blandly, and said: "It takes us Scotchmen to pull the wool over your Yankee eyes."

This incident, the names being changed, is exactly true. I wish you to keep before yourselves the pith of the story while I humbly try to discuss the relations of the farmers to the tariff.

The scene of my story is Rock county. The time, from the beginning of the Civil War to the present. The actors, a farmer's three sons, William, John and Clod. The father had died leaving a good farm worth say \$3,000, and about \$6,000 in cash. In process of time, after due respect had been paid to the industry and virtues of the father, William said to Clod: "Clod, John and I have been talking over matters, and if it pleases you, you shall take the farm \$3,000, and we will divide the cash \$3,000 each." "All right, William, that suits me exactly, the farm is my choice." And I honor him for it. To reap from God's bountiful earth, is worthy any man's ambition. William betakes himself to the city, invested his money in machinery, and became a worker in iron, John used his money likewise in machinery and became a worker in wood. This was just as the war began to envelope the nation in that inky cloud of horror



which frightens us even now, as we look back upon it. There had been for some years what was called a free trade tariff on manufacturers, an average of about 20 per cent. duty on the whole list. But now the government called for money, and plenty of it, to enable it to carry on its enormous war operations, and save the country. "And all the people said Amen," Clod among them. A new tariff was passed.

An average rate of 42 per cent. was levied upon a list of something like 2,000 articles, which seemed to Clod to mean, at least in theory, that when his brothers, William and John had builded a machine of wood and iron, the exact cost of which in England in material and work was \$100, they were permitted by this tariff, to add \$42, to this price, as a protection against the foreign importation of a like machine, and against foreign pauper labor, and it seemed as though this extra \$42 came out of the pocket of the consumer. William and John, and their fellow workers in iron and wood, were well represented by money and agents at Washington, to see that their interests were attended to, and they succeeded admirably. Clod didn't go to Washington, nor did he send any one. "What could a farmer do there?" When the tariff was passed, he gratefully exclaimed: "God be praised, now we can save the country." It was a war tariff, and Clod would bear any burdens to save the union. By means of this tariff the nation had resources enough to carry on the war to a successful end. The awful debt increased, one, two, three thousand millions of dollars it reached, yet the interest was promptly paid, the entire debt reduced over one-third, a thing which no nation has ever done before. Still Clod bore the taxation without a murmur, never asking what distinction was made if any, in the list of goods, never asking whether he was protected as were the workers in iron and wood, only grateful that the nation was saved, and the debt in the course of being paid, even faster than some thought wise for the good of the finances of the country.

In the meantime Clod kept himself well posted, and when hard times came, he began to look around and make inquiries. William, the iron-worker, he found had saved a clear

\$50,000 by his industry, skill and the protection on his wares. John was the actual owner of \$75,000, made by like skill, industry, and like protection, while Clod, by like skill and industry, added to weary patience, but without protection, held his own and a little more. He had made a good living for his family, had added some necessary improvements to his farm, had well stocked it, and beyond that, he could count on his fingers the number of hundreds of dollars he had saved. Here was a difference with a vengeance. Further than this, the year had come when it was quite doubtful whether he could make both ends meet. He had to sell his hogs at from \$3.00 to \$3.40 per hundred, his wool at 24 cents per pound, his cattle at 3.4 to 3.2 cents, his wheat (he raised a little wheat), at 65 to 85 cents per bushel. Yet the price of labor was about the same, not less at any rate. It was time for Clod to ask what made such a difference in the amount of property belonging to three brothers of fair skill and industry, after twenty years of toil. Why should two of them have prospered so much more than the other? He sent to his member of Congress for a copy of the tariff. (He was not ready to trust the free trade advocates), and began to study it. Curious revelations awaited him.

The first thing that arrested his attention was that this was a war tariff. To be sure the war was ended twenty years ago. The calls for immense sums of money had ended very soon after the war. The debt, as I have said, had been reduced much over one-third, the interest over one-half, and yet here was a tariff only slightly modified from the tariff enacted to raise war funds.

Again, he discovered that the inequalities of the tariff were wonderful, whatever might be the theory, the actual workings bore most heavily on the class Clod represented. He found that if Betsey, his wife, wanted a woolen stuff dress, she had to pay a duty of sixty per cent. If William's wife wanted a silk dress, she paid a duty of fifty per cent. If John's daughter wanted a diamond ear-ring, she paid twenty-five per cent. If the bright, buxom girl who helped Clod's wife wanted to wear a bead necklace, she had to pay fifty per cent. If William's daughter put around her fair

throat a Valenciennes lace collar she paid a duty of thirty per cent. for it. If Clod's daughter could only afford a cotton lace collar for her equally fair throat, she had to be taxed forty per cent. William's boy paid in duty, for his gold watch which nestled so quietly in his vest, twenty-five per cent., while Clod's boy had to pay fifty per cent. for the knife which would not stay in his pocket half the time. "Ah, Clod! this is a small matter, when you are reasoning about industries which concern a great nation." Clod admits it, but you can catch and hold on to small things easier than larger, but lest you might think him captious, he looked into matters which do concern the whole nation. He read from the tariff compilation, published by the government at its own printing office, the importation of dutiable woolen goods for 1883 were in round numbers \$51,000,000 worth at an average duty of 63.3 per cent. For the same year the importation of dutiable silk goods was \$33,300,000 worth at an average duty of 50 per cent. Clod is not dealing now with glass beads and pocket knives, but with the great manufacturing interests of the country, and yet the goods which the farmers buy are taxed 63.3 per cent. and the goods for the rich are taxed 50 per cent. Who pulled the wool over the farmers eyes in that fashion? Clod didn't think that it was the intention of the protectionist to put a heavier burden on the poor than on the rich. Clod meant to be fair. But somehow their intense selfishness had brought it about.

Another thing, Clod found out in his investigations. The theory of the tariff was the protection of American manufactures. In practice, in actual fact, it did protect William and John. It shut out nearly all foreign competition in machinery. They had only the rivalry of the brother craftsmen to contend against. While he, Clod, and his fellow farmers, had to contend with the world. The price of his wheat, his pork, his beef, was fixed in the great markets of the world. He had to contend with every field of wheat in Russia, with every hog raised in Germany, with every head of cattle in Australia. If Germany shuts her doors against American pork, Clod felt it immediately. If England, under pretense of disease, quarantined American steers, the

price of Clod's cattle was effected. Not so with William and John. The tariff had raised a great sea wall, against which the stream of the wares from foreign workshops beat in vain. Not a reaper, not a sewing machine, not a tool on the farm had ever seen salt water. Clod's own self-binder, which he had bought just before of William and John, was entirely of American construction. It cost him \$165. How much of that price was for protection? When his boy started it to work in his harvest, Clod stood and looked with pride at the Yankee skill displayed. It run on iron wheels protected by not less than 40 per cent. tariff; its platform of wood, protected by \$2.50 per thousand, was bolted together by bolts at 2½ cts. per pound. Its paint glistened in the sun protected by .33 per cent. duty. Its protected steel sickle, was riveted by protected rivets to a protected iron bar, and played backward and forwards between protected guards. The generous grain, from God's unprotected earth, fell upon a 40 per cent. protected cotton apron, fastened together by 30 per cent. protected straps. Its protected journals, running in protected boxes, were lubricated by a 20 per cent. protected oil, and the sheaves were bound by a 35 per cent. protected twine. When the grain was threshed it fell from an equally protected threshing machine, and was carried to his granary to be sold unprotected, to meet with the competition of the world. Clod sent his grain to market. He and his brother farmers sold all they could until the home demand was supplied, John and William and their fellow craftsmen bought all they could use, and still there were bushels left. What should he do with it? He determined to try an experiment. Clod was a granger, and had little mercy on middlemen. I'll send it to England, and go with it myself to see how it works. He did take it abroad, and found out that the sale was governed, not by tariffs, but by the worlds' demand for food.\* He sold it in the English market, and bought with the proceeds an 100 yards of cloth of the English manufacture. He started; proud enough with his purchase, for home. When he arrived at his own

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\* New York Evening Post.

free country, what was his surprise to be met at the custom house by the government officer who demanded one-half of his cloth for the government. "But," says Clod, "that cloth is mine, paid for with my own money, the proceeds of my grain which I took to England to sell." "Can't help it," the official replies, "you ought to have sold your grain at home and bought your cloth of your own American manufacturers." "But my good sir, I supplied the home demand before I went away; I could not sell another bushel for home consumption. My grain had to go abroad to get a market; this time I thought I would go with it, and besides, I have to pay almost double if I buy my cloth here." "That's just it," replies the custom house man, "to tell you the truth, that is the very reason we demand the half of your cloth, to protect our home manufacturers against such men as you, so you must give the government half of your cloth, or what is better, pay half of the cost as duty, and go your way." Clod was compelled to do just that. He paid one-half the cost of his cloth for the benefit of his brothers, William and John, and their fellow workmen, the manufacturers, who were making \$10 to his one. This was protection. No wonder Clod exclaimed, "It takes the manufacturers to pull the wool over our farmer's eyes."

But Clod's astonishment at the wool gathering over his eyes, was increased by another fact. When in England, he noticed that every workman was an English subject; in France none but Frenchmen were in the workshops; in Germany, only Germans handled the tools; and so wherever he had gone. But on this side of the water, Bohemians, Italians, Cornishmen, Irishmen were everywhere in the mines, foreigners were at the blast furnaces; Irish girls were in the factories, William's and John's workshop were more foreign than native. Mind you, Clod did not object to this, he believed in his very soul that an honest day's wages waited for an honest day's work, no matter where the workman was born. What he did object to was the Scotch way of pulling the wool over his eyes. Protection of *American* industry was it? Didn't every Norwegian who left his home in Norway leave room for another Norwegian to take his

place there. Didn't every Norwegian who landed here take the place of one American in our American workshop? Protection of American industry. Every city in the Union, almost every workshop could be described as were the inhabitants of Jerusalem 2,000 years ago, "Now there were dwellings at Jerusalem, Jews from every nation under heaven, Parthians, and Medes, and Hamites, and the dwellers in Mesopotamia, in Judea and Capadocia, in Pontus and Asia, in Phrygia and Pamphylia, in Egypt, and the parts of Libya about Cyrene, and sojourners from Rome, both Jews and proselytes, Cretans and Arabians." But Clod was not a stickler for words, took another tack and when they told him that it was *home* industry that was protected against the pauper labor of the old world, he needn't lay so much emphasis upon *American* industry. Then Clod was indignant. *Home* industry is it? What then is the meaning of that law on your statute book which forbids the mine owners, and manufacturers, and owners of workshops going over to the old world to hire whole loads of workmen in the cheapest market, and bringing them here to take the place of home workmen? If you are so zealous for *home* industry what was the need of such a law? The passage of such a law demonstrates the hypocrisy of your profession. You know that the very moment our home workmen asked you for wages that would fairly support themselves and families, you sent over to the pauper labor of the old world, and brought it here at such prices that our home labor would well nigh starve. And now that the law forbids you, what hinders you from getting what you want of that same pauper labor by dealings with single persons over the sea. Who ever heard of any manufacturer refusing a new come workman at a low price for the sake of protecting *home* industry? Only somehow it happens that the new comer is always hired at a less price than the home workman. You must pardon Clod's indignation. To have the wool pulled over his eyes when he didn't suspect it was not pleasant but to have it attempted when he understood full well what was doing, that made him angry.

After quieting down, Clod betook himself to his figures

again.\* He found by the census of 1880 that there 7,075,600 males engaged in agriculture in the United States. Add to these 7,000,000 of males, the women and children connected with them, and you have one-half of all the population of the nation directly dependent upon the farm for support. He found further that of all the products of the farm, only four paid a duty that was worth reckoning, wool, barley, sugar, and rice. Of these articles we do not raise enough to supply the home demand, and have to import the extra amount needed. The theory of the tariff, you will remember, is that any given imported article is enhanced in price just the amount of the duty. Clod accepted this as an actual fact in regard to wool, barley, rice and sugar. He found that if he added the duty to the entire production the farmers would gain in enhanced price on these four products \$22,750,000. That is, the protective tariff put \$22,750,000 in the pockets of the farmers. But Clod didn't forget that at least one-half of the population were directly supported by the farm, that this one-half were consumers of these four products as well as producers, and so far as they were consumers they must pay one-half of this enhanced price, that is, to the extent of one half of \$22,750,000, they were not benefitted one penny by the increased price through the tariff. It follows, therefore, as Clod thought, and the figures proved it, that on these four articles he and his brother farmers were benefitted to the amount of \$11,400,000 by this tariff. But another thought occurred to Clod, that only a very few of the farmers were producers of wool, barley, sugar and rice. That the great majority of them were not benefitted at all, simply because they did not grow them.

\* Again following out this line of reasoning, Clod found by the same census, that there were of manufactured goods, manufactured in our own workshops, \$5,250,000,000 worth. The average rate of duty on these dutiable goods last year was 41.70 per cent. Please bear in mind the protective theory, that this 41 per cent. expresses the increased value of these goods for the benefit of the manufacturers. Well,

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\* Hon. J. Q. Smith, Ohio.

Clod was generous, he divided this per cent. by two and then again divided the quotient by two, contrary you see to his calculation in regard to wool, barley, sugar and rice, calling the increased price one quarter of the average duty, and yet he found that the increased price of the goods reached the enormous sum of \$575,000,000. Clod sat by the fire to muse, \$11,000,000 expresses the amount of benefit to the farmers from the tariff, and this at the full per centage of the average duty, \$575,000,000 expresses the amount of benefit from the same tariff to the manufacturers, reckoned at one quarter of the average rate of duty. In other words, acting on the principle of "you tickle me and I'll tickle you," the farmers are permitted to take \$11,400,000 of unearned money out of the pockets of American citizens, if they will permit the manufacturers to take \$575,000,000 of like unearned money. Oh Clod! How the politicians and and manufacturers "have pulled the wool over your dull eyes."

\* But this does not express the whole amount of money taken by this protective institution out of the pockets of consumers; remember the farmers are one-half of the whole.

The importer in New York buys \$100,000 of goods in England, on the arrival of these in New York he has to pay \$50,000 in addition in duties. As a matter of course he must make his profits not only on the \$100,000, but also on the \$50,000. If he is contented with 10 per cent. profit, he must make \$10,000 on the purchase money and \$5,000 on his money paid for duties. So our merchant at Janesville when he goes to buy of this New York importer has to pay

The original purchase money.....	\$100,000
The duty money.....	50,000
10 per cent. profit on purchase money.....	10,000
10 per cent. profit on duty money.....	5,000
	\$165,000

As Clod saw it, and he knows he is right here, our Janesville merchant to start with must pay \$165,000 instead of

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\* Evening Post, New York.



\$110,000, if there had been no duty. To enable him to do this, he, the Janesvillian, must make his profit not only on this \$110,000 original purchase money and the importer's profits, but on the \$55,000 of the duty money and the profit of the New Yorker on that. That is to say, 55 per cent. The consumer of these goods must pay 55 cents on every dollars' worth he buys more than he would if there had been no duty, and before he pays one cent of profit to the Janesville merchant; add now the Janesville profit. Clod will let you calculate that, and you have the price of the tariff on every \$100,000 expended in foreign goods. Oh, the blessed protection of the tariff! But Clod must not buy imported goods, only manufacturers and their families have the right to do that.

Another matter called for Clod's attention. He had been told by the protective people that while the tariff at first, both in theory and in actual fact, increased the price of commodities, yet in the end, after these infant industries had attained age, the price would be as low as they could be if there had been no tariff. The only one article raised on his farm in which he was benefited by the tariff, was wool. In 1883 the duty on this one article was reduced to the amount, say of 3 cents per pound, yet immediately the price of his wool fell quite 9 cents per pound in the open market. On this state of facts two problems troubled Clod. The first, if the price of domestic articles was not enhanced by the tariff, how comes it that the price of his wool fell off so quickly upon the reduction of the duty? The second was more interesting than the first. If a reduction of 3 cents per pound of duty on the single product of his farm benefited by the tariff caused a fall in price of 9 cents per pound in the market, what would be the effect of a proper reduction of the duty on the long list of articles which Clod and his fellow farmers have to buy? He would not have the duty on wool restored, but he asks whether a little reduction on the things he has to buy would not equalize matters better?

But Clod, let me reason with you, look at the prosperity of the country. Is there any other people as well off as the

American? Any other as prosperous? Any other as happy? Why do all the nations of the earth send their millions to us, if not as an acknowledgement of our superior prosperity? This prosperity, in a good degree comes from this tariff you are grumbling and growling at. Our politicians say so on every stump you have heard them. Our manufacturers say so, and they are intelligent men who ought to know. What right have you to set up your judgment against theirs. Clod had never studied political economy, it would have been better if he had, but it seemed odd to him that taking money from the many and giving it to the few; that bolstering up one class, and that constituting a small minority, at the expense of another class, and that the larger, that protecting the industry of certain workmen, leaving the other workmen to shift for themselves; no not that protecting certain workmen by making other workmen pay them unearned profits—all this seemed to Clod as a funny way to make a country prosperous. But he could not deny that the country was prosperous, that was his pride. Was he not an American whose heart was filled with joy when he thought of the Divine blessings resting upon his country? Then he remembered a time, years ago, in the early days of Rock county, when his father wanted to buy a 40 acres adjoining his farm. Not having the money, he went to one of the money sharks, plenty everywhere then, and engaged him to buy it for him.

The price was \$10 per acre, but the money loaner required 33 per cent. interest on the loan. Clod well remembered the anxious, careworn expression on his father's face for weeks. He remembered he used to say, "If you boys will do your best and break up that forty this summer, we can put in a crop of wheat this fall, and if we succeed we can pay for it in one year; if we fail, it will go hard with us." They did break it up, and the crop of the first year paid the \$400, the 33 per cent. interest, the taxes and gave a little to spare. But Clod never heard his father say that he thought the success was owing to the demand of the money loaner of 33 per cent. interest. So Clod thought the prosperity of this great nation was due not to the tariff, but in spite of it. All

these vast sums taken from the great majority of the nation was so much taken from the general prosperity, just as the 33 per cent. interest took so much from the success of his father's land purchase. Such was the energy of this great people, such their skill, prudence, indomitable will, their fertility of resources, their aptness in fitting themselves to every emergency, such the vast capability of their country, such its undeveloped wealth, so great the field for the industry of millions more than we have, with such a people to develop such a country, we should be prosperous in spite of worse tariffs, and but little thanks to the protectionist for it. Where the tariff had stimulated healthy industry, he acknowledged it as a factor of prosperity. But the tendency was to stimulate to unhealthy activity, to produce overproduction. As witness the iron workers of to-day, one of the best protected of all our industries, so pampered by the war tariff, so overfed that the tariff had brought on a kind of paralysis, and none of our industries are suffering worse.

Have you heard enough of Clod, his thoughts, his enquiries, his reasonings on so dry a subject? I think so, yet remember that Clod had heard ever since the war only one side of the question discussed. Every paper which he read was protective, every stump speaker joined in the protective chorus. Clod started as a protectionist, he was not a free trader now, he wanted a tariff for revenue, with incidental leanings towards protection. "The wool had been pulled over his eyes" so long that he had to go slowly. On points so vexing, so perplexing, he scarcely dared to form an opinion; and yet all these facts, these figures, this great burden bearing on the farmers, the great cost of his farm machinery, the large wealth of the manufacturies compared with his plain living, the temptation from such vast sums in our national treasury, to make rogues of our politicians, even some of our best statesmen, these things could not be forgotten. But we will leave Clod with the wool not all off his eyes, yet earnestly, humbly trying to see his way clear.

You think, no doubt, that I should spell Clod's name C-l-a-u-d-e, Claude, with a sort of French twist. But no, I have spelt it C-l-o-d, Clodpole, the term for us farmers for

ages past. As the clods of the earth bearing in their bosom good seed, visited by the rains of heaven, and by the heat of the sun, bring to ripeness the golden harvest, so may we hope that our Clod, (no French twist in it), bearing in his heart the burdens of labor from capital, warmed by the social element of the grangers, strengthened by co-operation with his fellow farmers, may give to the world as grand an exemplification of successful manhood in himself and family as can be found, whether among scholars, or statesmen, or manufacturers.

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Mr. Robbins — I rise for the purpose of making a suggestion. I notice this paper was announced "subject not given," one of the most important subjects that will come before this convention. This afternoon we have a paper on "Under Consumption," by Dr. A. L. Chapin, President of Beloit College. I think those two papers should go together. I know that when you get into the tariff you never get out of it. If you commence this morning, you will be all the session discussing this question. Now, it is sprung upon us. You cannot make me believe that nobody knew that paper would be introduced this morning.

Mr. Sayre — The Secretary can honorably explain the matter of this omission; I gave it that title.

Secretary Babbitt — Let me say that I have no excuses to make. If any farmer in the State of Wisconsin is not willing to abide by the principles of that great statesman who said, "If there be any among us who would wish to dissolve the Union or to exchange its republican form let them stand undisturbed as monuments of the safety with which error of opinion may be tolerated where reason is let free to combat it." The Secretary of the Wisconsin State Agricultural Society asks no excuse from his fellow farmers for any article that has been presented here.

Mr. Robbins — How did you know this article was going to be presented to us this morning? Now, let us discuss this subject under both papers. I did not get up to make a speech; I merely ask that those two papers be read and discussed and considered together.

Mr. Hinton — Mr. President, that is contrary to all rule of debate ever devised. The gentleman who has just spoken has pursued one line of thought. Mr. Chapin may pursue another, you would get mingled up in the debate and would not know which was that or which was the other or anything else. Now, Mr. President, I claim the right, and not to take up too much time—

The President — Mr. Robbins request is that Mr. Chapin's paper come at this time.

Mr. Robbins — I should wish that they both come the same time. I am satisfied they are both on the same subject. We clods want information; we want both sides of this question and want it honestly, but not by any clap trap.

The President — I want to make an inquiry. Is Dr. Chapin's paper a free trade paper, or is it a protection paper, or is it either?

Secretary Babbitt — The programme for this forenoon is finished with the exception of the disucssion, isn't that so?

The President — I understand that, but Mr. Robbins has made a request and I want to give him a fair chance to have it considered. What is the subject of Dr. Chapin's paper? Is Dr. Chapin here?

Secretary Babbitt — Dr. Chapin is the President of Beloit College, a man who came into this state a great many years ago, and he says he will be up here at three o'clock, and I am sure you would not expect the Secretary of the Wisconsin State Agricultural Society, as proud as he ought to consider himself, representing as he does that great interest, to know what President Chapin would say on this subject.

Mr. Robbins — Did you know what this paper was before it came before this convention?

Mr. Babbitt — As I said before, I have no excuses to make for that paper.

Mr. Hinton — Mr. President, Ladies and Gentlemen, my friend Babbitt puts me in mind of a very old and valued friend, old Deacon Ives, whom everybody loved and like—

Mr. Coddington moved that the speakers be limited to five minutes. Seconded.

Mr. Hinton — If that is the sense of this meeting I respectfully decline to say anything.

The President — The Chair will take the liberty to state that where a question that may be considered as important as this is brought upon us, it would be unfair in my opinion to limit a man like Mr. Hinton. I desire that Mr. Hinton should say but very little about the tariff, but in a place like this where Mr. Hinton is a representative man of the opposite interest, it would be an unfair thing to limit him at this time to five minutes. Let him get through. Let him have his say and then forever after hold his peace.

A Member — He never will get through.

The President — I will put the question if the mover of the question desires it.

Mr. Coddington — I am a common, plain farmer, brought up here in the bushes, and I have heard so much of the tariff that I am entirely sick of it.

The President — That is the opinion of the chair.

Mr. Coddington — I will compromise with the gentleman by making it fifteen minutes.

The President — If no objection is made, Mr. Hinton will have the floor for fifteen minutes.

Mr. Hinton — If I was asked to characterize the address that the gentleman made and which was published thirty years ago almost verbatim, and I am prepared to produce it, there is no old advocate of free trade on one hand or protection on the other, but what has heard those same statements that originated with Englishmen in New York who were heavy importers forty years ago, nearly. I want to say that take that statement as a whole, there is but one way to characterize it; it is a bundle of sophisms tied together with an English granny knot and impregnated with the rankest know-nothingism. There is not a correct statement in it from one end to the other. If I cannot substantiate that, I am guilty of a very gross act of discourtesy to the gentleman who read it. Now, I will be very brief. I suppose that you cannot any of you gentlemen have failed to observe that the impression sought to be conveyed to you by that paper was that for everything you bought the amount of the

tax was added to it. That your farm implements and everything of that kind were so much higher in this country than abroad; that the farmer was being taxed from the 1st of January to the 31st of December. Now, I give you one authority here of a man who stands 'as high as any man' this country ever sent abroad. It is something that you farmers ought to know. I read from the speech of Thos. H. Dudley, late U. S. Consul at Liverpool, England, delivered at Astoria, N. Y., October 3rd, 1884. He said "but when we come to the farming implements and tools that are used on the farms, they are much cheaper and better than those in Europe. In March of this year, 1884, I visited the agricultural fair in France, and a magnificent exhibition it was. They had not less than fifteen acres of ground covered with agricultural implements, tools and machinery. The cheapest mower that was on that ground was 510 francs, which in our money is about \$102. You can buy just as good a mower here in any town in the United States for \$65. The lowest reaper that was there (without a binder) was 925 francs, or in our money about \$185. You can buy as good a one in the United States for \$110. The lowest priced horse rake that was there was 250 francs, or \$50 of our money. You can buy as good here for \$27. The plows, harrows, cultivators, were twenty per cent. dearer than they are in the United States. There was not a fork, hoe, shovel or spade there in the whole exhibition but what was dearer in price, and most of them inferior in quality to those which we make in this country; and so with carriages, wagons, carts, barrows, etc." I heard myself Henry Clay tell a story which is as true to-day as it was then, where the western orator was going on and says "look at my poor friend there from the Isle of Erin," this robber tariff makes him pay six cents a yard extra for the cotton cloth in his shirt; isn't that the truth." "The divil a bit of the truth," says he, "the old woman only paid five cents a yard for it." To-day you can buy cotton cloth for less than the duty in any store in Madison. You can buy a suit of common woolen clothing cheaper here than you can in Liverpool. I compared my suit last summer with a man who just came over from Liv-

erpool, and asked him the question. When you talk about other things sugar is cheaper in this country than any other country in the world. You take any article you like, you can buy Brussels carpet cheaper in the United States than you can in England. I am stating what I know; not from the manufacturers, but from the the retail dealers. I went into Mr. Goldsmith's shop on East Water St. in Milwaukee not over six months ago, and went through the prices and put the English carpet lists side by side. Now, gentlemen, look at it. What has made the market for your products? The gentleman talks about not being protected. Doesn't he know that every bushel of wheat that comes into Minneapolis has to pay 20 cents a bushel duty; they get a rebate, it is true, after they have manufactured it and sent it out, but when he says they pay no duty is it not a fact that \$73,000,000 of duty was collected on agricultural products last year — nearly that and quite that the year before.

Mr. Sayre — On wheat?

Mr. Hinton — I will admit that a large portion of it was sugar. How long is it since we imported wheat for food in this country? I will ask the gentleman a question. We have had for the last two years and a half premonitions of a terrible war in Europe. I will leave it to any farmer here if at any time up to two years and a half ago any semblance of coming war in Europe would not have sent your wheat up ten or fifteen cents a bushel? The bears cannot bear it and the bulls cannot bull it, it stays there at a low price, and why? Because last year India raised more wheat than we did, and I told you farmers three years ago; bear this in mind. You are great admirers of John Bright.. So far as John Bright stood up for this country in the agony and bloody sweat of our rebellion, I say, protectionist as I am, and free trader as he is, may God bless him. I honor him for it, but as I said to these farmers, there has one single line been uttered by a great man in England and came by telegraph the day before yesterday, of more importance to farmers than all the rest you have seen in your papers for six months. John Bright said in the House of Commons, "all



our eyes are now turned towards India." He said something then that will set the farmers to thinking. "To-day the East Indian wheat is not such good wheat as yours, but it has just kept you men all down." Here is another thing. I just want to call your attention to just one thing this gentleman said. We have always heard it said there is always one fool in the family. It seems there was a family of three at Janesville. You see that is all fictitious. I have seen the article before and probably got fifty copies among my tariff records?

Mr. Sayre — I wish you would look it up.

Mr. Hinton — I have seen it. That bolting machine, that thing running backwards and forwards; it is as old as the hills of Jerusalem. I do not say it is bad because it is old. I say that you can buy farm implements here cheaper than in any country in the world by nearly 50 per cent. in many instances. The gentleman talked about the capacity of Americans. I am as firm a believer in that as any man that walks the earth, and when Webster said at the laying of the corner stone at Bunker Hill, "there is nothing impossible with Americans," he said a great thing, but why is it? I ask you as a fact; is it not an historical fact, for I deal in nothing else, the trouble is to select a few out of the many, is it not a fact that James Buchanan showed that under nominal free trade this country was so poor that they could not borrow money at 12 per cent. from free trade England. Did not Buchanan say so in his message, and did he not urge the restoration of the tariff. Is it not a fact that when Tyler became President, this country was so poor, that the great United States of America could not raise money enough to pay his salary, and he had to give his notes to money shavers in Washington to get that salary? They discounted them at some 15 per cent. knowing that as soon as the tariff was restored the Treasury would be repleted and they would be paid. There is not an instance from 1879 to the present time but what when the tariff has been lowered little or much, it has been followed by depressed or hard times, and I will leave it to any intelligent man here to-day that if it was known that this Congress would not in any

way change the tariff, if times would not be a great deal better. Nobody knows what they will do. I am not saying this in a party sense. I fought my brother republicans as my friend would if he is a democrat, and I don't know whether he is, and it has no bearing on it at all. They lowered the tariff in 1883, and the gentleman says it knocked the price of wool down nine cents; that is his own statement. Now then, let me give you one more instance on that and I will close. You have all heard of Sunset Cox, one of the most brilliant men that any country ever produced, and certainly was one of the ablest advocates of free trade that this or any other country ever produced, with his vast eloquence, his humor, his wit, his suavity of manner, and everything combined, we conceded that he was the most dangerous man that we had to meet, and I think we were wise enough not to underrate a foe. Sunset Cox in conjunction with many of our republican friends aided the passage of the very act to which my friend over there referred. What was the result? In 1883 it was passed, and commenced in July to go into force. During the year 1883 we imported \$902,000 worth of women's cloaks. During 1884, under the lower tariff, we imported \$5,310,000 worth; what was the result? Marshal Field of Chicago imported \$125,000 worth from Berlin. In Chicago it threw out of employment 600 cloak makers. In New York it threw out over 2,000. They were the daughters, and wives and sisters of the students of Sunset Cox. What did they do? More than 2,000 went to him and when 2,000 women go for a man, God help him. He has got to give away somewhere. What did he do? The great apostle of free trade, one of the prominent members of the Cobden Club, one who goes to hear these prize debates for which the Cobden Club competes in American colleges — Sunset Cox introduced a bill and advocated it in Congress, not only to restore that tariff but to put it still higher. Why? Because he saw the misery that was inflicted. It is not for me to question his motives. I assume his motive was an honest one and I honor him for it. I think there is but one other remark I want to refer to. Now, how misleading is this question that it is the work of the

tariff. What is the work of the tariff on iron and steel? The gentleman says the iron and steel trade is depressed. He is very badly mistaken; they have got orders enough ahead as I have been told by several of them, to last over a year, and hence I say with all due respect to my friend, he does not quite understand the subject he is talking about. Now, I will ask the gentleman this question. Can you name a steel mill in the United States that is not running full time. Can you name an iron mill that is not running? Was there ever a greater demand for these iron ores in Wisconsin and in the Michigan peninsula? Never. There is a piece of country that, as E. B. Ward said, nothing but this red earth, that is perfectly worthless. They take the provisions up there in the winter to live on, and in the summer too, almost the same as they take them to a ship, and yet \$3,000,000 for bread alone have been paid out in a year there, and there are more trains running ten to one, in that piece of ground day after day than in any other piece of ground God's world of fifty times the size. There is more labor employed to the acre and there is more farm produce consumed and not raised than in any other piece of ground in the world of twenty times its size. Now then, what has given the farmer this market? Is it not a fact that our inter-state commerce of this country, our manufactures alone, exceed in value the manufactures of Great Britain by over a thousand millions of dollars? Our inter-state commerce, our internal commerce all over the country, exceeds all the foreign commerce of Europe by millions and millions of dollars. It exceeds the internal and foreign commerce of England by over two millions of dollars. Now, where is the cause for all this contention? There is not a farmer here but knows it is a fact that his wheat did go down in price, and the gentleman himself admits it, by reducing the tariff. Farmers have told me this morning, men whom I have known thirty-five years, who used to be free traders some of them, not all, that they may better sell their grain in the fall than feed it to their sheep during the winter, because they do not get enough for the fleece to pay for it, and when you let, as they do in Australia, one hundred and ten or one hundred and twelve

millions of them run on land for which you pay five cents an acre rent and no taxes, when you don't have to get a pound of fodder nor put up a particle of shelter, is merely idle to think for a moment that you can compete with those products. It is on the same principle as the Sumatra leaf tobacco; it is idle to think that you can compete with chances and opportunities of that kind when your land, some of it, will average \$30, \$40, and \$50 an acre, and you have to feed and shelter your sheep at least six months out of the year.

Mr. Sayre — I find myself in a very unpleasant situation for this reason; I am not used to off-hand talking, and another thing I find that on the question of the tariff I am charged with bringing up arguments that are forty years old. How old is the tariff? Did not the same points reach the tariff forty years ago or four hundred years ago that do to-day? What is there new; I don't know of anything. The gentleman, as a matter of course, can get new arguments, arguments that were never heard of before, but I have got to take old ones, and that is my apology. I have to take what has been handled over and over again and will be until the tariff is remodeled. Then another thing, I am not clear to speak for free trade. The gentleman has set up a man of straw and has been fighting it here all this time. My paper was on the relation of the tariff to farmers, and in that paper of course I could not say a word about what products in England were bringing, or what they were paying for things in England; that has nothing to do with it. The question was and the question is, the relation of this tariff to you and me as farmers. That was my object and I tried to confine myself from beginning to end to just that one object. I did not discuss the tariff in any sense either from free trade or from the protective side. Now sir, he says in the first place that every single statement was false.

Mr. Hinton — No, sir, I beg your pardon. I did not say false.

Mr. Sayre — That every statement was a piece of sophistry, you remember that.

Mr. Hinton — And that it was incorrect.

Mr. Sayre—My point is that tariff to farmers does enhance the price of goods that we have to buy. Protectionists say no. The gentleman brought you up an instance that cotton goods to-day can be bought in the city of Madison at a less price than tariff. I am correct there. Afterwards he qualified his statement and said I did make one right statement. I am not going to travel over the matter of the tariff, for I cannot do it. I can not compete with the gentleman, but I can say this, my wool after being protected from 1862, I don't know how much before that, up to 1883, brought me a certain price in the market. It certainly was not an infant in the street at that time; I had had it all these years and it was not an infant in the street. At the end of 1883 they modified the tariff. By this time the price of wool ought to have been lower, by the gentleman's statement, than the duty itself. It ought to have been away down.

Mr. Hinton—You misunderstand me. I spoke of manufactured goods, not wool.

Mr. Sayre—The point I want to make is this: That if wool on a rate of 3 cents a pound will drop 9 cents in the market, most people say 10, but my wool brought 9, if that drops 9, how does that compare with the statement that while you keep the tariff up that cotton goods are less than the tariff itself. It is a very curious fact, but he says it is so. The argument I want to make is this: That your corn and pork and beef products on the farm have to compete with the world. The gentleman says we have to compete with the East India wheat and he says it will kill us. He did not say that in words, but that was the idea; that the competition was such that it would kill it, and drive us out of the market; that is, that prices can not be advanced. No matter what was the situation in the old world, and yet we have a tariff of 10 cents a bushel.

Mr. Hinton—Twenty.

Mr. Sayre—Twenty, with a rebate.

Mr. Hinton—That is, when it is manufactured into flour.

Mr. Sayre—We have a tariff on wheat. Why cannot we have the same advantage if that be the case? What is the

reason we cannot compete with the world? Iron manufacturers and other people do, but the fact of it is we export wheat, we export pork, we export beer, and we have to go to the world and fight in the markets of the world precisely the same as we do in the markets of Janesville and Madison. If I can raise wool a little cheaper than you, I make more money than you. If I raise beef a little cheaper than you, I do a little better, and so it is with the old world. I send my products there. I export. If there was not a surplus, then the gentleman's argument would be good; but with everything they buy we are, so to speak, the producers of the world; that is, we have to compete with them. Now, you will understand that I have no care to answer any question in regard to the question between tariff and protection. That is not my point. The point I make is the bearing of the tariff on us farmers. I do not stand here to say anything about free trade, consequently the questions that the gentleman asks are not pertinent so far as I am concerned. You may think so, but that is not my point. There is another point I want to make, and that will end the matter. He speaks of the iron product. That is one of the best protected industries we have in this country. I don't know what he has heard, but I know what I have read. Of course papers may be true or not. I won't say that everything in the papers is a lie, for I never found it so. We find a great deal of truth in it, and yet for the last two or three years I think you gentlemen have seen, every one of you, that there has been more depression in the iron market, in blast furnaces, in rolling mills, in everything pertaining to the iron market, than in almost any other industry in the United States. I can see the prospect of a better time coming; I believe there is a prospect of a better time on wool and on pork; but I am only speaking of what has taken place in the last two or three years. These depressions have been wonderful, even on the best protected articles we have. I am sorry to have taken up your time. A very opprobrious term was used; it was said that this thing was sprung upon this audience. I sent my subject to the secretary, and I spoke to one of the honored members of the board in regard

to the matter, whether it would be right for me to come up here and speak on a subject not given out on the programme. Whether it was late or not I don't know; but on the part of our honored secretary, there was no intention of springing it upon you, and there was no intention on my part of springing it on the convention. I went to Mr. Miner and he said, "Go ahead." I said by all means I would prefer another subject, if there was any thought that I was not open and manly about it, and the secretary had another subject that I had spoken upon, and he supposed I might bring up that.

President Arnold — I will say that the secretary of the society is the person who had always had the honor and privilege of making the programme, and that he may not always know what persons desire to read; they do not always name the subject. He cannot always be made responsible for everything.

Mr. Hinton — Don't they often tell him in advance?

President Arnold — Sometimes they do, but not always. I will say here that I do not believe the convention desires to discuss the tariff question; I do not believe we meet here for that purpose. This question has been brought here and Mr. Hinton very ably takes his part and the honored gentleman has had a chance to answer it. Now, a motion will be in order to limit the time of your discussion from here on.

Mr. Robbins moved that the time for speaking be limited to five minutes.

Mr. Hinton moved to amend by making it ten minutes.

Secretary Babbitt — I am one of those who are decidedly in favor of free thought and free speech, and I have thought that on this occasion there should be ample time given to discuss every question of interest to the farmers. Now, if this is a question of interest to the farmers it certainly ought to be discussed fairly and honestly. I never have expressed my opinion before this body on this subject in the world. It seems to be the desire and the pleasure of a large body, or at least a small body I should say of agitators, to hold me up as a particular object to shoot at. Now, I will tell you I am alive yet and I want to say that I want to have

the utmost liberty given to discuss both sides of this question. I think it is no more than fair and honest. I will say this much, I have no excuse whatever to offer for the paper, not a particle. I believe it is in the line of thought and in the line of honest expression, and I believe that every honest man when he goes home this year will not regret it has come here, but at the same time, gentlemen, I did not know what that question was to be. I am no dodger; I am no sneak; I stand up and am perfectly willing to be shot at, if you cannot find anybody else better to shoot at, why go ahead, it is all right. Now, gentlemen, give these men fair and open swing.

Mr. True, of Baraboo — I think I expressed the sentiment of the body of this convention when I say that we do not object to the discussion of the tariff question, but we have complained in past conventions that it has been thrust in upon us at every conceivable point and that we have become tired of it in that way, and I hope that that will be considered as the sense of this convention, that speakers be limited to ten minutes and we will be governed by it at this time.

The motion to limit speakers to ten minutes unless by unanimous consent, was then put and carried.

Mr. Aaron Broughton — All is fair in war. If this paper of Mr. Sayre's is a masked battery, all right; it may prove only to be a gun loaded with this theoretical stuff that we find in this text book that is found in the colleges to fool the industrial man, and I acknowledge for one that experience is the best teacher, and such a lunk head as I am was not able to learn in any other school in regard to the tariff. I was a born free trader and advocated it in every direction just as I would a religious creed, political bigotry and all this, but when the war came and we had a protective tariff, I saw where my interests lay and became a protectionist; and the idea of this theoretical stuff, got up by men that have no knowledge of the business affairs of life, and for us to undertake to believe and practice on it; we only become humbugged by this aristocratic nonsense. I am fully satisfied on that point because it was stuffed into me when I



attended that kind of schools and studied such text books as Chapin's work on political economy. In time of the war in spite of the high prices I began to get rich faster than I ever did before in my life, and so far as I myself was concerned, I would have been glad to have the war and the war tariff last forever, and have made money more abundant all the time: Now, he says, Betsey wanted a dress and she paid 60 per cent. tariff on the stuff that she made it out of; she sold the stuff that she bought that dress with for more than 70 per cent. more than she would if it had not been for the tariff, and it is so all the way through. We should not consider what we sell for when we consider what we buy for. If we buy very high and sell for higher in proportion, it is so much the better for us. The farmers have made more money by this protective tariff in the United States than all other classes combined and the census shows it. That is another point and goods have raised in price by the tariff many times, but the facilities for buying them have raised more in proportion; the farmers have better houses, better books, better furniture, and better everything than they had during free trade, which is a very important matter. If having the best things is important, the protective tariff has been a grand thing for the farmers all the time, and manufacturers are far worse off to day than the farmers. Relatively the farmers have gained and they have lost; whatever protects the manufacturers also protects the farmers. Why? Because it protects the market where he sells; that is the reason. Clod the granger, says he tried to beat the middle men; he did bear the middle men. When the grange first started, reapers and mowers were 50 to 75 per cent. higher than they ought to have been, but it soon got them where they ought to have been and now they are even lower, and now the manufacturers and middle men are growling about it immensely, which is the fact. Clod is disgusted because he is a lunk head and should know he must sell as well as buy. I acknowledge I was just as big a lunk head as Clod in that direction, but thank God, if he needs any thanking, I am a little wiser than I used to be on that question.

If we destroy manufactures, where will the laborer sell his labor? His market is gone, and if he cannot sell his labor how can he buy our ham? And so you see we lose our market. We should consider these things. Chapin probably never thought of that at all. The laborer has nothing but his labor to sell. He says, what forbids our going to buy where we can buy the cheapest? Because it destroys the market where we can sell the highest; that is the reason why, and it is reason enough. In regard to the history of the tariff, it seems it originated with Tyre, so far as we can tell. One of the colonies was Spain, and the place where the tariff seemed to have originated was a point near Gibraltar, and the word tariff is derived from the Arabian word which means perfect bliss. The Arabians who had to pass over into Spain had to pay a certain duty on goods to be introduced into Spain, because Spain at that time was a manufacturing country, but just as soon as the tariff that protected this industry in Spain, was destroyed, Spain went down, and has not been revived to this day; but when England got rich through a protective tariff they undertook to introduce this system of free trade, knowing that if other nations will adopt it, the other nations will be utterly ruined, and at their mercy. We need an honest adviser. She is just about such an adviser as Satan was to Eve—made a fool of her; just like the theoretical stuff made by men that can talk big words without common sense. Why don't the laborer buy in England? Because he cannot sell his labor there. He has got to buy where he can sell his labor to buy with. Now, in regard to wool in 1885. Wool at shearing time in 1885 was 24 cents a pound, and now it is 29, and now it has got sometimes as high as 30. It shows an anomaly. The theorists never know any anomaly. They leave out some important matters in the problem, and come to fantastical results that don't amount to anything to a common sense kind of a fellow like myself, or a lunk-head. Now, I don't wish to reduce the price on what I buy, because it will reduce it relatively more on what I sell. I had rather wage workers would get still higher wages than they do

now, because they are the ones that buy my stuff, and they must all the time have the competency to buy, or our market is ruined in which we sell. Here is another point: The plan adopted by Sparta to have intercourse among themselves alone, to be clannish, is probably beneficial. It has been said by Fisher Ames, and even by Senator Logan, that a constant state of cheap war that would destroy trade would be a God-send for the great west. We can stand it and they cannot. If England wants to try it on, she will have a good chance, because in the last war with Great Britain we had the best times, probably, that we ever had in this country, because there was non-intercourse. Calico was 75 cents a yard, but the stuff that the women sold to buy that calico with was equal to \$1 a yard, hence there was money in their pockets.

Mr. Allen — I will not occupy your time more than a few minutes; facts are stubborn things. My business is feeding sheep and has been for twenty years, and going about picking up my sheep to feed, as I do every fall. I have been able to buy sheep so cheap it is almost cruelty to ask one to sell so cheap. The fact is, every sheep in the state of Wisconsin and the United States almost, is for sale. I have picked up about 500; my sheep have cost me \$1.18 a head and I have the pick of the flocks. It is outrageous, and that is a result of the reduction of the tariff; the gentleman in his statement did not state the truth as I have read it in reference to the tariff. The tariff was 9 cents and 9 percent. advalorem. Now, then they took off the advalorem duty and the Australian wool, which is very much like our wool. the merino wool was advalorem at 14 cents in New York. Now nine times fourteen is 126, and the taking off of one cent and a quarter or a little more involved an importation of 46,000,000 pounds in excess of what there was the year before. It was the 46,000,000 that was brought into the market that caused the depression and the breaking down of the business. If there are ninety-five horses wanted in the market and you have one hundred to sell, the five horses in excess determine the price of the whole of them; they are all depressed because there is an over-supply.

Mr. Sayre — I was very careful in my figures. I took the compilation of the tariff by the United States, and that was 10 cents and 11 per cent. advalorem and 12 cents and 11 per cent. advalorem and the 11 per cent. was thrown off.

Mr. Hinton — Not on the wool that the gentleman specified. Mr. Allen stated upon the wool, which he specified perfectly correctly.

Senator Anderson — I am sorry to say I did not hear Mr. Sayre's paper read, but as I am a farmer I am always interested in what is to the best interest of the farmers. There is a great mistake made by farmers in believing that the tariff is got up for the purpose of raising the price of goods, and for the purpose of increasing the price of manufactured ware. There is one thing I want the farmers to think about. I have studied on this tariff question more perhaps than the average of farmers, and it is this; we have to raise a certain amount of money in this country every year to carry on this government. How shall we raise that revenue to be the least burdensome to the farmer, is the question. We have for a number of years raised over \$400,000,000 a year; a few years ago our duties on imports amounted to over \$200,000,000, I don't know the exact sum now and the balance was raised by internal revenue on tobacco and whisky. I suppose you will admit that it has not increased the price of whisky or tobacco very much. The reduction of the duty on those one-half. If you buy a cigar or a glass of beer or liquor, you pay about the same as you always did. This revenue has to be raised; if you do not raise it by a duty on imports and by a tax upon whisky and tobacco, it must be raised by a tax upon something. If it is to be raised by a direct tax upon your land, upon your live stock, the farmers will have to pay the biggest proportion of it for the reason that your property is in sight. The bondholders, the capitalists, the money lenders, their property is not in sight, and they avoid tax frequently. Now, I have made a calculation about raising that \$400,000,000 which we raised for several years. Last year it was a little less, but formerly it was \$400,000,000 a year. You would have to raise in every con-

gressional district, say \$1,250,000. Each state would be taxed according to the population. Wisconsin being a much poorer state than Massachusetts would have to pay perhaps double the tax that Massachusetts would in proportion. According to the constitution of the United States a direct tax is raised according to population. Each state would have to raise its quota of the tax and Wisconsin therefore would have to raise a very large sum. Now, add that tax in Wisconsin, which would amount to perhaps \$11,000,000, to your present taxes and I would like to see the farmer that wouldn't kick. You more than double your taxes, because all taxes for road purposes and all other purposes raised in Wisconsin amount to only about \$8,000,000 a year, and you add \$11,000,000 to that and you more than double your taxes.

Now, if we can raise this revenue, as we now do, without burdening the farmer and without increasing the price of the wares he buys, and I contend that under our present tariff, prices are lower now than they were under the tariff of 1846, running up to 1860. I contend that the country is prosperous under a high tariff, and it never was prosperous as long as I can recollect under a low tariff [applause]; and I can recollect the tariff of 1842; I can recollect the hard times from 1837 to 1840, when, under Henry Clay's sliding scale, our duties ran down till it was almost free trade. In 1840, I recollect the campaign. I was a boy, but I recollect it, when Tippecanoe and Tyler too, ran for president and vice president, that they promised the working man \$2 a day and roast beef, and they were elected by an immense majority. They did establish a tariff in 1842, and it put up prices, and we established iron mills in this country and made rails for our railroads. I lived in Ohio at the time the railroad was built from Columbus to Cincinnati. We bought the first portion of the iron to lay the track from Cleveland to Columbus for \$40; but under the free trade tariff of 1846, which closed up our rolling mills, we had to send to England for the iron to lay the balance of the track from Columbus to Cincinnati, and it cost just \$80 a ton to deliver that iron in Ohio to lay the balance of that track. That was under your free trade; that is the policy of England, when they

can crush our manufactures and make the prices as they please. Even under that tariff, in one year it reduced the price of cotton in England almost one-half, at least 50 per cent. Another point I want to make to the farmer. Your home market consumes all the farm products of this country—tobacco and cotton excepted—92 per cent. of all your products. Your home market is reliable; they require a certain amount every year to supply that demand; but your foreign market is not reliable. If they have good crops in Europe you have a poor foreign market, and if England can buy cheaper in Russia or get it from India, she will buy there undoubtedly. But if you build up your home market, you have something you can rely upon at all times. Take the city of Madison; if she manufactured the agricultural implements she has sold to us farmers in this country, she would have a population of double what she now has, and they would increase the price of my farm in this vicinity. It would furnish us a fine market for our vegetables and other products that will not bear shipping. You go into Ohio, and in every city where they have manufactures, land has gone up double and treble in price since I can recollect; and you go in any county in Wisconsin where they have a manufacturing city anywhere near, and your land is much higher than in another part where they have not got manufactures. The country will prosper anywhere where we have a division of labor. Does any farmer want to drive those million of men that the free traders that held a convention in Chicago said a short time ago were idle—do you want to drive them into farming? Do you want to crush the manufactures? There are too many farmers already. We want to have as many manufactures in this country as possible. If I had the power I would like to have everything that we can manufacture in this country manufactured at home so as to make a diversity of labor.

Mr. Gill — I do not desire to take any particular part in this debate, still I felt so highly gratified with friend Sayre's paper, the subject of it, that I feel disposed to say a few words in regard to the gentlemen that have been up and spoken in opposition to it. My idea is that our government

is for the greatest good of the greatest number. I happen to know personally that a neighbor of mine goes in to the greatest good to Aaron Broughton, and I am of the opinion that a great many gentlemen that hold similar principles have similar motives.

President Arnold—That is personality.

Mr. Gill—What makes me speak so is I was so surprised to find him in that position that I asked him to give me his reason for being a protectionist and the best reason he could give me was he realized as much benefit on his protection on wool as it cost him on articles that he had to buy, so he thought he was a little more than even, he didn't care a cent about anything else, the men that are making dairy products. In fact, there are only four protected articles that the farmer of the United States produces, but the wool growers believe it is perfectly right to put his hand into the pocket of every other man to help his individual interest.

Mr. Hinton—Do I understand you to say there are only four articles protected?

Mr. Gill—Mr. Sayre's paper says that.

Mr. Hinton—Do you agree with it?

Mr. Gill—I don't know; I don't pretend to defend or assist that paper; it is something better than I can give and it is something that my friend has not made as much as a fly speck on yet.

Mr. Hinton—I asked you an intelligent question. Do you believe what that paper says that there are only four articles that are protected that benefit farmers?

Mr. Gill—My belief won't help you any. I had a pretty good idea of the character of the discussion when I heard the gentleman charge that the matter was sprung upon the convention. It sounded a good deal like the cry of "stop thief" when the man has got the swag in his own pocket. We know of a certain gentleman that has never failed to spring that subject on the convention whenever he has occupied the floor on any other subject. I do not consider that Mr. Sayre's paper needs any defense; if it does, I know he is competent to defend it. That paper, as I understand,

if I have the proper idea of the matter, is a comparison as to the benefits derived from a protective tariff by the farming and the manufacturing district of the United States, and I think that is a very well got up composition and as regards the manner in which it was tried to be belittled by claiming that it was old, I don't think detracts one iota from the value of it. [applause.] I do not really care about taking any part in this debate, because I know that the gentleman that read that paper is perfectly competent to take care of it and I do not consider that there has been a point made really against the paper up to the present time, and when you take into consideration the kind of points they undertake to raise and the candid statements in that paper, giving both the benefits derived by the farmer and the advantages on each side so candidly as it is given, I do not see how any man can find a word of fault with it. It is presented to this convention for their consideration, and I hope that every one that has heard it will go home and read it a year from now and keep thinking of it for a good while. I was thinking when he spoke, of a young man that I was acquainted with, that became converted to a free trader; he was a young man about twenty-five years of age, born and raised in Green county; his parents came from England, and he always had a great desire to go and see what kind of a country his parents were raised in, and he got a little money and thought he would take a trip out there, and went a year ago last month and spent four months visiting in the old country among friends and relations. When he came back they made him some presents; sent some dress patterns to his sisters at home. Before he landed at New York some of the passengers that had been over there talked with him, and asked him if he had any goods in his trunk; yes, he said he had got some clothing for himself. Well, that is all right. He had also got some dress patterns for the girls. Well, you had better give a little to the custom house officer. He said he didn't think he had got anything that was dutiable, and would take his chances; the officer came up and asked him if he had got anything dutiable in this trunk. He says, I don't know



whether I have or not. He opened the trunk and looked and saw the dress patterns. Well, you will have to pay on them. How much? Well, about \$30. Well, says he, you have got that valuation altogether too high. What did it cost? I don't know, they were a present. I know very well they did not cost more than half what you value them at. He finally reduced it to \$16; it made him a free trader for life. He said he found out after that a \$1 fee would have got the thing through easy enough, but he did not feel disposed to get through in that kind of manner.

Mr. Hinton — I rise simply to a personal explanation. I beg to state here emphatically, never in a single instance from the first time that I appeared before this agricultural convention did I ever spring the tariff question; that I never commenced to talk about it until some man had sprung the free trade question. I leave it to any gentleman here; I leave it to the officers of the association. Not in a single instance, and I pledge my word of honor as a man that never, until I found out as I found out this morning, that that gentleman's paper was to be a free trade paper, as I found out some other things, as I found out that Mr. Bascom's was to be a free trade paper known in advance to the clique and the ring, never in a single instance did I ever spring the question of the tariff on this or any other convention.

Mr. Phillips — We have found in holding institutes in different parts of the state that the farming community, and especially the young men of the state, are much more interested in something that will assist them in producing better articles and getting better prices than they are in either the tariff question or religion, and I wish to say that there has been a great deal of inquiry in relation to reading matter in the state, especially in the remote parts of the state, and parties that are publishing matter of interest for the dairymen and stock growers have furnished to the institute and sent to this convention several dairy papers, circulars relative to ensilage corn being raised by Hiram Smith and others, etc., and are in the lower room for free distribution to farmers, and you are welcome to go

there and get them whenever you wish. You may go in and get all you want of those articles. There are also copies there of the Breeder's Gazette, of Chicago, and a few Jersey bulletins there for the Jersey fanciers.

President Arnold — Before this convention I have requested Prof. Armsby to bring the component parts of different articles here, as analyzed, and describe and explain them before this convention. This afternoon we have a gentleman from abroad, and we have Dr. Chapin and Prof. Morrow, all of whom you will wish to hear fully and who will discuss very important subjects. Therefore, if no objection is made it will be considered the sense of the convention to hear Prof. Armsby now.

Prof. Armsby — Mr. President, ladies and gentlemen: I shall not detain you very long. I am afraid that what I have to say will seem very tame and common place to you, after the very interesting discussion that has been going on. At the same time it may possibly be a relief, after considering such a very complicated subject, and one which appears to arouse so much controversy and difference of opinion, to turn to something of a different nature. These specimens I have (referring to a row of bottles which were arranged around the speaker's desk), are intended to illustrate the chemical composition of some of the more common articles used as cattle feed, and also one or two dairy products. The student of agricultural chemistry and of the science of feeding, looks at this matter in a somewhat different way from the farmer. The farmer looks at them as so much hay and meal and grain; the chemist looks a little deeper, and endeavors to see, not only the outward appearance of the substance, but what it is composed of, and by proper means these substances may be separated into a number of different ingredients, which serve different purposes in the animal. This set of samples is intended to illustrate the composition of corn meal of average quality. These samples all represent substances of average quality. This first bottle contains one pound of corn meal, and the remaining six contain the materials of which this corn meal is composed. We find that there is about 68 per cent. of

this corn consisting of starch, or starchy matter. It is nearly all starch, and what is not starch is very similar to it. It fills this bottle up to about here. We find two per cent. on an average of woody fibre, forming the skeleton of the grains. We find about five per cent. of fat, about nine per cent. of proteine, that is, of substances similar to the white of an egg, or lean meat, in their chemical properties, and which differ from all the others here in containing the element nitrogen. We find in well cured from about sixteen per cent. of water, as shown in this bottle, and about one per cent. of ash, which is left when the rest of the material is burned, and the weights of the materials in these six bottles amount to one pound.

These samples illustrate in the same way the chemical composition of the old fashioned bran and of the bran from roller milling; this is the roller bran and this is the old fashioned bran. The first bottle in each case contains one pound of the bran; the second bottle contains starchy matter from one pound of the bran amounting in the case of the new process bran to about 53 per cent., and in the old process bran to somewhat more than 57 per cent. The crude fibre amounts in one case to 7.3 per cent. and in this case to 7.9; very nearly the same. The proteine in the new amounts to 15 per cent. and a little more, and in the old process about 12 $\frac{3}{4}$  per cent; the water, fat and ash do not vary greatly. The ash is greater in the new process bran by about 2 per cent. This illustrates the composition of clover hay and this one of milk, and the one on the end of butter, and the two below of potatoes and beets. I said that the agricultural chemist looked at those foddors in a somewhat different way from the farmer; he endeavors to find out what the foddors are composed of. The question naturally arises, what is the use of splitting up the fodder in this way? Of what advantage is it to know these things? In order to answer this question we must consider very briefly what purposes these different components of the foddors serve in the animal, and I will first take the proteine foddors as being the most important. The proteine foddors serve to build up the frame of the animal, all the essential parts of the ani-

mal, the muscles, tendons, skin, and internal organs of digestion, circulation and respiration. The cartilages of the bones are composed essentially of different forms of proteine and all the actual growth of the animal is made at the expense of this ingredient of the food, if we leave out of the account for a moment, the ash. The other ingredient, the starchy matter, the woody fibre so far as it is digested, and the fat, serve two purposes; they cannot serve for the growth of the actual tissues of the body; they cannot be converted into proteine; they serve to keep up the heat of the body; they serve as fuel in other words, and also for the production of fat. The water we can of course leave out of the account because we do not use these foods for the sake of the water that they contain, and the ash may usually also be left out of the account, not always. Now, we are prepared to compare, for example, these two samples of bran and see what the chemical study of them teaches. We find that the new process contains about  $2\frac{1}{2}$  per cent. more proteine than the old process. Now, that shows us at once, I think, that the new process bran would be pound for pound more valuable to a growing animal than the old process, because it contained more material of growth, more proteine. If, on the other hand, we were feeding and fattening an animal, other things being equal, the old proteine bran might perhaps be proper as containing more starchy matter and somewhat more fat than the new process, although that is to be taken with some reserve because the proteine also helps to make fat in the body, but certainly for a growing animal, for the production of flesh, or to a certain extent for the production of milk, the old process bran containing the most of this proteine would be most valuable.

Now, compare this for example, with the sample of corn meal and notice the very decided difference. The starchy matter of the corn meal amounting to 68 per cent.; that of the bran to nearly 53 per cent., and the fat of the corn meal amounting to 5 per cent.; that of the bran being somewhat less. It is evident I think why corn is, as we know it is, a fattening food par excellence. It contains more material which helps to produce fat in the body or to save that

which is already there; while on the other hand it is quite obvious that corn meal alone containing only 9 per cent. of proteine, as against this large amount of starch and fat is inferior as a growing feed to the bran with 15 per cent. of proteine, and still inferior to oil meal. When we come to oil meal, the proteine runs up to  $35\frac{1}{2}$  per cent. Another interesting comparison between the corn meal and the oil meal is in the amount of ash that they contain. Corn meal contains only about one per cent. of ash, while the oil meal, according to this analysis contains six times as much. It is the ash of the food which goes to make up the bone of the animal, and also certain essential parts of the softer parts. Suppose you take a growing pig, for example, and feed him almost wholly on corn meal; in the first place you give him a food which is relatively deficient in the proteine to make the growth, and the tendency will be to produce an excessive formation of fat and a deficient formation of muscular tissue or lean meat. In the second place, you are feeding him a food which is very deficient in ash, does not give him enough bone forming material, so that unless you make up that deficiency in some way it is very likely to have a weak skeleton, and that undoubtedly is a reason why hogs which are fed very largely on corn, need ashes or some similar matter mixed with their food, to furnish the bone forming material, the ashy ingredients which are deficient in the corn meal. I am sorry I have not an analysis of timothy hay to show the difference between that and clover; one thing will strike you in the analysis of clover, the large amount of this woody fibre amounting to over one-fourth its weight, and that is the characteristic of all those coarse fodders. They contain a large amount of this woody fibre and consequently take up a good deal of room in the animal and contain a less proportion of valuable matter than the concentrated foods like the grains. A portion of this woody fibre is digestible, but not more than about half of it on an average. We find here about 40 per cent. of starchy matter and about 11 per cent. of proteine. This is clover hay of only average quality. In extra well-cured clover hay or in an ensilage of clover, the proteine may run

up to 15 or 18 per cent., or sometimes even more. Of the coarse fodders, clover is one of those which is rich in proteine; that is, it is rich as compared with other coarse fodders, other forms of hay. This shows about 11½ per cent.; ordinary timothy hay will seldom run above 5 or 6 per cent.

Evidently then clover is much to be preferred for growing animals or to a certain extent for the production of milk, because milk contains a good deal of this proteine. Of course fresh milk is largely water. In a pound of milk there is about 86 per cent. of water, but making a comparison among these solid ingredients of the milk we find that there is nearly as much proteine forming the basis of cheese in the milk as there is of butter fat, and all this cheesy matter of the milk must come from the proteine of the food, and a sample of clover hay, especially a well cured sample of early cut hay, would furnish this in considerable abundance. Furthermore, we not only get in this way a clew to the characteristics of individual feeding stuffs, we get also some hint as to the proper way of mixing them. What, for example, would be a suitable grain feed to mix with clover hay for fattening cattle. Experiment has shown in a general way, that for fattening cattle we need a pretty large proportion of the starchy matter and fat, and not a very large amount of proteine. Clover hay contains a pretty fair proportion of proteine. We should not find it then profitable probably to mix this with oil meal, which also is very rich in this same substance and deficient in starchy matters. We should prefer for that purpose to take something like our corn meal, which would simply have the starchy matters and fat which are somewhat deficient in the clover, that is, relatively to the proteine, on the other hand, suppose we want to make up a ration consisting largely of straw or cornstalks. These as an analysis would show you, are quite deficient in proteine. They do not contain a sufficient amount of it to balance the starchy matter and fat which they contain, so that animals fed on straw alone do not get enough material for growth. We have got to choose, to mix with that some substance which is rich

where the straw is poor, namely, in the proteine, and for that we should use some substance like oil-meal or something of that nature, possibly bran, although bran is hardly adapted to so poor a fodder as straw without the addition of corn meal or oil meal, or something of that kind.

A Member — Have you an analysis of barley?

Prof. Armsby — I have not. If my memory serves me it would stand somewhere between corn meal and bran, containing more proteine than corn meal and rather less than bran, and containing less starchy matter but considerably more ash.

Mr. Robbins — What about oats?

Prof. Armsby — All the small grains are quite similar as far as chemical composition is concerned. The husk of the oats and barley of course increases somewhat the amount of woody fibre, but otherwise the small grains do not differ very much in chemical composition.

Mr. Arnold — Is there more fatty matter in oats than other small grains?

Prof. Armsby — I think there is rather more fat.

Mr. Gill — There is more muscle and bone in oats than any other small grain.

Prof. Armsby — I cannot keep the figures in my head, but my impression is that analysis shows that there is not any very great difference. I ought to add that chemical analysis alone is not sufficient to fix the value of foods. As I have endeavored to show you it is a guide board to show you which way to go. It needs to be supplemented by some study of the digestibility of the material, the amount of this material that the animal can digest and also to be enforced by the practical experience of the farmer. In other words, the farmer must learn his trade just as well as anything else. It is simply the province of the agricultural chemist to give principles; it is for the farmer to apply the principles to practical cases. You have to consider in what combination you feed. The effect depends not on any one ingredient but on the mixture as a whole.

Mr. Adams — I feed clover hay and corn meal and I find that to be the best fattening material that I can use.

Prof. Armsby — You might find it more profitable instead of such a mixture as that, to use a mixture such as you could get from oil meal and bran and some coarse food like corn stalks.

Mr. Sayre — It is hard work to get oil meal. In feeding straw, or clover, or hay would it pay us to go out of the way to get oil meal and corn meal at present prices?

Prof. Armsby — No, I do not think it would at present prices; I should prefer buying bran rather than oat meal.

Mr. Fish — It is very interesting to know how most profitably to mix our grains for food. Certain kinds of grains will answer to feed together better, than others give the best results. If we could know whether we could mix corn meal with barley or corn meal and oats, which would mix the best together and give the best results, it would be interesting.

Prof. Armsby — As I said, it is the province of the agricultural chemist simply to give principles. It is pretty well settled that in feeding for any particular purpose there should be a certain relation between the amount of proteine in the food and the amount of starchy matter and fat called sometimes the nutritive ratio or the albuminoid ratio; it is not necessary that that should be absolute fixed, but it is pretty well settled for example, that in feeding for milk we need a larger proportion of proteine than in fattening an animal, and that for a growing animal we need a larger proportion of proteine than for a fattening animal, and that the younger the animal, the greater the proportion of proteine to produce the best results. Now, in any particular case you have to consider in the first place what materials you have to work with or can procure, and then what mixture of those will give you the desired proportion of the two.

Mr. True — Given good clover hay and bran. I want to know the best possible food of growing young stock, what should be added to good clover hay and new process bran?

Prof. Armsby — So far as I should judge, I should think that was a very good combination by itself.

Mr. True — How would oil meal be in connection?



Prof. Armsby — Oil meal in that case would increase the proportion of proteine, the material that goes to make growth, but it is not an advantage to increase that beyond a certain point. In the case of fattening cattle we are somewhat ignorant as to what the best point is. There have been fewer accurate experiments in that than in any other direction. I think our best reliance there, is on practical experience. The German authorities recommend for fattening, the proportion of about one part of digestible proteine to nine or ten of digestible starchy matter and fat taken together. Some recent experiments in Cornell University, New York, gave quite as good results with a much larger proportion of proteine to starchy matters.

Mr. Ames — Please give your view in regard to feeding breeding sows, whether oats and bran is not a good food, better than corn.

Prof. Armsby — Yes, sir, I think it would be. Corn is deficient relatively, both in proteine and the ash required for the growth of the young animal.

Mr. Robbins — Is drawn corn any advantage over shelled corn to be used in fattening steers.

Prof. Armsby — Yes, I think it is; because if you feed whole corn a certain proportion passes through the animal undigested, being protected by the seed coats from the digestive apparatus. If you follow your steers with hogs perhaps it don't make a great difference.

Mr. Phillips — Can you give us the relative value of good cured cornstalks with clover hay?

Prof. Armsby — No, sir; you had better ask Prof. Henry about that.

Mr. Daniells — In regard to Mr. Robbins' question, cornstalks and corn as compared with corn meal, which would be the most valuable in feeding cattle here in the west, a dollar's worth of corn or a dollar's worth of corn meal?

Mr. Robbins — My idea was which is the most valuable to beef, a steer for beef, drawn corn or shelled corn?

Prof. Armsby — I think that pound for pound if you take a steer alone, the steer would get more out of a pound of corn meal than he would out of a pound of corn, but if you

take a steer and a hog together, perhaps there would not be much difference.

A Member—If you take it to the mill and have to pay toll, which is the most profitable?

Prof. Armsby—I am not prepared to say that, but under our conditions here it is a very important point with the farmer to save labor, and he had better lose a little perhaps in some directions and save on labor.

Secretary Babbitt—I would like to ask if would not get better advantage in feeding 100 pounds of shelled corn, more than you would to feed 100 pounds of corn and the ear added; that is, feeding the cob with the 100 pounds without shelling; you would get more benefit from the shelled corn, would you?

Prof. Armsby—No, I think the advantage would be on the side of the corn cobs; I think there is very little doubt that there is considerable nutriment of the starchy kind in corn cobs.

Secretary Babbitt—I know Mr. Lysaght thinks differently, but after it is ground he thinks there is a benefit.

Prof. Armsby—That experiment has been tried in this way, the value of clear corn meal and of cob meal. That has been tried in two places at the Kansas Agricultural College and at the Missouri Agricultural College; in both cases one hundred pounds of cob meal gave somewhat better results than the same weight of clear meal.

Secretary Babbitt—No doubt that is correct, but my point was whether corn unshelled, one hundred pounds of unshelled corn feeding with the cob, would be preferable to one hundred pounds of shelled corn.

Prof. Armsby—I should say that would depend much upon the animal fed to.

Mr. Toole—I think with steers fattening with the cob is better than without.

Mr. Wilcox—Are the chemical properties of grains or fodder grown on different soils the same?

Prof. Armsby—No, sir, not altogether. The soil makes a difference. The meteorological conditions make a differ-

ence. Some very interesting investigations have been made recently upon wheat. On general principles that would doubtless apply to other grains. It was found that in good seasons where the wheat ripened well and filled out well it was more starchy and had more proteine than in years where it was rather shriveled. That is, after a certain point of development is past the growth is chiefly a deposition of starchy matter. Presumably that would hold true with other grains. As to the influence of the soil we do not know as much. In general, a rich virgin soil would be likely to produce a grain richer in proteine than an exhausted soil.

Mr. Sayre—Some of us are living where there is a mill near, and some of us farmers took it in our heads to take our corn to the mill and have it ground for, which we pay a toll of one-eighth, but after some experience we concluded we were losing money; that is, that if we had the corn in the cob and fed it we did better than if we lost the one-eighth by grinding. Was that a fact or a fancy of the farmers?

Prof. Armsby—I have a good deal of faith in the judgment of competent farmers. I do not scarcely feel qualified to answer these practical questions, yet I have no doubt that the less work you put on your corn crop to get it into your cattle the better. Some recently have been advocating not even husking or shelling the corn, but feed grain, stalks and all, and I am not certain but something of that sort, possibly with the addition of something like oil meal or bran would be on the whole advantageous as saving labor.

Mr. Arnold—I would like to know about how much of the component parts of foods which are grown on the farm are derived from the atmosphere and what percentage from the soil, as understood by chemists.

Prof. Armsby—Take clover hay for example; from the soil comes all of the ash and about one-sixteenth of the proteine; that is, all the nitrogenoids and the water; practically all the rest comes from the atmosphere. I should have said one-sixth of the proteine. In this case about eight per cent. of the weight, exclusive of water, came from the soil; the rest from the atmosphere.

Mr. Allen — How do you determine that?

Prof. Armsby — We determine it by trying the experiment. It has taken a good many experiments to settle that thoroughly. You know in the first place that the ash of the plant must come from the soil, because there is not any in the air. We know that the nitrogen in all probability comes from the soil, because when we try to grow a plant on land that has no nitrogen in it, it refuses to grow, while if we supply nitrogen it will grow. We can take a soil that contains no carbon and no nitrogen or oxygen, except that contained in water, and grow luxuriant crops on it. In other words, we can supply the plant with all the carbon it needs to make this starchy matter and woody fibre out of the air.

Mr. Hoxie — I think Prof. Liebig gives the fact that clover derives seven-eighths of all its nutriment from the atmosphere.

Prof. Armsby — The same is true in a general way of all plants; they derive the larger proportion of their weight from the atmosphere.

Mr. Allen — Isn't it the fact that the ammonia in the atmosphere being condensed by the dew, is brought down and the plant takes it up, and does not that contain nitrogen?

Prof. Armsby — The received opinion up to a short time has been that while undoubtedly the ammonia of the air contributes to the growth of the plant, it does so by being first carried into the soil by the rain or dew, and taken up by the roots. There are some recent experiments which seem to show that this view may be mistaken to some extent; that certain plants do get some of their nitrogen from the atmosphere. It is not a settled point; it is possible we might have to revise our opinions on that point.

Mr. Allen — It takes it up through the leaves.

Prof. Armsby — I do not say for certain about that. We may find that they do.

Maj. Alvord — From what you said I should infer that the proteine is the thing that must cost the most to produce; that which is chiefly drawn from the soil; is not that the one

thing, therefore, which in feeding we ought to exercise the most economy about?

Prof. Armsby — Yes, sir.

Maj. Alvord — May we not over-do the feeding of articles rich in proteine?

Prof. Armsby — I think we may.

Maj. Alvord — Then would it not be well to qualify answers that have been given to one or two questions. One gentleman said that he was feeding with clover hay bran, and another that he was feeding with oats barley. Is there not in such combinations a chance of wasting proteine, of feeding more than can be used as food?

Prof. Armsby — Yes, I think there is.

Maj. Alvord — Is there not grain that will keep up a better balance than bran when added to clover hay?

Mr. True — I would like to know if timothy hay is substituted for the clover if the equilibrium is restored?

Maj. Alvord — That is a very different thing.

Mr. Allen — Will you just tell us the relative value of clover hay and timothy hay, suppose they are each cut in the blossom?

Prof. Armsby — Timothy hay, as a rule, has much less proteine and more starchy matter than the clover hay; consequently it is better adapted for fattening and less adapted for growth or milk, other things being equal.

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## DAIRYING THE BEST FARMING, FOR FARMER AND FARM.

By HENRY E. ALVORD, of Houghton Farm, New York.

The first duty of the farming of this country is to provide our own people with food and clothing. The fifty millions enumerated five years ago, have increased to more than fifty-seven, and will soon number fifty-eight. Allowing for the less necessities of children, there is still an equivalent of fifty million adults to be supplied. That this increasing demand is well met, so far as quantity is concerned, is shown

by the great surplus annually sent abroad of corn and wheat, cotton and meat. For twenty years, agricultural products have constituted more than three-fourths of the total exports from the United States, while in single recent years, this proportion has reached eighty-three per cent. and amounted in value to nearly nine hundred million dollars. It is manifest, moreover, that this superabundance of agricultural production will continue, despite any possible increase in population during the present century.

But the wisdom and economy of our present systems of production and disposition, is a very different matter. One of our most acute statisticians and economists\* has lately presented the startling fact that "the whole accumulated wealth of the country, aside from land, does not exceed two or at the most, three years' production." And that the average product to each person in this most prosperous land, measured in money at the point of final distribution for consumption, does not exceed fifty to fifty-five cents per capita, per day. In other words, our total product or income, as a nation, is such, that, after the necessary outlay to maintain our capital, and the payment of all taxes, there remains only enough, to allow from forty to forty-five cents per day, with which to provide shelter, food and clothing for every one of our people. "This is the measure in money of all that is produced, and we cannot have more than all there is." Plainly we have a small margin to work upon, and it behooves us to husband all our resources. But as a nation, we are not doing it. The fact cannot be denied that even on the rich soil of some of our richest states the average production per acre is steadily decreasing. This is a very serious matter and deserves careful consideration.

Vegetable products form the basis of all agriculture. To produce useful plants the soil must contain certain known elements as plant food. For any of these elements of fertility to be available, all must be present in the soil in fair proportions. Every crop removed from the land diminishes its store of plant food and thus reduces its productive power.

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\*Hon. Edward Atkinson, of Boston, before the American Association for the Advancement of Science.

The process of constant drafts without equivalent return deposits is as certain to end in bankruptcy in farming as in finance. And it may be remarked that, similarly, those who have accumulations in the savings bank, as the result of years of toil and frugality, generally husband their capital, while those who inherit a large bank account are very apt to waste their patrimony. We boast of our great exportations of agricultural products forgetting that this really means the sending to foreign lands of great blocks of our store of natural fertility, thus disposing of the main source of our agricultural wealth by the ton and by the million. When we export products which are sold for \$800,000,000, this includes available plant food, all needed at home, which we cannot replace for less than an expenditure of \$50,000,000, or six per cent. of the whole. And this fertility never comes back; it goes to enrich other lands, or is washed into seas from which we do not even get the fish and kelp. Those of us who are contending with impoverished soils are well placed to appreciate the sober subject of agricultural exhaustion and are in duty bound to give an earnest word of warning to those who labor on newer lands. "Uncle Sam" is an active and industrious body with numerous irons in the fire, but his chief occupation is farming, and so it will be for many years. He is carrying a big debt, incurred in a good cause, and standing in the nature of a mortgage on his property. He is anxious to lift the burden. But it is a most mistaken policy to run down the farm and, in order to leave his family debt free, bequeath them exhausted soil and worn-out machinery. His wide-awake boys—aye, and generations more remote, will be far richer, to have the fertility of the great farm maintained, and all kept in working order, even although a good share of the funded debt also falls to their lot.

With our rapidly increasing population, and a constantly lessened fertility of the soil, we have presented to us the gravest questions in connection with our farming. By the wasteful processes prevailing, we are expending our very substance, and daily adding to a burden under which generations to come will stagger. The truly economic produc-

tion of food and clothing for our people, and the wise arrangement and disposition of our surplus, are the great problems for the future of American agriculture. Political and social science must then be applied to the economic distribution and consumption of the products of the farm.

The researches of modern science have done much in establishing truths of practical value in our farming operations. None are more important than those which teach us the effect upon the fertility of the land, of the removal of different crops and products, and what should be consumed at home, and what may be profitably sold. Thus, if a ton of farm produce be removed from a western farm to an eastern market, or from any American farm to a European market, it makes a vast difference, eventually, to the producer, and owner of the land where produced, whether this be a ton of corn or wheat, beef or butter. In just this difference lies the practical lesson that domestic livestock, in due proportions and properly maintained, are essential to far-sighted, well-conducted and profitable agriculture. More livestock and better care of it, is the only salvation of our worn lands, the shortest and surest means of recuperation in the east, and the sole method of preserving the fertility of the west.

A careful study of the consumption of food by the great industrial classes in this country, both as to quality and cost, shows that, approximately, computing our population at an equivalent of fifty million of adults, \$100 is annually expended for food, and \$30 for clothing and household goods. Half the whole cost of food is assigned to animal products, \$30 for meat and poultry, \$20 for dairy products and eggs. This is widely at variance with the teachings of nutrition and domestic economy. The same food value, and in the form of a very satisfactory diet could be obtained for half this expenditure for animal food. We are notoriously a people of an abundant and really extravagant diet, and the great majority will prefer to continue expending twenty-five per cent. more than is necessary for food, rather than give up their generous meat supply. While therefore, it may be useless to discourage so great a consumption of animal products, we should certainly contribute to cheapening



their cost. By encouraging the increase of our herds within proper limits, by assisting in their protection from disease and disaster, by aiding in the consumption of vegetable products as near as possible to the place of production, the lessening of our surplus of breadstuffs and increasing the home consumption and export of animal products, we so act as to not only maintain but improve the fertility of our soil, and actually do more than to make two blades of grass grow where but one grew before. And by reducing the first cost of animal products on one hand and lessening their cost to the consumer on the other, we may directly contribute to human welfare. If the fifteen cents which the average person in America daily expends for animal food, could be reduced to twelve (as I believe it may, and with profit to the producer) the saving in the cost of living would be a million and a half dollars a day, or enough to pay off the entire national debt before a president is again inaugurated.

My special purpose at present is to invite your attention to dairying as the most important branch of animal industry, and as the best both for the farmer and his farm. It is hardly necessary even to rehearse the proportions which dairy production and the dairy trade have assumed in this country, and yet a brief comparative statement seems appropriate here.

In round numbers, our neat cattle represent half of the \$2,500,000,000 invested in live stock on the farms and ranges of this country. And of these cattle, 14,000,000, or nearly one-third, are milch cows. In value, these milch cows constitute a good deal more than one-third of the entire capital in cattle. To be conservatively safe, we may reckon the cows fairly classed as dairy animals at between twelve and thirteen million, and these may be roughly divided as eight million butter cows, one million for cheese and four million for milk supply. Without counting the yearly increase in calves from milch cows, the aggregate products of the dairy are annually equal in value to the dairy cattle themselves, being nearly, if not quite, \$400,000,000. This is equal to half the estimated total net products. The products of

dairying therefore form at least two-fifths of the entire annual products of cattle growing in America.

In a classified list of the agricultural products of the nation, arranged according to values, meat stands first, corn second and the dairy third. Wheat and hay come next, but with a few exceptions, our dairy products for several years have been worth more than our wheat crop, and more than our hay crop. Our butter product alone is worth more than our cotton crop, and the milk we consume as food is worth as much as our crop of oats. The whole issue of national bank notes would not purchase the products of our dairies the present year, and the aggregate banking capital is less in value than beef and beef products which are placed upon our markets every twelve months.

The development of American dairying exhibits the greatest progress ever made in any branch of agriculture, for it combines rapid growth with remarkable improvement. The application of mechanical skill and the activity of inventive genius, is an excellent indication of the advance of any industry in this country. Perhaps nothing shows our dairy development more than the fact that from the opening of the United States patent office more than eighty years ago, to the present time, there has been more than one application for every fortnight for a patent on churns, and during the last twenty-five years a new or improved churn has been invented every five or six days.

Our dairying was without unusual features until about 1840, and the great growth has occurred within fifty years. In that time the number of milch cows in the United States has tripled, and their products have quadrupled in value. It is within the memory of us all that, like the Great American Desert, the famous "Dairy Belt" has faded away and is heard of no more. The idea so long maintained that the profitable dairying of the country would always be monopolized by a district confined within certain narrow geographical limits, has been thoroughly exploded. It has been amply shown, that good butter and cheese can be made by proper management, in almost all parts of North America, between the thirty-second and fiftieth parallels, and perhaps

this is drawing the lines too close. Generally speaking, the territory where good butter can be profitably produced is more extensive than that with satisfactory conditions for even limited beef production. Even the influences of climate, soil, water and herbage are largely controlled, and what is lacking in natural conditions is supplied by tact and skill. We find some of the best records of dairy performances, both as to quantity and quality of single animals and whole herds, in the higher latitudes of Canada and in lower Tennessee. In remote districts of Maine and Minnesota, on the plains of Nebraska, in the mountains of Colorado and California, among the old cotton-fields of Mississippi, and in the highlands of Florida, dairying has assumed a commercial importance, and I know of establishments in all these places where butter or cheese, or both, have been made long enough and with such success as to fully satisfy the owners and friends of these respective enterprises.

The factory system is the characteristic feature of American dairying and the one to which this industry owes its greatest advance during the present generation. We all know the wonderfully rapid extension of this system during recent years. The census of 1880 enumerates nearly four thousand dairy factories, with a capital of \$10,000,000 and a total product valued at \$26,000,000, and reasonable estimates now place the factories at 6,000. It is true that of all the dairy products of the country, a very small portion are yet factory made, but equally true that it is the factory which gives this industry its present commercial importance and which marks the greatest advance of the century in the relations of dairying to the farmer and his family. It may be compared with the change from the wheel and the hand loom to the woolen factory, and it is just as certain to be permanent. I cannot at all agree with those who claim that private dairying is now gaining on the factory system, either on the part of the farmer or as judged by the markets. We still see occasionally at our local fairs, skeins of home-spun yarn and pieces of cloth which attract attention and generally sell at prices above the market for choice factory products of a similar kind. This is partly the result of their

rarity and partly because of intrinsic merit. So for years to come, there will doubtless be single dairies in many places whose products will sell at exceptionally high prices and probably deserve to, but the total of such sales will form an inappreciable portion of the general dairy market. Our factories are by no means perfect and often fail to give satisfaction to their patrons. This, however, is no radical fault of the system, but results from errors of details or of individual management. Improvements are needed and will be made, and dairy butter will become as scarce an article in our markets as dairy cheese. I also expect to see a great extension of the cream gathering plan in butter making districts. The combined butter and cheese factory has seen its best days and one dairy product or the other must be the sole output of the successful factory of the future. For the butter factory, pure and simple, the skim milk becomes practically a waste product, and the only rational system is to handle the cream alone. It is as absurd for the farmer to send away his whole milk to make butter, as it would be to drive his flock to the woolen mill, or for the planter to bale his cotton without ginning and sacrifice the seed.

Great as the progress in dairy husbandry has been, there remains as in all branches of animal industry, ample room for improvement. We are keeping too many milch cows for their aggregate product. The gain in this particular is not fast enough. But a few years ago, a friend of mine who was supplying milk in a New England town, and where the dairy stock of the vicinity was good, made a standing offer of \$100 for every cow which would give fifty pounds of milk daily for three days, on his farm. This was almost double the price of the best dairy cows, but none of those presented reached his standard. Recently, I periodically witnessed and verified the performance of a cow, which with her second calf, produced one hundred pounds of milk per day for a month, and yearly records of 10,000 to 20,000 pounds, are now by no means rare. The average milch cow of the United States, and by this I mean the cow kept for her milk product, does not yet give 400 gallons a year, and in the special milk making regions, the average does not

exceed 500 gallons. Yet there are numerous single herds of ordinary breeding, but well selected, where the annual yield is from 800 to 900 gallons per cow, and others of pure-bred dairy animals where the average ranges from 1,000 to 1,200 gallons per cow. These illustrations of the possibility of increasing our milk supply, from a less number of cows, applies as well to butter and cheese. It is certainly more than possible to so improve our herds that in a few years our present dairy production can be secured from half the number of cows we now feed. The improvement in progress in this direction, although slow, is very positive. From 1790 to 1860, the increase in number of milch cows, kept even pace with the population. Twenty-seven cows to 100 inhabitants was the rate which did not vary one per cent. during these seventy years. But in this time production increased so there came to be a surplus of products. Now with but twenty-three cows to every one hundred people, our surplus is still greater. Our dairy interests will be better conserved by a decrease in the number of our cows, and a gain in their quality, than by any increase in number (at least in the ratio to population.)

The question of surplus in American dairy products is one of more or less uncertainty. A short time ago, it seemed impossible for dairy production to be overdone for years to come. But for the introduction of adulterations and substitutes for butter and cheese, there could yet be no surplus unfavorably affecting our markets. How far this substitution has extended and its real effect upon the prosperity of dairying, it is impossible to determine. The export trade has been injured in some way and undoubtedly in part by loss of reputation resulting in frauds in dairy products. And we know but too well the vast quantities of bogus butters and skim cheese with which our domestic markets have been flooded.

I put these two classes of wares upon an equality as frauds. For the skim and half-skim cheese, dairymen are themselves responsible, and the cheese trade has suffered as much at their hands, as the butter market has from bogus butter, in its various forms. If our dairy market

could be freed once more from these cheap imitations of genuine butter and cheese, it is safe to say that our dairies could not produce a surplus for many years. But as matters stand, the case is very different, and already perplexing enough. What shall be done on the part of our dairy interests, to meet this insidious attack, has become a very serious problem. It is an insidious attack, and not open competition, because the imitation and substitutes are almost universally sold, at all events by the retailer, as pure butter and cheese. I lately heard a man declare in New York, that with a moderate capital, he was able, with his factory, to put as much "butter" on the market in a month as thirty thousand dairymen! He called his product "butter," and just there lies the worst feature of the case. If the goods could always be made, sold and consumed with a full knowledge of their real character, the evil would be mainly removed and little just ground for complaint would remain.

American-like, the first appeal for the relief of the dairymen from this new evil, was made to legislation. But although laws in great variety have been enacted in different states, to meet the case, the result is far from satisfactory. In New York we have tried the policy of prohibition. The statute, however, attempted to cover far too much ground; was drawn with a very superficial knowledge of dairy facts and needs; railroaded through the legislature with no opportunity for deliberation and debate; and as a result, it proves very ineffectual, notwithstanding the creation of special officials, well supplied with money, to enforce the law. On the other hand, a state law of New York, requiring the branding of all cheese made in the state, to show whether it is a full cream article, or the degree of its impoverishment, is found to be easily executed, and has already done much to restore confidence in the market and improve the quality of cheese factory products.

As a rule, however, very little is to be gained by making new laws on matters of this kind. Markets are neither created nor supplied by legislatures. The danger of our time is the constant resort to legislative remedies for evils which

can only be removed by individual effort and industrial progress. The moment special legislation is sought, reciprocal alliances become necessary, and odd as it may seem, it is a well established fact that in the work of "log-rolling," the farmer always comes off the loser. We had far better cry, "Hands off; give us free trade." These two little words, used with no revolutionary intent, but for just what they actually mean, are of great importance to all our live-stock interests.

Instead of hasty appeals to protective legislation, let there be earnest and united effort on the part of dairymen and tradesmen. Improvement in our cattle and economy in their management, resulting in dairy products of a higher quality, sold at reduced prices, are the measures surest to overcome competition from any substitutes for pure butter and cheese. The butter factory, or "creamery," is the best weapon with which to fight the butterine factory. At the same time much needs to be done in varying the forms of our products, and educating consumers and extending consumption.

A recent careful study of the relative retail prices and nutrient qualities of all the common food products, showed that consumers can in no way get so much food value for their money as in the purchase of dairy products. Skim-milk, buttermilk and cheese at their usual retail prices are cheaper as nutritious food than any other articles on the long list, and are approached in this respect only by fresh mackerel and dried codfish. Butter, on the contrary, is a luxury rather than a food and always sells for two or three times its real food value and often more. Dairymen may be comforted by the fact, however, that Americans like butter as well as meat. It is one of our national extravagances. We are the greatest butter eaters of any people in the world. The trouble now is that a very small percentage of consumers know what good butter is, and they are thus easily swindled and satisfied with a bogus article; but it is not difficult to improve the taste of the average consumer, and with a little effort he can be so educated as to absolutely condemn the best concealed attempts to blend with superior

"Elgin creamery," while passing through Chicago, the unctuous virtues of the western hog.

It is a sad comment on the domestic economy of America, that while our people consume more butter per capita than in any other nation, they are among the very smallest consumers of cheese. The cheese used in this country does not amount to three pounds per annum for each person — while in England, the usual estimate is over twelve pounds, which is a greater rate per capita than the British consumption of butter. There is no food better or cheaper than cheese, and its production and consumption in this country ought to be very largely increased. To accomplish this, two things are mainly needed. There must be diversity of form and flavor, and, in some way, retailers must be made to content themselves with less than their usual fifty per cent. profit. When a sixty pound box of fine full-cream cheese can be bought at ten cents a pound in any of our large markets, the same article will be found selling within half a mile at fourteen to sixteen cents a pound, sometimes eighteen, according to the style of the retail store. Well made cheese in any form that is small enough to be taken by a consumer uncut, are comparatively rare, and when found, usually sell readily at quite high prices. I know a little cheese made in Otsego county, New York, in the cheddar form, but weighing only three pounds; this because of its attractive size, apparently, sells at wholesale in New York city for twenty cents a pound, when exactly the same thing in the usual market form will bring but thirteen or fourteen cents.

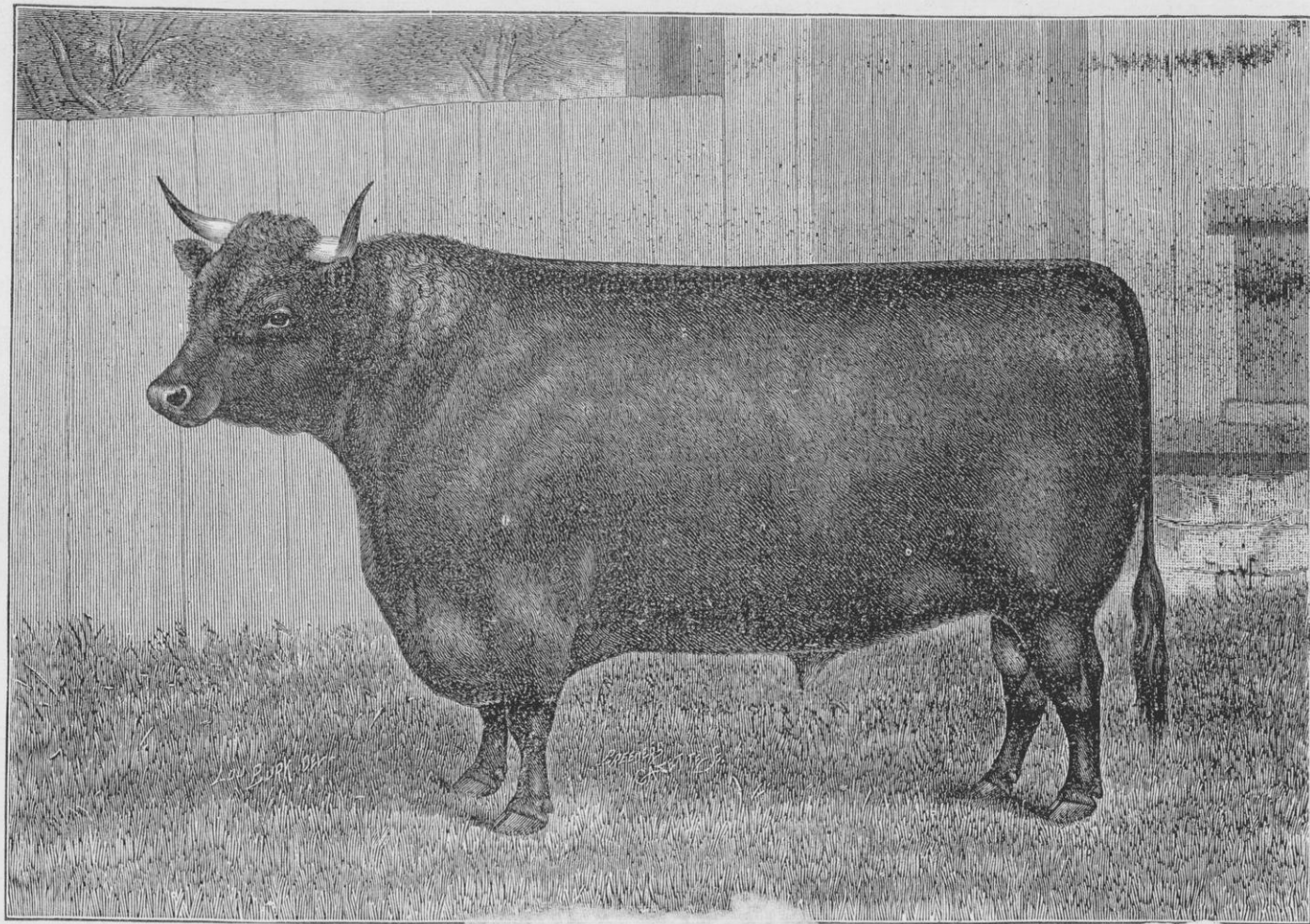
The consumption of milk as well as cheese, particularly in our large towns and cities, is far below what it should be. Here again one of the chief obstacles is the retail price, although milk is comparatively one of the cheapest articles of food. But, the business of milk supply is, as a rule, carried on in a most unsystematic and wasteful manner. Thorough reformation and re-organization is needed. This great field is a promising one for co-operative effort. The usual cost of final distribution, including the retailer's profit is from two to three cents a quart, often more. Yet it has



been demonstrated by well managed milk associations in in several places, notably at Syracuse, N. Y., and Springfield, Mass., that this service can be performed for one cent a quart or even less. Then again, the trade in skim-milk, the very cheapest form of food, is not half developed. A very mistaken idea very generally prevails as to this article, and in many large cities, where its general distribution would be a public blessing, boards of health absolutely prohibit its sale and actually destroy all skimmed milk that can be found!

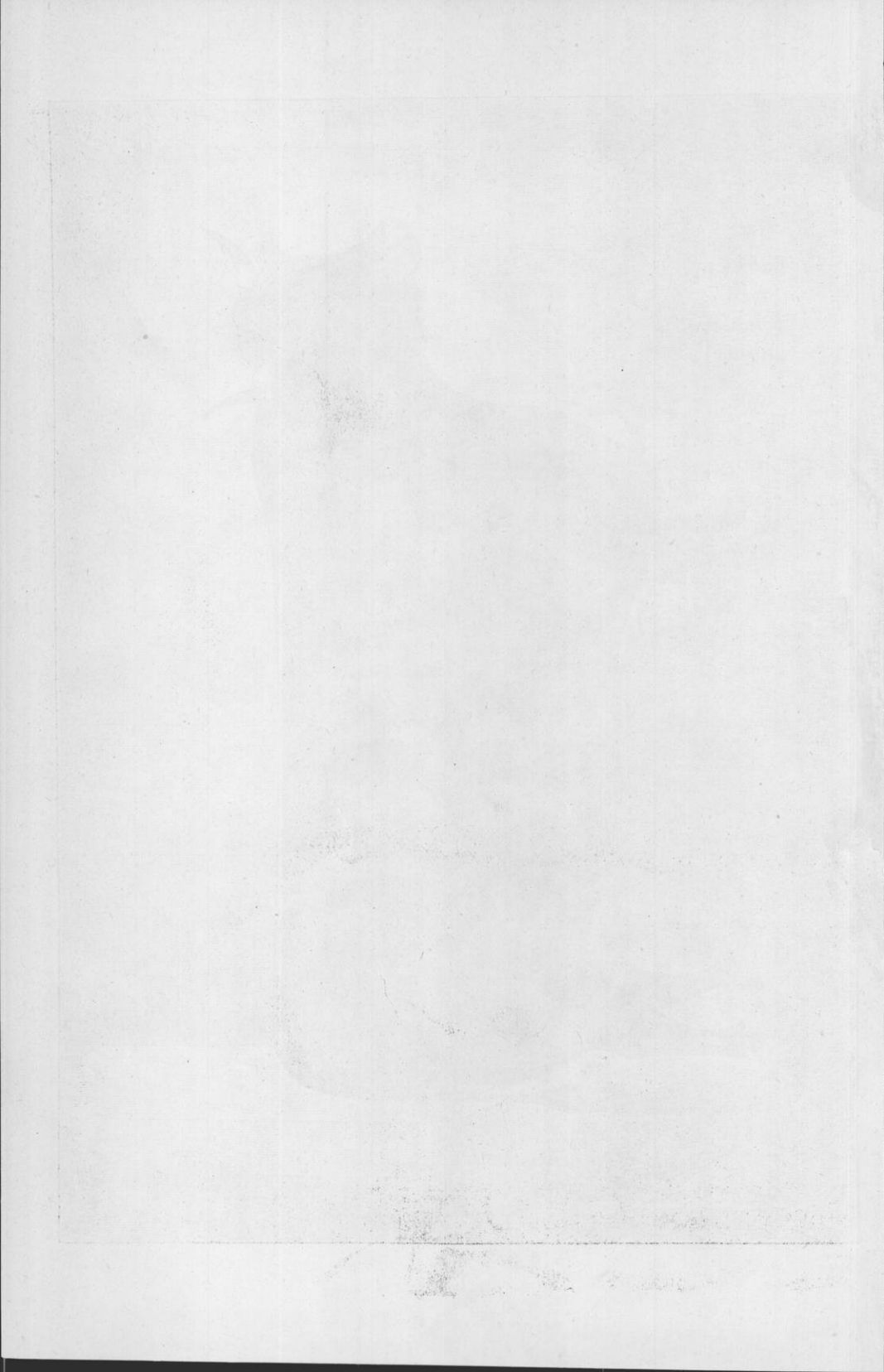
In conclusion, let me now invite your attention to two diagrams which graphically illustrate some of the points to which I have already referred. The first shows the relative proceeds, at retail, in average domestic markets of one ton each of flour, beef, milk, cheese and butter, and the apportionment of these proceeds between producers, transportation companies, wholesale and retail traders. It also shows the draft of these several commodities upon the fertility of the soil where made. The great advantages are here made apparent of sending vegetable products to market in the condensed form of beef, butter and cheese. The other chart gives the same general facts but in a different way. It exhibits the distribution of every dollar paid by the consumer, for flour, beef, milk, cheese and butter. The dairy-men get a much larger share of the gross proceeds than the meat growers. The expenses of transportation and wholesaling are comparatively small, but the share for cost and profit of retailing is unreasonably large, especially in the case of cheese and beef. This is manifestly a place where reform is necessary. The black section below each colored column, drawn on the same scale shows the part of the dollar received, which may be considered as meaning the elements of fertility which leave the farm with these respective products. Thus we see the grower of wheat out of every dollar received, should know that ten to twelve per cent. represents the reduction of his capital in his soil, while the corresponding effect of selling butter is so small that it can hardly be shown on the diagram.

It is evident that the question of the ultimate effect upon



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the production of our lands is one which deserves to be always before us in determining what we will grow and what we will sell, and especially what will be exported.

It may be claimed that economical and political reasons have justified in the past, the cultivation of the soil at the expense of future generations. This wasteful culture has produced the accumulations which have provided all our apparent wealth other than land and enabled us to make all our great public and private improvements. Thirty-eight noble states in an indissoluble union are the justification of this policy. Their school-houses and churches, their shops and factories, their roads and bridges, their railways and warehouses, are the fruits of the characteristic American agriculture of the past.

But these excuses for wasteful systems no longer exist. The country in its arable parts is settled and the line of population now rests near the base of the great mountains which occupy so large a portion of the continent. The time has come when a continuance of this policy will be, not the improvement of our patrimony, but the impoverishment of our posterity.

Economical and political consideration alike demand that the soil bequeathed to this generation or opened up by its own exertions, shall hereafter be deemed and held as a sacred trust for the American people through all time to come, not to be diminished or impaired for the selfish enjoyment of its immediate possessor.

A solemn obligation thus rests upon the farmers of this country now and hereafter, and in the performance of this manifest duty, none are nearer right than those who are engaged in the rearing of live stock, and more particularly those in dairying.

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Hon. Hiram Smith — I hope we shall not fail to reap the full benefit of this very able and instructive lecture. The object lesson which has been so clearly pointed out to us leaves an impression which we do not often obtain in any of the conventions that we have. Coming from a man with

a world-wide reputation for a close observer and a careful calculator of what has been and may be, it comes with double force to anything we have ever had in this convention, and the note of warning was timely and opportune in regard to shipping away the riches and the fertility of our soil in the hundred millions of exports from this country. This system of farming cannot long endure, and when the return comes, as come it will, it will leave this country in a worse condition than we now anticipate. We have been living upon a rich, new and virgin soil, and we have drawn overdrafts upon its fertility, and we cannot do this long and survive; therefore, we would lay up this advice and this warning for future reference in our calculations in what course of farming we shall pursue in the future. Food and clothing, as he says, is going to be an important element in the affairs of this country. We look upon them as cheap and common things, and so they are compared with what they have been, but still they cut an important figure in our history. Food and clothing add power and durability to a nation. The poor ragged soldiers that the improvident South could no longer furnish with supplies were no match for the well clothed and well equipped Union soldiers at Appomatox. Food and clothing are the prime necessities of life. From the ravages of fire, from the destructions of the flood and the misery occasioned by the cyclone, the first cry that we hear from these sections, is a cry for food and clothing. In all our affairs, in the great commercial centers, the cities, they are engaged, block after block of five story buildings, all engaged in handling food and clothing. It is a big thing in our country. We have been told what portion of the crop we may retain by the length of the red lines on that diagram. Let us carry home a lesson for our future calculations in farming what we have learned this afternoon. [Applause.]

Mr. Sayre—Those black marks have presented to my mind the marked feature of this lecture. It is a question with us farmers how we can make a successful farmer, and we have run this way: If I can sell so much corn or pork or wheat or oats I am making a success; but those black

marks stand in the way. I never have had it presented to my mind so before, and I have never seen anything for which I am so thankful as I am for those black marks; it shows me that I may encroach so much on my capital and have my income from year to year, but if I am eating away from day to day the capital upon which I am trading, then what? I am losing. I cannot but express my gratitude to the Major for showing me and the farmers here that we must not encroach upon the fertility of our soil.

Mr. Hinton — I heard a gentleman whisper out here just now that he was very much surprised at the great ability that the gentleman who entertained us so ably and instructively, had shown in the construction of the paper, and particularly as to the diagrams. Well, I was not at all surprised. I never saw the gentleman before; I didn't know whether he was competent to speak or not and yet I was not a bit surprised. I did not expect any better paper than we got. I am free to say that had I to give an opinion, I should not have expected quite so good. I remember hearing Gov. Seymour speak, the man who inaugurated the system of dairy farming and cheese making in this state. I had occasion to go up to him and thank him, for I had watched the faces of the farmers who listened to him and I said, if I am a judge of human nature and I am an old reporter, accustomed to watching large meetings, you have made a deeper impression and you have done more good for the farmers of Wisconsin than all the race of politicians that ever lived within its limits. I think my friend Smith will agree that the speech which Ex-Gov. Seymour made at that time was one of the best and most instructive and most beneficial that was ever given in Wisconsin. Now, then, I am not surprised that another gentleman comes here; somehow or another we learn a great deal from that old York State. You know it was in the city of New York where we got our Constitution. I want to say about another subject, it would not be right to introduce it here, but I will say that it was in the city of New York, that Washington having nothing on him except what was made in America, put his

signature to a law that has done a great deal of good. I will leave you to infer what it was.

Mr. Robbins — I don't understand regarding production. I must say if the cost of production has nothing to do with us, that is a remarkably long red line. I don't know whether the cost of production has anything to do with the wheat, the beef, the milk, the cream and the cheese. I ask for information, whether it has or not.

Major Alvord — Perhaps I ought to say that the question of cost and production and the question of profit has not been taken into consideration at all in this matter, and that it is entirely a distinct matter from that which was under consideration when these charts were prepared. We have endeavored to deal only with the simple fact what part of a ton or of a dollar of different commodities which the consumer gets come out of the soil, and it would be entirely misleading for anybody to interpret any of the statistics which are put in this form as dealing with the question of profit; that was not attempted at all.

Mr. Robbins — I should like to know why that black mark is so small for cheese and so large for butter.

Major Alvord — For the reason shown by the jars prepared by Dr. Armsby; he can answer better than I could, but I will answer briefly, that the portion of a pound of milk which comes from the soil is very large, and cheese is the same as milk in that respect, and that the portion of a pound of butter which comes from the the soil is simply infinitesimal.

Mr. Hiram Smith — In other words, it goes back through the skimmed milk upon the farm?

Major Alvord — If you divide your milk into the butter portion and the skim milk portion, the skim milk portion contains all that is desirable to maintain the fertility of the soil. Perpetual butter making on a farm, if the skim milk does not go off from it, makes no draft on the fertility. Next to that is the sale of cheese, retaining the whey and waste at home, and then comes the sale of the whole milk. The sale of the whole milk from a farm cannot be justified in economic farming unless the conditions of the sale and

the production of milk are such that the restitution to the soil is absolutely provided for by the purchase of fertilizers annually.

Mr. True — I would like to ask if the small space occupied at the foot of the beef column compared to that of butter is not an inducement to us for better feeding to stock?

Major Alvord — That column of beef was the most difficult one in the lot to make up, because we knew that the purchaser of the article bought only the edible portions of the animal and we had to consider whether the farmer on the average sold the whole animal on the hoof or got any portion of the offal from the dressing of the animal back on to the farm. Of course the general supposition is that the entire animal leaves the farm. I think that was the assumption in this case; also if it had been a lean or growing animal represented in that column, the black block would constantly increase. If a man is going to make beef and sell it from his farm, the fatter his beef the less of his farm is sold.

Mr. Robbins — Then you cannot afford to sell poor cattle off your land.

Major Alvord — You cannot afford to sell growing or poor stock off your land so well as you can fat stock.

Mr. Allen — Another thing, you must mature the animals and bring them to market at the earliest possible aid.

Major Alvord — That is a question of profitable raising, not a question of fertility.

Mr. Arnold — Please explain why it is that in selling a fat animal you decrease the land less than by selling a lean animal.

Major Alvord — Because the muscle and frame of the animal are made up from the nitrates and potash derived from the soil, whereas the fat is derived from the air.

A Member — I would like to ask whether you believe that we can expect to produce in the near future a pound of butter as cheap as the adulterated article called oleomargarine.

Major Alvord — I should hate to answer that question. I would not dare to say yes or no to any such question. It is



an involved question and I have not the practical experience with the making of butter which would furnish the ground for any definite answer. I had rather answer another question, by saying that I do believe that by particular methods of manufacture, by a new system and better care, we can make a pound of butter which, at the price at which we are willing to sell, will compete in the market successfully and satisfactorily with a pound of butterine, whether it is made from the tallow of the ox or the lard of the hog. The danger of our butter is much more at the present time from mixtures of butter with the cheaper fats, than it is from the article which we first knew by the name of oleomargarine, which is made to-day in very small quantities. It is the butterine, small portions of butter mixed with cheap lard and other cheaper fats, than the suet of beef, that is doing us the most harm at the present time.

Mr. Hoxie—It seems to me here is another point on this subject; we can readily see by that red line the comparative value of a ton of butter, and how much the consumer receives and how much the purchaser receives, etc., but it seems to me quite germane and proper to this subject for us to know how much more it costs per ton to get that than it does a ton of beef. It will not do for all the farmers of Wisconsin to go into dairying, taking that red line as their standard, by any means; they are not all qualified for that, some of them are interested in raising fat stock, some in raising blooded stock for sale; now, what we want to know is, whether we derive the most benefit from raising stock blooded or for other purposes, or whether we shall go into dairying and sell the product in butter. We may be misled by that long red line and rush into making butter at a loss.

Mr. Roberts—There is another point that has not been touched upon in this discussion. I remember in reading the governor's message, that he used a phrase about the injurious rush of boys from the farm. Now, perhaps we have an explanation of it right here. Major Alvord says that on one side of the street they sell a side of beef for  $6\frac{1}{2}$  cents a pound, and you go across on the other side of the street and

you may pay 13 cents on an average, and sometimes as high as 25 cents. He represents that the retailer gets 50 per cent. and the purchaser gets 50 per cent., and perhaps that may be the case with some other of these products. Now, if there is such profit as that in retailing, is there any wonder that the boys want to leave the farm to go into this retailing business, and are we not liable now to be misled by such a statement as that, unless we think a little further at any rate? I suppose that butchers do not get rich very much faster than men in other occupations, and that really their profits are not any inducement for a boy to leave the farm. Of course a boy that is brought up on the farm may see money in going into the butcher business, and may want to leave the farm on that account, but I do not think we ought to go away from this convention feeling that we are imposed upon by the retailers. I suppose that the butcher or the baker, or the retailer in any business, is just as useful a man as the producer in any business, and that he is entitled to his profits, and that competition in all these lines of business reduce profits down as low as they possibly can be.

Mr. Hinton — There have been seventy-five failures of retail butchers in Milwaukee in four years; honest, industrious men. Some butchers have got very rich there.

Mr. Roberts — Some farmers have got very rich, and some farmers get poor, I suppose. It is not in the business, it is in the man. I know that there is a great deal of hard feeling sometimes. We have had farmers' organizations boomed along on this idea, that the middle-man was getting it all. I am a farmer; I have been a farmer all my life. Although I have not done all my work on the farm, I think it is the best business in the world, and would not give it up for any other business that I know of.

## OVER-PRODUCTION.

BY A. L. CHAPIN.

During the last ten years there has been a world-wide depression in almost all departments of industry. Many attempts have been made to define the cause of this condition of things. More frequently than to anything else, it has been ascribed to over-production. An old question in economics has thus been brought with fresh interest to the front, and claims attention in the discussions of the day. The object of this paper is to bring forward a few simple principles and facts which may give a definite meaning to a term, worn almost threadbare and as generally employed, vague and misleading, that we may see how far it may properly be considered a cause of the prevalent stagnation of business. We ask

1. *What is over-production?* The ultimate object of all productive industry is the gratification of human desires. The normal production of any article is therefore limited first *by the extent and intensity of men's desire for it*. Labor spent in making things which nobody wants is labor thrown away; and of articles which are desired there is over-production when actual needs are more than supplied.

Another thing is to be regarded. Many persons may desire things which they are unable to purchase. The actual consumption of goods and consequently their normal production is limited secondly *by the ability* of those to whom they are offered to gratify their desires. These two elements, desire and ability, combine to define the *demand* to which the supply of products must ever be adjusted. Things made and thrown on the market may not be sold, either because people do not want them or because they have nothing to buy them with. In a general way, it may be said then

*Over-production is producing more than is desired or more than those who desire can pay for.* It is a disturbance of the balance between supply and demand by excessive sup-

ply or by deficient demand. The term under-consumption might be used to mean the same thing.

2. *What causes tend to over-production?* We may find answers to this question on the side of active production or on the side of inactive consumption, as one or the other may disturb the balance of supply and demand.

a. *Increased facilities for production* tend to over-production. These may come through the beneficence of nature, as where an unusually fruitful season multiplies the products of agriculture so as to overstock the market.

In our country, rapid immigration brings under cultivation large areas of wild land and the stock of farm-products is often increased beyond the ratio of increased population. The same course swells the number of mechanical laborers, at the same time with the steady increase of capital ready to employ them and so manufacturing industry is stimulated to excessive production.

And over all, the genius of man is rapidly inventing labor-saving machinery and economical processes which greatly increase the proceeds from a given amount of labor and material.

b. *Large profits from a particular industry* lead to over-production. For this there may be a real basis in actual success, as when large returns from raising hops in one year, led the farmers to devote their fields to that crop until the market was glutted. On such a basis however, and often without it, imagination kindles illusive hopes and through eager speculation things are overdone.

c. *Whatever restricts desire* has the same tendency. Here we turn to the side of diminished consumption. The wants of an ignorant, uncultivated people are few and simple. Their consumption of products is correspondingly small, and at the same time, the uncommon profits of trade with such people stimulates excessive production.

The changes of *fashion* are continually turning men's desires away from things old and familiar, to new things, and as demand declines the stocks of goods out of style become unsalable. Articles in common use are improved by

new inventions and nobody any longer wants the inferior sort.

A *commercial revulsion* creates a general panic which puts people on the practice of excessive economy. Uncertainty and distrust respecting the future prompts to reduced expenditure. Unreasonable fears suppress or over-rule natural desires and the demand thus curtailed leaves supplies unconsumed.

*d. Whatever reduces the ability of consumers* has the same effect. A bad season causing extensive failure of crops, disables thousands from purchasing ordinary luxuries and even comforts.

High prices place goods in themselves desirable, beyond the reach of many and so consumption is checked.

The stagnation of business which attends a time of panic, throws many out of employment and curtails all incomes, thus compelling reduced consumption. A morbid imagination at the same time, aggravates the trouble, and many stint themselves more than is necessary. The balance between production and consumption is never held even for any length of time. It moves in a see-saw, each side alternately up and down, and either extreme is disastrous.

*e. Whatever obstructs the free transportation and exchange of products* limits the market so that it may be easily overstocked. Such obstructions we find in bad roads and the lack of water-ways and railroad facilities. Many think that a high tariff, by ruling out the products of other countries and raising the cost of home-products, cuts off a nation from the wide world market, into which as the great ocean, the surplus of every nation naturally flows so as to maintain the equilibrium of universal exchange.

3. *How is over-production to be relieved?* The first and obvious answer to this question is, let the supply be reduced by *suspending or curtailing* production till the surplus of products is disposed of. But this involves the throwing of laborers out of employment and capital out of productive use, or the change of both labor and capital from one form of industry to another, at a loss to all concerned. Moreover it is not easy to combine producers for such a general sus-

pension. Yet in spite of the suffering and loss and difficulty, the natural effect of a commercial panic is to do just this thing—to produce a quite extensive suspension or restriction of production.

*The alternative is to increase the number of consumers, or in other words to extend and stimulate demand.* This may be accomplished in several ways. The desire for an article may be awakened and increased by making it and its uses known. This is the object of public exhibitions and wide advertising.

*A reduction of price* brings an article within the means of a greater number of people and so multiplies consumers. A reduction of ten per cent. in price often adds fifty per cent. to the number of purchasers. It is now accepted as a maxim of wisdom to seek a small per centum of profit on extensive sales, rather than a large per centum of profit on a restricted sale.

The surplus of products may be relieved *by exportation to foreign lands.* Whatever removes the obstructions just referred to, opens a way for the excess of products to find consumers and brings the demand up to an equilibrium with the supply.

So too, the *better compensation of laborers* and the encouragement of thrift among them, and abstinence from useless and impoverishing vices, will bring to many the ability to obtain what they want, and would gladly consume for their comfort and healthful enjoyment.

And *whatever quiets anxiety and removes unreasonable fears and inspires mutual confidence* gives free scope to desires that have been restrained, and quickens active consumption. The demand, thus elicited, soon exhausts the surplus and gives a stimulus to new activity in production.

With respect to specific commodities, the application of the foregoing considerations is obvious. Such relative over-production recurs for the reasons stated time and again, in every branch of industry, and the relief for it is generally to suspend production for a time, or to transfer labor and capital from one kind of production to another. But,

4. *Can there be a universal over-production?* When a general depression of business is attributed to this as its cause, an over-production of all commodities is implied. In this year, 1885, and for some time previous, productive industry throughout all the countries of christendom has been embarrassed and depressed. It is quite evident that trade is dull; that large stocks of goods of almost every kind are waiting for purchasers, and that the prices of goods generally have been so reduced as to leave little or no margin for profits for producers. The fact that this is the prevailing condition, not in one country only, but in all the countries in which industry and trade have been most active, seems to indicate a common cause. Many, therefore, are disposed to affirm that the trouble comes from excessive production, universal.

It must be admitted that in some sense, the supply of commodities is quite generally in excess of present demand. But the main question is whether this is itself *the cause* of the stagnation of business, of which it is certainly a phase and sign, or rather an effect of other causes. This question will be determined very much by a careful distinguishing of the two elements of demand referred to in the outset, viz., the extent and intensity of men's desires, and the means at their command with which to purchase what they desire.

Can we say that more commodities have been produced than are requisite to satisfy the actual needs and desires of men? Is there over-production in this sense? While we see in every great city, amid signs of abounding wealth, thousands of people only half-fed, half-clothed, miserably sheltered, — while millions in a savage or half-civilized state all over the world lead a wretched existence lacking all things essential to bodily comfort, mental and moral development, and social enjoyment, — while by what seems a fixed law of human nature, every step in the elevation and refinement of individuals and communities forms new tastes and multiplies wants so that the desires of men are ever in advance of all devices and products for their gratification. In view of these things we must conclude that *the present wants of mankind* are enough to exhaust at once in

actual consumption, the entire surplus of goods which now gluts the market, if only they who need could get them. Distributed so as to meet present desires, the whole stock of goods to-day accumulated in London or New York would probably no more than suffice to satisfy the desires of its own population. The world's desires certainly outrun and seem destined ever to outrun the production of things for their satisfaction. In this sense, universal overproduction appears impossible.

Looking now at the other element of demand, viz., *the ability to purchase*, it is evident that what constitutes this ability is the possession by those who have wants, of commodities of some kind, the fruits of production. Each individual's means of paying for other people's products which he wants, consists of products of another kind which he himself creates or possesses and can spare. Money may be used in making the purchases, but money is a mere instrument to facilitate the exchange which is in reality always an exchange of one commodity for another. The primary wants of men are for various objects, all the products of industry. To secure these objects they must have to offer *other products of industry*. A poor man is hungry for bread. He cannot make bread, but can make shoes.

"Give me a chance," he says, "to make shoes and I can pay for all the bread I need." So it is all round the circle of diverse forms of industry. *Active production* multiplies the means of satisfying wants and active production multiplies the means of paying for things wanted. Mr. Mill has well said, "Could we suddenly double the productive powers of the country, we should double the supply of commodities in every market; but we should by the same stroke double the purchasing power. Everybody would bring a double demand as well as supply; everybody would be able to buy twice as much because everybody would have twice as much to offer in exchange."

Under such active production, the balance between different articles may be disturbed; one thing or another may be produced in excess, but this very soon appears and by the natural working of the law of supply and demand, the con-



sumption of the superfluous article is increased, while its production is curtailed and the balance is restored. But how, under this view, can there be universal over-production? How can hard times, a general stagnation of business, be properly attributed to the activity of productive industry? Hard times come not from over-production, but from under-consumption; and the under-consumption is due to the inability of thousands who are in want to purchase what will supply their wants, and this inability can be relieved only by *some fresh impulse to active production*.

This is not the place to consider at length the causes of the inability to purchase. Enough to say that they lie back of the simple law of supply and demand. In general they proceed from the unequal distribution of wealth, the unequal division of the proceeds of industry between capitalists and laborers, fluctuations in the value of that which is used as money, fitful expansions of credit, artificial interference with the freedom of trade, — all tending to give a *speculative character* to all business operations. During the period of active speculation, men's imagination runs away with their judgement and an unnatural and unreasonable stimulus is given to production. As surely as the unnatural excitement of the drunkard's debauch, is followed by headache and languor and prostration of the whole physical system, so surely must the unnatural excitement of the period of speculation be followed by stringency, failure and depression through the whole system of the world's industry. The hard times are due to this reaction, and the real causes of the disturbed balance between supply and demand, are to be found in the abnormal conditions of the period of illusive prosperity.

The views presented forbid us to attribute the general and long continued depression of industry, under which the world is now suffering, to over-production as its main cause. At the same time we must recognize the fact that *the multiplied inventions for increasing the efficiency of labor and the concentration of industry in large manufacturing establishments*, during the last fifty years, have given an unwonted stimulus to the production of commodities. This

side of economics has engaged attention and study almost to the exclusion of other branches of the science. A profusion of goods has been thrown upon the market without due consideration of the measures necessary to extend the consumption of goods in due proportion. Prosperity will return and be abiding, only as the balance shall be restored, not by restricting production, but by increasing consumption. To accomplish this, the thing most essential is an adjustment of the relations between capitalists and laborers, and such a reform in the prevalent habits of laborers as shall secure a fairer division of the profits of industry, and enable the wage-earners as a class to purchase more of the substantial comforts, which the improved processes of production are rapidly creating. It is a hopeful sign that earnest thought is now turned in this direction. The political economy club meets this week in Cambridge, Mass. Its chief topic of discussion is the "Fair Division of Profits." The true solution of this problem will tend to bring all classes to share more fully in the good things so easily and abundantly produced.

When the range of consumption is extended in due proportion to increased and ever increasing production—when production and consumption are both steadied by a sound and stable currency, a regulated credit, and commercial exchange at home and abroad, set free from the unnatural restrictions of unwise legislation, and oppressive monopolies and unfair competitions, then we may look for the golden age of industry and of human enjoyment, the world over.

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Mr. Chapin — Mr. President, a word of explanation, perhaps, is necessary for this paper. It is my misfortune and perhaps yours, that this paper was prepared originally to be read before a small circle of gentlemen that compose the Academy of Sciences and Letters of the state of Wisconsin. It was heard by your secretary and he asked me if I would read it before this body. I did not feel like dissenting and I gave my consent. I received a few days ago, a programme of the meeting with my name upon it, and there-

fore I was confined to the presentation of this paper as it was prepared. I think if I had come to the subject with reference to presenting it at just such a meeting as this, I should have, perhaps, arranged it a little differently, but presuming on your consideration of the manner in which it came before you, I have given it as it was.

Mr. Hinton—Mr. President, I am very glad indeed, to have had proof furnished of what I hinted at very strongly and was very severely rebuked for by my friend Mr. Babbitt. We have the abundant evidence, the testimony on the stand, that the gentleman does really see at least some of the papers before he calls for them to be read here.

Secretary Babbitt—I would like to say we do not go it blind here.

Mr. Hinton—No, I understand that. Now, with a large share of that paper I most fully agree. I need say nothing as to the ability of its composition. The reputation of the gentleman speaks for that, had we not even heard him. The idea is here against throwing this surplus of goods upon the market. Now, if I had the time I could produce you the evidence, for I have it here, in which a very distinguished American consul in Liverpool, certifies that in one year alone three woolen industries in England, neither one knowing what either of the other two were doing, supposed they were going to make a great strike in the getting up of cloth to make dresses to adorn that sex that every true man glories in seeing well dressed, and he sees them, thank God, in America all over it. The result was there was more than double the quantity that could possibly be consumed in England, because the American woman is better able to buy a good article than the English woman. I speak generally. The result was that as Mr. Dudley says, they were invoiced for the American market at less than 50 per cent. of the actual cost of manufacture, under the cheap labor of Europe.

Now, we will go back to the times of Lord Brougham, if you please, when he told the manufacturers of England "you must not count the first loss of these goods, throw them into their markets, break down the industries of those

protected countries that have an unnatural existence and ought not to exist, and then you can reap your profits afterwards." Now, that is a matter of history with which my learned friend is doubtless as familiar as I am. Now, here is another idea. When these large stocks have accumulated and I want to say to you that I asked one of the largest dry goods firms in Milwaukee a little while ago, "do you have any difficulty in getting your goods now?" "Why," said he, "we cannot get them, the stocks are run down all over the the country," speaking of America; but the eyes of the free traders glisten and their hearts are rejoiced when they know that piles, mountains of pig iron and other ingredients are piled up along the banks of the Clyde, with a Scotland's pertinacity to make wealth to flood this country if they can induce the democrats to lower the tariff, and it is openly avowed in their papers. Now, do we want to become a dumping ground? That is what's the matter. I will admit freely that my friend there who always goes well dressed and looks well when he is dressed could get his fine foreign cloth cheaper than he now does, but we poor fellows who have to content ourselves with American cloth would be the sufferers. Now, here is an idea that the gentleman advanced that there must be a free, unrestricted interchange of commodities among nations. Well,

"Hope springs eternal in the human breast;  
Man never is but always to be blest."

It would be a grand and glorious achievement if all the world was one grand republic. But gentlemen, mankind is selfish, every government is selfish, every true government seeks and a cardinal principle of ours is, the promotion of the general welfare of its own people and every man knows this, and if I had the time I would give you the statements of many of the strongest free traders in the country, who have said over and over again to their men, and I will mention one for it will not take half a minute, Abram S. Hewitt, who is seeking his best at this time in connection with Mr. Morrison, both of them members of the Cobden Club in active unison and active work with them, when he came

back from Connecticut, when there was no tariff on iron rails, when he tried his best to compete with the English bidders there, he came back looking like a motherless fold, and he says to his men: "Gentlemen, I bid as low as it was possible to bid in order to get that job to give you something to do, but the British agent underbid me and the money has gone to England to employ English labor that ought to have come here to employ you." That is his language, and there is the gist of the whole question. Now, look here; "set free from restrictions." You cannot name a country in the world to-day that is in that terribly depressed condition that the land of my birth is in. A land where the Registrar General certifies that every seventh man that dies, dies a pauper, and gentlemen, you may go all over it to-day and what do you find? In the very iron districts that I think the gentleman referred to if I remember correctly, they lowered their wages two months ago, 5 per cent., with the express understanding that they should be lowered 5 per cent. more by the 15th of January unless times improved very greatly, and that second lowering has taken place. There are thirty-seven large mills in this country and I think twenty-three or twenty-four large factories in this tariff-robbed, oppressed, overborne country, where the proprietors, unsolicited, have raised the wages of their employes from ten to fifteen per cent. [Applause.] Now, I am dealing in facts, nothing else. "Unrestricted!" There lays all along the docks in Great Britain in every direction, a fleet of merchant vessels ready to carry her products to every part of the world, and the sailors are fed in soup kitchens.

President Arnold.— I am fully persuaded that this convention desires to discuss subjects of interest, butter and beef and the subject of industrial education. I believe this convention is interested particularly in those things. If that is not the opinion of this assembly I would like to have an intimation from some one. If this tariff question is of more importance than that in our mind, those that are of that opinion will rise. There is not anybody up. Now, you have had a fair chance to discuss this question and I hope you will try to keep it out hereafter. [Applause.]

Mr. Hinton—Why not couple that with the tariff and keep free trade out too?

President Arnold—Of course.

Mr. Hinton—All right, anybody that wants to hear any more about free trade will rise. I don't see anybody, now we stand equal.

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## SANITARY PROBLEMS, NO. II.—HOUSE DRAINAGE.

BY ERASTUS G. SMITH, PH. D., Professor of Chemistry, Beloit College.

*Mr. President, Ladies and Gentlemen*—It was my privilege to present a paper before this society at its last annual meeting under the title of "Sanitary Problems" (see transactions, pp. 189-202.) In that paper I attempted to point out some evils existing in connection with the water supply in our farms, to explain how those evils arise, and how, acting intelligently, these evils may be remedied or wholly obviated.

In close relation to the problem of how to obtain good and wholesome water for domestic and drinking purposes, stands the equally important problem of good and sanitary house drainage. The two are intimately associated, the latter being almost the corollary to the former problem. It must be idle to urge the necessity of good and wholesome water, and expect such a blessing, in the very face of streams of polluting matters which might gravitate most naturally and surely in the direction of the well or cistern. It must appear, therefore, as almost axiomatic, that if we expect nature to supply our needs with the wholesome and necessary waters, that we should at least let nature alone and allow her to do the work after her own appropriate and effective processes and not impose such conditions as may render these processes impossible. One phase of this discussion is therefore suggested by these considerations, viz.: The proper control of the waste product *from* the house.

We observe, also, another condition which in turn needs consideration. It is often the pride of the proprietor that his "cellars are dry." Fortunate indeed is he who can thus

rest content. But how often do the opposite conditions obtain? How often are those positions selected as building sites where it would be difficult to expect, if left to themselves, any other conditions than damp, and too often, "floating" cellars, muddy and sticky walls and floors, and a musty and vitiated atmosphere. A second line of thought is here indicated, viz.: The proper control of the natural waters under and about the house.

These two problems are therefore before us for our thought at this time. Others may be suggested but their consideration and discussion must be deferred.

#### I. CONTROL OF THE HOUSE WASTE.

*A. Present Condition.* Our line of thought just now must be directed to the actual condition of affairs in the country, and not in the city or larger towns, supplied with convenient and abundant lines of sewerage service. In those localities every precaution is taken to insure immunity against evils, liable to arise from the centering of large numbers on small areas, — central water supplies inspected at frequent intervals and carefully guarded from pollution; and sewerage service abundantly able to dispose of the waste and transport it beyond the reach of all. But over our villages and isolated houses, no such rigid inspection is in force. It is but natural therefore that conditions are found which violate good sanitary principles, and which are caused through carelessness, or because the householders attention has never been called in that direction. Such disposals as the following are therefore most common.

(a.) The waste is thrown from the door on the ground in the near vicinity.

(b.) Is drained off into the cess-pool.

(c.) Is deposited in the vault.

(a.) In any case, what does observation often show? If the soil in the immediate vicinity of the door be used, we all know from experience the result. Waste is always in two conditions, the solid and liquid. Where this continued deposition takes place, the *solids* remain at the surface, but what of the *liquids*? They disappear in the soil. But is that all?

Abundant evidence is not wanting to prove the rapid percolation through the soil, of these fluid matters *unchanged*. A single case is cited. Prof. Daniells, of the State University, at present a member of the state board of health, and of this society, states (second Annual Report Wisconsin State Board of Health, 1877, page 70): "A spring in this place (Madison) was chosen, and its water first tested for soluble chlorides, which were found present in exceedingly small quantity. At a point forty-two feet distant from the spring head, a crowbar was thrust down into the soil to a depth of two and a half or three feet, and into the opening thus made, a pailful of a strong solution of common salt was poured. When this had all been absorbed, a gallon of kerosene was poured into the same aperture. *Three hours afterward*, a sample of the water showed some increase in the amount of sodium chloride (salt), and upon careful distillation, a very small amount of kerosene was obtained. A sample taken from the spring eighteen hours afterward, showed a greater increase of sodium chloride (salt), and distillation gave about two fluid drachms of kerosene." This is quoted in support of the assertion that fluids containing dissolved matters do percolate rapidly, and to considerable distances. It is an important feature of this discussion, that what we are considering is WASTE material, such waste material, moreover, as is made up of refuse animal and vegetable tissues, partly soluble and partially undissolved. We are therefore in position to consider what becomes of this waste matter. I leave you to answer the question; or, if you prefer, the unsightly and foul mass of earth where such waste has been habitually deposited, will state its own case for us! The solids, aggregated and exposed to the rays of the sun and the four winds of the heaven, will probably testify to the putrefactive and fermentative changes wrought in them! The soluble constituents of either animal or vegetable tissues, though lost to sight for the moment, have merely percolated and filtered away through the soil, to undergo slowly similar changes and decay, happily, however, away from sight and sense. Would that such an ideal harmless and effective filtration always oc-



curred, that never within its area a well or other water supply was located! But in how many instances are these conditions fulfilled? All wells are calculated to drain at least an area measured by a circle of which the radius is represented by four times the depth of the well. On how many homesteads are these relative distances observed; where for convenience sake, both well and polluted surface are at hand at the very door?

(b.) *Cess-pools.* What has just been stated may be repeated of the average cess-pool. Waste habitually thrown on to the surface should never be tolerated for an instant by any house keeper in any locality. The same holds true of a leaching cess-pool, unless removed to a distance from the house. Cess-pools, as generally constructed, are merely excavations in the soil, loosely bricked or stoned up; sometimes simply a barrel sunk beneath the surface and covered over. No ventilation is provided other than the openings for the admission of new material. These openings are either through a hopper, or worse yet through the sink-spout, untrapped, and offering free entrance of the gaseous products of decomposition to the house. The only question considered in selecting the location is that of convenience to the door. Occasionally the waste from the sink is got rid of by a lead pipe with one end in the sink and the other terminating nowhere. Such contrivances as these, so commonly employed by house owners, differ from the method first noticed, merely in that they are out of sight—at least one gain; but a point of minor importance in our present study. Devoid of principle in construction, at hand for the ready use of the house, receiving and storing up the solid animal and vegetable tissues and allowing free egress of the waters charged with the soluble constituents, they become in the course of a few months a bed of filth and prolific of gaseous and volatile products of decay, which, if not directly harmful, are at least offensive to the nostrils and vitiating to the atmosphere. As before, the soluble constituents taken up and transported by the waters, filters away through the soil, there to be ultimately destroyed and

absorbed unless, unhappily these fluids may have found some other outlet, and are received by the well or open pool, whose surface is on a lower level than that of the cess-pool.

(c.) *The vault.* The vault is no better, but if anything worse than the two conditions just described. It acts as a receptacle for more solids than liquids, but these undergo the same processes of fermentation and putrefaction as those presented above. The solid remaining above ground while the soluble portions filter away through the soil. Too much stress cannot be laid upon this process of filtration. The original substances, those semi-transformed, and those completely metamorphosed when taken up by the waters pass through the soil to undergo further destruction, unless interrupted in their course by some well-shaft or by emerging again to the surface in some neighboring stream or pool.

Such then I think, all will admit to be the present condition on a large proportion of the farms and smaller holdings in the villages. The case does not appear over-stated or exaggerated, but represents the actual condition among a large proportion of the better class of citizens.

#### *B. The remedy.*

The remedy for these evils is plainly inbred in these very statements of the case. The good sense and a little care on the part of the housewife will remedy the first. We can with justice insist that the immediate vicinity of the back door is as much the province of matronly inspection and care as the front and we can reasonably hold the housewife responsible for its treatment and care. That eminent writer on sanitary matters, Geo. E. Waring, has aptly said, ("How to Drain a House," page v.) "The drainage system is, however, a trustworthy ally *only so long as the woman of the house* holds it under close and careful supervision. She cannot safely delegate her responsibility to her servants. Her own eye must see that at no point has neglect at any time permitted even the beginning of filth — for the begin-

ning of filth is the beginning of danger. It makes the desertion of the ally to the ranks of the enemy."

The solution of the second problem is attended with greater difficulties. I would urge on the attention of those present the importance of inspecting that pest of the yard — the cess-pool.

It is very much the current fashion to declaim against their use, but it must appear that for the present at least, they are a disagreeable necessity to a majority of our isolated homes. I would urge therefore, and emphasize the statement—*study carefully the question "where?"* Three elements enter into the settlement. Convenience, location, expense. The elaborate schemes projected by sanitary engineers need not bewilder us. The simple practical question arises, "How can we *dispose* of this waste *effectually* and at *trifling cost?*" The answer is, select some point at a safe distance from *house* and *well*, *not less than eight rods*. Excavate and stone up a suitable place and connect with the house by means of a glazed pipe drain. Let the down grade be constant from the house to the outlet and the pipe will not clog. The writer has seen good results from allowing one eave spout at least to discharge its contents through the drain pipe, and thus by the repeated flushings with water from the roof prevent the clogging of the pipe by the accumulations of the adhesive fats and other solid refuse. As compared with the ordinary wooden course, decaying rapidly, or with the ordinary stone drain, clogging so easily, either case requiring digging up after a limited period, the expense is not much, if any, greater, and the comfort and freedom from annoyance incomparably greater. A good six-inch round glazed tile drain from the house to the cess-pool, well laid down, and joints made tight, will keep safe from pollution the soil and atmosphere about the house, and remove vile and offensive, if not positively injurious, matters beyond the reach of the dwellers.

The third object of attack are "those temples of defame and graves of decency that disfigure almost every country home of America"—the out-of-door privy. Rearing their shameless heads by almost every door, or if happily con-

cealed from view, revealing their immediate presence by the nauseous stench, the receptacle of all vilest refuse, left to ferment and putrefy above ground, they have justly fallen into the deepest disrepute, and no uncertain demands are now being made for some effective device looking to their removal. Time forbids the introduction here, but I must call your attention to the very suggestive paper by Prof. W. A. Henry, on a simple, cheap and effective earth closet in use at his own farm. (See the 7th annual report of the Wisconsin State Board of Health.) For our present consideration, it becomes of importance to discuss its drainage bottom and study whether this may not be removed beyond the possible drainage area of the water supply. The excessively unsanitary convictions arising from too close proximity of those two good servants, but poor masters — the vault and the well — I will leave you to explain. The very thought of a possibility of drainage from one into the other is too repugnant to even consider at this time. Yet in how many homesteads will a 50-foot line amply suffice to span the distance! and that too in porous soils incapable of retaining whatever liquids are deposited upon them. No limited distance can be designated as absolutely safe, though on ordinary soils 6.8 rods may be considered a probability of safety for a period of years.

This whole question of sewerage disposal is a vital one for us, and none the less important on the open fields and amid the fresh airs of our Wisconsin farms and villages. Its very importance is intensified through these observations coming back to us from the actual every-day life about these many homes, where good sanitary requirements have been unknown or habitually ignored.

## II. HOW TO CONTROL THE UNDER DRAINAGE OF THE HOUSE.

The second phase of this discussion, as already intimated, is how to control the under drainage of the house. This question has been often and profitably discussed, and forms justly a proper theme for careful and thoughtful consideration. The demand for a dry and healthy location is universal. It would be idle to expand, at this time, the argu-

ments for such surroundings. The sickness and suffering and too often the sorrow, of those whom death has robbed, depict the old story of wet cellars, dripping houses, and damp atmosphere, more powerfully than pen can attempt. It is a distressing fact, that disease comes all too commonly, even amid the most sanitary surroundings; but in what aggravated forms, and with how frequent repetitions, to those houses where no sanitary regulations are observed! Your own experience can call up, I doubt not, instances within your own observation, where medical aid was of little avail against such odds as were continually allowed, when once some furious onslaught of diphtheria, typhoid fever, or some kindred disease occurred. The records of every physician will bear out and emphasize the observation. It is very certain that we cannot habitually ignore these conditions and expect to remain well, strong, and capable of active and efficient service. Our lives are in a measure, artificial. Artificial warm clothing, and plenty of it, is imperative at this season of the year. We must withdraw into houses artificially constructed, and kept at a living temperature by artificial means. Our food and drink must be stored and preserved by artificial contrivances. All this is necessary to our existence in this climate, and yet in a measure unnatural. How pertinent, then, is our present query concerning this present problem. Under such circumstances no one can deny that extra exertions must be made, in order to counteract the artificial conditions of our very being. If that home is damp and shaded, and imperfectly lighted, how quickly these susceptible bodies manifest their abuses in rheumatism, coughs and colds, not to mention those more dire manifestations of epidemic disease! This glance may suggest a change in some direction. A house may be damp from two causes. By an undrained cellar — i. e., that precisely as water will gravitate towards any depressed portion of the surface, just in the same way it will towards a hole excavated for cellar purposes; or by a surface overflow from the yard into an unprotected cellar.

1. *Control of the waters UNDER the house.*

A cellar should always be drained. It is absurdity to expect any sanitary conditions of the house with such an unsanitary condition beneath. Damp and cold floors, musty and rotting carpets, dripping walls and mildewed ceilings, papers half-free, swinging freely from the walls, and other similar exponents, declare too clearly the condition below. In some localities, on some loose gravelly soils, nature performs the work herself, but in what proportion of the 135,000 homes of Wisconsin!

The question undoubtedly arises "What of those localities where drainage is impossible?" The reply is, that if circumstances have forced residence in such a locality, "Have no cellars." Build above ground wholly, and allow a free circulation of air beneath the house. As a rule, however, such unhappy selections for building sites can usually be avoided.

It is in the Spring and the early Summer that we particularly suffer in this respect. The melting of the winter snows and the abundant spring rains, combine to soak the earth, filling to overflowing the lower depressions. Judge French in his work on "Farm Drainage," has drawn the following vivid picture of a New England cellar in spring-time, which is quoted because applicable beyond the boundaries of the six states: "No child who ever saw a cellar afloat during one of these inundations will ever outgrow the impression. You stand on the cellar stairs, and below is a dark waste of waters of illimitable extent. By the dim glimmer of the dip candle a scene is presented which defies all description. Empty, dry casks, with cider barrels, wash tubs and boxes, ride triumphantly on the surface, while half filled vinegar and molasses kegs, like water logged ships, roll heavily below. Broken boards and planks, old hoops and staves, and barrel heads innumerable, are buoyant with this change of the elements, while floating turnips and apples, with here and there a brilliant cabbage head, gleam in the subterranean firmament like twinkling stars, dimmed by the effulgence of the moon at her full. Magnificent among the lesser vessels of the fleet, like some

tall admiral, rides the enormous wash-tub, while the astonished rats and mice are splashing about at its base in the dark waters, like sailors just washed at midnight from the deck by a heavy sea. The lookers on are filled with various emotions. The farmer sees his thousand bushels of potatoes submerged and devoted to decay; the good wife mourns for her diluted pickles and apple sauce and her doomed firkins of butter, while the boys are anxious to embark on a raft or in the tubs, on an excursion of pleasure and discovery."

This is the work of the caricaturist and is somewhat exaggerated, but how it recalls scenes of our other days, or suggests the possibilities in days to come!

The aggravation of disease or even a possible cause is demonstrated to be induced by such conditions as just portrayed, and it must seem but the very office of good sense to take such measures as may ward off any possible approach.

The *remedy* to such a condition is readily suggested. The outlay is slight but the work is necessary. A good tile drain along the cellar bottom is the best, but a stone drain may answer. Either if well put down will be effective. Your own good sense will supply the elaboration of the details. The present purpose is to call attention to some possible and probable evils and suggest their remedy.

## 2. *Control of water* ABOUT the house.

The last phase of this discussion is presented under the study of the control of the surface waters about the house. How often have we all heard the complaint that the house was all right except during or just after violent storms when the torrents of water whirling about force themselves bodily through the cellar windows and openings or are driven in with only a second fury through the walls. Cellar walls are rarely tight and therefore are peculiarly liable to these periodic percolations.

The inundation of the cellars and the consequent injury or utter ruin of its stores follow as a matter of course. Some houses are so situated that these conditions are especially to be expected. The slope of the overhanging hillside or

the undrained bottoms offer premiums for such recurring attacks and invite the condition with all of its attendant evils. The latter situations in particular suffer the most. It is a principle of human activity that particular demands and emergencies are met by particular remedies and appliances, and thus these homes particularly exposed to the discharges from the higher grounds are protected by suitable conduits for the water. Unhappily, however, such a fortunate arrangement and provision is not always made and just in these localities where the most careful watch is needed and stringent regulations are demanded. It is unnecessary to go far for illustrations. The farmyard is not always the most inviting place. The stock is allowed free range, the hogs run free and are fed at the most convenient points. The poultry have free license. Combine these conditions found on some farms — of course not on ours — but such as we can sometimes observe, and then picture the result of a spring overflow where this accumulated refuse becomes the play of the waters and is swept along in the filthy flow to be received wherever the receding waters may deposit it.

It must seem no wonder that the unprotected cellar sometimes has a musty and unhealthy odor. I by no means affirm that these scenes are on every farm. The farm-yard is a necessity and the deep piles of rich manure a blessing to the farmer, and a promise of the heavy harvest on soils worn from the recurrent tillage. But like all other points, as repeatedly urged in this paper, it is to be watched, that the blessing may not prove a curse by its repeated intrusion, on grounds never intended for the reception of its contents.

In this connection I cannot but allude to one most pernicious custom sometimes observed yet, but, happily, gradually disappearing. I refer to the usage of the stable straw for banking a house. On one of the streets of a large city, where good sanitary laws are supposed to be observed, I recently saw this contrivance for protection against the winter's cold, and how often do we see isolated houses banked up in this same deplorable manner by this waste material. Such a practice is to be condemned, first as the straw saturated



with the liquid matter is too valuable to be thus thrown away, in the second place the house is too valuable to be thus soaked and rotted away, and thirdly and above all, the good health and economy of the household is of too great value, to allow the sure infiltration and consequent absorption of these organic and corrupting fluids.

Enough has been said however, to call your attention to another evil and one most easily remedied. Keep the stock and poultry away a few rods from the house, or if their immediate presence may seem absolutely necessary, protect your house a little by such simple and inexpensive expedients as the successful farmer can always devise. Make sure, by a little grading, that the waters gravitate, not *toward* the house even in the fiercest rains, but *away* from it and the problem is solved. It merely needs a little care and attention, and the increased comfort and delight in the house will abundantly repay all the trouble.

We have thus attempted to go over to together some of the vital points of another of these sanitary problems, and consider another of the great avenues whereby an unhealthy state of things is induced and the path made smooth for the entrance of suffering and disease. Never in the history of man have physicians and health officers been so vigilant and aggressive. Nor have municipal, state and national governments been so on the alert for the arrest and prevention of disease. The results of this keener watchfulness are seen in the decreasing death rates. The city of Geneva, Switzerland, has recorded more carefully than any others these rates for the past 300 years. From these statistics is shown that the average longevity was

In the 16th century.....	21.21 years
In the 17th century.....	25.67 years
In the 18th century.....	33.62 years
From 1801 to 1833.....	39.69 years
From 1814 to 1833.....	40.68 years

(Mass. State Board of Health reports, 1874, page 357,) and it is further shown that as many live to seventy now as lived to *forty-three* three hundred years ago. (*Ibid.*) To what

are these changes due. The better adoption of means, the improvements in manner of living, better and more constant food, better clothing and more comfortable and rational homes, have been the factors. Leaving to others their hobbies to ride we have sought to discuss this great question of good, healthy homes, and one factor contributing to them. Good sanitary house drainage is not the *only* factor, but a mighty one, and of such importance that we may seem warranted in calling your attention to it at this length. With this aim in view, let there be a constant strife and an eternal vigilance that one homes may not be needlessly invaded' by messengers unseen, but inexorable in their demands and that such measures may be wisely and promptly set in course and tenaciously adhered to as may yield large interests in more healthy homes and, if possible, more happy and contented households.

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## OUR FARMING — ITS CHANGING CONDITION AND OUTLOOK.

By G. E. MORROW, Professor of Agriculture, University of Illinois.

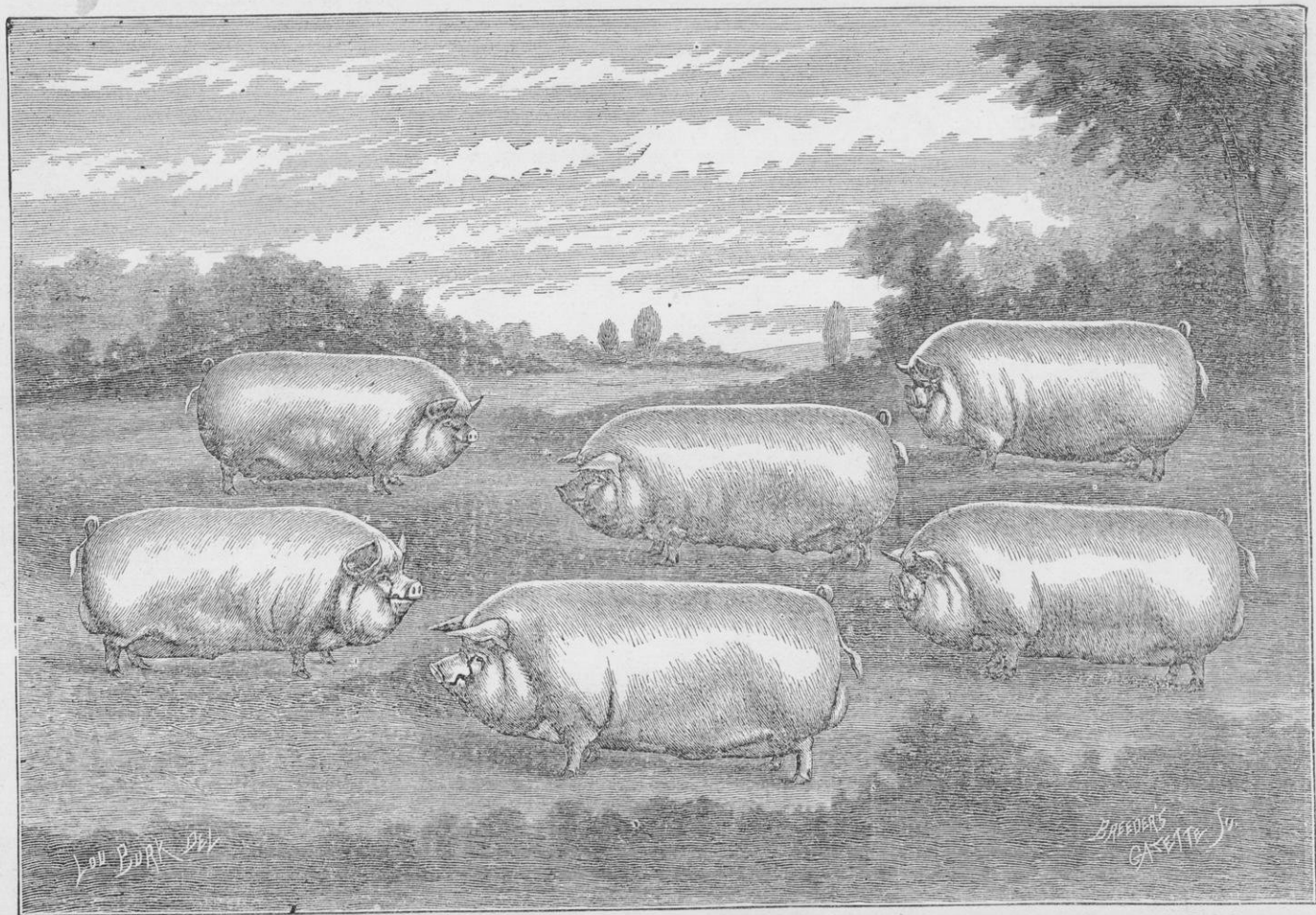
The farmers of the United States do well to magnify their calling. It is the chief industry of the nation; a nation already one of the greatest powers of the world, and with unlimited possibilities for its future. The saying of Curtis, "The test of national welfare is the intelligence and prosperity of the farmer," true of many countries, is peculiarly true in our own; for here the farmer is a citizen as well as a worker. We marvel at the rapidity of the growth of our country, and in none of its phases is this more remarkably shown than in its agriculture. Within the last fifteen years the acreage of our cereals has increased more than 90 per cent. One-half or more of all the corn and wheat produced in the country grows west of the Mississippi river. The grain crops of 1885 are estimated at near three thousand millions of bushels. Probably nowhere else in all the history of the world, has there been such a rapid accumulation

of wealth, and of the things which make a high civilization, as in the Mississippi valley, in the last quarter or third of a century.

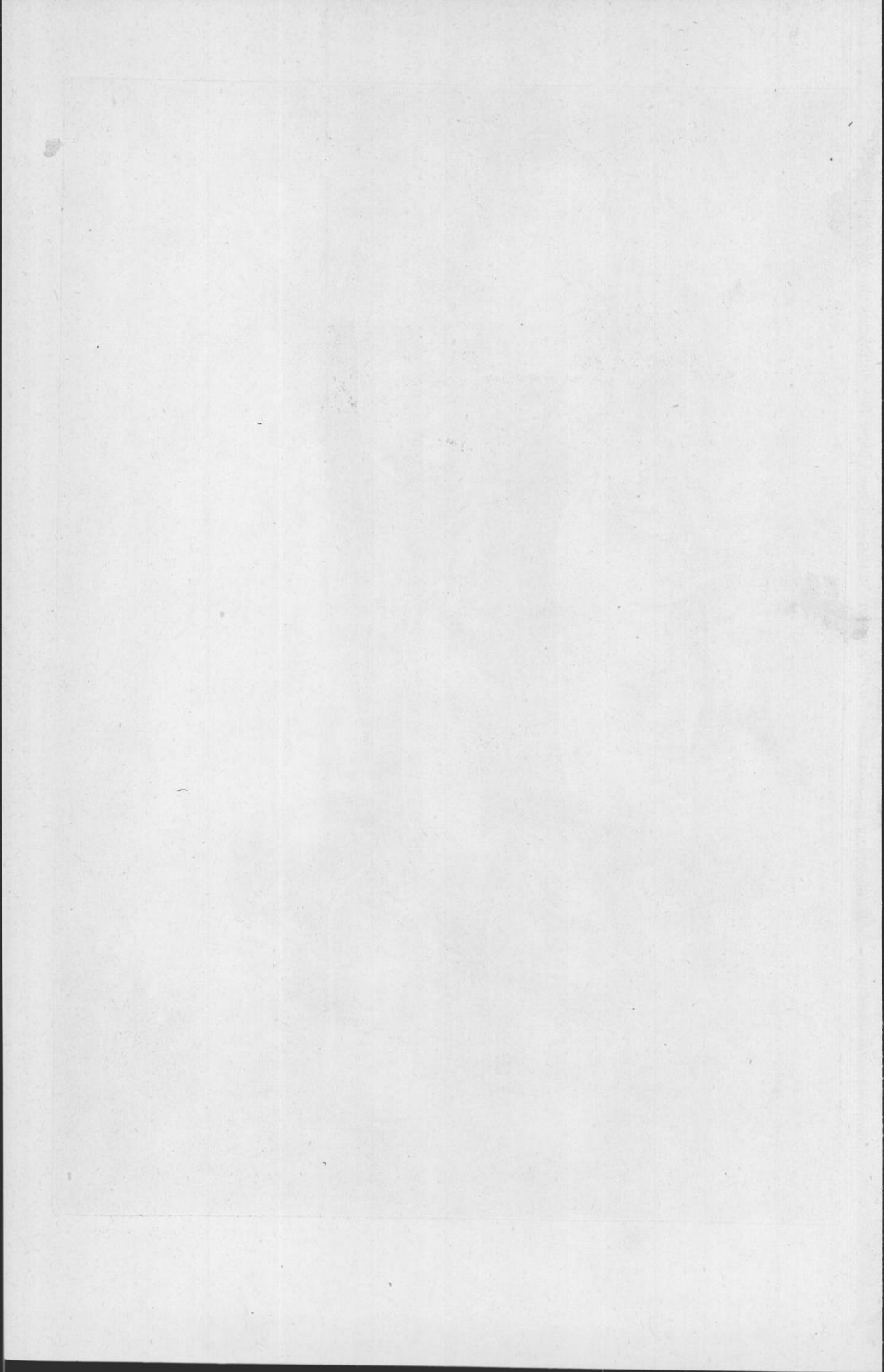
Despite occasional periods of depression, in the general past our farming has been remarkably prosperous. Success has been the rule, and failure the exception. Scores of thousands of the peasantry of foreign lands, unacquainted with our soil, climate, crops, and unable to speak or understand our language; with scarcely any training in schools or in business, have come to us, and, after a few years of hardship, have gradually acquired a competence or wealth, and have come to be regarded as representative and honored citizens. No stronger proof of the favorable conditions which our agriculture has offered for moderate success, can be given. The vast immigration to the country, much of it directly increasing our farming population, is conclusive proof of comparative prosperity. With all this immigration, and the natural increase of population, making a total increase of recent years probably 1,750,000 per year, the extension of our cultivated area and better methods in the older regions, have not only given us sufficient increase of products to feed this increased population, but also a larger surplus for export year by year—equally favorable seasons being given.

Our farming has had faults enough. There has been and is much to criticise; but if adaptation to circumstances be a test of merit, it has been good farming as a whole. And our farmers — not all perfect men — in the past, and now, in intelligence, in enterprise, in readiness to adapt themselves to the conditions in which they are placed, are unsurpassed, if equalled, by their fellows in any other land. Hence our farming should be fairly good. The farmers came from many countries, with something of selection in their coming, and have been developed into what they are by the needs of the times and the place.

As yet we have no distinct class of farmers set apart from other men. Very many who are now farmers have given a part of their lives to labor in other callings. Very many in other callings have given a part of their lives to



Group of Suffolk, Chester White and small Yorkshire Swine, drawn and engraved expressly for the new illustrated work on "The Breeders of Livestock" by L. B. Barker.



work on the farm. With the remarkable tendency to removal from one part of the country to another, the farming of almost any portion of the country has been modified by the adoption of the best methods of the farming of many other sections and of foreign lands.

Fortunately, we are as yet a nation of land owners. Of the 4,000,000 of farms in 1880, almost exactly three out of four were tilled by their owners. And we are a nation with moderately sized farms, gradually growing smaller — aside of course from the great ranches at the further west, which are not farms in any proper sense. In the whole country the number of farms increased 50 per cent. from 1870 to 1880, and the average size decreased from 153 to 134 acres. Almost or quite alone among all the states, the average size of farms in Wisconsin remained the same, 114 acres at each census. It is noticeable that in Wisconsin only 44 per cent. of the land surface is in farms and only about 50 per cent. of these are improved. In all the states there were but 109 farms of 1,000 acres, and only 775 of 500 acres in extent.

As yet comparatively little human labor is used in our farming, contrasted with that of the older countries. On the contrary, nowhere has there been a greater development of farm machinery. Our methods have been simple, often rude, to some extent, exhaustive of the fertility of the soil. We are “exporting fertility.” Of the total exports of the country, of recent years, three-fourths, and more, have been farm products.

But, in the main, our farm practice has been justified by circumstances. The practice of intelligent men, free to choose, almost always has some good reason for it. Much of the criticism of our farming has been mistaken. The farmer of England criticises him of New England; the New Englander severely criticises him of the West; while the Illinois or Wisconsin farmer denounces the wasteful methods of his neighbor who has gone to the newer states, yet the practice in each locality is probably better for that locality, than would be that of the region from which the critics come. The danger is that farmers will be too conservative, and

not readily enough recognize the changing conditions, which indicate the need for change in practice.

These conditions are changing with great rapidity. We are ceasing to be a new and are becoming an old country. Even in the central West we have vast population. The competition in farming, both at home and abroad, is much more close and severe than ever before. With the improved means for transportation, the supply of farm products almost anywhere in the world, affects the demand in almost every other part of the civilized world. Pretty certainly there will be a narrower margin for profit in the future than in the past. Success will be more difficult, but it will mean more when secured.

We have had two great sources of profit in farming: first, rise in the value of the land; and second, profit on the production of farm crops. The first has been the chief source. Farm lands have advanced in price with great rapidity, but the rate of advance usually steadily becomes less, until it falls below a reasonable interest for the money value. In such case we must look to the second source for our profit, if we are to have any that is satisfactory. Lands purchased from the government may double in value in a single year. Lands worth \$50, \$75 or \$100 per acre, may not advance one per cent. a year.

It is inevitable that we must have a "landed class." Already it is difficult or impossible, over much of the country, for young men to become land owners. The area of desirable farm lands yet attainable as a gift or at low prices, actually large, is comparatively small and must be practically exhausted within a very few years. Rather than simply denounce the mistakes of the government, and the wickedness of foreign or native "land barons," the wise course seems for young men desiring to be farmers, to get as soon as may be, title deeds to the best lands available. The opportunities now offered for this will soon become rare, or pass away entirely. The number and percentage of tenant farmers must certainly increase. There will probably be more of partnership between capital and skill in farming than we have yet seen.

Practice must change in many respects. There is danger in delaying the change. Farmers may roughly be divided into three classes: The few enthusiasts who are continually changing and to whom a new project is always inviting; the large middle class who move forward cautiously and carefully; and the straggling, fogyish class who refuse to change until compelled by sheer necessity. It is better to err in getting too near the first, rather than fall into the third class.

Among the changes indicated, is that we must make full use of all the capital invested. We must cultivate a larger percentage of all the land. When low in price and rapidly advancing, it did not matter if much of the land lay unproductive; but when high in price and advancing slowly, if at all, interest and taxes can only be met by making each acre, so far as is possible, produce a good crop. Illinois, in 1880, stood first in this respect, but even here  $17\frac{1}{2}$  acres of each 100 acres in farms was uncultivated in any way, and in many states more than 50 acres of each 100 was lying idle. In the same way the labor of the farmer, his employes, his animals and his machinery should be made as constant as circumstances will permit.

Because live stock better enables the farmer to make profitable use of otherwise waste land and waste products; because they enable him to condense his surplus products, better fitting them for transportation; because they are the best security for retaining valuable fertilizing matter of the farm; because a good rotation of crops are most easily and profitably followed where they are largely kept; because they make it possible and necessary to have labor distributed reasonably equally throughout the year, I believe more and more attention should be given to the rearing, feeding and management of farm animals of the various classes.

We have, not always unwisely under the circumstances, somewhat reduced the fertility of our soil. We must husband better that which remains, by the better use of the manures produced upon the farm, by ceasing the continuous cultivation of any one crop and having a wisely



planned rotation, and sometimes by the purchase of what are known as the "Commercial fertilizers." As a rule, diversity of crops will be better, though specialties will be best for some. In all our farming, with the closer competition, we must study economy of production, more than the possibility of production. It is not, and will not be, always true that the largest possible crop per acre, the greatest yield per animal of meat, of milk, or of wool will give the largest profit.

Farming is a business which needs to be learned, and this will be still more true in the future. The knowledge how to farm never has and never will come by intuition. Gladstone has recently said, in effect, that more of intelligence and of effort is required in England to properly manage a given capital in farming than a like sum invested in manufacture and merchandise. If not already true, this will soon be true in our own country. With the adoption of more complex methods, with the necessity for the employment of a larger capital, the need of proper training for the work will still increase

In farming, as in any other calling, he who would do more than make a bare livelihood must be above the average in some way — either in the circumstances in which he is placed or in his ability to control and make the best of these circumstances. Everywhere the standard of the average man is advancing. That which was adequate in capital, in training, in intelligence, in education, a few years since, is now insufficient. In our houses and their contents, in our dress and ways of life, the things counted luxuries by our fathers, or absolutely beyond their reach, are now to be found everywhere. In the common or village school of to-day, the boy or girl may learn something of many branches of learning scarcely taught in the universities not so long ago. The education counted fully sufficient for the farmer or business man half a century ago, is now below the average given in these common schools. The danger here, as elsewhere, is that we shall think that which sufficed for us is sufficient for those who are to come after us and

who must contend against fiercer competition and with greater difficulties.

Education and training do count for much in the work of the farmer. They will be more and more needed in the future. All honor to those who, without education in the schools, have made a grand success in business and in making themselves men and women; but no honor, even dishonor, to them if, because of this success, thus secured, they deny to their children the best advantages attainable for them.

The farm is a school—the best of all schools in which to learn much that needs to be known by the farmer. For acquiring a knowledge of and skill in farm practices, it is almost the only school worth the naming. Farmers are teachers, not only by example, but also by direct word of inquiry and answer. It is their duty, and should be their privilege, to instil in their sons a knowledge of and interest in their calling. The agricultural meeting, of club or grange or convention, is a school—short in its session, but often most effective in its teaching. The agricultural paper, now so widely read, is the most influential and effective, as it clearly is the most quick acting and cheapest means of disseminating information about farming. The time has come when the agricultural book, little of value as some of them are, should be more appreciated and more read than it has ever been.

But aside from all these means of teaching, we must look to the schools proper, as most important agencies in training the farmer for the future. The common public school is the foundation, and with all their faults, it is our urgent duty to sustain these schools and see to it that every boy and girl has an opportunity to learn all he or she can in them.

It is a mistake to take a narrow view of the extent of education desirable. The trained mind is as valuable a result of school work as is the accumulation of facts. Because we have done fairly well with simply a knowledge of how "to read and write and cipher," is no reason why we should

limit those who are to come after us to this narrow range of studies.

There is a growing appreciation of special schools. Those to help young men to become lawyers, doctors, or ministers, are more numerous and have far more students than was the case only a few years ago. The time will come, although it is not yet, when there will be a general belief that schools to give special training to those who are to be farmers are worthy of high regard and large patronage. There is little demand, as yet anywhere in this country, for such schools. What are 100 or 200 or 300 or 400 students in any agricultural school or college in the United States, compared with the thousands or hundreds of thousands of farmers in the state. There is an apparent demand, manifested in criticism and discussion. There is much of criticism of public schools, but they are full of scholars. There is criticism of professional schools, but they are largely patronized. There is vehement criticism of the daily newspapers but they are read by the millions of copies. There is criticism of the agricultural colleges but they are not largely attended. There are many reasons why this demand has not been found. Until there is seen a pressing need, there is rarely much demand for that which costs time and effort and money. Young men have been able to make a fair success in farming without the help of the special school. When the demand really comes, the schools will be full, whether they be separate agricultural colleges or whether it be thought unnecessary to carefully guard the boy who is to be a farmer from contact with those with whom he is to be associated in after years. This demand will come. It may be that the schools will change and become better in many respects.

There is a wide range of instruction to be given in such schools, instruction on the practical side. Although with our comparatively simple methods, manual labor on the farm will usually best be learned and taught on the home farm, there is much that the competent teacher can tell the young man about animals and plants and machinery which will be of great help to him in his after work. Not always

can we see that a knowledge of the natural sciences as related to farming or even that their application to agriculture has a direct money value. Oftentimes we can see this, but whether we do or not, a knowledge of these sciences will be of great help to the intelligent farmer. Again, in these schools much most valuable instruction concerning farming as a business can be given. More than in the past, when and where and how to sell his products must engage the attention and careful study of this farmer.

One of the most hopeful signs of the future is to be found in the fact that American farmers are citizens. It is their right, duty and privilege to help in the making and execution of laws and public sentiment. There is some complaint of their lack of influence in this capacity, but no declaiming about this nor denunciation of those who do exert influence will bring increase of power. Fitness to exert it and a quiet showing of that fitness is that which gives influence to any man or to any class. In the long run the people will not advance nor pull back any man simply because he is a farmer.

It seems inevitable that we are not to escape the evils which have come to other countries with increase of population of wealth. There must be "classes," The ignorant man, whether a farmer or not, cannot and will not stand in the same class with the man of education and intelligence. We should be profoundly thankful that our laws and the condition of the country are strong safeguards against hereditary classes. The children of the lowly may take high positions. The question for each of us to decide is whether our children are to be in one or the other class, and the foremost duty for us, is to do all that in us lies, to see that we and ours have every help to placing ourselves in a position where we can do best for ourselves and best for those about us. Intelligence and wise living will do more in this case than will legislation.

It is more to be a man than to be a farmer. Being a farmer makes one, necessarily, no less nor more a man, nor will it in the long run increase or diminish the estimation in which he is held by others.

At present there is surely no great scarcity of farmers. No farm products is selling at extortionate prices. Profits from farming are not so large that we need feel bound to go out and compel those engaged in other callings to come and share them with us. There is no room for regret if the farmer's boy chooses to fit himself for and engage in any other useful and honorable enterprise. The more men who can find useful work and a livelihood in other fields, the better it will be for the farmers. There is need that those who are to be farmers, shall be better fitted for the work.

The past history of the country gives much of encouragement for the future. There are serious dangers confronting us, but with intelligence and energy and honest efforts these may be avoided or overcome. We are but laying the foundations for what is to be, as I believe, the greatest nation the world has ever seen. I have great hope for its future and, for its continued prosperity in material things, thus no greater safeguard and security than in the fact that it is, and promises long to continue to be, a nation whose largest class shall be land-owning, intelligent, christian farmers.

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### THE PRESENT AND FUTURE ADVANTAGE TO THE FARMER OF GRANGE MEMBERSHIP.

BY E. W. DWIGHT.

There are 5826 farms in the county of Dane. 916 of them are tilled by tenants. 4910 are cultivated by the owners thereof. Now, I made a statement here not long since that there were in the town of Oregon, in which I live, in this county, about ten mugwumps. We have agricultural mugwumps as well as political mugwumps. The political mugwump is supposed to be a goody-goody sort of a fellow. He rises to sublimer heights, he has loftier views of mankind and the relations which he owes to his fellows than ordinary mortals, or at least he assumes such, but an agricultural mugwump is supposed to be possessed of from \$15 to \$50,000. He may be the finest man in the county or he may be

the meanest. It makes no difference. We will be generous to say there are ten in each town, that makes 350 in the county, but I will be generous to-night and say there are 826, which leaves 5,000 common farmers. To them I propose to address myself to-night for I am one of the number and I am not ashamed of that. I am an old pioneer of the state and I have worked with them early and late and know what they have had to undergo, and I think they have done nobly; I think they are entitled to great praise. Why don't we see more of them here to-night in this great county of Dane, 5,000 of them. This house ought to be filled, galleries and all. There is a chance for an enjoyable season of recreation? Why not the farmers' wives here? I have seen it stated often that there are too many farmers' wives in this large house across the lake (the State Hospital for the Insane;) they will say: "what do you do." Hard work with our hard winters and our deep snows, and our violent storms and blizzards, and not being able to have that communion with their sisters which nature demands, is unquestionably the reason why there are so many of them. That may be true. I am not a physician but I have seen that stated so often that there must be some truth in it. Right here comes a point, that the membership of the grange is a wonderful help to the farmer's wife.

The grange is a wholesale visiting society, where the farmers' wives and daughters and sons all get together, and it is like a family where they are all farmers, and the society is for farmers and by farmers, and the only society that fills the bill. Now, the farmers are in favor of associations of this character; I never in my life talked with a gentleman who had been up here and sat through these entire meetings, but what was well pleased and well satisfied, and edified thereby; also your farmers' institutes. They are in favor of them; they have developed wonderfully, and they bid them God speed, and hope they will go on and accomplish wonders. They are in favor of an agricultural college; they believe in that. They believe that the technicalities of farming should be taught in a technical school. If they want to fit a man to go aboard a man-of-war, they think it

is necessary to have training. The best training we ever had was on the old whale ships, and Farragut's men, that ran the bars at New Orleans, were sailors and cod-fishers, the same as I was when I was a young man, accustomed to danger, and ready for any exigency that might arise; the best sailors in the world for that experience, and that knew how to grapple with danger and adversity. That kind of farmers are in favor of this, and they will stay by it; and they are in favor of good cattle and good machinery. They believe that machinery is a great educator; that the man who handles a machine properly and understands it, has some of the same spirit with the man who invented the machine. That they believe, and something more than this. They believe in thoroughbred horses, in thoroughbred cattle and swine; but they believe a good deal more in thoroughbred boys and girls. [Applause.] Here we are, nothing but a nation of scrubs. Men stand up here and say that bogus butter, that hog butter and skim-milk cheese have come to stay. For shame! If we were thoroughbred men and women, we would take those adulterators by the throat and shake the adulteration out of them. [Applause.] They would never adulterate butter or cheese if you did not want it, an hour. You are bogus yourselves; that is all there is of that. [Laughter.] Now, then, we are in favor of this, and especially we are in favor of education. Some farmers deny it, and talk about educated fools. Did you ever know a man that had too much of it? This kind of talk reminds me of a rich man I knew of in the state of New York. The fact is, he could not have too much money nor too much property, and never did; he was immensely rich too; but if his neighbor got a little, there was always a redundancy of the currency, and the country was going to the dogs. That is the way with men that talk against education. An education is the most valuable possession that a man can have. The banks may break, the factory may burn, your swine may die with the plague, pleuro-pneumonia may fasten upon your herds of cattle; but a well ordered and well disciplined mind is as imperishable and abiding as the very marble, therefore seek for that. Commence at the right end.

What is education? It is discipline. The disciplined soldier is an educated soldier. If a man has got the right spirit in him he can have it anywhere, out in the back woods if it is necessary, if he will only put forth efforts commensurate with the object that he desires, consequently the grange is especially in favor of education. I do not know whether you city gentlemen are aware or not, but the average farmer's boy is not receiving as good a chance as he ought to. The girls go to school summer and winter and they go to high schools and normal schools, and you sit down and converse with a young miss of 16, or 18 or 20 in the country and they are more intelligent than the young boys. The boys go in the winter three or four months and if there is anything the matter with the fine cattle, father takes them out occasionally, so they go about four days in the week. Now the grange proposes to elevate these boys. Try to reach them with educational influences and everything of that character, and there is nothing to hinder. In the grange you can have it just as you are a mind to. You can enter in and obtain the full fruition of your hopes as you desire. You can have scientific lectures and take the subject and study it among yourselves. You can have a library, and the grange I belong to has a very good one indeed. All these tend to please. They tend to elevate and build up society and make it better. Some men are opposed to the grange because there is a secret to it. All the secret there is to it is to keep out bad men who would destroy it. One of the cardinal principles of the organization is that the young shall not be taken away from school, but that they shall be well educated. They are also in favor of paying as they go. That is right and that is just. No one thing has done more to keep the common farmer down during the last forty years, as far as my experience goes, than the running in debt at stores; running big bills and in the end paying large rates of interest. There is not so much of that done now as formerly, but there is too much of it done at the present time. The grange believes not but what a man should go in debt for a farm, not but what he may go in debt reasonably for other property, but that you cannot keep your cake



and eat it at the same time. They inculcate economy. I knew of a farmer in Wisconsin worth \$20,000, and when he died they inventoried his books and they were worth just \$1.75. They do not believe in that sort of economy. They believe in the economy that cultivates the whole man. That rounds him up physically and intellectually and morally, and what avails all your education without it? Of what avail are your seats of learning and your courts of justice? Of what avail are all your cattle on a thousand hills without the education of character? We are alarmed when disease fastens upon our friends; we make frantic efforts and rush to those high in authority, and yet thousands of men are going down to eternal ruin and not a voice is heard to stop it. The Grange believes in morality and decency, and good order and good government, and they desire to have the blessings of liberty extended. They desire to see the institutions of our fathers go down to our children unimpaired and amplified and extended so that they may ultimately fill the world. [Applause.]

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#### ADDRESS OF MAJOR ALVORD.

I said last night at ten o'clock and again perhaps this noon, that the cause of higher education in and for agriculture had not yet in this meeting received sufficient attention and support, but that is no longer the fact, and the things which at an earlier hour I had intended to say on this general subject, have already been said most effectively. All I can do therefore, is to confirm the sentiments which you have already heard since noon to-day, from those who have uttered them better than I can. It seems to me that the success of farmers' institutes in this and other states, that the success of the Grange all over the country, that this meeting itself and others like it, are sufficient testimony to a feeling of need among our farmers of means for education, even for the present generation, and that when a practical matter like these analyses of foods and fodders, is pre-

sented as it was in the middle of the day, there is evidence at once given of a desire on the part of those now actively engaged in farming and well along in years, of accurate information at the hands of students of the subjects, upon topics which in earlier life we had no means of learning. All these are evidences of the want of this generation for more and better light upon the business which is represented by this gathering, and it is an acknowledgement on the part of the present generation, that if there has been such a change in the business of farming that this information is called for, that the generation next to come and generations succeeding, will need more and higher education in order to enable them to continue in this business successfully. It does not need any additional presentation of this topic, to that which you have had from this desk by Prof. Morrow, to prove the great necessity of better training for successful farming in the future, than has been afforded to those who are now engaged in it, and it seems to me evidence that whatever there has been in a want of success in the institutions which have been provided for advanced teaching in agriculture, colleges and departments in universities for this purpose, is not to be accounted for upon the supposition that it is not and will not be needed in the future, but it is simply evidence that those provisions are in advance of the times when they are to be most needed. I think that is the fact in regard to our agricultural colleges, that they are endowed before the demand arose for them; that that demand really has not arisen yet. Education is like any commodity, it is provided to meet a demand, and like other things too, with very rare exceptions, demand is not pre-aided by the mere offering of the supply, certainly not without patient and persistent offering, that sometimes succeeds, but just as soon as a demand for anything actively arises, then the supply is forthcoming. This is true in all branches of education, and there are ample illustrations in other departments than that of agricultural training. Prof. Morrow has already alluded to the fact that it has not been a great while that a special training was even considered necessary for what we now know as the learned professions, and it is within the memory

of most men here present, that the scientific departments of our educational institutions were begun. And within fifty years one could have hunted all over America to find an institution of learning where he could pursue a regular course of literature, omitting the classics, Latin and Greek, and yet complete his course and graduate in good standing.

Fifty years ago there was not such an institution in the United States, and when I was in school, scientific departments in colleges were rare, and where they existed they were weak and poor and neglected, as much as many agricultural departments in colleges and universities now are, but as time advanced, the demand for special scientific training increased, and then our scientific departments were strengthened from outside, and they rapidly became co-equals with the literary and art departments of the institutions, and we know very well now these scientific departments in our oldest colleges have been standing on a par with all their other different divisions and are equally patronized. Indeed, I have this moment in mind two or three of the oldest educational institutions in this country where the scientific departments are the most largely patronized of those institutions. I take this as simply illustrating the fact that we have not yet come to the time when thorough training for the business of farming is largely in demand, but I think it is very well that there were men wise enough to lay the foundations for this new thing in the way of education before the time when it was actively demanded, and all that is necessary for us to wait for, is that realization of the fact among farmers themselves and among others who have a regard for farming, that a special training is necessary to make a successful farmer. When we realize as farmers that something more than we have had the opportunity for must be provided for those who are to follow us successfully in the business with all its rapid changes, then you will find your agricultural colleges or schools for farming rapidly filling up and being well enough patronized. One point I think, we ought to be very careful to recollect about this matter of agricultural education, and that is, that the schools should be regarded, not as special places

for farmers' sons or farmers' daughters, but as places for the making of farmers out of the son of any persons who choose to patronize them. It is more important to the agriculture of the future that the sons of those who are not farmers, and especially that son born and raised in our towns and cities shall be drawn and transferred to the farm, to give us new blood in the country, than it is that all farmers' sons or that most farmers' sons should be reared in the callings of their fathers, and I hold it to be no disparagement to any institution for agriculture, or for any other technical calling, that its graduates are not all following the profession which they expected to follow when they were at their studies. Next to well-educated farmers in the years to come, the most important thing for farming itself, is to have men in all the other occupations of life who shall realize what farming is and what its needs are, and whenever you find a graduate of an agricultural school, although he may be a lawyer, a doctor or merchant, if he has followed to any degree an agricultural course of training he will be a friend of farming if he is not a farmer himself, and that is just as important to the business as it is to have men trained for remaining in it.

Now on this ground, that we have got to wait yet to realize all that we have anticipated from our provisions for agricultural training, it seems to me that we may reasonably expect that departments in large institutions will ultimately be just as popular and just as useful, if they thoroughly devote themselves to that branch of education for which they were created, as will separate institutions be for the purpose. I agree that the immediate effect, the quicker result, will be obtained by the separate institution. Theoretically it ought not to be so; practically to-day it is so. It will be so for some years to come; but I am fully satisfied, if we may judge from the history of education in general, that when the demand for agricultural education is such as to create full provision for it, that that same cause will result in making well equipped and well manned departments, of general educational institutions or universities, just as popular and just as successful as the scientific and professional

schools are to-day that belong to those institutions, and that it is a fact that to-day the agricultural departments are just as well off as the scientific departments attached to larger institutions were but a very few years ago. It will not do always to draw parallels between different states, as to what would be probably the result of separate institutions. Time and money are two of the most important elements in any educational institution. The older an institution is, the more money it has at its control, and the more successful as a rule, and the better patronized, and consequently we have as an illustration, that the agricultural colleges pure and simple in this country, which have had the most time in which to show what they are worth and what they can do, and upon which the most money has been expended, are those which are succeeding the best. That is almost universal. That statement can be proved, I think, throughout the country, and we have no right to say that if the same labor, the same pains, the same money spent, had been put upon any agricultural department attached to a larger institution in any state, that the result, in the same length of time, would not have been equally successful. There has never been any such example, and consequently we cannot draw the comparison. Understand me fully now. Upon looking over the field very carefully, as I have, I have become convinced that at the present time, decidedly the most successful institutions for agricultural education are those which do absolutely nothing else, and are isolated from all other institutions; but I believe there are but very few in which the advantages offered by those institutions are as great as in departments of larger educational institutions or universities, and after all, it is the facilities which are to be provided for the student, that determine the question of what the education shall be.

We cannot educate a boy by simply sending him to any particular place where facilities are provided. He has got to do the work for himself, all we can do is to provide the facilities. In one or two cases, better facilities have been provided by agricultural colleges pure and simple, than have been provided anywhere else in the country, and nat-

urally students have drifted to those places where the best facilities were provided. The trouble with the departments of universities has been that although they have been established in name, they have not been fairly provided for or provided for commensurately with the other departments. This certainly has been the rule. In one or two instances the mere name has been kept up and nothing has been done in the way of provision. I do not care to go into illustration of this subject by naming any institutions but the examples are clear in my mind as very recently I had the occasion to go over the ground somewhat in detail, and am expecting to do it still more within a few weeks to come. I understand well enough the peculiar situation of affairs right here in Wisconsin at present. I fully believe that within twenty years to come the results would be greater for the state of Wisconsin if it established an agricultural school pure and simple, perhaps well removed from any other educational institution, provided it supported any institution as thoroughly as it does its state university in general. [Applause.] It is a great deal better to go along just as you are than it is to begin any new institution unless you are to put your hand in your pocket and just about duplicate that university over again. [Applause.] There are a great many expenses that must be gone with every new institution, and to a great extent it is a waste of money to duplicate these organizations and establishments. If you should know the amount of money which has been expended from first to last to make the best agricultural college that there is in the United States to-day standing by itself, and the time that it has taken to bring it to its present condition, and realize all its present weaknesses, I think you would hesitate a good while before you undertook to repeat such a job. [Applause.] But this does not mean at all that it is not worth attempting. It only means that it is necessary to look well forward before you leap. I have unquestionably disappointed you in these remarks. They have been simply intended as confirmatory to the propositions advanced in this place by two or three gentlemen who have preceded.

me. That was all that I attempted as I stated at the outset, to confirm from a careful study of the situation, the positions which have been taken by those gentlemen.

One word more, and I am done. Think over the work that you ask man to do for you in connection with any such institution as a state college, or the department of a university, or an experiment station, and then see if you are not expecting too much from the individual. If you want the best of work, you have got to provide the means for it. You have got to give man enough to do it. You have got to do a great deal more than you generally recognize as necessary. Now right here at your university, you are requiring a great deal more varied and harder work really from the men who are engaged in the agricultural department, than those engaged in the other general departments of the institution. It has been so from the start. It was conspicuously so ten, twelve and fifteen years ago. It has been improving all the time, I grant. I know something of the history of the University of Wisconsin, and of the agricultural department of that university; and I know that in the outset a man was employed as the agricultural instructor, and then one after the other, of all sorts of other things, were required of him, until he was utterly unable to carry respectably any of the duties pertaining to the position which he nominally held. Now, that has not been done away with yet sufficiently. For example, the two duties of instruction and experimenting do not belong together. A man to do either thoroughly well should be excused and relieved of the other; and I say this from personal experience of several years, as a teacher in an agricultural college, and several years more in directing an experimental farm. I do not rely, however, on any personal experience in the matter. The oldest English speaking experimenter in agricultural science, John Bennett Laws, in laying the foundation for his great work in England, after forty odd years of experience, lays it down as a first principle that there shall be no pupils connected with that work at Northampton; that no person who is employed as an experimenter on the endowments which he leaves to perpetuate the work, shall be re-

quired to instruct others outside of the small circle of their own assistants, and when he was asked to do something to connect Northampton with America, and the question was asked whether he would allow an American pupil to reside there at the expense of that pupil, or whether he should send over his information by lecturers to America, although at a much increased expense, he decided that it was so much more preferable to the work he had in mind, to send a man to America every two years, that he promised to do so perpetually rather than to allow even one student to occupy the time of his experimenters. Do not try to do so many things at once. Get along as well as you can with what you have, and remember this law of the division of labor, and relieve every worker you have in your agricultural department of one thing, whenever you require him to do another which is essentially of a different character, requiring a different line of action.

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Senator Anderson—I certainly cannot agree with Mr. Alvord in his conclusions that we had better add here to what I call a lean-to to the University, that we farmers have. We all know that that has been a failure, and almost a total failure. Not a half dozen students have been graduated there within the last eighteen years, yet the state has appropriated the money which was given by Congress to found an agricultural college. They have appropriated from \$15,000 to \$17,000 a year; that is, the income from the lands amounts to that for the last eighteen years or a sum of over \$300,000, which has been misappropriated; which us farmers should have had to have bought a farm, built buildings and to establish a college. Mr. Alvord knows, as has been stated here to-day by Prof. Parker, that in every state where they are united with other schools they have been almost a total failure. That they have failed to accomplish the object, and there is not a state that I know of where they are separate, but what they have been successful; as successful as you could expect. Now us farmers in Wisconsin want to keep up abreast with the times, and the only



way we can do that is to have a separate school where these boys will go and work the same as an apprentice on a farm, or a workman or a hired man on the farm, and do the work under proper instructors. You cannot get boys to go up to that University and take off their fine clothing and put on their blue demings and go down and work and muddy themselves all over, and then go back again to school and associate with those boys that are stepping around with their patent leather shoes and fine dress, and be laughed at as they have been for the last fifteen years to my certain knowledge. You must have it as they have it in Canada. A school where if a man comes from England, a son of one of the lords, he has got to take off his coat and go to work the same as the other boys. They all have to do the same kind of work and all work the same number of hours a day during the summer season. A school of that kind is what we want in Wisconsin and we will not be satisfied with anything else. The State of Wisconsin owes us over \$300,000, to say nothing about the interest. The income has amounted to over that which they owe us and they ought to give us at least the principal to buy a first-class farm, not less than a section of land in it, located away from any city and away from any other school, so that we can put buildings on that, employ the proper instructors and teachers, and you would have one of the best colleges in America and keep up abreast with the time, and I will never be satisfied as a farmer until we receive our just dues from the State of Wisconsin. [Applause.]

Gen. Atwood—Mr. President and gentlemen: Knowledge is power. That is truism, I believe, and it has been stated, I never knew a man that knew too much. Yet we need more than anything else in our schools that young men be thought to think. The problems that are gone through with in arithmetic and grammar and geometry, and so on up, are of but little use in practical life. It is only so far as these things contribute to the young man to enable him to grasp a subject and hold it until the will says let loose. This arises from the fact that these problems learned in the schools do not come up again. The practical business of

life presents new problems. Then only so far as you learn, young men and young women, to think and discipline the mind are they educated. That I think is education. Now, I have been inferring on myself since I sat here what kind of an education is this agricultural college to impart. We were told here by Prof. Morrow that at that school that has been quoted in Illinois, that agricultural college, but a very small per cent. of the students take an agricultural course. These studies pursued there are the same studies pursued in other high schools, and the students attending that school gain a general education. Now, there is a mania for a general education and nothing can be said against that. We want more education, but not it seems to me in the sense of an agricultural education. Where are your text books? What do you propose to impart? Is it to plow and sow and reap and mow? Do you propose to teach young men a better method of breaking vicious colts? I take it that a young man who has arrived at 21 years of age, and has been brought up to handle a horse, will know about handling him and he will be more successful in handling a horse than the professor of 50 years. I think it will be admitted at once that the farm is the place to learn that. I understand, of course, that a part of the curriculum of the agricultural college is to be farm labor. It seems to me the height of folly to divide up this thing. Learn the young man to think and then educate him. If he can think methodically, if he can think systematically through any subject, he can go out in the world if he has got a thimble full of brains and a little mother wit, and he can succeed in farming, it seems to me, quite well. If he has rubbed against our civilization, I mean the farming part of civilization, for fifteen or twenty years; he is pretty well equipped for farming, and it seems to me he is better equipped than the professor who knows all the technical terms, or the analytical chemist who can tell you all the materials of which the soil is composed, and of which the food of animals is composed. But who has no practical knowledge of the details of farming. I would like to see those two placed on a quarter section of land in Illinois, and see which would come out the most

successful. It seems to me that the young man who had the practical experience on the farm would lead. He would be most successful. Now, I think when the text books come to be selected for this agricultural college, that probably no higher book can be reached than the reports of your meetings here. They are excellent reading. Your secretary had the kindness to send me one, and I was very much gratified in reading it. Yet there was no science there, not as we understand science. Of course, we understand that underlying all human activities, there is science whether we are conscious of it or not. Men are using or applying things daily, under which is a science and in accordance with the science, but they are perhaps, not familiar with the science of mind. That I recognize as true, yet when you come to impart the best knowledge you can to farmers, that I think is embodied in these agricultural reports so far as I have been able to learn and in your institutes, all very good things. Then you have these reports as text books, but they are conflicting. There is one man's opinion and another man's. They do not agree, hence to-day there is no science in agriculture in the proper sense. Give things their proper names and if it is a school for general education purposes, like your state university, call it by that name and don't say it is an agricultural college, to teach the science of agriculture, when you have not arrived at that great height yet. Therefore, I believe it would be onerous to the people of the state of Wisconsin to tax them more than they are already. At least the most of the farmers feel that the common school, and the graded school, and high school, and state university, is quite burdensome, yet we will not complain an iota about that. We will say, give us the highest education; it is the salvation of the race that we may be more highly educated. I believe that, and yet I cannot see for my life how this agricultural college is needed at the present time. The time may come when you will want it, but with our present knowledge, in science as applied to agriculture, I cannot for the life of me, see where it is going to benefit the state of Wisconsin to-day.

Mr. Broughton — Would you combine the educated or scientific man with the practical working man, at the same time.

Gen. Atwood — It seems to me that if a man is a chemist, that is sufficient to occupy a man's lifetime. If he becomes eminent in that work it requires a lifetime, and I would not have a man engaged in many things. It seems to me civilization tends to a division of labor. I can remember when my shoes were made at home. A shoemaker went around and made shoes, and all the clothing that children wore was made in the family. Everybody was supposed to do everything.

Mr. Broughton — Would you have one set of men do the thinking and another set of men do the working?

Gen. Atwood — No, I would have the farmers educated, but I would send them to the State University. [Applause.] I would give them a broad field to choose their occupation. I do not believe you will ever be able to make the man of muscle the man of literature. Now, do not misunderstand me either. I believe it is possible. I believe that Gladstone, to-day, one of the greatest of England's sons, goes out and exercises his muscles. They say he is an excellent chopper. They say that he can use his muscles vigorously, but how does he use them? He uses his muscles with this purpose in view, that to strengthen the physical man improves the mind. He does not work to physical exhaustion. I believe it is true, although it has been questioned, whether machinery could not be so plentifully used and so well adapted to doing the work of all human labor, that we could get rid of it entirely, although that has been suggested, I believe that just the opposite has happened. It is probably true that at no age of the world have men worked with such an untiring exertion and with such physical exhaustion as they are doing to-day, and their muscles are tiring and their brain is tiring with the work. I believe it is possible to have a vigorous mind only in a vigorous body, and I believe that it is much better for your son or my son, in the language of Oliver Wendel Holmes, if he wants amusement it is much better for him to range the fields with his gun and take

amusement, until he feels that he would prefer to change for some other exercise.

Mr. Broughton — Who will do the plowing?

Gen. Atwood — I would like to tell you just who would do the plowing. There seems to be a class and I am sorry to say it is so. I wish every man could be a king and a captain, but they cannot. I am sorry for the race that there is destined to be, and you may lay it to Fate or what not, there is destined to be the hewers of wood and the drawers of water. I believe that is true, but I will send my sons to the University and have them educated if I have money, and I would advise you to do the same. Now let me say one word more. I would not dare to have got up and spoken as I did against this college, except that I was a farmer. I know what it is to have tired muscles. I lived down here in the southeast corner of Dane County, in the Town of Albion, and farmed. I did not have the advantage of many of your settlers. I bought my land at \$30 or \$40 an acre. Probably I have been as successful as most farmers under the circumstances. I have got something together but it has been mainly done with the muscles, and it seems to me that the most of you men here bear the marks of servitude. These are workingmen, the most of them. I am satisfied that you cannot deceive me in that.

Mr. Broughton — Are they not thinking men too at the same time?

Mr. Atwood — Thinking men also. You have not devoted all your time in that way and I have tried to devote a little time in that way as well as to work. I am entirely dissatisfied with what I have said, because you know in this haphazard and nervous way it is like turning batter on an old fashioned griddle — it spreads out in every direction. My remarks are something in that way, though if spread out in every direction, I hope the material of the cake will be good.

Mr. Robbins — I wish to say that we have gone through these discussions years ago when we did not have any farmers' institutes or any agricultural society that was worth anything; I am speaking now of 1857. I would ask

the gentleman if he would send his daughter to the State University in 1857? He would not have done it. In 1858 we had a hard battle here in the legislature in order to put the State University on a footing where it could stand. It was repealed by the senate through the eloquence of Senator Clark and others, and the senate believed that the State University was a nuisance, that it should be repealed and the funds should be diverted to common schools and not used for university purposes. There was no demand for it at that time, consequently he got a bill through the senate diverting the entire fund of the State University. That was in 1858. Then the State University was put upon a footing so that it has gone onward and upward, but it would have gone down if we had believed the statements that men should be educated only in the sciences. We took the position at that time that it was right to educate men in all their callings and they were better if educated for their calling. They said at that time, it was not necessary to educate a teacher, that you could put a teacher into a common school with half the sense that you could put a boy to attend to your horse and hogs and cattle and wait on them. There was not a teachers' institute in the State of Wisconsin in 1858. They sent for Prof. Binard, the great educator of the East, and got him at a large salary and he established teachers' institutes, and we provided at that time that every academy and college in the State of Wisconsin that would educate a teacher, or would have a teachers' class should receive so much money. Appleton received in 1858 over \$2,400 and Platteville Academy received \$2,500 for the purpose of educating teachers, and has there not been a glorious result. We want other advantages and we hear this same humbug, this same clap-trap, "wait till we see what the farmer wants." I tell you the farmer is now knocking at your doors and he is a man too. [Applause.] He is not a clodhopper, nor a serf, nor a mugwump, but he is a man in every sense of the word and he is able to fight his battles and he don't ask to have any waist put upon anybody else, not upon the lawyer, nor upon the doctor, nor upon any other scientific man. No, sir; they are able to fight their

battles and pay their taxes. They are able to be robbed three times a year, scientifically robbed, and I might say, by some of those very educated cusses too. [Laughter.] I can say it. I have been through the mill here. I have been through the battle, and I have gone back to the farmers, and I have been able to live there and come up here seven times. What did I get? I got \$2.50 a day. What do they get here now? They get \$8 a day. They must have \$500 a year and stay here sixty days. I do say that the time has now come that the farmer demands an agricultural school. They need such a school. They have had \$500,000 in ten years in taxes, and the endowment of the agricultural college too, and now I want them to be honest; if they never were honest before in their lives, I want them to be honest now. We have given them all they ought to have, now let them give us something. We have paid 80 per cent. of the taxes in the state of Wisconsin, and now we want you to acknowledge that we are your peers; and we want you to acknowledge that you have to come to us asking for privileges, and not that we have to come to you. What kind of land have you got up there on the hill? Can you establish an agricultural college here on the land you have? There are fifteen acres under cultivation, and a drive of twenty-five acres for the city of Madison. [Laughter.] If, when in the wisdom of Dane county they gave us that \$40,000, if they had gone and bought a farm here within a mile of where they bought that farm, they could have bought a farm there and made it a success, and we would not have been coming here all the time and saying, "give us something; give us something;" but they say, "you are a hundred per cent. better off to-day than you were ten years ago." We have done it by coming up here and telling you that you were not doing anything; that you had got our money under false pretenses, and that if I had got a horse the same way that you got the college here, I would be taken as a swindler. Now you are giving us something, but only within a few years. I remember that when Hiram Smith was put on the board there was not a farmer on the board. The governor put three on that year, and I believe they have been growing better ever

since. If they had three more they would be better yet; and if they were all farmers they would be better yet. I do not say the time has come to do that, but I say that he has done a great thing for us, and I thank him for it. Now, we are going to have an agricultural college, but I think it will take us a good while to get it. It took us from 1858 to 1866 to get a training school for teachers in the state of Wisconsin. Now they are popular. And now we have the farmers' institutes; but do not say that there is no science in farming. There is just as much science in farming as there is in chemistry. Let it be so that the farmers can come up here and talk with these educated men. You cannot get farmers' boys to come up here. We want to have a school that we can call our own; that we can be proud of; and the State University will be just as proud of it as we are. I did not want to make a speech to-night, but I could not help it, when we had to go through the same thing to convince men that it was necessary to have a training school for teachers. Now I say, let us have an agricultural college, and let us have it as quick as we can.

Mr. Atwood — I would like to have the gentleman tell me what branches he proposes to have taught in this agricultural college.

Senator Anderson — If the gentleman will be here to-morrow, I will tell him and read the whole practice and theory, and the branches that are taught at one of the best schools on this continent. I have it in my satchel. I have not it here. I am sorry that I haven't it here, because there is more to be taught there than any farmer in the state is aware of.

Mr. Atwood — I supposed it would be similar to what is taught in other high schools.

Senator Anderson — No, sir, they are not similar; I mean the practical branches. I want to say to you that there is not one farmer in ten that knows the good points of a horse, or can describe them. It is not every farmer that attends our State Fair, that can describe the good points of the various breeds of cattle that are there, or even knows the



names of the various breeds. Everything of that kind would be taught there.

Mr. Atwood — I agree with the honorable senator that there are not many that understand the horse, but as high as I appreciate the value of understanding anything, I don't know but it would be as profitable for a young man to know hog as to know grammar, but in the practical affairs of life it is not. How are you going to gain this knowledge of horses in a college, as well as you could gain it in handling horses on a farmer's farm?

Senator Anderson — Do you know a farmer in the state of Wisconsin, that knows the good points of the various breeds of cattle?

Mr. Atwood — I do not know a man outside of a farmer that does. There may be a few professional men that can talk about fast horses, about roadsters, but I know few men except farmers that can talk intelligently about the horse. [Applause.]

Mr. Millen — Something was said about students not daring to take off their coats and go to work at the State University. I was one of sixteen or eighteen students in a class attending an agricultural course at the University, and I do not think there were any students there but what mixed in with us and we with them, and were just as friendly as anybody. I have never seen anything of that kind.

Senator Anderson — I would like to ask the young man how many hours he has worked on the farm since he has been out there?

Mr. Millen — I have not worked on the farm any since I have been there.

Mr. Adams — Major Alvord has delivered a very thoughtful and interesting address upon the subject of agricultural education. I have found in his address two leading ideas. One was that special training in agriculture is needed by the intelligent farmer of to-day. I found him also making this other point, that it is not necessary in states like Wisconsin for us to establish separate agricultural schools at the present time, and he founded that idea, as I understood him, largely upon the supposition that the people of the

state are not prepared for it. Now I can agree with him most heartily upon the first part of that proposition, that the farmer of to-day does need a good and complete education in the business of his life, but it seems to me that on the other proposition the gentleman has not taken the strongest ground which he could take. It seems to me that the facts we have in relation to the universities of the country and the agricultural schools of the country do not bear out the idea. It seems to me, as Mr. Robbins has suggested, that the history of the normal schools does not bear out the idea. It seems to me that the history of the universities of this land does not bear out the idea. How were those universities built up? Did they come up because there was a popular hue and cry all over the land for them? By no means. Those institutions were established, as our agricultural colleges were established, by grants of the national government. The universities of this country were largely established by grants given by Congress for that purpose, was to build up literary and scientific institutions. After those universities had been established and built up by national aid, then this idea of agricultural education began to be agitated, and the bill then introduced into Congress provided for the establishment of agricultural colleges, colleges in which the industrial idea should be the central idea, and in looking over the debates at that time you will find that there was no question raised in either house of Congress with reference to that idea of industrial education, and the donation was made to the states of this Union mainly for the purpose of giving education in agriculture and the mechanic arts. That is the way these schools have been built up, and even if we accept the argument of the gentleman that there is not a sufficient demand for them, it does not prove that we should not have schools devoted to agricultural education, nor that there is not sufficient excellence in them. But I believe that we have that demand. I believe that is proved more and more every year as we come up to these conventions. There is no subject that we hear discussed with more interest at these meetings than that of agricultural education. Farmers all over the country are

thinking upon the subject, and the agricultural press of the country is almost a unit in favor of separate schools of agriculture. The farmers who are trying to elevate their business are in favor of the agricultural college, and petitions came in here by the score for it, and it is very largely sustained by the farmers in the legislature as well as those out of it. So much for the public sentiment upon the subject. My friend, Mr. Atwood, whose conscientious convictions I sincerely respect, seems to misapprehend to some extent the form which this movement is taking. He seems to think that we desire to substitute something in place of higher education. We do not wish to do anything of that kind. This is not a movement for destruction; it is a movement for up-building. We do not wish to antagonize the idea of higher education, by any means. We honor that education. We respect our State University. We understand the great good it has done and is doing to-day, to the people of the state. While we appreciate the great good it is doing in its proper sphere, we do not believe it can do everything in this line of education. We do not propose to substitute something for it. If the gentlemen who oppose separate institutions for agricultural education, would show that in those states where separate institutions were established, the universities had been weakened, that academies and denominational schools had been broken down, there would be some force in the argument. They can not show that, nor that the number of students in those schools has been lessened in a single instance, but in all those states we find the universities full to overflowing, as they had been before the establishment of agricultural colleges. In advocating the establishment of this school, we simply desire to reach a class of boys that are not reached now. We want to put out the arm of the state a little further to lift up to a higher plane the intelligence of its people. We want to educate them in agriculture. We want to make good citizens of them. If the fathers of these boys have not the means to give them that higher education, let us give them another institution where they can come in and pay their expenses by their labor, and where they can keep those practical

ideas they have learned on the farm, where they can learn something of the science of bookkeeping, where they can learn something of the science of geology and chemistry as applied to farming, and all those sciences which go to make the grand and comprehensive science of agriculture. [Applause.] In making this movement the friends of agriculture must respect the enlightened judgement of modern times. We must not attack any other institution, but we must hold them up with all the strength that we have and all the ability which we possess, and simply build up this agricultural school, as extending the benefits of education further and further to the extreme limits of the state. [Applause.]

Mr. Hinton — As I understand Sen. Anderson, one great cause of complaint that pervades the minds of a great many farmers, is that the teachings in some of these institutions are contrary to their wishes. I hold in my hand a little extract, and I shall not give the name of the author unless it is called out, where in speaking to a graduating class who were about stepping out into the world he said, "I pray you mark the difference we have contemplated between the false and the true ideas of life. As you stand to-day on this college threshold, just ready to step forth into the wide world, grave questions are suggested concerning the careers you are to run." Now, mark the next, "The mercenary spirit would give the foremost place and importance to the question, What shall I do for a living?" and then goes on and censures the idea. Horace Greeley said in this room that one of the chief ends of education to a boy was to enable him to earn his bread honestly, and I tell you there is too much of this theoretical trash that unfits boys to get their living, that gives them conceptions of some ærial vision where they can obtain fine clothes and fine living and everything else without doing anything, and I tell you that the practical hard working men of this country are getting possession of it very fast, and you can never root them out of it unless you take it by wrong sorts of laws, and then you will have revolution. Now, I do not want to be personal in anything I say to anybody, but if I had another son to

bring up, before I would have such principles as those instilled into him, I would knock him on the head.

Dr. Chapin — I would like to ask the gentleman, if he can, to quote the sentence, following the sentence he read.

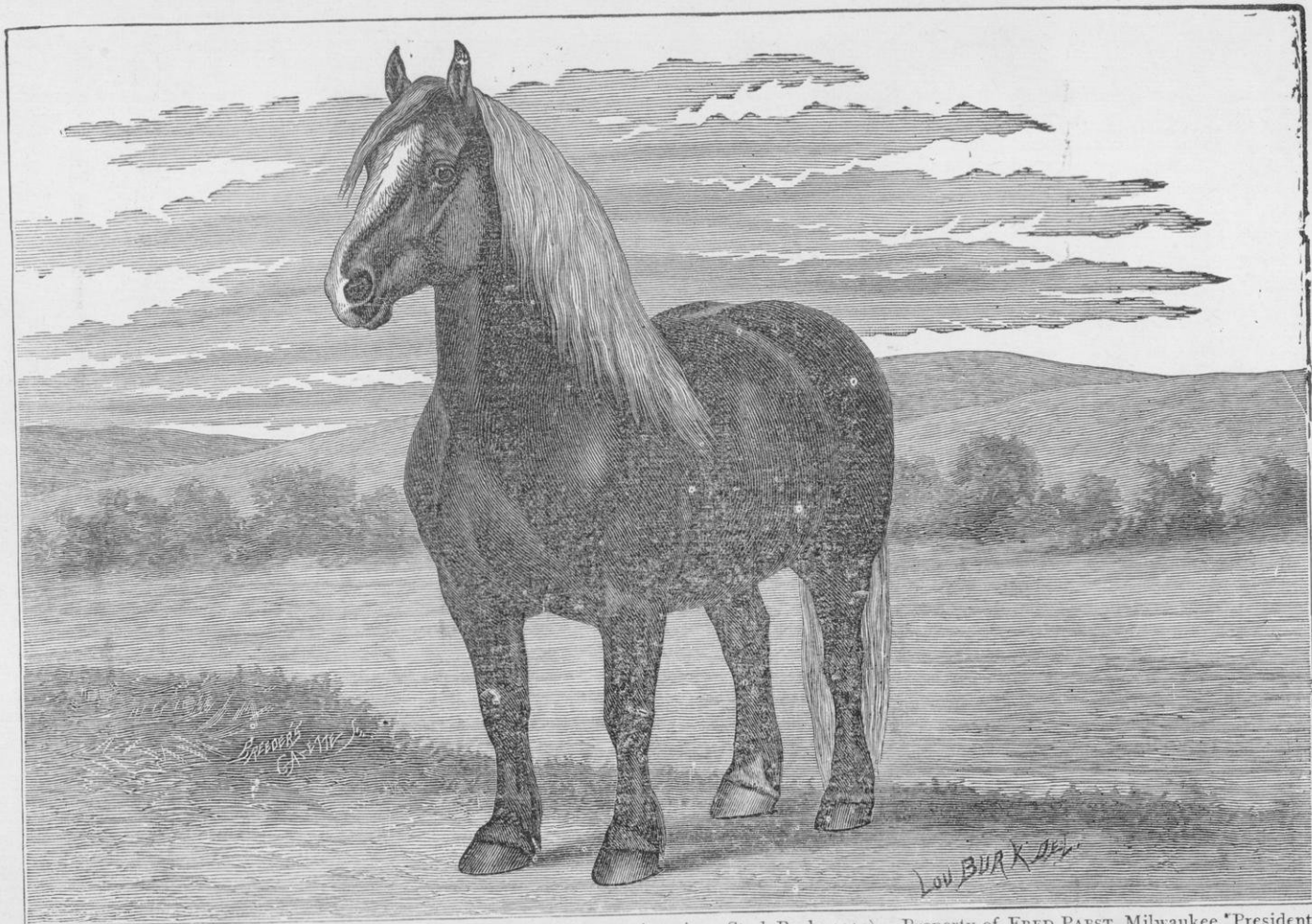
Mr. Hinton — I will quote it if he wishes it. I might quote preceding it.

Dr. Chapin — All I want is the next.

Mr. Hinton — “Members of the graduating class: I pray you mark the difference we have contemplated between the false and the true idea of life. As you stand to-day on this college threshold, just ready to step forth into the wide world, grave questions are suggested concerning the careers you are to run. The mercenary spirit would give the foremost place and importance to the question, What shall I do for a living? Where shall I find for myself a fortune? The spirit of the gospel suggests instead, What shall I live to be and to do? How shall I make the most of myself as God's agent, for the good of my fellow men?”

Dr. Chapin — Observe the contrast between the two questions. Shall we teach our young men to ask, first and foremost, What shall I do for a living? or What shall I live to do? [Applause.] I maintain that an education has not reached its terminating point, until it has led those who were under its processes up to that point where the second question shall supercede, or at least subordinate, the first.

Mr. Hinton — But you do not say so in this report. It is not said in this address. I say that the source from which you got your information, that great divine source from which we get the best we have, denounced him who failed to provide for his own household, as having denied the faith and worse than infidel; and in a country like this, surrounded by educational influences in all directions, the chief purpose of it is to enable a young man, when he goes out into the world, to get a good living, and if he does that he gets the approval of God, and then he is competent to do what he wishes to live for; and without it he cannot do it, unless he does it at somebody else's expense.



"Burg," Foal 1882. Imported Percheron (French Stud Book 2241, American Stud Book 4444). Property of FRED PAEST, Milwaukee, President Ph. Best Brew. has a [redacted] six registered animals.



THE GROWTH AND DEVELOPEMENT OF THE  
PLOW.\*

BY PROF. W. A. HENRY.

In this materialistic practical age, no one has caught the infection more than the farmer, and it is not without misgivings that I come into this meeting of farmers, assembled from all over our state, to talk for a little while about the plow; not exactly the plow of to-day either, but rather the plow of yesterday—the historical plow. You will ask at once what I have to say about the relative merits of walking plows and riding plows and try to draw me off into a discussion as to whether we should have one, two or three wheels to carry the plow, or no wheel at all, but I am not going to be so directly practical as this and propose to follow my own bent for the time.

The question is sometimes raised, what has science done for agriculture? The plow is the foundation stone of the whole agricultural superstructure, so let us see what science has done for the plow. If we can find that it has done even a little in this important field, the aggregate good will be great.

Beginning with the beginning we find the plow one of the earliest implements used by man. The Book of Job, the oldest book of the Old Testament, mentions the plow in the first chapter (Job i, 14-15), and ancient sculptures and monuments show that it was in use more than five thousand years ago. The plow of that date was as simple in construction as could possibly be. The drawing here given, Fig. 1, is from a monument in Asia Minor. It is the natural crook of the tree, strengthened by a brace, with pins to connect it with the rude wooden yoke.

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\*NOTE.—What I have said in this paper is arranged from a monograph on the plow printed in the Report of the N. Y. State Agricultural Society for 1867, and written by John Stanton Gould, a man who did much for agriculture in America. The cuts are from the same report.

W. A. H.



Fig. 2 is taken from an Egyptian monument, showing us a plow dating back between five and six thousand years. This plow shows some improvements in having a triangular shaped share which made a broader furrow. The two handles enabled the plowman to hold the plow steadier also, and thus do better work.

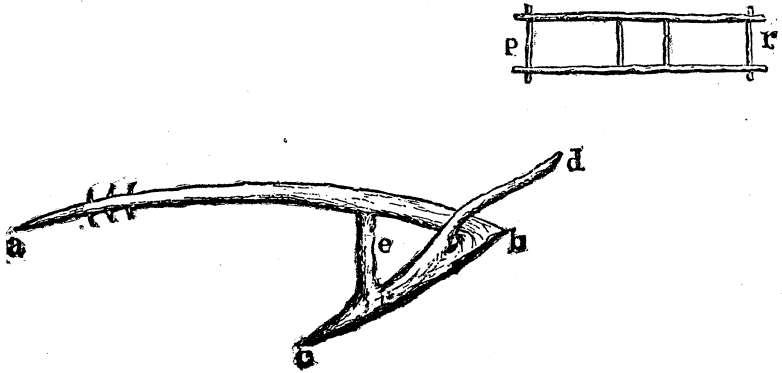


Fig. 1. Copied from monument in Asia Minor. The first plow of which we have any record.

The East Indian plow, Fig. 3, shows the plow used to-day in India, with which tool the land is pulverized that produces the wheat which competes with that from America, in the markets of Europe.

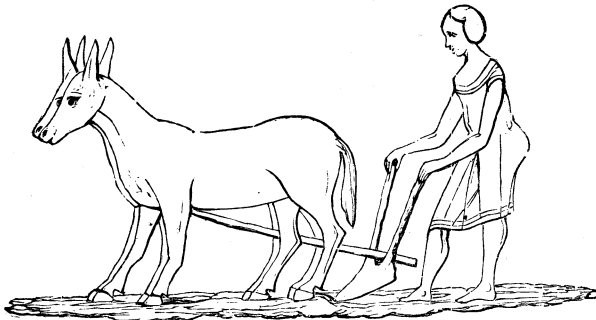


Fig. 2. From an ancient Egyptian monument between five and six thousand years old.

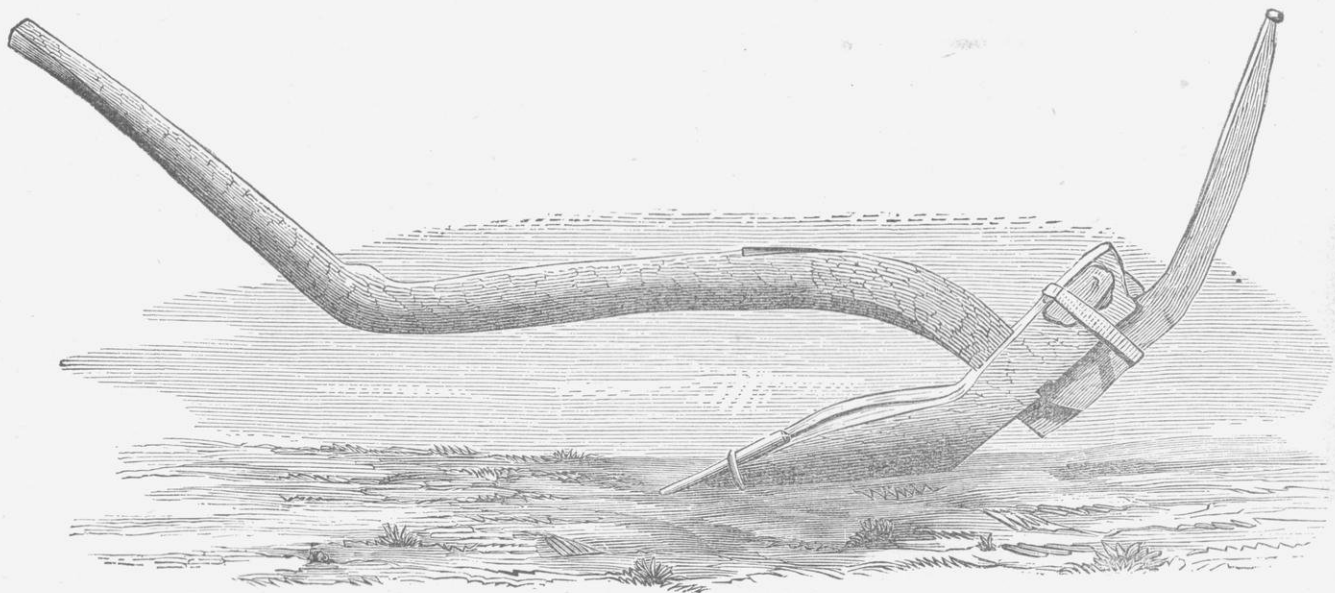


Fig. 3. East Indian plow of to-day.

In Mexico, that land cursed by too much or too little government, style it which you please, we have a plow like Fig. 4, really no better than that of India or China. Indeed, we may take the plow as an index of civilization; and where we have the highest types of men, expect with certainty to find the plow in its perfected form. China, India and Mexico, judged by this standard, show a retarded development.

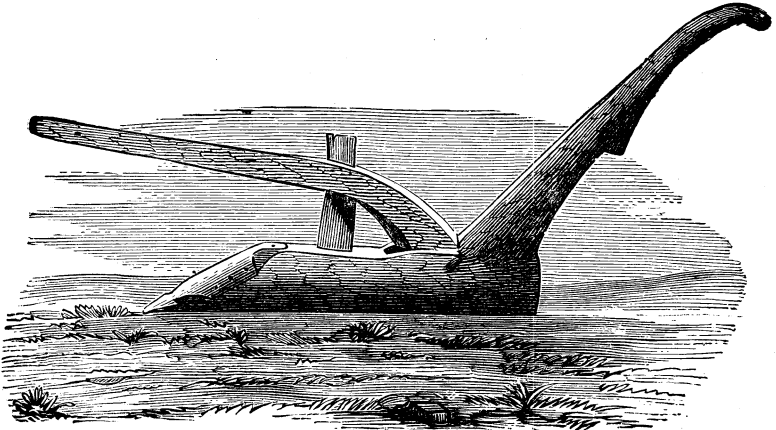


Fig. 4. Modern Mexican Plow.

Fig. 5 represents a plow used in England in the reign of Edward the Fourth, A. D. 1470. It is formed of a rhomboidal piece of wood, bent or grooved downward from the

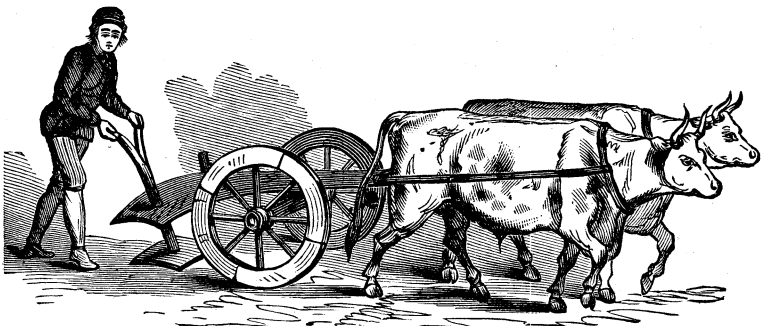


Fig. 5. English plow of 1470.

middle towards the front and rear, with the edges turned upwards, the acute ends being turned towards the front and rear, the front being shod with iron. In this way the earth

is scooped up from the solid ground, and is pushed backward and upward to the middle line, when it falls back into the furrow whence it was taken. This cut shows us that the idea of mounting the plow upon wheels is not a very modern one, after all. This plow did much the same work as our old-fashioned shovel plows, or "bull tongues," now used in the north only for digging potatoes in some instances, though not many years ago they were common in some sections of the south as breaking plows.

Up to this date, no one had yet grasped the idea of the modern plow sufficiently to put it into practice. The modern plow is made up of two wedges; one lying flat receives the earth from the share and carries it upwards, as the share is pushed forward. But this is not all; there is a second wedge, placed at one side of the one already described, and with its face at right angles to it, whose function is to move the earth, lifted by the first wedge, to one side, so that it drops not back to the spot from whence it was lifted, but to one side, leaving an open furrow to be filled at the next round. In the perfect plow, these two wedges are moulded into a warped surface, which not only shoves the earth to one side, but also inverts it in the same act.

Farmers use the plow and women the sewing machine, yet the improvement of these machines is not due to the farmer in the one case nor woman in the other. The plow has been the subject of much study and experiment; like much of our machinery, it is a compound of scientific and practical experience. It is safe to say that the scientific labor bestowed on this implement, has been of great importance in its development. First and most important of all come the investigations and resultant efforts of that great statesman and scholar, Thomas Jefferson. Mr. Jefferson first conceived the idea of improving the plow some time about the year 1788. In that year, as American ambassador to France, he made a tour through Germany, and in journeying through Lorraine, his notes show that he frequently alighted from his carriage to observe the methods of carrying on agriculture. Stopping one night at Nancy, he made the following entry in his journal: "Oxen plow

here with collar and hames. The awkward figure of their mould-boards leads one to consider what should be its form. The offices of the mould-board are to receive the sod after the share has cut under it, to raise it gradually and to reverse it. The fore end of it, therefore, should be horizontal to enter the sod, and the hind end perpendicular, to throw it over; the intermediate space changing gradually from the horizontal to the perpendicular. It should be as wide as the furrow and of a length suited to the construction of the plow." He then gives diagrams and descriptions, which show that he had the plan of the plow which is shown in these models, clearly in his mind. It will be seen from these models that Mr. Jefferson directed his attention wholly to the form of the mould-board. While secretary of state in Philadelphia, he consulted the celebrated mathematician, David Rittenhouse, who pronounced the plow to be made on mathematical principles. In 1793 he put his theories into practice, having had several plows made and used on his estates in Virginia.

Let me here enter somewhat into detail with those who may be interested in going a little further into Mr. Jefferson's investigations. I give some diagrams and drawings of models with abbreviated descriptions.

Mr. Jefferson has been quoted upon the office of the mould-board. Here is his plan for generating the surface of his ideal mould-board:

In figure 6, let  $a b c e$  be a board 9 inches wide and 24 long. Let  $e d$  be a narrow strip like a lath tacked on the side;  $a e$ , so that it projects  $4\frac{1}{2}$  inches beyond  $e$ . Lay this board on a table and tack an upright piece of lath 12 inches long at  $d$ , and stretch a string from the corner of the board at  $b$  to the top of the upright stick at  $d$ . Now lay a flat strip, say a ruler, on the board at the edge  $b c$ , and parallel to that edge, gradually slide the stick backward, one end resting all the time on the gradually ascending string  $d b$ , and the other on the edge of the board  $c e$ . At  $g h$  the stick will form an angle of forty-five degrees with the plane of the board; at  $f$  it will be perpendicular, and at  $d$  it will make an angle of  $110\frac{1}{2}$  degrees. The sur-

face described by our ruler in this case, is a curved surface of the Jefferson plow, and is almost like that we see in the mould-boards of to-day. And now that we have the ideal, how can we arrange it so the pattern-maker can make models for the plow-wright. Mr. Jefferson's directions are, to procure a block of wood like that shown in figure 7

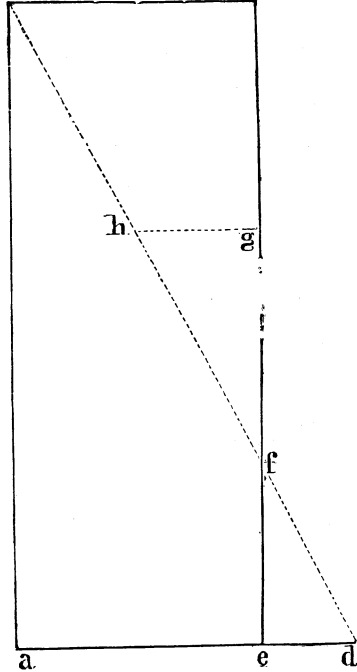


Fig. 6.

This block should be 9 inches wide on the base,  $13\frac{1}{2}$  inches wide on top, and 3 feet long. This block is marked on all sides by ruled parallel lines, one inch apart. When ruled and prepared a wedge-shaped piece is sawed out so as to leave the block like figure 8:

In this figure the reader can see that the line  $l d$ , is homologous with the diagonal line, made by the string on the board in figure 6.

We now have in this last figure the model-board in the rough. The surface  $l o d$  is the lifting plane or wedge of

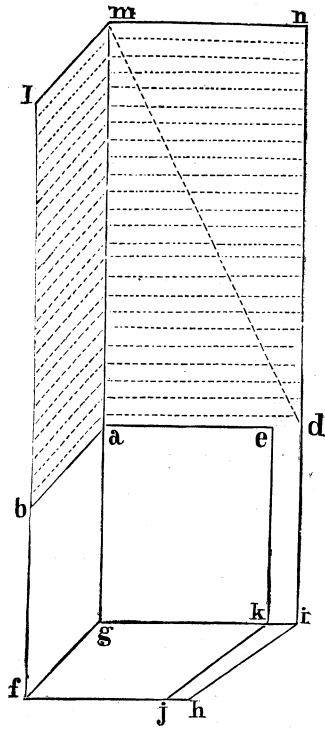


Fig. 7.

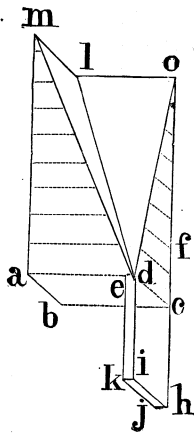


Fig. 8.

the plow, and the surface  $l m d$ , is the plane or wedge, which shoves the earth to the right hand, so that the furrow may be left open. But we must change these flat surfaces into curved ones. We now make use of the parallel markings made on the block of wood in the start. With a hand saw begin and saw through the block, as if you intended to saw it in two at each of the parallel lines. In sawing never let the saw go deeper into the wood than the line  $l d$ , always cutting so that the saw goes down to  $o e$ , on that edge. If the sawing is carefully done, and all the wood as far down as the saw has gone is removed with the chisel, we will have a curved surface like our desired mould-board,

By chipping away the back, so as to have say one-half inch of wood, we will here have our mould-board like that shown in figure 9. This description has been brief, and for

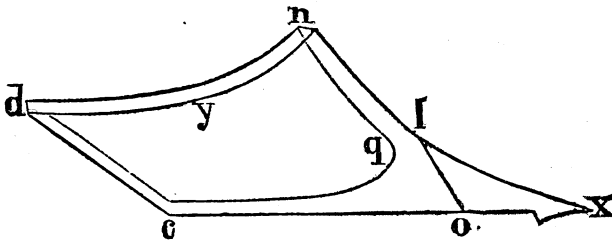


Fig. 9.

that cause I fear obscure, but from Mr. Jefferson's more lengthy description, a student in the University, made from a block of wood such as I have described, a very fine model mould-board of the plow.

A plow built on this same pattern would be very defective all will see at once, but from these models we get a clear and vivid conception, of what the iron pointed, wooden mould-board plow of a century ago, must have been. The value of Mr. Jefferson's work was not in giving us a model plow, but in carrying the making of plows out of the realm of empiricism, into that of science and accuracy. Up to this day, no matter how good a plow was made, there was no description of it in print of any value to one who might come after. The Rotherham plow was a very fair instrument, fairly judged, and James Small constructed empirically a good



plow, using the Rotherham as the basis. This James Small is the inventor of the cast iron plow in England. Small's plow is generally known as *The East Lothian Plow*. It was cast in pieces.

The next improvement upon the mould-board after Thomas Jefferson's, was by Mr. Stephenson, who used the arc of a circle, instead of the straight diagonal, for generating the surface of the mould-board. His mould-board is a wedge twisted on its upper surface. Mr. Stephenson gives descriptions, so that any pattern maker can construct a model for the plowmaker to use.

The first American who set himself to work to improve the plow after Thomas Jefferson was a farmer by the name of Charles Newbold, residing at Burlington, N. J. Mr. Newbold made the first cast-iron plow made in America. His plow, Fig. 9, was cast in one piece, share, landside and

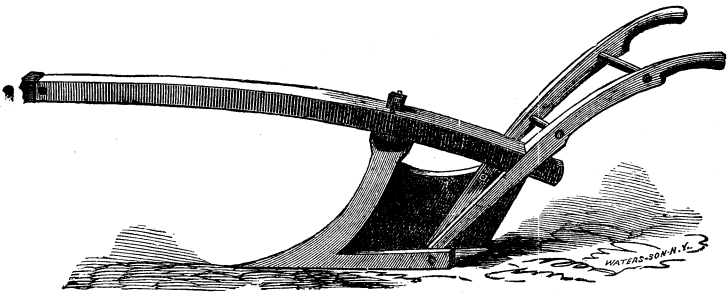


Fig. 9. First cast-iron plow made in America all cast in one piece.

mould-board. The plow was used in the orchard of Gen. John Black where the plowman broke the point and the plow was laid aside. It is now in the museum at Albany, N. Y. Mr. Newbold spent \$30,000 in perfecting his plow, substituting a wrought-iron point for the cast one of the first plow, but farmers said that the iron poisoned the land and would not use this new fangled invention.

The next American after Newbold to study the plow scientifically was the eminent statesman and contemporary of Jefferson, Timothy Pickering, who besides other offices was Secretary of State under Washington and John Adams.

While in the country, during his term of office, he writes: "One day when having to hold a plow, (a good Pennsylvania plow of that day) the soil rich and moist enough to be adhesive, I observed that the earth filled the hollow of the mould-board and assumed a straight line from its fore end, near the point of the share to its upper projecting hind corner and it *maintained* that same straight line. It struck me that this same straight line should exist in every mould-board and direct its curvature." Later upon being recalled to public life, Mr. Pickering was shown by the vice-president of the Philadelphia Agricultural Society, Mr. Bordley, a small model of the plow made by Jefferson. Mr. Pickering saw at a glance that the straight transverse line he had been searching for existed in the Jefferson model, and called Mr. Bordley's attention to the fact.

Thus in the ideal plow it was the statesman, Thomas Jefferson, who first saw the essential element of straight lines running up and down the mould-board, and the statesman Pickering who saw the necessity of the transverse straight line somewhere near the medium line of the mould-board.

The next one to further develop the plow, was Jethro Wood, of Scipio, New York. Among the friends of Mr. Wood, were five men who had patented plows. In gatherings where we may suppose these men often met, it would be surprising if there was not much conversation concerning the true shape of the plow. Mr. Jethro Wood seemed to see in advance of all the rest and was the first to pronounce that all the transverse lines of the plow should be straight.

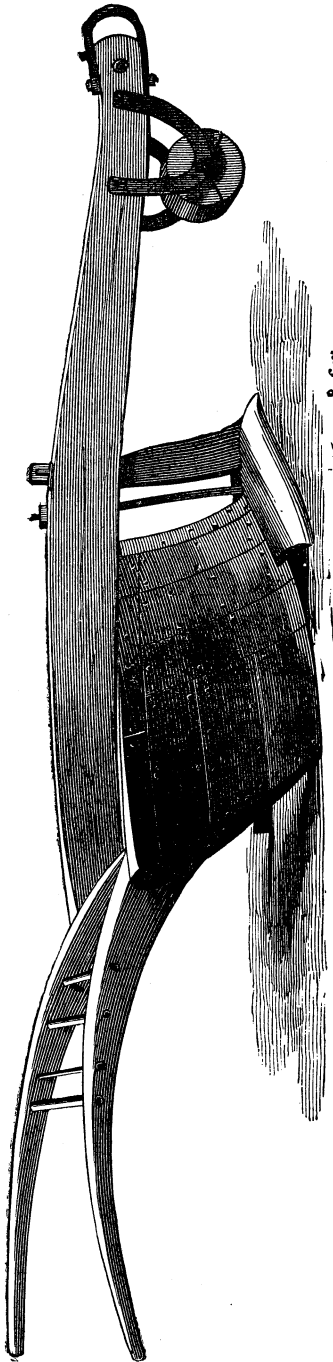
With the vertical and transverse lines all determined, we have done much to take the plow out of the hands of empiricism and make it the product of intelligent study. The Jethro Wood plow as figured in the Patent Office Reports, is the first implement which looks like the modern plow. Mr. John Mears, born in 1795, discovered the centre draft principle. English and Scotch plow makers, in order to make the plow run in the furrow, set the plow beam obliquely to the plane of the land side, so that in a right handed plow if you sight down over the beam, you will see the point projecting to the left. Mr. Mears and his partner

Mr. Prouty, studied to find where the plane of resistance passed through the plow. As the greatest resistance is along the line of the shin of the plow, it is evident that our plane will pass nearer the land side of the plow, than the other extremity of the mould-board. They found that an obliquity of seven degrees from the perpendicular of the land side, would, when carried up to the beam, give us the line in which the beam should be plowed.

We now have a means of keeping the plow from varying the width of the furrow. But this is not all, we must regulate the depth of the furrow as well as the width. We have a horizontal plane of resistance. If the center of draft is above this plane, then the plow point tends to go deeper into the earth. If the center of draft is lower, the point tends to fly out of the ground. Again we have a third plane of resistance. The third plane is vertical and transverse. The plow enters the earth at one point, and cuts gradually a longer and larger area. The center of resistance is not just at the point of the plow, but back of the point from one to five inches. It is at the intersection of these three planes. If the line of draft passes from the shoulders of the horses, through the plow and to the intersection of these three planes, our plow will swim free or run alone. If it fails to do so we have trouble until corrected.

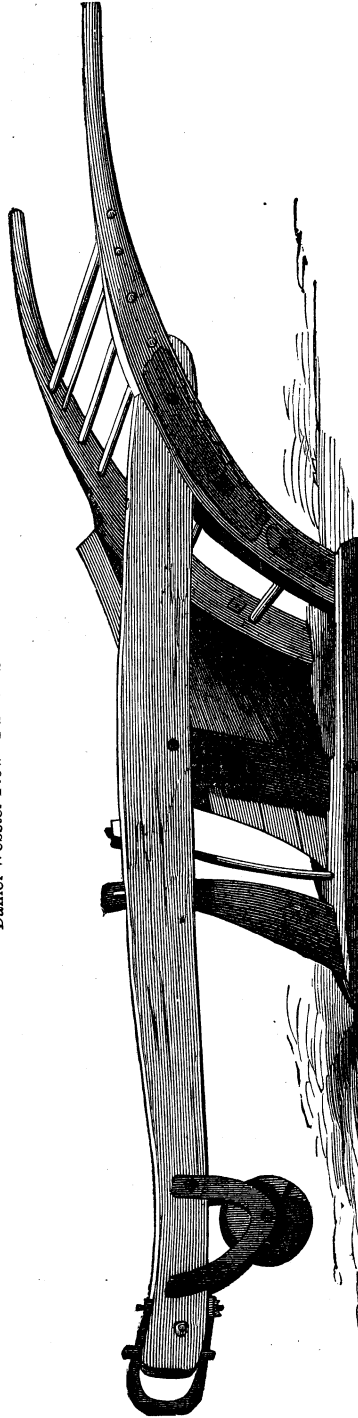
Governor Holbrook wrote thus of the Webster plow: "I visited Marshfield and Mr. Webster, about 20 years ago, when he showed me this plow and explained how and why he got it up, and took me to see the field which had recently been cleared of brushes and shrubs, and deeply plowed with this large plow. I remember his making a remark to me substantially as follows: 'When I have hold of the handles of my big plow in such a field as this, with four yokes of oxen to pull it through, and hear the roots crack, and see the stumps all go under the furrow out of sight, and observe the clean mellowed surface of the plowed land, I feel more enthusiasm over my achievement than comes from my encounters in public life at Washington.'"

Though a digression from the subject of scientific plow-making and the science of plowing, I am sure the reader



*Masters & Son*

Daniel Webster Plow—Furrow Side.



*Masters & Son*

Daniel Webster Plow—Land Side.

will pardon me for introducing an account and cuts of the great Daniel Webster plow. This plow was made under personal supervision of Mr. Webster, for his own use, in a blacksmith shop on his own land.

John Stanton Gould, author and professor, was the first man on record, so far as I know, who made pulverization of the soil the prime object of plowing. All scientific effort, and all effort of "practical men" in England, had been to "turn" the furrow with the least resistance, and leave it even and unbroken with a sharp crest. Mr. Gould would have had no trouble in this day upon this score. His ideal plow has come, and does the work well. The straight furrow of the Englishman is all right, but the sharp crest and smooth sides of the inverted furrow, which he insists upon, are all wrong, or rather of no practical benefit. He has labored long for a mere whim in plowing, while his American brother cut loose from prejudice and made simple work of the whole matter. To have the plow pulverize the land at the same operation with turning the furrow, we have to break all the directions laid down by Jefferson, Pinckney and Jethro Wood. They sought to make the plow run easily, and without grinding it. In order that the plow should pulverize the soil thoroughly, more force must be expended than in turning it over merely.

#### RESULTS OF THE TRIALS OF PLOWS AT BRATTLEBORO, VT., 1868.

In September, 1867, a great plow trial was held at Utica, New York, at which assembled some of the best minds of the country to witness and decide upon the merits of the implements there put to the test. As this was a test of certain forms of plows then made and upon the market, it was of a temporary nature in its benefits, deciding which manufacturer at that date had the best plow. The names of the favorites of the trial are almost unknown to us to-day, so rapid are the changes in our farming tools. A supplementary trial was held, however, the following year at Brattleboro, Vt., that was not so transitory in its nature. There were worked out at this trial certain facts of the utmost value to both farmer and plow wright.

This supplementary trial was conducted by Prof. John Stanton Gould and Henry Waterman, a civil engineer of Hudson, N. Y.

In trying to condense many pages of their report into a few paragraphs I fear I shall not make plain what they brought out by these trials, but will do the best I can.

In these trials a dynamometer was used to measure the force required to draw the plow. The reader can imagine an instrument similar to a common spring balance used for this purpose. In speaking of the draft it will be understood that this spring balance was so adjusted as to show just how many pounds the team was pulling when the plow was following them in the furrow.

The first point they set about to decide was this:

I. *What is the measure of power required for each successive inch of depth in plowing?* This was put at 64 pounds for each inch in depth with furrows varying from 11 to 17 inches in width. It was found that on the whole it required only twice the power to cut a furrow of double the depth. Thus the average draft per inch being 64 pounds per inch, a four-inch furrow would require a draft of 256, and a furrow eight inches deep would require a draft of 512 pounds.

II. *What is the increase of power required for each successive inch of width in plowing?* It was found that the draft for each square inch of sectional area increases as the size of the area diminishes. Thus a furrow 8 inches deep by 16 inches wide, having a sectional area of  $8 \times 16 = 112$  square inches required 4.64 lbs. draft per square inch, while one  $8 \times 7$  inches required a draft of 7.3 lbs per square inch of sectional area.

The answer to the first question shows then that for the ground turned over, the farmer who plows deep calls for no more labor from his team than if he turned a shallow furrow.

The second question in its answer shows us that he who turns a wide furrow, plows his land with less labor than he who turns narrow furrows.

III. *What is the increase in power required when the furrow still remains the same in size for each successive in-*

*creasement in velocity?* It was found that velocity had but little to do with draft. When the horses walked five miles per hour the dynamometer showed 484½ lbs. When they walked 2.67 miles per hour the dynamometer showed 500 lbs. Of course, when the horses walked so fast as to throw the earth to some height and far from the mould-board, extra power was required; but aside from this and the extra strains in striking stones, the power remained practically the same whether walking fast or slow. The reader will doubt this, but let us see: Suppose I take a spring-balance in my right hand and hang to the hook a pail of water, which weighs by the balance twenty pounds. Now, whether I walk 100 feet a minute, or twice that distance in the minute, the spring-balance remains just the same. Of course, the extra effort in doubling my speed shows itself plainly, perhaps, but I have carried the water double the distance with no extra strain, as shown by the balance.

IV. *What proportion of the total amount of power consumed in plowing is absorbed by the different parts of the plow, viz., sole, landside, share, and mould-board?* As near as could be by many devices and calculations they found the proportions of draft to be as follows:

Share and counter.....	226 lbs.
Landside.....	179 lbs.
Sole.....	77 lbs.
Mould-board.....	30 lbs.
Total.....	512 lbs.

These figures will surprise most founders, I think, who will take the trouble to reflect upon them a few moments.

It would seem that the friction against the landside is nearly six times as great as the rising furrow makes upon the mould-board, and we see that as the plow moves along in the furrow the friction of the sole or bottom is more than double that of the mould-board. Here we see that there is chance for riding plows to come to our aid, for it is actually possible for a plow on wheels to run lighter than one without, even if the plowman rides.

Some other questions were answered in this trial, but my paper grows long and I desist.

We see that science and intellect have come to our aid in helping us shape and form the commonest tool on the farm. The plow has now become a wonderful tool in the ease and effectiveness with which it does its work. Every improvement it shows should mean so much more freedom for the man who holds it, so much more time set free which he can use for his advancement in the social and mental scale. If we fail in gaining this, something besides the plow needs adjustment, and we may well say, "the times are out of joint."

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### FARMERS' WIVES.

By JULIET H. SEVERANCE, M. D.

In introducing the theme I have chosen it may be questioned, what can I, a woman occupying one of the professions, know of the subject. Before proceeding, therefore, I will state I was born and reared on a farm; my mother was a farmer's wife, and in my girlhood I was instructed in the duties and mysteries of farm life as it then was, embracing many kinds of labor now done in factories mostly, such as carding, spinning and weaving wool and flax, making butter and cheese.

My sisters are farmers' wives, and my brother, a farmer, has a wife, besides all the patients I have had among the aforementioned class.

Having substantiated my right to speak on the subject I have chosen I shall treat of farmers' wives as they were, and farmers' wives as they should be, and many of the ideas will apply as well to the wives of other men as to farmers.

In looking at the beautiful country on a bright spring morning when the air is redolent with the odors of flowers and joyous with the songs of birds, one involuntarily exclaims, where can be found so much calculated to fill the heart with happiness and the body with joyous bounding health, as in the country, and what woman so blest, so content, so well conditioned as a farmer's wife. But let us



examine into the case and see what are her duties, what their compensation, and what her opportunities for culture and recreation.

I believe of all classes of women the duties of farmers' wives are most tedious, monotonous and wearing. With cooking and cleaning, washing and ironing, making and mending, child bearing and rearing, with little or no opportunity to attend lectures, theatres, or other places of instruction and amusement, it is no wonder that so many are to be found in our insane asylums. With the dull monotony, over-taxation, and lack of the stimuli of just compensation, it is not strange that they become prematurely old, broken down, disheartened. All the golden dreams of youth turned to ashes in their hearts by the everlasting treadmill of domestic drudgery. Yes, drudgery. There may be some so fortunate as to be able to procure help sufficient to relieve them of their tiresome burdens, but such are the exceptions and not the rule.

The husband works from morning till evening in the open air, which is in its influence invigorating; the wife over the cook stove inhaling the odors of all sorts of compounds which she is preparing for the table, to satisfy the abnormal demands of a wrongly educated alimentiveness, very often with a baby in her arms and other little ones incessantly calling for attention, this thing to think of, and that demand to be met, with no possibility of continuous thought upon any subject. It is this constant changing of the mind to various subjects that frets and wears, that weakens and destroys.

The farmer after his day's work is finished reads his paper or chats with his neighbor, while the wife rarely finds time for either, and with teething fretful babies her sleep is often broken and disturbed and she rises in the morning weary and dispirited to repeat day after day the same programme.

What is the compensation for all this toil? Her food, clothes, and the blessed privilege of being supported; for all farmers support their wives of course.

The farmer adds to his acres, is ambitious to raise fine stock and grains, vies with his neighbors in producing thor-

oughbreds, discusses the best methods of breeding and raising them, discovers the most approved manner of feeding his various kinds of stock, and can talk understandingly of the laws of heredity governing the reproduction of animals.

The farm is his, the stock is his, the wife is his, the children are his. He has some reward for his labor, some mental stimuli to keep up his spirits while his wife who works more hours than he does owns nothing, not even herself, her husband or the children. He gives her funds when he thinks it best, with which she may purchase her clothing, or else buys them for her himself, and at times takes pride in showing off his well dressed wife, as he does his fine stepper, but rare indeed is it the case that he situates her so she is equally independent with himself, has money at her command as he has at his.

The farmer does not apply his knowledge of heredity to the propagation of his own species. If he is proposing to raise a thoroughbred colt, he is very careful that the prospective mother has every favorable condition. She must not be overworked or worried and must be carefully groomed and fed, but how little attention he pays to the conditions of the prospective mother of his children. She may toil and worry and bring into existence half gestated children, the majority dying before maturity and yet nothing seems to be thought of it. It is a "visitation of Providence," and that ends the matter.

Would it be counted a visitation of Providence if half of r stock should fail to mature? No. You would call a convention to discuss the reasons for such failure and this state convention would devote a session at least to comparing notes upon the subject with a view to ascertain if possible the causes and how to remove them, in order to avoid such calamities in the future. Even if your apples, potatoes or grapes were afflicted with so fatal a blight, you would be ready to investigate into the causes. No "visitation of Providence" then.

Are your children of less account than your animal or vegetable products because they have no money value set

upon them? No, that is not the reason, but it is, because you have not been taught to view this subject in a proper light. In the coming civilization it will be a disgrace for any family to produce sickly or mentally and morally deformed children, and death will only result from old age or accidents.

The farmer's wife is as much a factor in the success of farm life as is the farmer himself. If she is a careful, intelligent, cultured, executive woman, she could better conduct the home and farm without him than could he without her, for no matter how industrious and provident a man may be, his means is soon squandered by want of prudent, intelligent management in the household, whereby waste and sickness with its attendant suffering and expense, is often the greatest cause of financial failure.

A farmer's wife should, first of all, be a mutual partner in financial affairs, instead of "an upper servant without wages;" the husband having management of the outside business; she of the family and household. And, like other business co-partnerships, each have equal rights to the finances, and to be consulted in regard to all expenditures.

What would a member of a partnership think of the man, who, because of being cashier of the firm and receiving the money, should treat him as though he had no right to draw upon the treasury, but, assuming the roll of a master, should deal out to him a pittance, as to a dependant? And yet this is the way the great majority of farmers treat their wives; as though *they* were the sole rightful owners of all the money coming into their possessions, when, could the wives have the wages of common servants, their wants would be supplied.

A case in point came to my notice in a recent newspaper report of a suit in the courts of Massachusetts. A man died intestate, leaving a small property. The wife in that state has the use of one-third of the property during life. The other heirs put in a plea of some irregularity in the marriage, in order to disinherit her. She admitted the plea, and sued for the wages of a common housekeeper, and received in cash for her services, more than one-third of which

as his wife, she would only have had the use. And here let me suggest, that so long as our laws are so one-sided and unjust in property matters, every man should make his will, placing his wife in case of his death, in the same financial condition he would be, legally, in case of hers. This is no more than just, until the laws can be so amended as to recognize them as having equal rights, thus removing the indignity put upon woman, of being a mendicant in her own household.

Farmers' wives should be versed in the proper methods of rearing, feeding and generally treating children. It is no more a part of nature's plans that children should be sick than should colts and calves, and I'll venture if they were as sensibly cared for, they would be no more frequently, as soon as the race had time to overcome the effects of heredity in this direction.

The basis of all improvement in the race, is the best beginning of life. Are we fit to reproduce? This is the question. How many fathers and mothers ever think of, much less seriously consider this question, upon which so much depends. They see puny, sickly, half made up children, born to them, living a short, miserable existence, and then with streaming eyes and lacerated hearts they lay those little forms, around which cluster so many tender memories and loving associations, beneath the sod, leaving such desolation in the heart and home. It should be understood that all such children had better never been born. Aye more, those that live to grow up, filled with disease and pain, a burden to themselves and all around them, should never have been born, and would never, had their parents been instructed in the grand laws of parentage. All such lives are but contributions to human misery.

Nor are moral evils, less the result of improper parentage, than physical and mental.

Vital statistics show that crime is an inheritance as is disease. Indeed crime is a moral disease. The liar, slanderer, thief and murderer, is sick morally as he who has scrofula is sick physically. He is born with the capacity to commit the crime, under circumstances that could not

induce another to it, simply because of difference of organization. This organization was furnished him, he did not create it. The stronger faculties must of necessity control the weaker, as in physical combat the stronger man must the weaker one. A person born with a large development of the intellectual and moral faculties, will have no trouble in controlling the passions and propensities, while where the reverse is the case, crime and immorality is the result, unless the relative strength is changed by cultivation, which can, to an extent, modify but never overcome entirely the effects of anti-natal influences. And it is quite time the responsibility for all these evils were put where they legitimately belong, *upon parental ignorance*. If there were none but proper children born, and if these were reared in the best possible manner, long life with health and happiness would be the natural condition of mankind.

There are also fundamental laws underlying the rearing of children relating to food, clothing and general habits, that can be ascertained with as much certainty as those relating to that of any of the lower animals; and the lack of this knowledge, and the observation of these laws, causes life-long suffering to many individuals.

One of the greatest causes of lack of strength and muscular development, of imperfect and early decaying teeth, and constipation with its retinue of sequences, is the almost universal practice of separating the outer portion of the wheat from the fine flour which we use as a principal article of diet.

Wheat contains every element required to build up the human system, and more nearly in the relative proportion required than any other product. A grain of wheat consists of an outer covering, an embryo or germ, and a central mass of farinaceous matter. The outer husk is composed of several layers of ligneous tissue. This, when separated, forms the bran proper. The inner portion of the covering is softer, and contains an active nitrogeous substance, called cerealin, and is besides, rich in fats and salts. This portion is rejected in what is called shorts.

The center is whiter, and is deficient in much that is

necessary to build up the tissues and maintain a condition of health.

The bone, nerve and muscle forming material is thrown away, or rather fed to your stock. A dog fed on white bread alone, only lives about two weeks, starving to death with all he can eat, while one fed on bread made of unbolted wheat, shows no signs of starvation. This experiment has been tried in both Europe and our own country, and the results reported in our medical journals.

If farmers' wives were posted on this subject, they would insist upon having the whole wheat ground, which they would prepare for the table, without subjecting it to the process of fermentation which destroys some of the constituent elements; in fact is a rotting process, changing nutritive qualities into alcohol, which is always a poison. The most wholesome bread is made of two ingredients only, wheaten meal and cold water; and when these are properly combined and baked, we have a light, sweet, delicious bread, which, with ripe fruit and milk, should constitute the principal diet of children; and we are always children, only of larger growth.

It is a common idea and especially believed by farmers, that flesh should form a large part of human food. That it is a fallacy and a dangerous one too, I propose to show.

Beef, the best of all flesh, contains but 25 per cent. of nutriment. Potatoes even, contain 28 per cent., while peas, beans, wheat, oats, barley, rye, corn, rice and sago, contain from 82 to 92 per cent. of nutriment.

An average person to subsist on wheat, would require one and one-half pounds daily. To obtain the same nutriment from beef, six pounds would be required. Nine bushels of wheat (560 lbs.) would feed a man a year. At twenty-seven bushels per acre, one third of an acre produces this quantity. To obtain the same nutriment from beef, 2190 pounds would be required, and to produce this about twelve acres are necessary. Therefore, in respect to land, beef at the same price per pound, is thirty-five times more costly than wheat; but while beef costs from ten to thirty-five cents per pound, wheat can be obtained for two, or six times less than beef.

which raises the difference in its costliness, 216 times. If the comparison was with potatoes, it would rise 648 times. That is to say what would feed one person on beef a year, would feed 216 persons on wheat, or 648 on potatoes.

There are three general divisions of elements required by the human system; the nitrates, that form flesh; the carbonates, that form fat and heat; and the phosphates, that supply the waste of nerve and bone. Twenty-five per cent. of the first, sixty-two per cent. of the second and three per cent. of the last are required.

Now the twenty-five per cent. of nutriment in the beef is wholly flesh forming. The carbonates and phosphates, that constitute nearly three-fourths of the requisite nutriment, are wanting. Beef supplies no heat, no fat, no nerve, but one pound of wheat not only contains as much flesh forming matter as a pound of beef, but has also sixty-two per cent. of heat and fat forming principles, and three per cent. of nutriment to build up nerve and bone; and the same is true approximately of all the cereals.

The nitrates and phosphates of the food of cattle, are used by them for the same purpose for which they are required by man. How then can he expect to supply his bones and brain from animal food? It is not possible. The source from which to get these elements, as well as all others needed, is from the vegetable kingdom, and like everything else is not so good when taken second hand, or mixed as it is in the animal, with the broken down tissue always present, which is poisonous.

The blood from a meat eater will pass into a putrescent condition very much more rapidly than from a person subsisting upon vegetable food, as experiments have proven, and this accounts for the fact that Indians succumb to any malignant disease so readily. Children using meat as a considerable part of their diet, are much more liable to small pox, diphtheria, scarletina and other diseases, than those who subsist on a vegetable diet. Meat eating also has a tendency to develop the animal propensities too largely; it tends to arouse an appetite for stimulants, such as tea, coffee, tobacco, and ultimately, alcoholic stimulants. This

every mother should understand. She would then be able, by a scientifically selected dietary, to do more to insure temperate habits in her children than can be possibly accomplished by any or all other methods combined.

Charles Napier, an English scientist of experience in the treatment of inebriety, prescribes a vegetable diet as a cure for drunkenness. The relinquishment of meat for six or seven months, he asserts, will destroy the desire for alcohol in the most aggravated cases.

Regularity should also be observed in feeding children from their birth. Nothing can be more ruinous to the digestive system than the habit so common with many, of feeding children at all times, forgetting that the stomach, as well as any other organ of the body, needs time to rest after digestion before being again called into activity, and that the habit of piecing between meals very often lays the foundation for the dyspeptic conditions of which so many are complaining.

I must briefly touch upon the subject of dress in passing; the clothing of our children. There are two principles to be observed, or disease and suffering are sure to result. First, even distribution of the clothing over the entire body; and, second, that the garments do not interfere with the free action of every organ and part. If these principles are observed, you may embellish, beautify and exhibit any taste you please, but if they are ignored nature will rebel, and pains and penalties must result. If you have a taste that leads you to desire to see your children arrayed in corsets, stays, etc., be sure and satisfy that taste by thus dressing your boys instead of your girls. It will not injure them nearly so much, and the effects will not be visited upon the next generation to the same extent. Give your girls the same opportunities for physical and mental culture as you give your boys, instill into the minds of both that whatever is coarse, vulgar, unbecoming or immoral in one, is equally so in both, and that whatever traits are noble or beautiful in one person, is equally so in another, irrespective of sex, and thus lay the foundation for a more rational education in ethics, as well as physics.



Farmers' wives have better opportunities for incorporating the more advanced ideas into the character of their children, than do mothers living in cities, for fashionable society with its falsities and foibles, its castes and false standards, neutralizes to a great extent the effect of any sensible ideas upon practical living, if they are sought to be instilled into the minds of our youth. In the country there is an opportunity for breadth of thought, where the confines of brick walls are not felt; a chance if the opportunity is utilized, to develop out of old ruts into new channels of thought. But it requires constant care, or sooner than they are aware, farmers' families settle down into a humdrum sort of life, without exalted aims or aspirations. Farmers' wives could, if well posted, make their homes a paradise. With health and strength, the result of rightful living, which would embrace a dietary that would not require much effort to prepare, they would have time for self-culture, home adornment and for the training of their children in those little graces which add so much to the happiness of home life.

The healthful meals would be served tastefully; luscious fruits in their season would take the place of pastry, which is a tax upon the time and strength of the cook, as well as upon the digestive ability of the consumer.

Flowers would add their refining influence, and the children, with happy, sunny faces, the result of welcome maternity, more beautiful than any flower that ever blossomed, respectful in their manners, would recognize the mother, as queen regal in the realm of home.

The husband and father with courteous mien, and cheerful habit, his presence bringing sunshine instead of shadow, would always manifest a spirit of tender affection and respectful consideration towards his wife, whom he holds to be his equal in rights, privileges and responsibilities. The house might be small, the meal frugal, but with such conditions of refinement and love, happiness could but exist.

Farmers' wives in every neighborhood, should form clubs and hold meetings to compare notes, investigate the latest discoveries in the problems of practical life—inviting

their husbands when they could come — and thus broaden their characters and develop the depths of their natures.

As a man's greatest glory is, not to be a good husband only, but a grand, noble, generous, royal-souled man, so a woman should remember that something more than to be a good wife is required. She should strive to develop individual worth, grandeur of character, nobility of mind and heart as paramount to all else.

Individual culture fits a woman for any position or relation in life she may be called to fill.

To the women of the nation, enfranchised, educated, elevated, do I look for salvation from the evils that fill our penitentiaries, our asylums, our dram-shops and brothels. Not by legislation, but by and through an enlightened motherhood, in which she will refuse to propagate children unless of a healthy, intelligent, moral paternity. From pure, exalted fountains no improper streams can flow. Finally as Fenelon said to Louis XIV., "The truth must be spoken. Woe to those who comprehend and speak it not, and woe to you if you are not worthy of hearing."

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## EDUCATIONAL NEEDS OF FARMERS' SONS — IN SCHOOL AND OUT.

By R. F. ROBERTS.

A philosophical observer says: "Education commences with the earliest dawn of existence." If the infant, when it cries because of some discomfort, is taken in arms and attended to, it quickly learns to cry uninterruptedly until it is gratified. But if the child be well cared for, it can be taught to be contented and pleasant until the regular times the mother has set to take it in arms and supply its wants. Long before school age, the boy will naturally take an interest in the farm animals, the garden and the fruits. By proper training, the habits of industry, carefulness, promptness, truthfulness, kindness and honesty, can be fixed in the farmer's son by the time he ought to go to school. Perhaps we do not realize as keenly as we ought, that success in life

very largely depends on the habits formed in the first seven years of life. We see, then, that education has to do with our characters and thoughts, and the term education cannot be confined to what we learn in school. The farmer's son is born into a world of facts, and by continual contact with them he soon learns them. He loves to ride. The motion of being borne along with no effort of his own, gives him keen pleasure. He feels proud of being astride of the horse and guiding him. He is born with an affectionate nature, and his love goes out to the horses and colts. He can be easily taught to be kind and patient to them, and seek their welfare. And when he can be made to understand that the profit in the growing and use of any farm animal is in keeping it comfortable and thrifty, he has mastered one of the foundation facts—the common science—of agriculture. By seeing the operation of plowing, sowing and cultivating, he becomes familiar with them; they have a charm for him, and he takes a keen interest in them; his ambition is aroused, and he says, "I shall soon be big enough to do that for pa." To his nature it is poetry and pleasure, and the wise father will do nothing to take the poetry and joy out of them and turn them into a drudgery, which will make him hate farm work. But the boy must go to school; he must master those three important things: Reading, writing and arithmetic. Fortunate will it be for him if he has a teacher who will see that he thoroughly masters them. Master of these, he has the keys which will unlock for him infinite stores of knowledge. Geography, physiology, grammar and composition, offer to his mind another field of interesting facts which his hungry mind eagerly seizes; for unless he has been wrongly trained, he will have a natural mental hunger for all facts brought within his reach. The most important business for a boy is to grow. Physically he will grow to the stature of a man; in character he ought to grow to integrity, honor and usefulness. His mental powers should be so disciplined that he can grapple successfully with the problems of life. His body is developed by his sports and his work. It grows by the food he eats with hungry relish. Every muscle and nerve is strengthened by

active exercise. If we want the brain to grow, the mental power strengthened, the mind must be provided with good mental food, and must have the exercise of study and thought. The moral nature must be developed by instilling into the mind the principles of justice and truth. The education of the boy into the healthy, manly, honest man, should be among the happiest years of his life, both to himself and his friends. If the boy loves to read, what a store of mental food, good papers and books, containing the best thoughts of the ages, place before him. I look upon the common school, well called the people's college, as meeting the foundation needs of the school education of farmers' sons. There he can be so well equipped mentally as to insure his success.

Our common schools are of so great value in meeting our educational needs, that we ought to give them more attention than we do. We ought to stand by our county superintendents of schools in their efforts to raise the standard of qualifications of teachers. We ought to seek to know for ourselves the qualifications of those who offer themselves as teachers, and their adaptability to the work. A visit to the teachers' institute, teachers' meetings, and examinations, will afford us the means of knowing; but to do it we must sacrifice a little time that might be devoted to money making. We ought to know what kinds of homes our teachers were raised in and what will be their moral influence on our children.

Wisconsin is noted for the prosperous condition of its agriculture, and for its tens of thousands of successful farmers. With an insignificant number of exceptions they were, as far as school education is concerned, equipped for their work in common schools. The great mass of farmers will in the future get their school equipment in our common schools. Neither will they lack an iota of any essential thing that would contribute to their success in the business of farming. I see before me a large number of intelligent farmers; they are all successful farmers too, for none but successful farmers attend these conventions. And if I were to make a guess, I should say that not among ten of you

are graduates of high schools, colleges or universities. Some of you, I know, graduated at a tender age from a common school, donned the farmers' uniform and will continue to wear it until you cross the dark river. I know that the school advantages we, in this assemblage, have enjoyed, are larger than those enjoyed by an equal number of farmers outside the convention. Yet notwithstanding we have the gratification of knowing and holding in happy contemplation, the fact that agriculture in Wisconsin has been immensely successful. We are proud that Wisconsin is one of the chief commonwealths in the galaxy of great states that form the grandest union of governments known in the history of the world. What is it makes Wisconsin so great as she is to day? It is her agriculture; her broad fertile fields, her improved farms, her intelligent and successful farmers and their sons in their uniform of professional agriculturalists — overalls and shirt sleeves. It is her mines, her forests and her manufactures, with the men of brains who manage them, and their armies of industrial toilers who do the work. It is our railroads with their iron horses, that transport so quickly and cheaply the productions of our farms, forests, mines and manufactories, and our brave engineers and brakemen who peril their lives every day in the work. It is our newspapers and their brainy, busy men in editorial chairs who push day and night a thousand pointed pens to give us the living thoughts of the hour, and sterling knowledge that to us is power. It is our school houses, beautiful gems, in their setting of thrifty farms, and happy homes, dotting every landscape throughout the broad domain of our beloved Wisconsin. It is our common schools where 999 out of every 1,000 of the workers who create her wealth are graduated. It is our high schools, normal schools, our colleges and our state university where our teachers, preachers, doctors and lawyers gain the education and discipline which make them our useful servants. These altogether are the elements which make Wisconsin the great commonwealth she is to-day. Rob her of one of these and you by that much diminish her power and greatness. I want to warn our farmers' sons against

the attempt to inflate them with the silly flattery that because they are farmers, they are greater than the men of other industries and professions.

Agriculture is indeed the foundation of all other industries; it supplies food for all mankind, and without it the world could not exist a day. But the greatness of the farmer is made up of the same elements that make other men great. It is his high moral character, his knowledge of the world of men and things; his ability to grasp principles and public policies, his usefulness as a citizen and his ability as a leader. It is the capacity for great deeds that make men great. In considering the educational needs of our sons, there are a certain few who are urging on us the establishing of another agricultural college. They profess a large sympathy for the farmer, and claim to know better than we do ourselves what schools we need. They falsely assert that the few have always compelled the masses to go to school, and they propose to force an agricultural school upon us. Now agriculture is as prosperous as any other industry in our state. Indisputable evidence is found in the fact that farmers pay seventy-five per cent. of the taxes and own three-fourths of the wealth of the state. Taking into account the fact that fifty years ago farmers commenced here with little capital except their hard fists, sturdy frames, and courageous hearts, it will be seen that agriculture has been one of the most prosperous industries. Within twenty years a college of agriculture was established at Madison, by the munificence of the general government. It is a good thing, and has done its part in advancing agricultural interests, even though few students have attended it. Now we have grown so rich, these gentlemen insist we shall put our hands down deep in our pockets and establish another school of agriculture. We all know there are farmers who are failures, and so are there preachers, lawyers and congressmen, and presidents who are failures. "The fault, dear Brutus, is not in our stars, but in ourselves, that we are underlings." All the schools of agriculture in the world, if they undertook the task in succession, would fail to make all farmers successful. A man must be born well to be suc-

cessful; and if he is not he will pass through life a failure. A thousand schools and colleges could not change his nature or give him the capacity for success. The men who preach to our sons, that their success must halt a moment or wait until Wisconsin establishes another school of agriculture, is their enemy. A good education is an aid to the success of a man in any profession or industry. The mind must be disciplined to observe closely, to grasp the situation readily, and think and decide quickly.

If the mind has been quickened and stimulated by the studies and recitations of the school room, and by the contact of mind with mind in school, it is in the best possible condition to go on and develop under the discipline of actual professional or industrial work. The farmer's son needs precisely the same school training as the sons of men in other industries. Out of school he needs the daily training of farm work on the farm, where he learns the art of farming and the common science of agriculture. He learns too, farm management or how to conduct the business profitably. If the father does not know how to make the farm pay and is harassed with debts, and family matters are run on a pinched basis, the boys soon find it out. The best thing they can do is to leave home, and seek employment with a good farmer. When our sons have reached an age at which they can appreciate the higher science of agriculture, and their minds are fitted by previous training in our free schools, they are ready to be benefited by a course in the science of agriculture. That can be fully supplied in our college of agriculture and experiment farm at Madison. I admit that agriculture is so prosperous, strong and brave, it can carry almost any conceivable burden. But why should it be burdened with establishing and maintaining another school of agriculture, for which we have no possible use?

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Mr. Roberts — I want to refer to some of the reasons that were urged why we should establish an agricultural college. I take it we have just as good an institution for teaching all the science of agriculture as exists in any state of the union

Although there have been very few students at that college I do not think that all the money that has been expended for it has been thrown away by any means. There has been a good work done. There has been a good influence gone out from that institution towards advancing our agricultural interests in the state. So that I do not call it a failure in any sense whatever. Now, objections are raised to having it connected with the State University. I can not see the force of any of the objections that have been raised. We have a school of law and a school of pharmacy connected with the State University, and why should not they be separated? If it is not a good place for a college of agriculture to be connected with, it can not be for those other divisions of education. I think that is just the place for it. I think there is where it ought to be, and I think we have the means to expand and develop this school of agriculture, and make it all that we need. Now the idea that the students in the university look down upon and sneer at those taking a course in agriculture, seems to me, to speak plainly, to be nonsense. I suppose that half the young men and young women who attend the State University, are the sons and daughters of farmers. Why should they look down upon and sneer at a young man who is taking a course in agriculture there? There is no reason for it. If a young man respects himself, if he has manhood in him, he is not going to be sneered at and looked down upon. Our young men that go there, who are going to be our future lawyers, and preachers, and doctors, have too much manliness and too much good sense to sneer at a man because he takes a course in agriculture. [Applause.] That is the way it looks to me. Another idea is to teach farmers separately. They want another school to teach agriculture. If there is going to be a school of agriculture, the young man that is going to be a lawyer, or doctor, or teacher, is not going there. You have simply got a class of boys that are going to be farmers. My idea is this: I should want them to go to school along with the young men that are going to be our future preachers and lawyers, for those are the kind of boys



that have quick, active brains. I think it would have done me good to have gone to school with some good, bright boys; by coming in contact with that class of minds, you may become so yourself, and that is where I should want to send my boy. I should want to send him to school with the best and the quickest, and the brightest-minded boys that the country afforded, for we are not all alike, we are not all cast in one mold. I will tell you a little story that I have in mind: There was a governor, who was a farmer, and he had two boys, and one was a good deal brighter than the other. He sent the other one to college, and of course, the bright one stayed at home. The governor had cattle and they had calves, and finally they had a calf that was very difficult to learn to drink. After the governor and his boy both had been trying to make the calf drink, the governor expressed a good deal of impatience, and he says to his son: "Bill, what in the world can we do with this calf?" and Bill says: "Send him to college with Tom." Our boys are not all alike. After Daniel Webster's father had tried a number of times to get him to hang the scythe to suit him, he got out of patience and said: "Hang it to suit yourself," and Webster hung it up in a tree. There is no room for such men as Webster on the farm, and I think of lots of boys that are born and brought up on the farm that there is no room on the farm for them. They need a wider field, where they can do far more good to the race than they can on the farm. What is the reason that so few of our sons attend the present agricultural college? I think there are good enough reasons for it. If a boy's parents have money to give him a good education, he commences to study, and he gets his mind wakened up, and he looks out and sees that there is other work for him that he can do, at which he can make more money or do more good, and consequently he does not become a farmer, but becomes something else, and I think that is very proper.

Prof. Wright — The speaker has called attention to a subject that I think is just now of a good deal of importance, not this agricultural college, but the common schools of the state, which are just now at a turning point in relation to

their financial support. The common schools are the most important factor in the education of the people of the state of Wisconsin, because all the people of the state should go through those common schools. Nearly all do. Only a few go to any other institutions in the state. I think our common schools in this state are equal to those in any other state. I had the privilege of the acquaintance of the State Superintendent of North Carolina about two years ago, and I took a great deal of pride in comparing with him, the condition of the common school system in North Carolina and in this state, and I astonished him by telling him that the people of this state in their school meetings, voted upon themselves taxes to the average amount of one per cent. upon the assessed valuation of the property, for the support of the common schools of the state, a thing which they would not think of doing in North Carolina at all. The taxes there are assessed by the county commissioners, who are not elected by the people, but are appointed by the Circuit Judge, who is elected by the legislature, and the county commissioners, not being immediately responsible to the people, do not dare, even then, to vote anything like the amount of tax which we in Wisconsin vote upon ourselves at our school meetings. These commissioners control the schools entirely in North Carolina, appoint the teachers, build the school houses and everything. His great trouble was to go around the state and meet these county commissioners, and secure sufficient appropriations from them to organize the school system. In this state we have the school system fairly well organized, but the legislation of last winter gives us a tax of one mill on the dollar for the state, and an additional mill on the dollar for the county, to be assessed on the state and county, to be distributed according to the number of children of school age in the several districts of the state.

This gives us an opportunity for an improvement in our schools by putting them upon a better financial basis and I want to suggest that this is the time when we are to decide whether we shall simply reduce our taxes accordingly, and not pay one cent more for teachers' salaries or main-

taining the schools, or whether we shall take this opportunity to pay a little more for a better class of teachers in our schools. Good as our schools are, in a very large share of the districts of the state, they fail to be what they might easily be with a very small amount of money more paid to a better class of teachers. I have been a County Superintendent of schools, I have been an institute conductor, and I know whereof I speak. I think you gentlemen can answer too to the same effect; that more than one half of the district schools of the state are taught by minors, by boys and girls under twenty-one years of age, who have not a very wide acquaintance with human nature, or the general information that will make them broad minded enough to do the work that ought to be done in the school. Even as far as text book work is concerned, I venture the assertion that not one-half of the teachers of the state of Wisconsin, that are actually teaching this winter, to say nothing of the summer teachers next summer, can add up a column of figures correctly—a long column of figures. I have tried them in Teachers' Institutes. Their information and their work is just about up to a certain level and there it stops. I appeal to you as representing any of these schools, to try and do something to raise the standard of these schools a little higher than it has been. Now I want to say something about this industrial education. I am interested in this agricultural college question, from the industrial school stand point.

In our State Teachers' Association the question of manual training schools has been raised frequently. It has been recently raised in the city of Milwaukee, as many of you know. A manual training school is now in successful operation in St. Louis as a department of Washington University, and one is in operation in Chicago. This is in the same line of industrial training going hand in hand with school training that is contemplated in these discussions in relation to the proposed agricultural college, and both of them, I think, are wise. I think that so long as boys and girls are at home, on the farm especially, they have an opportunity to work, and thereby industry and literary cult-

ure go hand in hand; but when they go away to school, and also, in a large degree, with those who live in cities and villages, that is not the case. In the work in which I am now engaged as secretary of the State Board of Charities and Reforms, I have occasion to know something about the tramps, the criminals, the paupers and the insane of the state. The question about the insane is a different question, but the tramps, criminals and paupers come much more largely from the villages and cities than they do from the country for the reason that the boys and girls in cities and villages grow up in idleness to a much larger extent than they do in the country. Idleness is the fruitful mother of a large part of the evils which afflict the community. It is a source of greater evil than intemperance even. It produces more tramps, more paupers, more criminals, than intemperance, or as many, and they come mostly from the cities and villages because there you find the boys and girls who are not in their youth trained to some steady industry. Now, the value of this agricultural school or of these training schools in blacksmithing and carpentry, etc., is not so much in learning how to carry on a particular trade as in the habit of industry that is kept up. The proper place to learn how to farm is on the farm, the proper place to learn to trade is in the shop undoubtedly, as far as the art of the thing is concerned, but the habit of industry is learned and kept up in a school which maintains manual labor along with educational culture. There are a number of institutions in the State which are under the inspection of the Board of which I am secretary, in which this is actually carried on at the present time. We have four industrial schools in this State which are largely reformatory; we have the school for the deaf and dumb and the school for blind. These all give an equal time to labor with that given to book learning, and with the happiest results. I have been led to study the subject in that line, and what is good for bad boys and girls, what is good for the deaf mutes and what is good for the blind, I think is good for the tolerably good boys and girls scattered over the State, and if they are not in a situation where they are apt to do so at home,

I think it would be well for them to have an opportunity to labor with their hands in connection with a school. There is another point in which I am very much interested. I began as a farmer's boy, and worked my way through college, boarded myself during term time and worked on the farm during the summer, and I know what it is to do that. If the college had furnished me an opportunity to earn money by actual work, instead of leaving me to hunt it up in town as best I could, it would have been easier and better for me. Hundreds and hundreds of young men and young women, and more young women than young men, in this State would work their way through college if an opportunity were given them so that they could do it, and such a school as this will give an opportunity for the young men and women of the State who are poor, who have only their hands and heads to carry them along, to work their way through, and it will do them good and open up opportunities for those who have no opportunities now. There is another point in relation to these institutions on which I hope more stress will be laid than has been, especially in relation to this agricultural college, and that is the importance of teaching cooking and other departments of household economy to the girls. I think that is even more important—even for the boys. [Only about one-half the boys are going to be farmers, and nearly all the girls are going to be housekeepers. It is, therefore, of more importance that the girls should learn how to cook than that the boys should learn how to farm; and those who have to live around the country and live in all sorts of places, know that there is still some room for improvement in our cooking. [Laughter and applause.]

Mrs. Severance—Mr. President, in the first place, I was a little surprised that the gentleman (Mr. Roberts), being the father of boys and girls, could not have said children just as well as to have said boys all the time. It seems to me singular that men should forget their girls all the time. Another thing; he said it seemed to him nonsensical to think that persons in other professions would look down upon farmers, and before he got through he did the very

same thing himself. He says he wants his sons educated with the brightest minds, those that are to be ministers and lawyers, and added that those who were to be ministers and lawyers were brighter than those who were to be farmers. I deny it. [Applause.] It is a fact, and the farmers are to blame for it as much as anybody, that the people are looking up to ministers and lawyers; and it is from this fact that we have so few pupils in the agricultural department of our college. It is for this reason that we should have a college for agriculture alone, until the people are educated to recognize the farmer as the equal of the lawyer or the physician or the minister. You are giving just that very recognition that he gave in selecting your officers everywhere. In the majority of places, if they put up a man for office they will select a lawyer, or any one but a farmer, every time, seeming to have the idea that there is something above farm life in the professions. And it is just so in our schools. You take those that are studying the professions, and they look down upon the farmers. In fact, our whole education has been to look up to ancestry and wealth instead of honorable industry, and it is time farmers set their faces firmly against this, and that they recognize other things as the things to be honored in the nation. When that time comes, there may be some chance of educating in the university, a class of farmers, but so long as the present ideas obtain, you have got to have separate agricultural schools, or you do not have your boys educated in agriculture. This point I want to emphasize with you, that it is your fault; and I claim, in opposition to the speaker, that the professional people are not brighter or smarter than the agricultural. I have spoken before state legislatures, and I have spoken before agricultural conventions, and I do not say it because you are agriculturists, but I would say it just as quickly before the state legislature—I say that the agricultural convention that convenes here year after year actually has more brain to the individual than the state legislature has. [Applause.] And if you only had brain in one direction, so that when you select your representatives you would always select among yourselves, instead of taking some banker or

lawyer, or somebody that will go into the legislature and legislate in the interest of some monopoly, instead of the interests of labor and agriculture, then you would have learned that which would be of practical importance to you. [Applause.]

Mr. Robbins — There are many things in that paper that I admire. I do not attack that paper at all, because I believe that however excellent our private schools are, the people can only be educated in a people's school. I would make our common schools the best; but forty-five cents don't go a great ways. Of the public money I believe our children get about forty-five cents, when \$250 or \$300 is sent to pay to your college and your normal schools. I do not desire to touch that paper, but I do desire to pay my particular respects to the gentlemanly secretary of these benevolent humane societies, Mr. Wright. I admit that the teachers met here last winter, and they had a mutual admiration society. The very first thing they resolved was "We have the brains of the state of Wisconsin, and we must have the pay for the use of them. Our wages are too low; they must come up." How are they going to do it? In the first place they decided that they would put a one mill tax on all the property of the state of Wisconsin. For what? For educational purposes, that is, for the common school education. They are now trying to give us back a little that they have stolen from us on the grant account, and I know what I am speaking about. Just look at that law. We had provided for our schools and had arranged for the means to carry them on. That came like a thunder clap on us, that we had to raise \$12,250 in the county of Grant. Last year our state tax was \$7,000. This year our state tax in the county of Grant is \$21,000. Did the people ask for any such raise in our taxes? Did they ask for any such fund? No, sir. But the educational ring that is up here said "We must have higher wages." Now recollect there is a trinity of those cussed fellows. [Laughter.] Nine tenths of these educated men that live on a salary in the state of Wisconsin say: "High salaries, free trade and a gold standard." Now up where I live the taxes have never been as high since the

war as they are this year. Three per cent., and seven mills added to that. I tell you that the boys that live up there can not pay their taxes and go where this young man over here can, to this college. We can not stand it, and we have got to call a halt. You educational men have got to wait a little now. I know this is fixed so that the educated man can go there and teach a school, not these boys and girls that have been educated at the common school. I kept a school, and I tell you the boys and girls can learn more in three months than they can in the state of New York in six. I have taught in New York and I have taught in Wisconsin, and I know what I am saying. A boy in New York looks around at the farms there, and they are farms of about six to ten acres, and his ideas are just as much circumscribed as the farms are. I taught there in 1835 and 1836, and I came here and taught a common school. I tell you that the boys that are raised here are superior to the boys that are raised where their lands are contracted and their ideas are contracted. That is why we have got the smartest boys in the world here on our prairies, and we have got the brightest girls too. If I knew that lady was going to preach, within five miles of Platteville next Sunday, I would go five miles to hear her. "While the lamp holds out to burn, the vilest sinner may return," and there would not any of us be sinners under such doctrine as that. We would all be fit for the Kingdom of Heaven. Bring them into the perfect doctrine and when they go out of the world they will go perfect. A boy that comes into the world is as pure as the mountain snow before it falls. He hardly ever goes out as pure, after he goes through the battles and storms he has to go through. I understand this gentleman to say that in our district we got together and voluntarily voted a tax of one mill upon our district.

Prof. Wright — One per cent.

Mr. Robbins — I know that nine-tenths of the boys of the town I live in go to the common school, and nine-tenths of the girls; that is, I mean they get their first rudiments in the common schools, and their whole tuition fees do not amount to five dollars a year. The taxes for the common



schools in the section of the State I live in do not exceed five dollars a year to educate a child. Now with this one mill tax there will be a thousand dollar surplus. They are enquiring now, What shall we do with that thousand dollars? It is collected from us and will be sent here to Madison, and will stay here till next June, and then will be sent back to us and distributed if we will accept of it. We have got to raise then next year, not only \$12,250, but we have got to raise next year \$20,000 for that very purpose. I tell you if you want the people to take an interest in their common schools you must let them manage them. Let them get together and determine the wants of their district. The people are liberal in this State in education, but you will find out next fall whether that one mill tax is very popular. We can not stand these taxes. In the time of the war we paid large bounties there and voted to tax ourselves one year when the tax was five per cent., but I tell you it never has been so hard to get the money to pay the taxes as it has been since the war. We feel it at home.

Mr. Roberts — I rise to a personal explanation. The lady directed her remarks to me, and I am glad she thought enough of me to do it. She was talking to me, not to the assembly. I do not disagree with her. I think if we should talk the matter over I would not be found disagreeing with her. But the idea that there is not a difference in brains, and in men and in boys, and that it does not require more brains for a lawyer, or a minister, or a doctor, than it does to run a farm, (No, No), I am willing to leave that question entirely with you and with your common sense and with your common practice, because I know that you are obliged to look up to men of brains. If you have a neighbor that is a farmer, and more capable as a farmer, and capable of managing a larger farm and managing it better and making more money out of it, you naturally look up to that man. You go to that man for advice and you ask him how he does this and that and the other. We worship brains and we always should. We look up to Daniel Webster, and all the way down we look up to men of smaller calibre. Brains is what we want. I know a man who spent all his

life, and all his energy, and all his brains, in managing twenty acres of land, while another man can manage a thousand acres because he has more brains. I tell you we look up to brains and the people of this State, and the people of this country, and of every other country, will always look up to the man with brains, and that is the reason that you send lawyers to the legislature.

Mr. True — Was this man that managed twenty acres, a lawyer or farmer?

Mr. Roberts — A farmer.

Mr. Carr — Mr. President, and ladies and gentlemen: The speaker from Grant county, went against raising a tax for educational purposes. I want to say to you that I belong to an organization, the foundation plank of which is education. It is the order of Patrons of Husbandry; you may call it the Grange, if you wish to, and we advocate raising taxes to any legitimate extent, for educating the farmers of the State of Wisconsin.

Mr. Robbins — Allow me to correct you. I am in favor of their laying the taxes at home and not in the legislature.

Mr. Carr — The order that I belong to is in favor of raising taxes to educate the citizens of our state. According to the census of 1880, we have 95,000 persons in the State of Wisconsin over ten years of age, that can not read or write. Is not that enough to make us think of this question that we should educate teachers and get the very best teachers that we can get? Now, in regard to the remark of the lady, that she had addressed audiences and legislatures, and never had a more intelligent audience than an audience of farmers, such as are here to-day. I want to say that twice have I represented my district in Rock county upon this floor, and I want to say to you that never have I sat in a body of men and women that had half the intelligence of the National Grange of America, that held their session in Boston, in November last. Never have I sat where there was as much intelligence as there was there, and I congratulate you, brother farmers, on being here, and on there being so much intelligence as there is here. Now a word in regard to this agricultural college, which a gentleman here

seems to think we do not need. A gentleman from the State of New York said, last night, that the time had not arrived. Other parties have said the same. I want to say to you that the farmers of Wisconsin are prepared to put their hands in their pockets, if it need be, and vote a tax to start an agricultural college here. A gentleman from the State of New York said, last night, that perhaps in twenty years the time might arrive that we should want an agricultural college to send our sons to. The State of New York is in the same condition as the State of Wisconsin, the same as it is in Minnesota, the same as it is in Illinois. They have a little thing tacked on to their university, as it were, like a tail to a kite, and our farmers' sons do not go there. The experiment has been tried in Wisconsin ever since 1866, and you all know the result. They never will go there. I stand here and say to you as the master of the State Grange of Wisconsin, that that institution never can be built up. The history of this country proves it. Not a school in America, where they have an agricultural college tacked on to their university, has proved a success. What have they done in Connecticut?

In Connecticut they have an industrial school. What have they done in Massachusetts? I have visited the Amherst College there, where they have 400 acres of land and 300 students. There they compel them to work with their muscle. They compel them to educate the hand with the head, and when they go out of the school, they are prepared to go back upon the farm if they choose to, and there they have all the rudiments of an agricultural education implanted in the brain as well as in the muscle. What do they do in Canada? When I visited their agricultural college, which is the grandest institution in America for the purpose, they had 400 acres of land, and there were magnificent stone structures, and when the president of the college came, and I introduced myself to him, he offered me the only hand he had; the other was taken off in a threshing machine when he was 22 years old, stating that he was born and raised upon a farm up to that time, and now he is president of the best agricultural school in America. I saw the

splendid stock that they have, imported from England and the old country; the finest herds of cattle that I ever laid my eyes upon; and I will say, the finest looking faces I saw in the boys at that institution. On I came to Michigan. There is said to be the model school in the United States, with her 674 acres of land, and the boys and girls are united there, and the girls are learning to cook, and do everything in relation to the house, as was suggested here to-day, and there they have stock of all kinds. There the boys work as they do in these other agricultural colleges. The hand is educated with the head. On I went to Iowa. There they have 900 acres of land and nearly 400 students, and one of the best domestic departments that I believe there is on this continent, for educating the girls. Over into Dakota I went, and there, the day after the school opened, the president told me more girls had registered than boys. Up I came to Minnesota, and found the same condition of affairs at Minneapolis, in their state university, with a little small thing tacked on as it is here. President Northrup told me that he was a graduate of Yale College, born and raised upon a farm, and that his sympathies were all with the farmers. He said: "I am going to build up this agricultural department." Said I: "How many graduates have you had here in this institution, in the agricultural department?" "Why," says he, "one, I think." He turned to the professor, who sat clear back in the room, and asked him how many there had been, and he said two. They had there the same amount of land that we had in Wisconsin, that is, 30,000 acres of land to every representative increase in 1862. Now, to go back just a moment. In 1862 we had 240,000 acres of land granted to us in Wisconsin. It had to be accepted in so many years or it reverted back to the government.

The farmers of Wisconsin were asleep at that time; they were not at their post. The order of the Patrons of Husbandry had not come into existence, or else there would have been one here and there, and this matter would have been talked up, and they would have come to the front and demanded their rights. The city of Madison, the president and professors and friends of the university, and perhaps

some few of the leading educators of the state, thought it would not do to let that magnificent grant of 240,000 acres of land revert to the government, so the legislature tacked it on to the university, located the lands, and put them in market, and sold them for ten shillings an acre, and on the 15th of last December there were only 5,300 acres left of that magnificent grant, which had been sold for the paltry sum of \$1.25 per acre, when we have not graduated one student in that agricultural department in two years' time. This is the state of affairs here; and last winter Mr. Adams introduced the bill which was before the legislature, which was defeated by a vote of 43 for, to 52 against it. Now we stand as we are, and it is the strangest thing in the world to me that any farmer in the state of Wisconsin, if he has read the agricultural reports, and still further, if he has ever visited an agricultural school, can stand up before an intelligent audience and say that the time has not arrived for us to have an agricultural college. [Applause.]

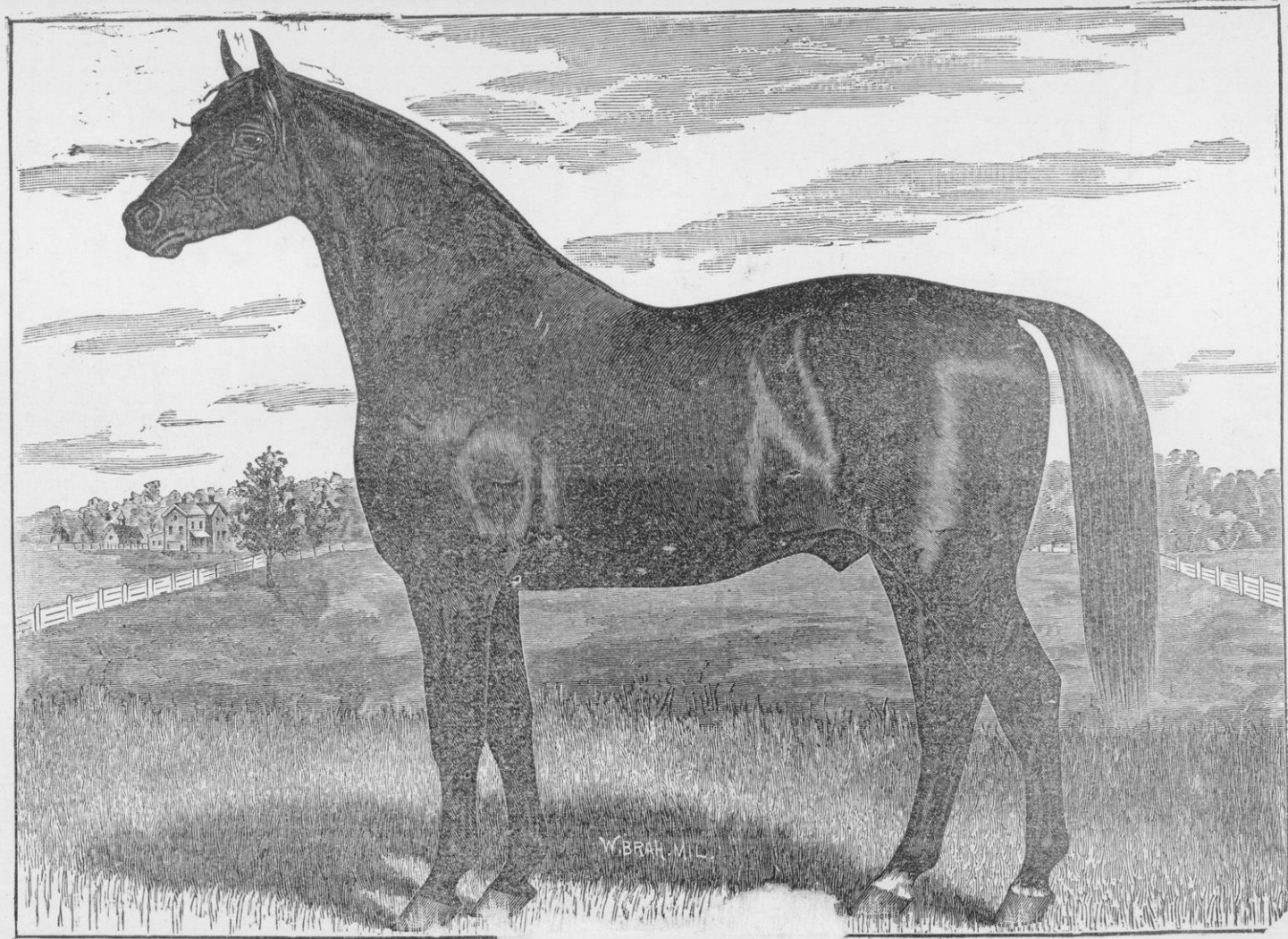
Mr. Buell — Although not a member of your association, with your permission I should like to say a few words upon this question. I am always interested in questions pertaining to education, and I am always interested in questions pertaining to the condition of farmers. I was born and raised on a farm, and have lived on a farm the most of my lifetime. My interests are upon the farm, and my home is still upon the farm, and my people are all farmers; and in discussing this question, I think I can discuss it as a farmer as well as a lawyer. The inference that would be drawn from some of the discussion that has been had, is, that there is a feeling of antagonism on the part of the university against the farmers. The inference would be drawn that the lawyers, as a class, are opposed to the interests of the farmers. Now, if that were so, we should naturally expect that when a bill establishing a school of agriculture should come before the legislature for passage, that we would find all the farmers in the legislature in favor, and the graduates of the university and the lawyers opposed to that bill. Now what are the facts in the case? When this bill came up before the legislature last winter for passage, did we find the

farmers as a unit for this bill? Of the 34 votes that were cast by the farmers, there were only 15 in favor of the passage of the bill, and 19 against it. Of the 13 lawyers who voted in this assembly on the bill, eight voted in favor of its passage and five against it. If you had had more lawyers in the legislature last winter, your agricultural college bill would have passed, and you would not be complaining to-day. [Applause.] There were in the assembly last winter, six who had graduated from the university, or had nearly completed the course, and of those, five voted in favor of the bill and one against it. [Applause.] Three of them, I think, championed the bill upon the floor of this house.

Now I do not wish to take the time of this convention, but I think there are points in this discussion which have not been touched upon. It seems to me from the discussion which is had here each year that there is a growing sentiment in favor of agricultural education. But it does not seem to me that it is wise and expedient to establish an agricultural college in the sense in which we use the term, college. To be sure we have not turned out as many students from the agricultural department of the University as we wished that we might, but the fault has been very largely with you fathers and mothers, that you have not sent your sons to take the agricultural course. It is because you as farmers and as farmers' wives, have not worked up a sentiment in favor of agricultural education. It is not because there has been a feeling against the agricultural student at the University, because that, I know is not so. I had the honor of being a classmate of the first agricultural student that ever graduated from the University, and I think I have known most of them since that time, and I can state that while I was in the University and since I have left the University, there was no sentiment against the agricultural course or against the farmers. The majority of the students in the University are farmers' sons and daughters, and why should there be any feeling against them? Now it seems to me that the idea is right here, we do not want a separate agricultural college, but what we want is a school of agriculture and right here it seems to me is where we have been

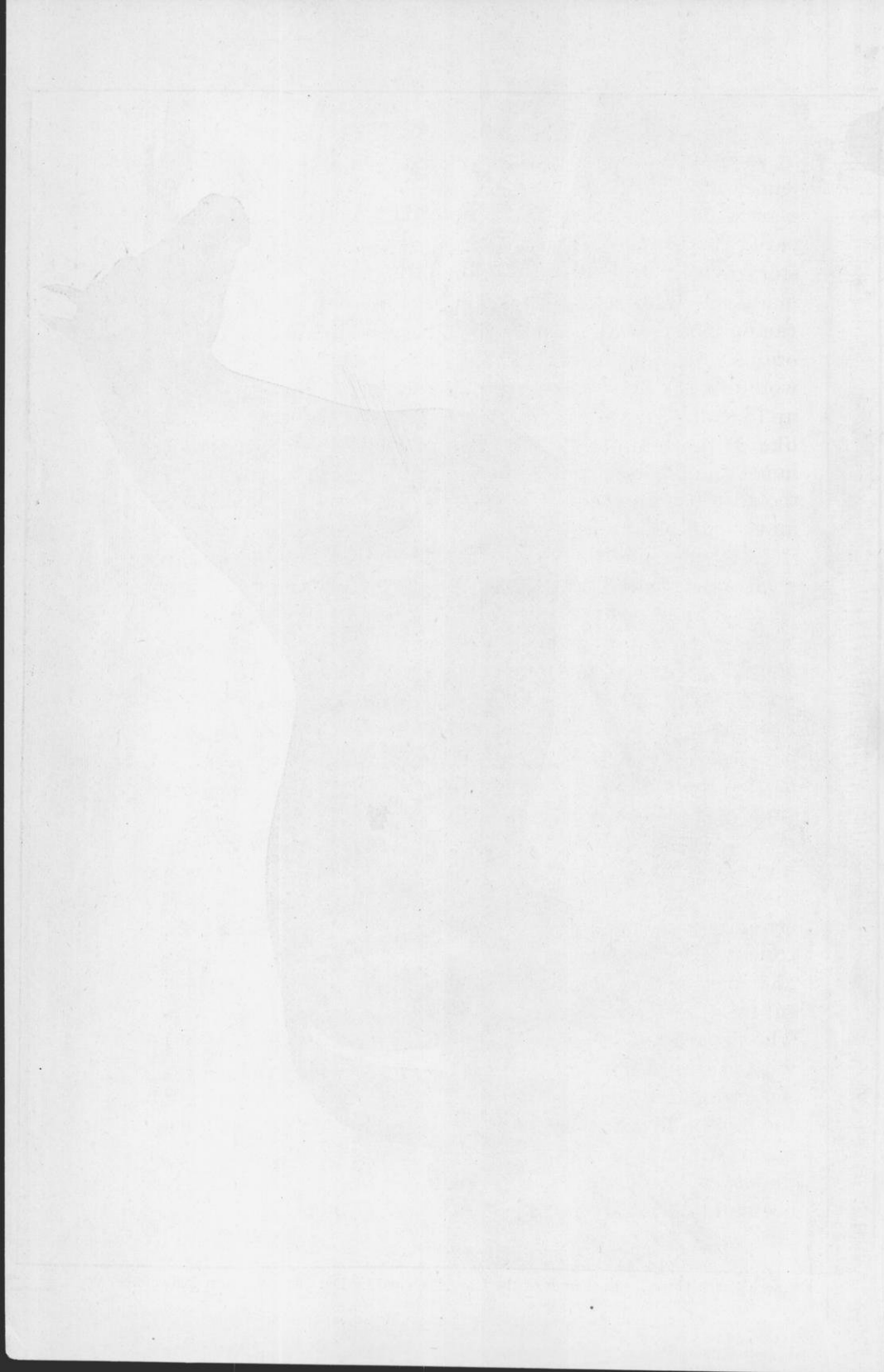
making the mistake in discussing this question; we have not considered carefully just what we mean by establishing a separate school of agriculture. What we want is a school where the farmer's son and the farmer's daughter can go after leaving the farm, after leaving the course in the common school, where they can go for one or two years and get some general culture which they do not get in the common school, and where they can get the technical training which will help them in their calling, just the same as you are getting it at the present time in the agricultural institutes. It is not, it seems to me, the correct idea to establish a separate agricultural college. If you establish a separate agricultural college and make the course co-ordinate with the course at the University, you will get more students, I grant, because any school which is established in a different part of the state will draw students, just simply because it offers facilities for local education, but I do not believe that because you do that, you are going to get the persons who are going back upon the farm to become practical farmers after they graduate. What has been the history of these separate institutions in the states where they have been established? Since listening to the discussions, I have taken pains to look up some of the statistics in reference to these colleges, and I find this to be true, that in Maine where they have a separate agricultural college, only nine per cent. of those who have graduated, have gone back upon the farm and become farmers. I find that in Pennsylvania where they have a separate agricultural college, only twelve per cent. of those who have graduated have gone back upon the farm and become farmers. I find that in Massachusetts, only twenty-seven per cent. of those who have graduated, have gone back upon the farm and become farmers. I find that in the College of Michigan, which is probably the best college of the kind in the United States, only twenty-nine per cent. of those who have graduated have become farmers in the truest sense of the word; thirty-three per cent. I believe are farmers.

President Arnold — It has been said that this audience contains more intelligence than any audience looked upon



French Coach Horse, "Enchanter of the Oaks," owned by DR. ORMOND, near Milwaukee, Wis





by several of the speakers, and on looking around the audience I discover that there are a great many former members of the legislature, and the legislature has been compared very unfavorably with this audience. I have a little story which Mrs. Severance's and Mr. Robert's remarks made me think of. Once upon a time, a gentleman was racing horses and he ran against a tree and knocked his brains out. A physician came along and said that if he would like it, he would take those brains home and fix them up for him. He thanked him very kindly and said he would like to have him do it. So the physician took the brains home and placed them on his table. After a few days, he took a brush and scratched out the gravel stones and sand, and telegraphed to the man that his brains were ready, and if he would come, he would put them in. The gentleman wrote back that it was of no use now, he had no use for them; he had been elected to the legislature. [Laughter.]

Now, if this audience is made up mostly of that class, we need not congratulate ourselves very much upon our intelligence. One remark about the agricultural college. I believe in education, as every man who has any experience or has seen much of the world does. I believe in the first place, that all public money should go to the support of common schools. Had I my way, I would have no money appropriated to any other purpose, and let all higher education come only by personal exertion. However, the public sentiment has been the other way, and the government and the State has appropriated money for higher education. Inasmuch as that has been the course pursued, and that will probably be pursued for some time in the future, I see no good reason why the farmer, or the man who desires to be a farmer, should not have an equal share with others in this constant levy of taxes upon the people. An intelligent and prosperous community, a good nation, the best civilization, can only be brought about in about the same way that in chemistry some articles are made by the uniting of component parts. This obtains in literature, in occupations, in diversified industries, it obtains in every-

thing. In order to have a prosperous community, you must have all the interests combined, and all working together for the same end. To illustrate, the common article of soap is made up of three articles, water, oil and potash. If we have potash and oil, the potash is good and oil is good, but the two together would not accomplish the result that soap accomplishes; but, by putting water in we have soap. If we have oil and water, oil is good and water is a good thing, but we never have any soap, and so all the way around. So it is in an intelligent community. You want to have education working there in the line of literature and in the line of developing the mechanic arts, and in the line of agricultural industry.

Prof. Henry—I wish to ask you for one moment's time. I know it is late. Occupying the position of professor of agriculture in the University, I am put in a peculiar position in regard to the agricultural college question. I was unfortunately not present at the last meeting of the society, and remarks have been made that I was first one way and then the other, etc. Now I wish to define my position. Graduating in a school where the agricultural college was a part of the university, and loyal to that school, employed to-day in another school which is a part of the university, and, I think, still loyal to my work, having spent five years in a careful consideration of this educational question, I am perfectly convinced that Wisconsin made a mistake in putting the department where she did. The best way out of that mistake I can not say. It would have been better had you not done it, far better. That is my opinion. Now the way out of it is where we differ. That I do not want to discuss, only that I am first, last and forever, after five years of correspondence, of visiting all kinds of colleges and schools, and meeting in all sorts of visitors' associations, I am in favor of a separate agricultural school, and I hope the reporter will put it down in the book. There are two regents of the university present to hear what I say. I say it, not flaunting anything in their face, but far enough from that. The regents themselves, I know are divided on that question, and I want to say that never in my employ-

ment of over five years in the university, has a regent ever said to me anything in regard to guiding my course or my actions in what I should say or how I should act in regard to the agricultural college. I say this in justice to them as gentlemen. They have never tried to coerce me. They have never by word or hint said anything in regard to this, except expressing their opinions as gentlemen in regard to the matter, and you will find, as I said before, that they differ themselves, one with the other, on this subject, just as you differ, and let us draw no lines, whether the regents are against this or the lawyers against that, but that people differ in their solution of a difficult problem. Mr. Carr told you how many colleges he visited and what he saw there. I want to say to you that if you ever get a chance to visit the Canadian college and see the work done there, you will come home so sick, so sorry, so downhearted at Wisconsin's condition in regard to agricultural education, that you will never stop until you are just as interested and earnest as Mr. Carr is to-day, to have some sort of a school — not college — of agriculture.

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#### ADDRESS OF GEORGE H. HARDING, PRESIDENT WISCONSIN SHORT-HORN BREEDERS.

The breeders of short-horns are noted for their modesty. It was our intention to hold this meeting in some back room of this august temple, but the gentlemen that fix up the state placed us here, which accounts for us appearing in public.

It is not necessary for a man to be an orator to breed short-horn cattle, but it is a fact that some of the first statesmen of England and America have been strong competitors for first place, and if we do not tell our story in good English, it is not because the subject is not worthy.

The Wisconsin Short-Horn Breeders' Association was started one year ago, by a few of us getting together here at Madison. Our object is to advance the interest of short-horns in Wisconsin, and at the same time we are anxious to

join with the breeders of all other cattle, in any movement that will *protect* and *benefit* the cattle interest of our state. Many of you are more interested in other pursuits, and likely grudge us the time that has been allotted to us, but there are some points that all are interested in, one of which is *good beef*, and we, as breeders of short-horns, are particularly interested in how to produce it. There is also another matter that I hope you will join us in. Under the direction of the National Cattle Growers' Association of America, there will be a bill presented to congress this winter to stamp out contagious disease. Our secretary, Mr. True, has a petition to our representatives in Washington, asking them to give this bill their earnest attention. Up to this time we have been trying to handle it under state laws, which have produced confusion and demoralized the cattle trade in some states. I hope all breeders of cattle present will sign the petition, and also any of you that are personally acquainted with any of our members, will write to them in regard to this bill. The cattle interest has the right to demand protection, and we are not doing our duty as breeders and citizens if we do not give this due attention.

Successful business men master all the details of their business; read and post themselves on all points. Then how necessary it is that breeders of short-horns should study their business; and I hope to hear a general discussion of the feeding and handling of a breeding herd, including the management of the breeding bull; the arrangement of the building for stabling the cattle and storing the feed; the kind of feed; the use of corn meal in a breeding herd; the feeding of roots; the cost of cutting the feed. From such discussion, old breeders may get some new ideas, and new beginners much necessary information, and the general farmer might learn that in order to make the farm pay better, he should keep more and better stock. If a man with a capital of \$5,000 should start out in a mercantile business, by putting \$4,000 in a store building and \$1,000 in goods, his friends would call him bad names; yet it is the common practice with the average farmer, with farm and buildings worth from \$6,000 to \$10,000, to only have \$600 to \$1,000 in

live stock, that represents his active capital. And how is it possible for him to increase the productiveness of his farm without manure and clover? And to grow clover with *success*, you must keep stock; and when you buy stock, remember in all things, that the best is in demand at prices that pay. A few years ago I made steers of two short-horn calves: I wanted to see them grow. At three years and three months old, I sold them to Layton & Co., of Milwaukee, for \$252. The average price of three-year old steers that day was \$30. My steers weighed 4,000 pounds. When I speak of the average farmer, I refer to the very large majority in Wisconsin that are obliged, from necessity of location, markets and circumstances, to follow mixed farming, which, all things, considered, is far the safest, as special farming should be left to those that have the means to hold over their crops when the market is down.

I hope the association will conclude to duplicate all prizes won by Wisconsin Short-Horns at the Chicago Fat Stock Show, if by that means we can induce a Wisconsin breeder to land a winner at Chicago; it will be money well spent.

The combined qualities of beef and milk should receive your attention, as Wisconsin stands first among the dairy states, and the dairy qualities of certain families of our cattle are second to none. Among the quickest feeders I have ever owned were extra milkers. The pedigrees of your cattle should command your earnest attention. To understand your business, you should know what strains of blood are prominent in the different animals in your herd, for it will add to or diminish the money value of the increase to use certain strains, for the improvement of your cattle is largely dependent on a thorough knowledge of how to breed them. Also the positive knowledge of all facts connected with the history of your cattle gives the breeder confidence. I would here mention a family of cattle that have representatives in most Wisconsin herds. Imp Arabella by Victory. The impression is prevalent that Victory was not a pure bull as the original entry of Imp Arabella in Vol. II, Page 286, Victor appears without a number; but in the pedigree of Cora, same Vol., Page 335, Victory is given

the No. Eng. (5565), which is repeated when she is recorded Vol. IV, Page 304, and the same number is adhered to in that and succeeding volumes up to the tenth. In the case of animals owned by Mr. Reynolds. Allin in his history gives her sire as Victory (5566), which is a mistake as his history and breeding proves, *being entirely different*. Whereas Victory, (5565), was owned by the breeder of Imp Arabella, and this is also confirmed by the entry of Lady Emma, Vol. 10, Page 610, where her sire is given as son of Waterloo, (2816). Now, Waterloo was the sire of Victory, (5565), and the entries in the pedigrees of the Reynold's stock, prove clearly that the original papers read Victory, son of Waterloo, not knowing that he was recorded in the English Herd Book as Victory, (5565.)

History tells us that Arabella was one of the finest cows ever imported, and her descendants are noted for their good constitution and feeding qualities. In 1875, I saw two females sold at Glen Flora, by Col. C. C. Parks for about \$800 each. They were cows that any breeder might be proud to own. Most of the Arabellas in Wisconsin descend through Arabella 2nd, by Rover, (5015), of Vol. II, Page 286. No one can refuse to accept a pedigree that runs square back to Hubback in four crosses, and through the herds of the Collings Brothers at that. It has received plenty of recognition in *England*, and we find it in the herds of Thomas Bates. Prominently in the cross of Norfolk, (2377), upon Duchess 33d, producing the *granddam* of Duchess 66th who was the ancestress of our American Duchesses; blood good enough to be put squarely upon the Duchess tribe by the hand of Mr. Bates, is of course good enough to go in any company, and the owners of Arabellas in Wisconsin can rest assured that they are building on a good foundation. I mention this to show that breeders should search for the facts that are to be found in the herd book, Allin's History, Warfields' History, and contributions to the press; also from the writings of Geo. W. Rust, one of the best posted men in America.

Cæsar in his time might conquer the world, but it would take a great many Cæsars to control the fashion, and breed-

ers should keep up with the times. But, in the rush after new things do not forget the good old sorts, and the men that have sustained the reputation of the short-horn are the ones that after making a choice of the family they preferred, have bred them without reference to the whims of fashion and color.

In closing, I wish to call your attention to the *Breeders' Gazette*, a paper that is at the top in live stock matters and especially in regard to short-horns. Any that wish the paper can get it at club rates by giving their name to our secretary, Mr. True. I wish also to thank the press generally and the *Western Farmer* in particular for the kind notice this association has received.

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## SHORT-HORNS, AS ADAPTED TO THE WANTS OF THE WISCONSIN FARMER.

By JOHN M. TRUE, Baraboo.

You are invited to consider the peculiar claims of short horn cattle and their grades, upon the appreciative regard of Wisconsin farmers.

It is not the object of this paper to enter into a general discussion of the merits or demerits of the various breeds of cattle that are just now claiming the enthusiastic championship of breeders, for the purpose of instituting comparisons between them and the particular breed I am asked to consider, that I may antagonize them.

On the contrary, I assume that each of these prominent breeds, now asking for popular favor, has its peculiar merits and adaptation to certain locations, conditions and special uses.

Neither do I wish to say anything that may be construed into a failure on my part, to recognize the importance and widely-acknowledged superiority of our dairy interests. That branch of our farm industry has been, and is still fortunate, in having the zealous championship of men, who lose no opportunity of pushing it to the front; and who have been remarkably successful in backing their enthusi-



astic claims, with products of a character establishing and sustaining the reputation of the state.

I am aware, however, that I am to encounter the dissent of the special dairymen, in the commencement of this paper, by recognizing among the chattles of the Wisconsin farmer, a general-purpose cow.

While I have a very strong personal leaning toward special work, as the acme of intelligent and successful farming, I am still met by the fact that a large portion of the farmers of our state are engaged in mixed farming, and that from choice or necessity this state of affairs promises to continue indefinitely. And so long as general or mixed farming prevails, so long will the general-purpose cow be longed for, talked of, and sought after.

That the intelligent, progressive handler of general-purpose cattle succeeds in his work, is perhaps as fully demonstrated, as that the narrow-minded, shiftless farmer who would be a specialist, fails.

Before success attends the efforts of general or special farmer, he must be brought to moral, progressive ideas of the value, not only of well-bred stock, but also of the best methods of handling and feeding. When these are recognized, there will be less apparent reason for a claim of advantage of the one over the other. I will now, if you please, ask you to look upon the short-horn as the nearest approach to the popular conception of a general-purpose cow.

The intelligent, general farmer calls for a cow of good size, attractive appearance, docile disposition, a good feeder and easy keeper, yielding a good amount of milk of good quality. A cow that properly mated will produce a calf that will be an improvement upon its dam. A combination of desirable qualities, nowhere found to a greater extent than among short-horns and their grades. To particularize, my typical short-horn cow, for the mixed farmer, should weigh 1,200 pounds or more, give a sufficient amount of milk, less the cream, to give its calf, from a thoroughbred sire, a generous lift, during the first four or five months of its existence, toward the 1,200, or more pounds of excellent beef, the steer is to give to its owner

at from twenty-four to thirty months' old. From the cream of the milk of such cows, I have known men to attain high reputations as dairymen. Indeed, one prominent Wisconsin dairyman, while making the butter that won first honors at a world's dairy exposition, was feeding the skimmed milk to calves that made the finest bunch of grade steers I have ever seen in the state.

That the short-horn and its grades are indifferent milkers, either in the quantity or quality of the production, is often assumed, at the present day, by those anxious to push into favorable notice other breeds, that have more recently attracted attention.

It is true, that in some parts of the country where beef is only sought, the milking qualities of short-horn cows have been completely ignored.

The calf has been allowed to run with the dam, taking such part of the milk as it required while young, under which treatment a generous flow of milk has been reduced to barely sufficient, or perhaps insufficient for the calf, as it becomes older.

This practice continued would render the most promising young cows of any breed, unproductive.

Again, the practice of excessive grain feeding of young heifers, for the purpose of obtaining show animals, is undoubtedly detrimental to a development of milking qualities. Still the fact remains, that the old-time glory of the short-horn cow as a milker, has not departed, but that today the short-horn and its grades as a whole, treated as dairy stock, will compare favorably with many of the acknowledged dairy breeds, while some families can safely challenge comparison with the best.

The short-horn has been so long in this country, and so generally recognized, that probably it would be hard to find a choice herd of grade cows, in the state, upon the farm of dairymen or general farmer, where there is not a considerable sprinkling of short-horn blood in the foundation stock; a fact too often ignored, in extolling the merits of grades obtained by crossing these with other and favorite breeds.

I have little confidence in the reputation of any breed, built up upon the remarkable results gained by the selection of one cow from a thousand, fed for the sole purpose of ascertaining what she can be forced to do, for a few weeks, and by the process sacrificed to the unnatural demand upon her resources.

The general farmer of Wisconsin calls for a breed of cattle, that, *as a whole*, will give him the best returns in all particulars, for the grass and grain products of his farm. With the utmost confidence we enter the short-horn against the field.

In asking your favorable consideration of the short-horn as a beef animal, I feel that I shall not be required to attempt any elaborate description of its claims. Indeed the firm hold it has already gained in our state, shown in the fine display at our animal fairs, evinces the general confidence it enjoys in this field. One of the oldest and most successful short-horn breeders in the state, a man of rare judgment and broad views, while inspecting a recent show of the prominent breeds of cattle and their grades, and noting their strong points, said to me: "The short-horn when crossed upon any other breed, never fails to improve it in appearance, but no such results are gained from a cross of any other breed upon the short-horn."

The increased disposition among our farmers for the past few years, to give special attention to dairying, with the remunerative results that have in many sections been attained; together with the vastness of the enterprise of beef raising in the west and southwest, have had a tendency to add force to the argument often put forth, that Wisconsin farmers cannot produce beef at a profit; that our climate and situation forbid our entering into successful competition with other and more favored localities. As a result the young cattle raised upon our farms, have been picked up and shipped to the cattle-growing west, or, to heavy feeders in other grain producing states. These sales have brought to farmers very small returns; such animals having generally been raised at a loss. The prime reason of the low prices realized for these young cattle, has been their inferiority

— being largely the result of scrub breeding, or the attempt to create good general purpose cattle from crosses with leading dairy breeds.

With the recent decline in demand and price for dairy products, and the uncertainty that hangs over the future of the enterprise, with the feeling that largely exists that buterine "has come to stay," reaction among small dairymen has already commenced, and dry cows are now being and will continue to be, crowded upon our local butchers, indicating a change of base in stock handling. Notwithstanding the largely increased introduction of other pure breeds, chiefly dairy, into the state during the past few years, the proportion of short-horn cattle is larger at present than at any time in the past. Never has there been so extensive a call for thorough-bred males of the beef breeds as now, and as better breeding promises better feeding, it is safe to conclude that in the near future, better beef will be found in our local shops, and cattle that will no longer be a disgrace to our state, will find their way to our great market centers.

The impossibility of the over production of beef in the country is established. The stock ranges of the wild west are always crowded to their fullest capacity.

The marked decrease of cattle in the older states, and our constantly increasing population, not to mention the shipment of beef to foreign countries, are facts that should convince even a Wisconsin stock raiser, that well-bred, well fattened cattle are in the future to be sold at remunerative prices. Commissioner of Agriculture Colman in his address before the National Convention of Stock Men, in Chicago, in November last, showed the constantly increasing ratio of cattle to population in the United States. Stating that in 1860 we had 814 cattle to 1000 inhabitants, while at present he estimates with a population of 57,000,000, and a cattle supply of 44,000,000, we have but 772 cattle to the 1000 inhabitants. And the present ratio exists after the almost fabulous increase of cattle in the great west. Too much importance cannot be attached to systematic and careful breeding. None but thorough-bred sires should be used,

and the practice that has of late prevailed to a considerable extent among our progressively inclined farmers, of making "hash" of the various popular breeds, should be condemned as producing results that must generally prove unsatisfactory.

The indiscriminate mixing of Short-Horn, Jersey, Holstein or other breeds, as an experiment, or in seeking general purpose cattle, will result in the production of stock inferior in the various qualities sought, to what might be obtained by the selection of a given breed, and a careful and rigid adherence to it.

If situation and tastes favor special dairy farming, select the breed that seems best adapted to the work in hand, prepared to make the most of it in your chosen field. But treat yours as dairy stock, and not claim for it, or crosses you can found upon it, what nature has denied — superiority as a beef animal.

If the prominent idea in your farm work is beef producing, we have the utmost confidence in the belief that your wants are best met by a careful selection of foundation stock as dams, and the use of well chosen, thorough-bred short-horn sires, upon them and their calves after them indefinitely. With the breeders of thorough bred short horn cattle, rests largely the shaping of the future strength and merit of the breed.

As we recognize the two-fold strength of the breed, as milking stock and beef producers, care should be taken to keep these two lines separate and distinct, in order to reach the highest attainable point of perfection in each. Among the dangers that threaten the actual merits of short-horn cattle, may be mentioned the tendency to overlook the personal excellence or weakness of animals, in the zealous search for fashionable pedigrees; the color craze that condemns all stock not of the favorite color; and the too prevalent idea that all animals by virtue of their thorough breeding, are fit to be kept for breeding purposes, even though lack of individual merit, in some essentials, should at once condemn them as candidates for the butcher's block.

With proper breeding and handling, the possibilities of our attainments are only limited by Nature's bounds; for it is not in the line of cattle breeding to produce a nobler or more useful animal, than the typical "red, white and roan."

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## ADDRESS OF PROF. MORROW.

I believe as strongly as I ever believed in the importance of our live stock to our civilization and to our agriculture, and that this importance is to continue. If you have any doubt, let me ask you some time when you have a leisure hour to stop and think how closely interwoven with our civilization in its every feature is the domesticated animal. Imagine, if you please, that some strong religious impulse or superstition should come across the people of this great nation at this instant, and we should all resolve that from this time on we would have nothing to do with an animal in any relation, and see, while it would be possible for us to live, how completely we would have to change everything, not only that which we eat and that which we wear, but in a host of ways that will grow upon you as they did upon me when I first worked through that problem, and you will be astonished and astounded, as I was, to see how dependent we are upon these animals, and although we listen with interest to the forcibly put statements of those who so interest us about the vastly superior value of vegetable food, I take it that the time will not soon come when we will cease to eat beef and butter, and drink milk. I believe that the best interests of our agriculture are to be subserved by careful attention to the animals, and of all these the cow is the most important. All-important as we may think is the horse, we could better dispense with the horse than we could with the cow, for the patient ox could do in some sense the work of the horse. Important as is the sheep in giving us food and clothing, we could dispense with it sooner than we could with the cow, and I wish we could dispense with the hog; he makes no pretence to do but one thing, unless

indeed in these last years he has gone into the dairy business, as we recognize he has.

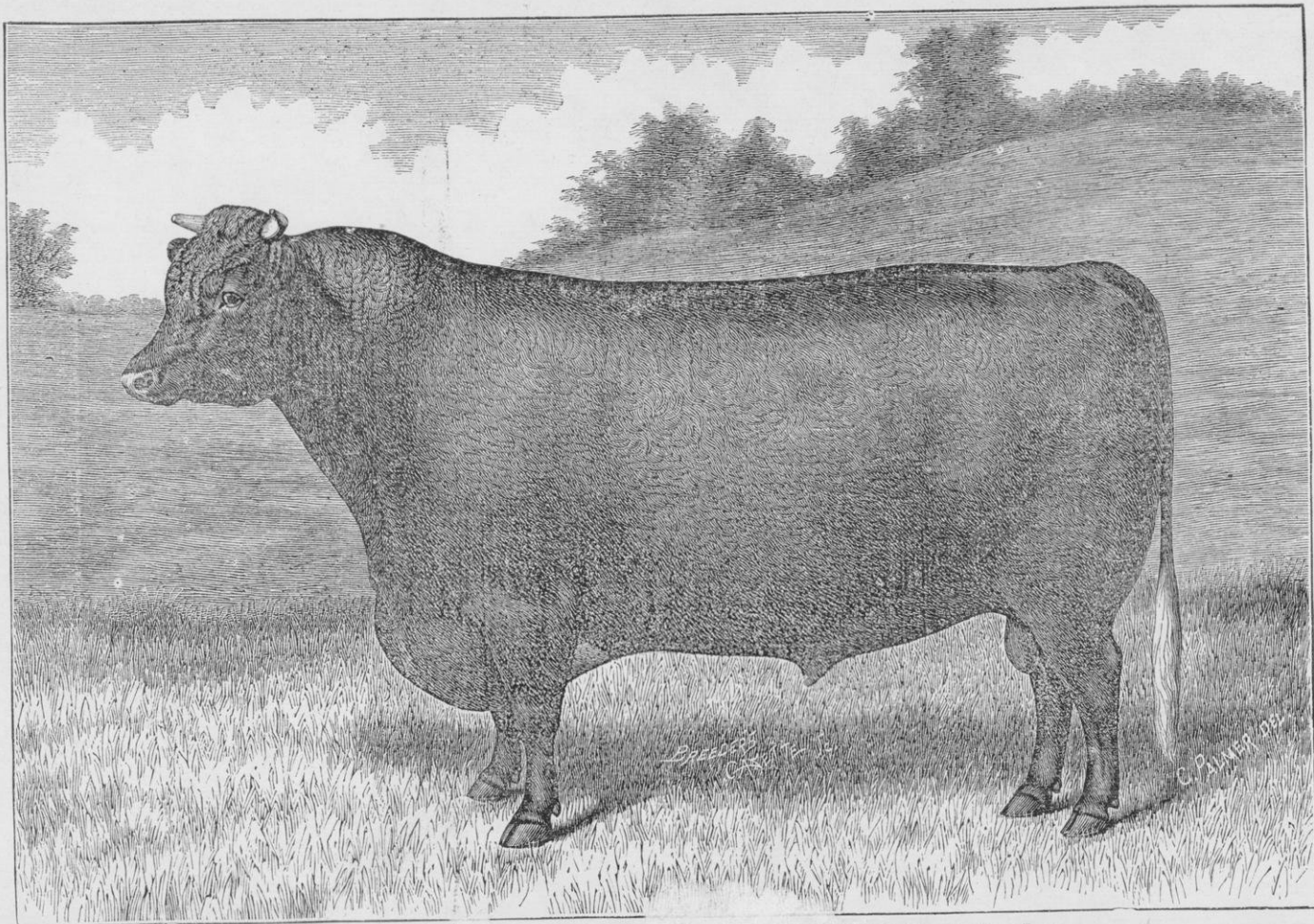
Now, I wish to say here once for all, that while I am speaking before the breeders of short-horns, I do not count myself a partisan of any breed, but I am a partisan in the strict sense in the interest of improved stock. I remember that the time was when I, in common it seems to me with the majority of general farmers, thought that "improved stock" was synonymous with "fancy stock," that these pure bred animals, whether cattle, horses, sheep or swine, were something for rich men or amateurs to amuse themselves with, but something with which the practical farmer had nothing to do, or would make a mistake if he had anything to do with it. I hold that the only claim that any class of animals has to the title of improved stock, is that it is better for some useful purpose than those which we call common or unimproved. If any breed of cattle gives no more or better beef, or their milk is not better for some use which you as farmers want it for, they have no claim whatever to be called improved stock, and at the last resort they must be judged by this. All questions of what they have been in the past, all questions of sentiment, even all questions of beauty must fade before this hard solid question, Are they better for the uses for which the farmer or the butcher or the consumer wants them? That is the test of the right to be called improved. Man has made our domestic animals what they are. The animal has but two great purposes. One is to live, the other is to reproduce its kind. It is well fitted to live in the conditions in which it finds itself. It is active, it is hardy, it is courageous, or it is fleet of foot or shrewd of mind so that it is able to run away from or outwit its enemies. It is well adapted for the condition in which the Creator designed it to live. But man steps in and says, "I want you to do work for me," not alone the horse that draws us or carries us, but in a host of ways, in giving us its meat or milk, in giving us clothing; and man by just two things, as I look at it, has made the domestic animal what it is. One is constant and persistent selection for the qualities that he wants, and the other is placing

them in conditions of life which are best adapted to develop these. I am glad that our attention has been called to these things in relation to the development of the human race. I quite agree that we have been too thoughtless in this regard, and yet perhaps we have given more thought to it than we have been inclined to speak of, just as to-night I am talking about cattle instead of temperance or religion, as much as I am interested in those things.

In the two ways I have mentioned, we have made our domestic animals what they are. We rely upon two great principles in breeding, or rather upon one principle with its modification; first of all, that, other things being equal, like will produce like; that the offspring will, in a general way, and often in a more marvelous way, resemble its parent; that every characteristic that a parent has, whether of form, of internal organization, or of mind, the most trifling or the most important, will be transmitted to the offspring usually; but we modify that by saying that not always will the qualities possessed by the first parents be transmitted, but we often see qualities which belonged to ancestors further back. A good lady comes and looks at the first-born child, and says it looks just like its grandfather; and so we recognize the fact that in our domestic animals we sometimes see the outcropping of the influences that have disappeared from sight, and have been lying concealed possibly for several generations. Always, however, while we rely upon these principles, we must see to it that we give the conditions that produce what we want. Without going into the question of how they were created, we know that these two things have made marvelous differences in the breeds of animals that we have about us. I believe it would be barely possible to take such a breed of cattle as the Jerseys, and, given time enough and patience enough, to make them the rivals in size and form of any of the beef breeds. I believe it would be possible to take such a breed as the short-horn, or the Hereford, or the Black Polled cattle of Scotland, and, given time and patience and skill enough, to transform them in form and qualities into either of the great classes of dairy breeds. But I hold that we must keep these things



side by side. It is not all in the breed, and it is not all in the care. The two must go side by side. Now what is a breed? If I were to give a definition, I should say that a breed is a collection that possesses some distinctive characteristics which are uniformly transmitted to the offspring. They may be important or unimportant, but whenever any collection of animals has a right to be entitled to this description, they are entitled to be called a distinct breed. There is nothing mysterious, I repeat, about improved animals. We do not understand all about them, but we must judge them on common-sense principles. If you find any quality that you desire, whether it be color or form, whether it be a long horn, or short horn, or no horn, if that is the point you desire, and that only, whenever your cattle will with uniformity transmit the quality desired, they are entitled to be called pure bred; and just here is the reason, and, as I see it, the only reason, why what we call pure bred animals are more valuable than others; because we can depend with greater certainty on their transmitting the qualities they possess, and, if we have bred them for qualities that are important, as we have, they have great value because of the greater certainty with which they will transmit them. There is great value in well bred cattle that are not pure bred, in the grade cattle. Far be it from me to join in what seems to me to be a mistaken line of reasoning, adopted by some admirers of pure bred cattle, when they claim that all common stock and all high graded stock are practically worthless for breeding purposes. For many of the farmers of Wisconsin, it is vastly better that they breed high grade stock than that they should go beyond their means in attempting to secure a herd of pure bred animals. But bear in mind the meaning of the word grade—to step up or to go down; and we can more easily grade our cattle down than grade them up, and a good many of us are doing that kind of grading. Beef and milk are given by all cattle, yet we classify our breeds by these, in quality or quantity. We cannot have the highest point of excellence in two or three of several distinct points in any one breed. That may be a truism, but it must be accepted as a fact.



Short-horn Bull, 33d Year of Airdrie, 5087, owned by JAMES FLYNN, Des Moines, Iowa



There are individual features which are apparent exceptions, but the rule can safely be relied on. If you want the fastest possible trotting horse, you do not find in that animal the best possible heavy draught horse. That is a clear case, and needs no argument. If you want a cow that is adapted for the production of the largest quantity or the very best quality of beef from a given quantity of food, you will rarely if ever find in that individual animal the best adaptation to the production of milk, and the contrary is true; but you may, and we ought to be thankful for it. You may find a very good degree of excellence in those two points, but not the highest possible excellence. They are not necessarily antagonistic. You cannot have a big cow and a little cow in the same animal, because those are contradictions. You may have a good beef cow and a good milk cow in the same animal, but not the highest type, because the same food which produces meat in one case will produce milk in the other, and the same food is not the best for the two purposes; but, in a general way, the statement is correct. Now all men will not look for the same purpose. We must choose, as a rule, between seeking the highest possible excellence in one point, or comparative excellence in several. What do you want? is the question for every breeder, and for every farmer too, looking over his circumstances, his tastes, his capacity, his climate and his market. A large number of breeders and farmers want beef, and beef alone. To him, a cow that gives more milk than enough for the calf is thereby less valuable. A great many should select with reference to that. Some want milk, and that to him is the important thing. There are many men whose locations are such that the sale of large quantities of milk far outweighs any question of the value of the carcasses when they have done with the cows. There are some whose facilities for making butter are such that they must look at that as the chief thing. But I hold, and I suspect that I will not meet with general acceptance in the statement, that the majority of the farmers of Wisconsin and of the west, want both of these in as fair degree as they can be secured — a good cow for beef and a good cow for milk.

The average farmer in Illinois, and I believe the average farmer in Wisconsin, cannot afford to keep a cow all the year round, as many of us have done in the past, simply to rear a calf. I am speaking now, not of pure bred cows, but of grades and the ordinary stock that we keep for market purposes. I believe the time has gone by when it was profitable to do that. Again, the farmer in Illinois, and I believe in Wisconsin, cannot afford to ignore the beef-making qualities of his cattle. He cannot afford to sacrifice his calves. He will be much wiser to look to securing a reasonable degree of merit in all these. I repeat, I am not a partisan of any breed. I think a man, whether he be a breeder of short-horns or Jerseys, makes a mistake when he thinks that there is no other breed than his own worthy of breeding. The experience in different states, as was shown at the Fat Stock Show at Chicago, shows that there are animals of marvelous merit in any one of three or four different breeds, but while this is true, I do think that for the purpose I am describing the short-horn is unequalled, as a whole, for the general farmer throughout the western states. There are places, where if I was going as an individual farmer, I would not select the short-horn. There are places where I think other breeds are better than this breed which first won my admiration, and which I still think in its highest form is the highest type of beef animal that I have ever seen; but for the mass of us, where we want to make both beef and milk fairly prominent, I say I believe it is unsurpassed, if not unequalled, among all the breeds that the skill of man has made. It has had a marvelous history, and it is a monument to the skill and energy of the farmers, and it should give those who are interested in this calling, pride, as they think how it has been improved, how it has spread from its little home in the north-eastern part of England, until to-day it is the most widely distributed breed, is bred in the largest number, has the most friends, produces the largest quantity of milk that goes into general consumption, and by far the largest quantity of really good beef of any breed in the world. This is no eulogy. It is the simple fact. To-day the short-horn

cow, pure bred or grade, is the great dairy cow of England, and to-day it holds its position in England and Scotland, as it does in this country, as the breed most generally popular and highest in price. This is no partisanship, it is no eulogy, it is simple fact. Now to come to what may be a more practical point. What I am about to say applies to any other breed. The farmer who is selecting cattle or the man who is judging of cattle in any line should look at it in three ways. First, is it a good animal? Has it the qualities which make it a good animal? Secondly, has it the qualities which make it a good animal for the particular purpose? Thirdly, is it a good specimen of the breed? If it is a short-horn, has it the color, has it the particular niceties which constitute the distinctions between this and other breeds? When you look at cattle you want to look at them in that order. The last is the less important, but breed points are important. For instance, we have come to regard a black-nose in a short-horn as a very objectionable thing. Now the meat or the milk is just as good whether the nose is black or flesh-color, but it is important that we have the flesh-colored nose, because the black nose raises something of a suspicion that there is impurity of breeding. No short-horn breeder would be wise in breeding from a short-horn cow or bull that had a black spot on it as big as your hand, not but that the hair, and the skin, and flesh under it is just as good, but it is almost certain that there is something wrong in the breeding. Such points the practical farmer is apt to sneer at, and say these make a great fuss about little things. The answer is that they are tests of the purity of the breed, and if they do not possess these we are fearful that they do not possess the points that we count more important. If a man speaks like a coarse boor and is rude and rough, some say it does not amount to anything, but I say it does, because the presumption is that that man's inside, his character, is as rough and coarse and boorish as his words are. It may not be, but that is a presumption. If I see a Jersey cow with a roan color, I may admit that she is very pretty, but I do not want to buy her, because that is not the color of the Jersey, and all the

argument in the world that color does not count would not make me buy her as a Jersey. But there are things more important.

Pedigree, whether it be of a man or an animal, is valuable. It is valuable because it is the best evidence we have that the quality we want is there, having descended down through a number of generations. How do you know that I am a white man and not an Indian? I look like a white man I suspect, but that is not certain evidence. You may say "I have seen men that looked as much like you as a brother should, and yet I know that they had Indian or Negro blood in their veins." If I can show my history and show that my ancestors were born and bred in this country and before that in Europe, that is conclusive evidence. So the pedigree of an animal is the best possible evidence of purity of blood, but there are things that pedigree cannot cover. Pedigree, to paraphrase a phrase that I heard the other day, is not as big as charity. Pedigree cannot cover a multitude of sins, and charity, we are told, can. We sometimes find breeders who attempt to make pedigree cover all possible sins. Did you ever think that ten generations ago you and I, had 1,024 different men and women as our total fathers and mothers, unless, as is usually the case, there has been crossing of the lines in breeding. 2,048 different individuals have mingled their blood in my veins in the last ten generations. Suppose I could trace back my pedigree ten generations, what does it matter to me whether that one man was a good man or a bad man, except that one or the other makes it probable that the training of all my ancestors was good or bad? So I say that pedigree alone is not sufficient. It is valuable, but the test of the value of the pedigree is to be found in the individual merit of the animals which bear that pedigree, and no fashionableness of pedigree, no reputation in the past can cover present deficiencies.

The top crosses are worth more than the old crosses. I should be glad to own short-horns that descended from the famous short-horns of generations ago, but I had rather know, if I could know but one thing, that the sire and dam

of this individual short-horn were first-class animals, than to know that the sire or the dam of ten generations ago were equally good. Fashion has been spoken of, and I am glad that a sensible view has been taken of it. It has great value in this as in all other things. I should be a great fool if when I went to buy a new coat, I should insist on having a coat that was entirely out of the fashion, and I should be equally foolish if I insisted on buying short-horns that were confessedly unfashionable, but on the other hand I would be very unwise if I threw away a good coat or a good pair of boots simply because they had gone a little out of fashion, and that short-horn breeder is unwise who continually disposes of his animals at a sacrifice in the attempt to follow changes of fashion; fashion in color or fashion in a particular pedigree.

All honor to the great American breeders. With all the honor that is due to the English breeders, I hold that there ought to be better breeders of short-horns in America than in England, because our American breeders have as much intelligence and have a wider scope and have the advantage of all the experience that the foreign breeders have given. I wish to insist now that it is not usually wise for the average farmer to attempt to possess himself of a large herd of pure bred animals. The cheapest, the surest, and often the best way for the average farmer to improve his stock, is to get the best females that he can conveniently, then secure a pure bred male and persistently use him and those like him until in a few generations he will get animals nearly or quite equal for all practical purposes to those that we call pure bred.

With the rapid increase of our domestic animals there is no reason, with the moderate prices now prevailing, the farmer worth anywhere from \$5,000 up may not get a start in pure bred short-horns, and thus in a few years have a comfortable herd of animals which not only in individual merit but in pedigree and fashion will be a source of pride and of profit.

I have spoken longer than I should. I only want to say a few words on the point of management. I tried to say



yesterday that we must adapt all our farm management to the circumstances in which we find ourselves, rather than to the circumstances in which somebody else finds himself. There are a score of things laid down as wisest for short-horn breeders, because those in England, or Scotland, or New York, find it best to do so. The man who breeds short-horns and does not make money out of it may be doing good for the community, but he is not doing good for himself, and if in extravagance of prices paid, or in extravagance of food or buildings he swamps himself, he is often doing harm to the reputation of the breed, and to his neighbor as well as himself. Our own practice, even on the University farm, is to breed these animals so that they cost little more than those of our neighbors', even of the most common stock, or the common graded stock, and we do make some money out of breeding cattle that way, and not selling them at extravagant prices either. We succeed in purchasing very creditable animals, feeding the calves with skim-milk from the time they are ten days or two weeks old. We cannot afford to keep a cow for a year simply to raise a calf. We take the cream and make what has been a more profitable use of it, and substitute for that cream a little corn meal, or even corn and oats, and the calf accepts it and goes along and does very well. We have sold high-grade steers from our farm that, with the cheapest of raising and grain fed, have weighed over 1,500 pounds before they were three years old, and that is not a bad result. They were just about three months under three years old. We have raised short-horns and other breeds that would weigh close to 1,800 pounds at two years old, but that was not in the same method that I have described. They had more and better food, but did not make us so much money as those that weighed less. It is not what you can do, but what you can afford to do that you must look at. I have talked entirely too long, but it is a subject that I am very much interested in, good cattle and good feeding. Whether you are breeding short-horns or any other meritorious breed, I hope you will have faith in your breed. There is something of a depression at present, and short-horn cattle are

selling for less than they did a few years ago, and I hope never again to see the time when short-horns will be selling for thousands of dollars each. I think that has been a misfortune, but I believe the time will come when they will sell for more than they do now. There is money to-day to the man who does not speculate, but will breed short-horns or any other good cattle, for the purposes for which cattle were made, to make good beef or give good milk. There is money to-day in the breeding of any good breed, and I know there is in the breeding of short-horns. Let me give you this parting advice, whatever is the breed of your choice, show your faith rather by your works than your words. Let your praise be positive rather than comparative. Say: "I think we have very fine cattle," rather than "I think you have very poor cattle." Let us not pick flaws in our neighbors nor in our neighbor's business. While we are picking the mote out of his eye, he wants to pick the beam out of our own; but let us make as much as we can out of the things that we have. I am thankful for one thing that an observing friend said to me the other day, he said: "I think you can see more good points in any fairly good animal, than any man I ever saw." I think myself that when I go out to buy animals I pay a little more than they are worth, because sometimes I think they are better than the seller does himself. On the other hand, I do not believe it hurts me a bit as a salesman, because I fully believe in their merit. I insist on this, joking aside, that it is better for us to let the fact that we have chosen a breed be the proof that we consider it the best for our purposes, rather than that we find it necessary to denounce those that do not agree with us. Give to all breeds a free field. Here certainly we can agree that we do not need protection. Here, certainly, we can all believe in free trade. Let every breed, and every family within the breed, have full sweep without any attempt at restriction, by restrictive rules, by the limiting of importations, or any other way, and I give you my personal pledge you can count me a false prophet, if the short-horn ever comes out behind in the race.

Mr. Hinton — It is very evident that your great advocacy is short-horns, and that is all right; I find no fault with that; but during your illustrations you spoke of tracing back pedigrees on paper. Now is it not the fact that while the Englishman up to a certain time was the grandest man in the world, the American beat him because he was an Englishman sharpened up? Have not both of these men been produced, by a regular intermingling and mixing with different races?

Prof. Morrow — I should say no.

Mr. Hinton — You seemed to claim here positively, and it seemed aristocratically, but that was unintentional no doubt, that we must have a pedigree, that our ancestors must have been so and so. Now, is it not the very largest prize ox that has ever been shown was Brother Jonathan, and that his weight was nearly 5,000 pounds, and was it not entirely an unknown species?

Prof. Morrow — I do not know about the weight of particular oxen, but I know about short-horns and I know about cattle. I have made it my study about twenty years. I said that by crossing you would get cattle that for all practical purposes were nearly or quite equal to the pure bred. I might have said, among the thousand things that might have been said, that frequently you will get cattle that for practical purposes are superior. Hosts of valuable animals, human and others, have been produced by crossing. But I do insist that it is a mistake to continue to cross the negro and the white man with the hope of improving the race. It is a mistake to continue crossing domestic animals with the expectation of getting something improved. Judicious crossing oftentimes is at the root of improvement, but the average farmer or the skillful breeder is unsafe in making this indiscriminate crossing. It is plain that the farmers in very many parts of our country cross for the sake of crossing, because they have heard this talk that the cross-bred animals are better. Sometimes they are better and sometimes they are not. I repeat that as a rule it is better to accept the results that a few great breeders have secured by crossing and by continual selection, and

make use of their efforts, instead of each one by aimless and wild crossing trying to do what they have done.

Mr. Sloan — I wish to make a remark in relation to this subject, more for the purpose of eliciting information than otherwise. I regard it as a question of very great importance what breed of cattle is best for the general farmer for the general purposes of farming. There is great progress being made now in some of the breeds. I have been paying a little attention to that subject, and I am surprised at this, the impression that has been left on my mind is that in fifty years the short-horn cattle have not been improved. I think that fifty years ago Bates, the Booths, the Masons, Whitaker, Wetherell, and those old English breeders who were breeding short-horns, had a really better general purpose animal than can be had among the short-horns to-day, for this reason; this breed rose into distinction in the valley of the Tees in the county of Durham in England because they were the farmers' cattle, used as money making animals, not only for beef but for milk. They were large milkers, giving rich milk, large butter producers, and these men who established the points that have become celebrated wherever these cattle are known, simply bought in the open market the cows which farmers had brought there, and then, using their judgment in the selection of sires, they bred a class and race of animals that were both feed cattle and milkers. Any one who has looked into the history of Mr. Bates, the most celebrated breeder of short-horns that has ever existed, knows that all his cows were short-horn cows. I am told that now the large farmers around London prefer short-horn cows. Among the farmers of England pure short-horn cows are used for the general purposes of the farm; they use them to make money on, but since the time of Bates they have fallen into the hands of fancy breeders, men of wealth, who were not using them for the purpose of making money, and the impression I get is that the milking qualities of the short-horn have been to a considerable extent sacrificed by that mode of breeding, and their value as a rule has been deteriorated instead of advanced, but the native qualities I believe are still there and

a judicious system of breeding in this country can restore their general usefulness. I think one reason, as near as I can judge, and I put forth these views with a great deal of diffidence among short-horn breeders and stockmen, is the habit that almost universally prevails of letting the calf run with the cow. I believe I am justified in saying that it is the experience of all farmers that that method will ruin a cow as a milker, but that is a method adopted by all these breeders of short-horns. I believe they should be kept for the milk and the calves taken off, as they do in dairy cows and the cows milked, and you would develop a fine dairy animal, as fine as the old breed of short-horns in the valley of the Tees.

I submit to the short-horn men here whether there ought not to be a change in their course in that regard. Many farmers are establishing a herd of short-horn cattle without the expenditure of much money. My experience is very limited. Three years ago I bought one cow at a moderate price. The calf had run with her one summer and her milking qualities had been injured, but the next one I took off in the usual method, and the result has been that that cow is now a very good milker. Two years ago I bought another, and those were the only cattle of the pure short-horn breed I have ever bought, and I paid moderate prices for both those cows. That one I think would be a good milker, but two calves had run with her, and I believe she was substantially spoiled, and so I followed the custom with her, but now I have six thoroughbred registered short-horns and shall have two more in the spring, and in two years more I shall have all I want to keep on a moderate sized farm, 200 acres, both for milk and to fatten. Any farmer can do that. The expenditure is very small to get into this best breed of cattle, and there is no doubt that it will increase the profits both in dairying and in beef, very largely over the mixed race of cattle which are found on nine-tenths of the farms of the State of Wisconsin and throughout the country.

So far as I am able to judge, I believe the short-horn is the best breed of cattle on the face of the earth for all pur-

poses. The Hereford and the Polled Angus may be equally good for beef, but I do not believe any better. But when you come to the dairy qualities which the farmer must have, no other breed possesses it. The Jersey, as a pure butter cow and a fancy cow, may excel, and so may the Holstein in giving milk, although I think some cream ought to be mixed with it after you have milked it a little, but for both I think the short-horns are unsurpassed if they are not sacrificed, as I think they have been when they have fallen into the hands of men of wealth who did not care for the profit and who could sell them for five or ten thousand dollars and sacrifice the milking qualities, simply to make a nice, fine looking animal. I think by that their constitution is perhaps somewhat affected, but not beyond being wholly restored in all these valuable qualities, and I submit to short-horn breeders if they ought not to take hold of this question and urge such a change as I have suggested.

Mr. Allen — I am glad that the question of the all-purpose animal is up for discussion to-night. While I recognize the superior merit of the Durham as a breed of cattle; while I recognize the Hereford and the Polled cattle as superior cattle for beef, there are other animals who possess superior merit as dairy cattle. The Jersey cow is recognized as the butter cow par excellence; but when you are done with the Jersey cow, that is all there is of her. As a breed of cattle, can we, as farmers, afford to raise them? Now the question arises, is it not possible to create an all-purpose cow better than any cow that has been made yet? In that regard I want to relate a little experience of my own. Some ten years ago, I took a good Durham cow, a good milking cow, a Durham cow in all her characteristics. I thought I would see what I could do by crossing with a Jersey. I wish to bring out the fact that the crossing, if you wish to establish a merit, must be upon the female side. The product was a heifer with all the characteristics of a Durham. That cow bred to herself in color, form and size. The prepotency of the Durham, as it is in all beef breeds, is stronger than it is with the milk breeds. I think you will find that to be the fact. When that heifer came to be about two years old, she

had a calf. We thought it was going to be a remarkably good cow. She too had a calf. Then the next year again I crossed her. In the first cross I crossed the Hereford with the Durham, so that her calf was three-quarters Durham, and the next time I crossed her with a Jersey, so I got a three-quarter Jersey, and the next time I crossed with a Durham, and I got three heifer calves with good results, that are the cows of which I am now going to tell. When that cow came to be four years old, we made from her in seven days, fourteen pounds and two ounces of butter, on grass alone, two milkings a day. That was showing superior butter qualities in the cow. That was the first cross. Now I had engrafted in that Durham blood a butter quality in the milk that was superior. The next year, unfortunately, my wife died, and I could not attend to the butter business as well as formerly. The next year we sent the milk to the cheese factory, but we weighed the milk from that cow for seven days in the month of June, and we milked from it 419½ pounds of milk in seven days. That was not skim-milk, it was good milk. It was not absolutely as good as Jersey milk, but we tasted it, and it was, I think, almost equal to Jersey milk. She gave almost sixty pounds of milk in one day, you see. The next year she died, unfortunately, with the milk fever. Now, you see, I have two cows, three-quarters Durham, that are ever so much better than a common Durham is. Consequently I say, that with judicious and proper breeding, I believe it is possible to make a better all-purpose cow than there is in the country, and ever so much better than the Jersey.

Mr. A. A. Arnold — They say there is no such thing as a science of agriculture. It has been said several times, and if I did not know something of the science of breeding and did not believe that other men had studied it, and did not believe that this one study had done more to develop the mentality of the farmers of America than any other one thing, I would be inclined to think that there was no such thing as a science of agriculture. The breeding of plants and animals has been brought down to a science. Any one that has studied this matter knows that it has been reduced

to a science, which it seems to me the professor has fully demonstrated, but, as he said, this miscellaneous breeding without regard to pedigree, is a fault that if continued, will make the cattle of America no better than when we started. We have got to do the same as they are doing in the old country, the same as they do in England. This science of breeding should be known by the farmer. Thoroughbred horses should be bred in line, and have that distinct breed of horses which are valuable for one purpose, and one purpose only. If you do not do this you will have no pure blood to go back to. You must have pure blood on one side in order to transmit the qualities of the pure blood. If you breed at random you will never know what you are going to have. You see an Englishman like Mr. Hinton, and you see an Englishwoman, his wife, and you see his child, and what do you see? You see an English boy or girl every time."

Mr. Hinton — You are wrong. My wife is American born. To show you how wrong you are, my boy was born on the 4th of July, at 12 o'clock exactly.

Mr. Arnold — It does not make any difference when he was born or how he was born; he is an English boy to all intents and purposes; he is a regular Johnny Bull, with all the traits of a Johnny Bull, and will stick to a point with the greatest tenacity and never give it up, for he knows he is right. That is a very good quality. Now if you want to keep that up in all future generations, breed in that way. But if you can possibly improve upon an Englishman in any way, cross with a Yankee. [Laughter.]

The experiment that has been mentioned shows that there is a possibility of improving cows by crossing with a different breed, but if the mother had not been of pure blood he would never have known what he was going to have. This doctrine of prepotency of blood is something that we should study, not only in dumb beasts but in ourselves. I believe in thoroughbreds all around. I like a woman that has some style to her, some mentality; you know what to depend upon.



Prof. Henry — There was a point made by Prof. Morrow that I would like to see enlarged upon, and that is the point in regard to the influence and value of the pure blooded male. The man that cannot invest in thorough-bred females, should at once, if he can do so, invest in a thorough-bred male. I have had farmers talk to me seriously upon this; they only had a few cows, and they did not see how they could spend a hundred dollars under the circumstances. I have repeatedly said: "You had better sell half your cows and use the other half judiciously, than to use a scrub male." I believe I was right. To the man that cannot have full bloods on both sides, I say to remember, that he has got over half way, when he has a full blooded male. The male is half the herd and I think in many instances more than half.

The history of the Fat Stock Show, shows us that a good grade short-horn or Hereford, that goes in there under equal conditions, is in a fair way to compete with any full blooded animal brought into that show. I receive a good many letters from Wisconsin farmers asking where they can get good animals. I have not sold myself to any corporation or any company, but I advise freely in all directions, and I hope that more of these enquiries will come to the Secretary of this society, and the secretary of the Breeders' Association and myself. I will answer the letters gratuitously. I think it is part of the work of the station, to help bring up the breed in Wisconsin, and we are doing it rapidly. Three animals went into Trempealeau county last spring as one of the first fruits of our dairymen's meetings up there, and I hope that as the outcome of this meeting, dozens of full blooded males will be used where one was before. We can get grades rapidly, and the man that has that will very soon want a full blood, as he gets into better financial condition.

Mr. Arnold — To show how fickle farmers are, this gentleman in Trempealeau county that bought three, bought them of me. He sold Jerseys and bought those short-horns. Then he sold the short-horns and bought Jerseys and used them during the summer, and sold them and bought a short-horn

male again this fall. He could not stick to one thing, even six months.

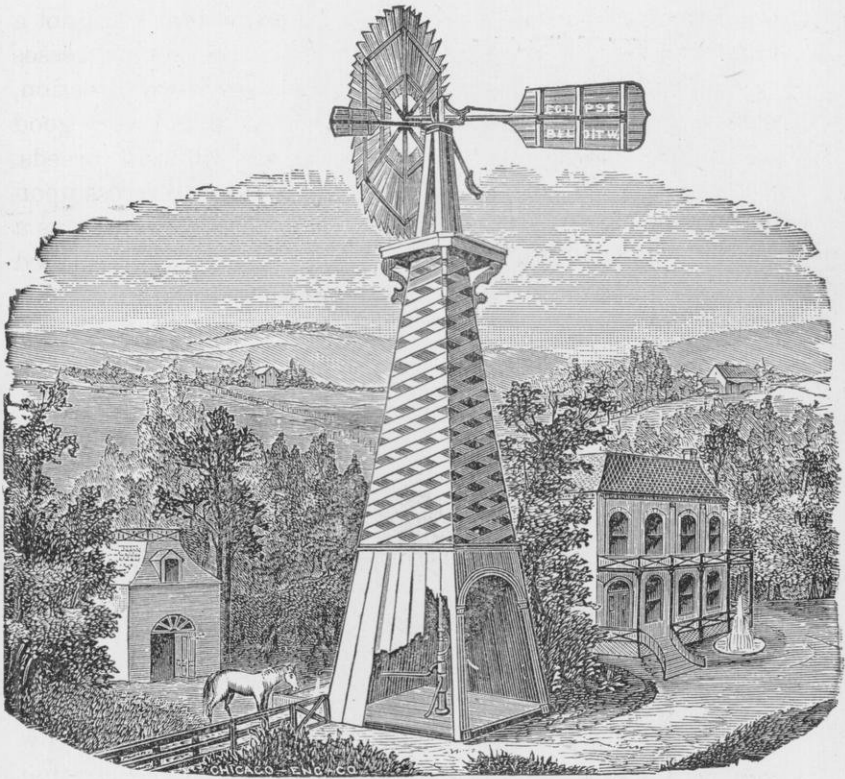
Mr. Broughton—No wonder they are fickle in regard to such things. Just look at the uncertainty of breeding in a certain, to produce certain results. Look at the royal families in Europe. They have been breeding together for two thousand years, and see what they have got all over Europe. There is an uncertainty about the whole thing, and the problem about the royal families of Europe, is like the problem of the short-horn. They are pampered and spoiled after they are born. At any rate they are a bad set there, any how.

Mr. Ames—I am a short-horn breeder, but I have been trying to grade up my stock. I find that I make good results by turning my steers young. For instance, a year ago in next March, we turned a pair of well graded steers at 23 months old. One weighed within 10 pounds of 1,400, and another weighed 1,300. I think for the practical purposes of the average farmer, that is about as well as we can do. As we have got to feed these creatures from an early age, I think it would pay to keep them longer. I make this as a practical suggestion, and I think it is much the same in fattening hogs. I know of a drove of male pigs, 55 of them in a flock. By what I think is a wise practice, the owner has got them so that they will weigh between 250 and 300 pounds. They are not going to amount to much but to show what feed and care will do. They are well graded, of the Poland China strain. I think that for practical purposes, we want something that somebody has experienced and done.

Prof. Morrow—I may possibly have been misunderstood, as I spoke hurriedly and without anything but the most meagre notes. I am not, I think, an extremist in this matter of purity of blood. I do not insist that in the human race or in animals we must trace back the pedigrees indefinitely. I most heartily believe in the value of experiment. I do not think we should accept the doctrine that the best of anything has been reached. We should encourage intelligent farmers in experimenting in breeding as well as in

feeding. I make this suggestion as a practical one, that it is dangerous and costly to go to experimenting with high-priced, pure-bred animals. If you have a boy, do something where you can see the results more quickly. Give your boys some good chickens, and let them experiment in breeding with poultry. The results can be quickly seen. It will tend to develop a love for the farm, and tend to fix in their minds a good deal of knowledge. To show that I am not a bigot in this regard, I may say that I make some crosses every year on the university farm, under my own direction, with some of the larger animals. We have had very good results in crossing pure-bred animals of different breeds. But I do insist, and that is all that I desired to impress upon this audience, that it is dangerous and hazardous, and, as a rule, a mistaken policy, to throw away what has been gained by men who oftentimes have had more knowledge of this than we can be supposed to have, as we begin the work and assume that we can safely attempt to improve upon them, by what is often injudicious and ill-considered crossing. Let us endeavor to get and preserve what has been gained. I would not stop efforts to improve, to manufacture new breeds, if you wanted to, but be careful that you do not lose in that attempt what has been done before.

Mr. Harding — I would like to say a word for the benefit of men who may be attempting to engage in short-horn breeding. Mr. Sloan said that the general way of raising the calves was by letting them run with the cows. That is not the general way by any means. A large majority of the breeders know that letting the calf run with the cow ruins the milking qualities of the cow. I want to say that in our meeting to-day we decided to employ an expert judge to look over our cattle, at the coming state fair. Prof. Morrow has been invited to be that judge. I want the short-horn breeders to understand that the style of judging is going to be changed. Probably by announcing it now, it might make some difference about some of them.



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embracing twenty-one acres of land.



## DISCUSSION — COUNTRY ROADS.

Mr. Gill — I would like to introduce and get somebody else to talk about the subject of the country roads of Wisconsin. I have attended these conventions for the last eight or ten years, and there have been some very good papers read on that subject occasionally, but they never excited any discussion to speak of. It is a subject that I think is of the utmost importance to the farmers. When Prof. Morrow the other day commended the farmers of the state as if they used the best means at hand adapted to the end in view, I thought it was all right, but I wondered whether he had ever ridden over a country road in Wisconsin. I believe he has, for I believe he was a Wisconsin man some years ago, and knew something about the subject, but did not care to introduce it. As a matter of fact, I think they like to stroke the hair the right way and not tell us of our faults, but I think it will do us good to discuss something that we are to blame for. What brought the subject to my mind was seeing those charts up there, more particularly that one of the plow, A. D., 1470. My idea is that the system of management of the country roads of Wisconsin was inaugurated just about the time that plow was invented. We are working on the same system yet. We are at least three hundred years behind the times in road management, and I do not know when we are going to get any better. I have been living and hoping, as there was progression in everything else, that there would be progress in this direction. It is perfectly unnecessary for me to go on and give any description of them, either humorous or otherwise, because there is not a man here that is acquainted with them but has complained just as much as I have; and I want to tell you that we are every one of us responsible for that condition of things. If we found out by any means that the railroads were charging us fifty per cent. more than they ought to for taking our products to market, we would get up a howl in a very short

time and do every thing we could to remedy it, but we are paying a tax of at least fifty per cent. too much ourselves on the product we have got to draw to the railroad. If it takes me three trips to go to the railroad with what I ought to take with two, there is a tax of fifty per cent. We all know we can not draw any more on a road than we can get through the worst place with. Under our system one district may keep a passably good road, and the very next one, and one which you have to pass through in going to market, may do nothing, and if they have a bad piece of road to go through they are liable to do the very least, for the reason that in a bad country they are liable to have the least to do with. They have less money to spend on the road, or less work, which is supposed to represent money, but it does not in road work. This is something that the farmers are directly responsible for, and I think that is one reason they are keeping so mighty still about it. I think it is time something was done about it. Our system is bad enough, but our practice under it is worse than the system. We want a better system, but unless we get popular sentiment in favor of better roads we never shall get them. I do not think we can under the present system anyway, but we must have a better system and better practice under it both.

Mr. Atwood — I have given some thought to the subject of roads. It has occurred to me from my own observation in my own locality, that it would be very difficult to have good roads with vehicles constructed as they now are. I do not know whether it would be possible to have an enactment passed, that after say a year from to-day, no wagon should be allowed on the highway, with a tire say less than two or two and a half inches in width. This would make an immense difference in the wear and tear of the road. I know of places that were graveled with the best material, to the depth of a foot and eighteen inches, that were cut down before the snow came, some of them cut clear through, where they had been graveled at least a foot in depth. Your wagon tires that are used on the highways are just like a knife. When you come to put on 2,500 or 3,000, as many of

you do, we have no material in our locality that will stand that narrow tire. I suppose if you have plenty of rock and plenty of material that is better than we have in our locality, this may be remedied, and you may keep your knife-blade tire, and it will cut through the knife-blade tire first.

Mr. Arnold — Allow me to suggest that we might urge legislation in this way, that for every wide tired wagon used by the farmer or any other man who pays a road tax, he should be remitted so much from his road tax, the same as he is now for belts of trees along a highway. In that way we would gradually introduce wide tired wagons.

Mr. Hinton — Is not a wide tired wagon as valuable as a narrow tired one?

Mr. Arnold — No matter about that.

Mr. Hinton — Does not the law require that the assessment shall be equal as to value?

Mr. Arnold — The assessment would be equal, but there would be a rebate.

Mr. Hinton — That would not do.

Mr. Arnold — That is in accordance with the Constitution. No doubt about that.

Mr. Hinton — Twenty-five or thirty years ago, there was a plan drawn up as a nucleus of better roads. The idea at that time was to have a road running slightly west of south, another one almost west, pointing to Waukesha, and another one west of north. The purpose was to get authority from the state to lay out the road. The roads were to be ten miles at first each. Then to locate the House of Correction at a stone quarry, and commence to make macadamized roads. Some gentlemen who may have traveled in Germany, know that when Napoleon was there he counter-acted the terrible devastation of war, by making roads. There is nothing more disgraceful to American civilization to-day, than the condition of the country roads. There is hardly a part of this state where in the spring of the year you can draw forty bushels of wheat on a wagon. If each county took care of its own convicts, they might work during the winter when they could not do much else, and accumulate the material for roads. Here you are fostering an institu-



tion that the state does not get a cent of benefit from, and when it was running full blast the legislature was asked for \$30,000 more. For what? To make Wills & Co., the shoe manufacturers of Chicago, rich. It was as perfect an absentee system as ever existed in Ireland. If every county took care of its convicts, it would have a great deal of help in making roads at very little cost. But there must be harmony of action in this thing, and in the thickly settled parts the best roads must be made first, because they are most needed and more used. Now I differ with my friend the President, very much. You cannot tax one man's wagon one amount and another man's another. If they are worth a hundred dollars apiece they must be taxed equally. There has not been a decision of the Supreme Court for the last ten or twelve years, that did not hold such a tax void. There may be a rebate under an import revenue system, but on the wagon business it will not work.

Mr. Ford — There is a simple suggestion that may be of benefit in this matter. In the winter, all our roads that are fenced with board fences are drifted full, and are almost impassable. Legislation that would require our roads to be fenced with wire fences would do away with that. Our railroads have found the same difficulty with board fences, and have established a system of double fences at a great distance from their lines to catch the snow. I have noticed that where there are wire fences the snow drifts right through, and the roads are not obstructed. The other suggestion in regard to wide tires has great force. Under the old system of New York, they used to have a reduced rate for wide tires. When they got to a certain width they would let them pass through free. There is no doubt that this can be regulated by legislation. There is no doubt that a wide track is vastly less injurious to roads than a narrow track. I think the gentleman who was speaking when I came in, hit the nail on the head when he said that there can be no intelligent road system adopted in this state until there is an educated public opinion, and that does not exist to-day. Our legislation on the subject of roads to-day, as on the subject of the sale of ardent spirits, is very much

ahead of the practice of the people. I had occasion, last winter, when preparing a paper on the subject of roads, to look that up, and I was surprised to see how full the power was, under our present statute, of adopting a good road system if we chose, but the trouble is that the farmers do not want good roads; they consider that their farm and home improvements are the main things, and you will never have good roads till the farmers, as a class, are educated up to the necessity of them, and know their pecuniary value. I think the great necessity is in these farmers' clubs, and the meetings that are being held throughout the state, to agitate this question and bring it to the attention of farmers, until they see the importance of it. We will never get good roads till the farmers are fully impressed with their necessity.

Mr. Robbins — I think I can suggest a remedy. If we should pass resolutions here asking the legislature to provide that all road taxes should be paid in money, that would be discussed in the road districts to such an extent that they would determine then about the roads. I think we would then have better roads. Now a farmer can go any time in the year and work out his road tax, and get three dollars and a half for himself and team, that does not cost him over a dollar and a half. A dollar and a half is worth more than that man and his team, because he plows the roads where they do not want to be plowed, and he does it, as a general thing, when he cannot do anything else, and he spoils the road. If he would not touch the roads at all they would be better. Where I live there has been thousands of dollars spent on the roads to make them worse instead of better. The farmer is to blame himself, because he is not willing to pay his road tax in money. It is a species of ancient barbarity, this poll tax system, this system of letting a man work out his tax on the road. It is a barbarous system, and a system that civilization ought to do away with, and the sooner the better. It does seem to me that an intelligent legislature would come here, and without any petition at all, would get up a law requiring this tax to be paid in money. And I believe we can hold out inducements

to men to use wide tire wagons. I believe that is constitutional. We can get around it some way.

Mr. Allen — This is a representative meeting of the farmers of the state, and whatever resolution we adopt will have great weight, as it comes out in the published reports of the society. The statutes of the state in regard to roads, are unbusinesslike. The most incompetent man that can be found in the district, is picked out to direct men how to make a road, and if that man will let them sit down by the side of the road and sun themselves, and let their horses rest, they like it all the better. You know those are facts. If we had a systematized way of doing this, so that some person would be appointed in each town to have the conduct of the road making of the town, and the tax was paid in money, so that they could have money to work with, and the roads were made as they should be, it would be vastly better than it is now. Look at the condition of our roads. A great many men think the highway should be the receptacle of any miserable thing they do not want to use and want to get out of their way. They will throw their old plows, and wagons, and stones, and stumps in the road, and if an old, miserable plow wants scouring, they will go and scour it in the roadside, so as to break upon the side of the road and let weeds grow there. Under the right system, those roads would be smoothed off so that he could mow the road just as well as he could his field. I got twelve loads of hay in the road last year, and have done so for a dozen years. If the road is kept smoothed off, why not mow the road as well as the field? They should have the road rounded off so as to drain the water and make it smooth and right as it should be.

Mr. Ames — In regard to this road business, I have had a little experience, I never could be elected pathmaster more than once; but they will elect some man pathmaster who will let them sit down in the shade. I was opposed to Mr. Ford's paper last winter. It was good; but I was opposed to it on the ground that if we had commissioners to attend to this matter, they would want the roads fixed around the cities. The city has done a great deal towards

building roads around these marshes, and they would want the tax appropriated there, and we who live near the village would want the roads that led directly into the village fixed, and those men who live off on the marshes would want the tax appropriated there. I know what I am talking about, because this thing was sprung upon my town by a direct tax, and it was one of the most outrageous things that was ever done in the town of Oregon. It was sprung upon us by non-taxpayers, and we had to go to work and build a road with a tax of \$300, through the richest farming land that there is in the town. Come to find out, what the tax would naturally be, was \$75. That was one year ago, and I do not believe they laid out 75 cents of the tax on the highway after we had paid the \$300. Then again, my idea would be, if you could do it, to elect a man of brains as pathmaster. When I was pathmaster I used to go and make out a sworn statement. That is the law I understand, but in my district I had all the farmers by the ears. I have never been elected pathmaster since. I would let every man work the road in front of his place as near as I could, but I would want to superintend it, of course; and if I could I would have the road districts so arranged that every man would be at the further end of the district, so that he would work the road towards town and be making a road that he could go to town nicely on. The road runs half a mile through my place, directly towards town, and I have worked the road when there would not another man in the district come out, and I have a pride in it. When a man in the village hitches up a livery, I like to see them go by my place on a trot. It is a source of pride to me. I was the first man down there that ever mowed the road. Those who were jealously inclined thought I did it because I had not land enough. I was the first man that wanted the privilege of cutting the brush out between the road fence and the road, and those who were jealous minded said I was trying to improve my farm. Now those who oppose me have gone into it and cleaned the brush out.

Mr. Clark — This is a subject in which I have great interest. Probably the old plan of working the road has been

thoroughly discussed. The town of Whitewater has adopted for the last six or seven years the plan of paying the tax in money, and if a man wants to be converted to the new plan, all he has to do is to go to Whitewater and see the roads till he comes to the town line. If it is a muddy time he will be convinced that paying the tax in money is the only way to build a road. The main roads for about three miles were over a marshy country, and they were almost impassable three quarters of the year, and about six years ago the town voted to pay the tax in money, and raise about three quarters of the amount we used to work out. The result is that all the main roads are stone and gravel; probably some twelve or fifteen miles of stone road. There is no season that a team can not draw two tons over it, and it is never muddy. I do not believe there is a tax-payer in the town that would return to the old system if they were allowed to. Our road tax is now about half what it used to be, and we do about three times the work with it.

Mr. Broughton — Is there plenty of gravel in your town?

Mr. Clark — Sometimes it has to be taken two or three miles. A great deal of it is drawn two or three miles, but when they draw a load, in the first place, they make a stone bottom, quarry the stone and lay a layer of stone about four inches. It is turnpiked and then stone laid down; then quarry stone are laid down on to the top of those flat stones, broken up and then graveled, and then the outside turnpiked up again level with the bottom stone. We have a road then that we never get through. Putting on a little gravel occasionally keeps it in condition.

Mr. Ames — Does that system apply on the cross roads and all through the town?

Mr. Clark — It does now. They do not stone the cross roads. I happened to be pathmaster, and we had a mile of cross roads from one end to the other that never have been touched. We wanted it turnpiked. Now we have got it turnpiked up eight furrows on the side. I was pathmaster for thirty-five cents a rod, cash you understand. We pay a man day wages for ten hours' work. We work it on the railroad plan. They get pay for just what they do, and they

get just as good pay as for any other kind of work. If they are not on time they are docked. I went to work and worked twenty rods and found what it cost, and worked the rest of it on that basis. I got about a mile of turnpike for less than a hundred dollars.

Mr. Allen offered the following resolution: Resolved, that it is the sense of this convention, that the highway tax should be collected in money, and that a road commissioner should be appointed in each town, to work out the money thus raised, and that a tax of one half the amount now raised as highway tax be raised in money.

Mr. Broughton moved the adoption of the resolution.

Mr. Scoville—I shall oppose the resolution. We want the roadmaster interested in the road where he works, for the interest of the road. I am pathmaster, and I am the only individual in the district responsible for the roads. I have a pride in the road. The first year that it came into my hands I had a tax of \$32 to work with, and I did \$82 of work. They wanted to know how I was going to get my pay, but I did not care; I take pride in having a road I can drive over. Individual interest makes that road a perfect work, and no one ever asks now whether my work is taxed or not.

Mr. Hinton—Are you not putting this whole thing upon a question of local pride rather than compulsory law.

Mr. Scoville—That is the position that we have got.

Mr. Broughton—You will not find many men public spirited enough, to work over the tax they have got to work out.

Mr. Scoville—I know one place where a man drew gravel a mile and a half where he could do it in a half mile. He does it for the money.

Mr. Ford—I wish to say that the remarks of the gentleman who has last spoken are the most discouraging of anything I have heard on this floor for two years. I wish to say that the great vice of the system is this district system and that we will never get good roads till we return to the town system for a town officer, at least, and I want to say that there was a township bill introduced in the legislature

last session, and, by some influences, we do not know what it was, defeated. I want to say that this voluntary system has proved an utter failure all the way through. It is the thing to which we may attribute our miserable roads. It always will be. No man will make a road for the public. If they would, we would not need any road laws at all. We have got to act in our collective capacity, and we have got to collect the road tax as we do the tax to support the government. We have got to have general measures; the roads are for the public and not the individual; it is to facilitate the interests of the public, and individual interest must be subordinated to it. Until the farmers are ready to put their hands into their pockets and pay the tax to get good roads, they will never have them. There must be intelligence enough among the farmers to demand this of the legislature. This talk in favor of individual action, and Tom, Dick, and Harry giving away money because they are public spirited, is the veriest nonsense; I cannot characterize it in any other way.

Mr. Scoville— I will ask if it is not the experience of every man here that the money of the people is never in a better situation than when it is in the pockets of the masses?

Mr. Allen— This individual system is one of the most selfish things in the world. Thirty years ago I made the road for my town. I have to go through two or three districts to go to town, or to mill, or to the post-office. I have got to run over a piece of miserable road. It makes no difference how good the road may be in my particular district. I may go to work and make it as good as I please, but there is a piece of road between my road and Beaver Dam where they have not tax enough to make a good road, and unless I can get other people as interested as I am, to make a good road, I have got to go through that road. We need a system by which that road can be made good as well as the road in front of my house.

Mr. Hatch— I am very much interested in this subject. It is one that was introduced in our farmers' convention at Richland Center last year, and it was there discussed, and

the result was the bill introduced in the legislature last winter. You have entirely overlooked the cause of the defeat of that bill. The cause was this tax sale certificate business in the northern part of the state. Those living in the sparsely settled parts of the state have those tax certificates come into their hands, and they make quite a profit in the business. It was defeated by the selfish motives of those living in the northern part of the state. Our representative, as long as twenty years ago, introduced a bill in the legislature covering all the points that are demanded by all these speakers, and it was defeated from the same cause; and unless you strike at the root of the evil, you never can hope for reform.

Mr. Robbins — Where is the root?

Mr. Hatch — That tax certificate business.

Mr. Bradley — I live in the northern part of the state, and in the county and town where I live there is considerable of this tax sale that comes into the hands of the local road-master, and in our town I do not think there would be the least objection to giving way to a new system of road work. One great point in the moneyed system is, that if you have a big hill to grade down in a certain district, with the present system of letting one man go on there and do the work, there is not enough in the immediate vicinity to do that work as it should be done, while if there was a money tax, you could put all the work in one place, and do that so that it would last for years, and have a good road; but if you patch up a little piece here and there throughout the district, and one place of that kind is left, the one great thing is left undone.

Mr. Robbins — I believe that the resolution that has been offered, if it goes far enough, is just exactly what we want. We want to do away with this little district system. In the town I live in we have ten road districts, and there is only one in the town that has any roads worth anything — that is the city of Platteville. The city is one road district, and has inaugurated a system by which they have more hard roads than all the rest of the county of Grant. We have done it by a moneyed system. We have done it by hiring



men and paying them \$3.50 a day for a man and team, and make them work ten hours a day, and we have our road-master appointed there every year. We have had the same man for six or eight years. I think the resolution should pass. Let us have a general system and a township system and a moneyed system, by passing that resolution. It will do something towards it.

Mr. Babbitt — I am decidedly in favor of this cash system. I have had a little experience in this matter. I like the idea of Mr. Ford very much indeed; that is, that you can elevate public sentiment. This crowd right here can make a wonderful difference in the conditions of the roads if they are a mind to set the example. I would like to tell you my experience. My neighbors beyond me and their fathers before them, ever since Rock county was settled, insisted on going through a slough hole. That slough hole was so situated that I had to pass by it every single day when I went with my children to school or to church, and it put me in such a condition if I happened to go to Whitewater to church, that I felt like swearing at the minister and everybody else, particularly if I had washed my buggy up before. I made up my mind that I would go to work and fix up that road. I went to work in the spring of the year, which is just the time when every road ought to be built, and I put ten teams on that road, and I did not stop in front of my own place either. I calculated that I would have a free highway between my place and the city, and I rushed right by my neighbors and ripped it up and made things look terrible. The pathmaster came down and wanted to know what I was doing. I made him think I had got a commission from the governor of the state to the fix road, and I fooled with him in that kind of way till I had got the road in such a condition that they had got to submit to very great inconvenience or let me finish it, and I kept working it back and forward, and I heard a great deal of swearing. One night I found out that they were trying to destroy my trees, and one man took special satisfaction in driving a lumber wagon over a fine lot of trees I had within five feet of the fence, but I did not find any fault with him. I saw him a few

days afterwards, and he said, "What in the devil are you doing?" Said I, "Your father has travelled through that mudhole for twenty-five or thirty years to my certain knowledge, and you insist on doing it, and I am going to insist on your going on good, nice roads." I finished that road about eight years ago. My neighbors caught the spirit; they were ashamed of themselves, and this man who abused me the worst and tried to run over my trees and ruin them, went to work and got up a bee among the farmers, and they turned out and went to work and fixed up the road for about three miles and a half. Of course that kind of policy will not do. We cannot afford it. My wife scolded me tremendously. She knew that I was paying out money for the neighbors, and she thought the children ought to have it I suppose; but I knew that I could not afford to travel through that road in that kind of condition. Then after a rain or something of that kind, I had a smoother fixed, and I would take my horses and run down that road and back again, just two trips, and the boys used to come up there and drive their trotting horses there; it was a race course. We have got to enforce this cash system. A bird that wont sing must be made to sing, and they should not have the benefit of generous action on the part of their neighbors without doing their fair share. Right on the other side of me is the most ridiculous and outrageous system that I ever saw in my life. The man who has charge will collect the money, put in a few loads of dirt in front of his own house or his own gate or something of that kind, fix up a drive so that he can get a load of hay into his own grounds, and that is all the benefit it is to the community.

Mr. Ames — Do I understand he does that with collected money?

Mr. Babbitt — I thought I would see how the thing was run, so instead of paying my tax in work I paid it in cash and told him to put the money where it ought to go to the best advantage. I know just exactly where he put it.

Mr. Ames — He put it in his pocket, and that is what the most of them will do.

Mr. Babbitt — I will not accuse him of putting it in his

pocket. I will accuse him, though, of putting the work where it was of no use to any body except himself.

Mr. Hatch—I wish to occupy a minute in correcting what seems to me to be an error in regard to the influence of wire fences upon our roads in winter. It seems to be supposed that the removal of rail fences and the substitution of wire fences would be an improvement, but the experience in the vicinity where I lived this winter has been quite the reverse. The snow that has usually been checked in ditches by the board fence, now passes on and goes to the center of the road, and is checked by the tracks of passing sleds, and as a result the snow accumulates in the center of the road, and pieces of road in the vicinity of Baraboo, that have never been obstructed for twenty years, have had to be shovelled out and plowed out in order to make them passable.

Mr. Ford—The point made against the cash system that the money would be liable to be mis-appropriated, seems to me to have no force in it, for the reason that the town board of supervisors, by the district system, has complete control and possession. That town board is interested in the town at large, and not in any particular district. Whatever officer has charge of the roads, is under the control of the town board. The contract system is adopted, and the making of roads is let in most cases to the lowest bidder, superintended by this officer, and he superintended by the supervisors. Where is the chance for any one to pocket the money or build his own road out of it?

Prof. Henry—A gentleman has told us where apparently the law would fail. If he has got at a point here, why not look it up? If the southern part of the state is in favor of the law and the northern part of the state is against it, is there not some compromise by which we can get out of that, and let the part of the state that is thickly inhabited have its rights, and not be overridden by the northern part of the state? The gentlemen in other parts of the state must admit that it is a failure. After a man has gone along and made a failure for twenty or thirty years, what had he better do? Stick to his hobby and ride it to death, or try

some other man's plan and see if that will not be better? The gentleman must admit that the present system is a failure. Is it not possible that some other gentlemen have some ideas that are in advance of the old foggy ideas?

Mr. Hinton — The only way is to take it out of the hands of the farmers and make it a state matter. Here is a body of farmers, and hardly any two of them think alike. How are you going to have any concerted action?

Prof. Wright — Last winter, after the close of Mr. Ford's excellent paper, I said a few words, closing with the suggestion that I thought some legislation could be had immediately if the members of the society then present would make some effort with their members in the legislature. We saw the committee on roads and bridges, and they met in my office, and a bill was drawn, which was introduced in the senate and assembly. In the assembly, if I am rightly informed, the committee was unanimously in favor of the bill; but in the senate, the majority of the committee was opposed to the bill. Counting noses in the senate, it was concluded that the bill would fail if it was pressed, and consequently it was not pressed in the assembly. In the assembly, the chairman of the committee assured me that he had seen enough of the members to make sure that the bill would pass. I think if a reasonable effort is made by the society this year, the next such a bill may be passed, and I think it is the only salvation for our country roads.

Mr. Gill — I am very much gratified with the interest that has been shown in this subject. I cannot say that I have confidence enough in the matter and in the people, to expect that it will be crystallized into a law and enforced at the present time. I have thought a good deal on this subject for some years, and I am not sure but that some kind of a compromise will have to be effected before we will get at the matter, as Prof. Henry suggests. Now the very fact that there is, say, one per cent. of this audience opposed to such a law, is proof that 99 per cent. of the population outside of this room will take that position. I have thought on this subject something like this: There is a law that says the board may spend a certain amount of money on the

road-beds of the town, but it does not compel them to do it. If they could be compelled to put a certain amount on the main roads, if they only made a mile a year, we should be so pleased that by and by we would insist on better cross roads, while if we insist on the township system and the money tax, we shall probably fare as we did last year in the legislature; the northern part of the state will oppose the matter and defeat it entirely. We had better put it in some way so that we can make progress toward better roads than we have now. I would like to see a bill, embodying every principle of the resolution, passed and enforced, but we must accommodate ourselves to men's prejudices to some extent. I hope the resolution will pass.

Mr. Hinton—The gentleman who offers the resolution consents that the last part, which seems to be the bone of contention, shall be stricken off. It will then read: "Resolved, That it is the sense of this convention that the highway tax should be collected in money, and that a road commissioner should be appointed in each town to work out the money thus raised."

Mr. Scoville—I move an amendment that the thing remain as it is; that each town may do as it pleases.

President Arnold—The amendment is not germane to the question.

The resolution, as amended, was then unanimously adopted.

*Resolved,* That it is the sense of this farmers' convention, that the highway tax should be collected in money, and that a road commissioner should be appointed in each town to work out the money thus raised.

On motion of Mr. Ford, the secretary was instructed to furnish to the chairman of the committees on roads and bridges of both branches of the legislature, next winter, copies of the resolution adopted.

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The following resolutions were introduced by Hon. N. E. Allen, of Beaver Dam:

WHEREAS, The railroads of this state receive for their business more than three-fourths of their freight from the farms of this state; and

WHEREAS, These farms have become impoverished by long and continued cropping, so as to necessitate the using of special fertilizers, in order to keep up the fertility of our lands, and because the freights upon all our railroads are so high as to very greatly preclude the farmers from obtaining plaster, or salt, which has come to be so fully recognized as a great benefit in securing good crops of clover, and the salt to make the grain fill well; therefore,

*Resolved*, That it is the sense of this farmers' convention that the railroads of this state ought to *reduce the freights to one cent per ton, per mile, upon car loads of fertilizing salt, and upon land plaster, or other fertilizers, for the first one hundred miles run, and to one-fourth of one cent per mile, per ton, for any distance more than one hundred run.*

In furtherance of this object, we would recommend the appointment of a committee of three persons to present the resolutions of this farmers' convention to the railroad companies of this state; and we would still further ask, that the railroad commissioner be requested to co-operate with the committee thus appointed, and also that the governor be asked to co-operate with the committee, so far as he can consistently with his official duties.

(We would state that the rates in this state are from two cents to two and one-half cents per ton, per mile, for the first one hundred miles run.)

We would also state that the railroads in Michigan, after these fertilizers are loaded on the cars at Bay City, or Saginaw, or Grand Rapids, haul the same to Chicago or Milwaukee, a distance of more than three hundred and thirty miles, for but little more than one-third of a cent per ton, per mile, almost seven times less than our railroads charge, and that, too, without anticipated returns from the use of the fertilizers, as in our own state. They do it simply as a business transaction. Certainly our railroads ought to do as well, when their own interests are so intimately associated.

If the railroads should thus reduce their rates, we believe it would be the means of causing the use of three times more than now used.

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WHEREAS, Every institution or society, that tends to educate and enlighten the farmers in our state, have a common purpose with the State Agricultural Society. Therefore,

*Resolved*, That we the Wisconsin State Agricultural Society, hereby extend our sympathy and cordial support, to the Farmers' Institutes, held for the purpose of assisting the farmers to *learn and adopt the Better Methods of increasing farm products, and decreasing the cost of production of the same, and advancing the interest of the farmers in every branch, that will promote the interests of the state at large.*

## THE SHORT-HORN AS A BEEF ANIMAL.

JOHN A. COLE, HUSTISFORD.

Desirable as are good milking stock, a purely milk breed, producing a low quality of beef, never was and never will be profitable stock for a farmer to keep for any length of time. There may be now and then a year when milk cows are very profitable, but a cow will not live forever. With the pure milk breeds, one-half the increase — the male portion — is of little or no value for beef, and the same is true of quite a per cent. of the females, for no stock raiser is insane enough to claim every female a profitable milker, even of the dairy breeds.

Any cow that from accident or other cause, it is desirable to fatten, will return little or no profit for food consumed, as this class of cattle from their quality necessarily compete in the markets with range and scrub cattle; indeed, these latter classes with a slight infusion of beef blood, will out-sell the dairy beef. Loaded with these disadvantages, with butter ten to twenty cents per pound, and cheese five to ten cents per pound, it is hard to see how the farmer who pins his faith to the Holstein or Jersey is to make both ends meet

The breeder who can sell his stock at fair prices, or the specialist who has a market for fancy butter will do well enough, but the farmer has to rely on the general market, and if he bases his calculations upon the profits these classes make, will get left. No breed that is not first of all a beef breed, and secondly, the cows yielding a fair quantity of good milk, can be a profitable race of cattle.

The object in raising one-half (the male portion) is beef, and the final end of all the bovine race is, or should be the butcher's block. This necessarily makes beef the first point of importance, and no breed can be profitable unless the cows furnish an abundance of good milk for their calves. But few will dispute the assertion that up to six months old, the cow makes the calf, and the best calf at that age, other things being equal, will always be the best; especially in

these times when the best beef goes to market under three years old.

These close times drive every one to search for the most profitable stock, and the *National Live Stock Journal* is authority for the statement that in the eastern and middle states where, if anywhere, dairying should be profitable, many dairymen are keeping fewer cows and raising instead a few steers, choice ones bringing sixty dollars each at twenty months old. Finding such a course at least as profitable as dairying. If such a course is profitable east, it ought to be in this state. "Truth crushed to earth will rise again," so beef though kept in the background for a time, again comes to the front as the prime factor in cattle raising.

This proves that the general farmer has no use for purely milk breeds: the demand is for *beef and milk*, which nowhere is found combined as well as in the short-horn which has held its place as the best general purpose breed for the past one hundred and fifty years. It is owing to this fact no doubt, that the breed is so plastic, if I may use the term, in one breeder's hand noted for a large flow of milk and a large yield of fine butter, in another's hands, cattle of similar blood are everywhere victorious over the *specialty beef breeds*, and it is, I think, largely on account of its reputation for beef that has made them everywhere popular, fulfilling the wish of La Fayette, the tricolor has gone around the world and England's proud boast is echoed by short-horn breeders, for the sun never sets on the short-horn. It is found on every continent contented and perfectly at home; everywhere the recognized standard by which the merits of other breeds are judged. Able to hold its own against all breeds combined, as the breeding and fat stock shows prove. If anyone, even breeders of short-horns, will take the trouble to examine the records, they will be surprised as I was on looking up authorities, taking the fat stock shows for example, in champion prizes where all breeds, ages and sexes competed, we have as winners, at Smithfield, short-horns, 25; Polled Angus, 3; Hereford, 2; Devons, 1; cross-breds, short-horns and Angus, 1; short-horn



and Hereford, 1. At the American fat stock shows, short-horns, 5; cross-bred, short-horn and Hereford, 2.

No one can look on this record without being convinced that the short-horns, despite the loud claims for other beef cattle, is yet in its best type, at the head as a beef animal. The breeding shows give similar results.

There is no other breed in the world that could go through such a pedigree craze and come out as well. Good and evil both come from that period. The craze introduced the breed into every land as the premier breed of the world; accomplishing in a few years a work that would otherwise have taken a great length of time. In this manner it was of incalculable value. But high prices induced by it were of great damage to the average merits of the breed, for few had the nerve to slaughter animals, no matter how inferior, when they could be readily disposed of for hundreds and sometimes thousands of dollars each. I am inclined to believe that the craze was a blessing to the world at large while a serious injury to many individuals. Care hereafter in breeding will secure high individual merit. A comparison of the quality of the Scotch with the English and American short-horn will disclose how great a damage the craze caused to the breed.

Happy is, or ought to be, the lot of the breeder who has good unfashionably bred cattle, and has no ambition but to breed the best cattle possible. He has no fear of using blood that will injure the market value of his stock, being at liberty to use any sire that will improve the quality of his herd. He may rest assured that when it is known he has a herd of great and uniform merit, a demand will arise for his surplus stock at good prices.

Breeders of Herefords and Polled Angus have good cattle and are wide awake. If we would keep in the lead, we must breed from the best animals and sacrifice the weeds, whether Bates, Booth, Cruickshank or Seventeen.

I am not of those who deride fashionably bred cattle. To begin with they won their high position by great individual merit, and I cannot help feeling that those possessing great merit are fully worthy of all the care and attention be-

stowed on them, but like Col. Harris, am an advocate of beef tops before duke tops. The value of a pedigree depends on the individual merit.

Of the animals whose names appear in the pedigree, the nearer to the living animals the better, and the longer the line of meritorious ancestors, the more valuable the pedigree. No matter how choice the remote ancestors, if the immediate sires and dams were inferior individuals, the pedigree is of no value except as showing pure blood.

No breed in the world has such a glorious past as the short-horn. Let us not prove unworthy of the charge left in our care, but following in the footsteps of the Collings, Mason, Booth, Bates, our own Alexander, Renick, and a host of others, strive to produce each generation better stock than the one preceding. This done, the future will take care of itself.

## A GREETING.

To the Wisconsin Farmers' State Convention,  
For a few moments I'll turn my attention  
And send to all a happy greeting,  
With regrets that I cannot attend your meeting.  
In days gone by I was one of your number.  
Sweet memories of your land, they never can slumber.  
'Twas my happy home in boyhood's days  
When farmers, large crops of wheat did raise,  
And haul it some fifty or sixty miles,  
With ox teams, through mud, while under their tiles  
Long faces you'd see, that would sorrow depict,  
And they vowed they would be severely kicked,  
If they raised any more (as homeward they went),  
And sell it per bushel for three dimes and a cent.  
Then still to add to the farmers' sad fate,  
All winter, for apples, flat turnips we ate.  
Our music by night was a wolf serenade,  
Which cast the piano's sweet notes in the shade.  
We had logging bees for exercise, instead of the rink,  
And done anything honorable, to get the chink,  
Lived in log-houses, instead of marble front,  
By way of a luxury, we had a deer hunt.  
How often in winter we went to bed  
With naught but a "shake" roof over our head,  
And early in morn with no fire aglow  
Jump from our bed, in cold, sifting snow.  
What undaunted courage filled the pioneer's breast  
Through all these trials, to cling to the west,  
'Till he saw the forests and stumps fade away,  
And the ox teams all changed to spans of bay.  
Log houses have vanished, well you all know.  
Good price you get for all that you grow.  
Did time permit other pictures I'd draw,  
How we wintered our cattle on browse and straw.  
We had no Herefords or Holstein, his cousin,  
But a little scrawney kind we bought by the dozen  
At nine dollars per head and a calf thrown in,  
Mostly good for spectacles, they being so thin.  
At the milk the good housewife would turn up her nose  
And declare t'was fit only for blueing clothes.  
No Jersey cream then, to make yellow butter,  
Off' the flavor of "leaks" made the good wife sputter,

We sowed all our grain by hand, from a bag,  
And harrowed it in with a three cornered drag;  
Worked too hard with our hands, too little with the head,  
And by the sweat of our brow, earned *all* our bread;  
So we cut it with cradles, among stumps and logs,  
Gathered all we could, then turned in the hogs;  
Not the Chester White or Berkshire; none of those,  
But a breed with his body half as long as his nose.  
To the school house on Sunday to meeting we went.  
Through the woods with our oxen, with good intent  
Our good preacher walked ten miles or more,  
Bringing his gun which he sat by the door.  
He trusted in God, had faith in prayer,  
But with gun, felt safer on meeting a bear.  
Some people prate of the good old times,  
In lines of prose and lengthy rhymes,  
But as I turn the pages of memory o'er,  
The present seems better than ever before.  
In the way of farming, in science and art,  
We've placed the horse in front of the cart.  
And onward is our motto, early and late,  
With three times three, for the old Badger State.

—AN OLD PIONEER OF WAUKESHA COUNTY.

# MEETING

OF THE

## WOOL-GROWERS' ASSOCIATION,

HELD DURING FARMERS' CONVENTION.

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A largely attended meeting of farmers and wool-growers was held in the agricultural rooms on Thursday evening, during the farmers' convention.

Several gentlemen made brief addresses. Mr. H. Hutchinson, of Randolph, Columbia county, was chosen president, and Mr. J. M. Flint, of Sun Prairie, secretary.

The president stated that the object of the meeting was owing to the depressed condition of the wool interests of Wisconsin, and to formulate such measures as the meeting might deem best, to restore the wool interests to their former prosperous condition.

One point he wished to impress upon the meeting, was the necessity of a Wisconsin wool-growers' association, and he would suggest that all the county wool associations should unite and form one general state association.

The idea of the president received the hearty approval of the meeting.

The meeting was addressed by Mr. Broughton, of Albany, Mr. Allen, of Beaver Dam, and Mr. John W. Hinton of Milwaukee.

The latter gentleman gave a concise account of the changes in the wool tariff, explaining the manner in which the passage of the 1867 wool tariff was procured.

He said it was a solemn compact between the wool-growers and woolen manufacturers, after long consideration in

many meetings where the interests of both were considered, resulting in an agreement on the tariff fixed in the act of 1867.

The following was read and passed unanimously:

WHEREAS, The present low price of wools is conceded to be caused by the large importation of Australian wool, that importation having been greatly augmented through the lowering of the tariff on wool in 1883, and

WHEREAS, The evil effects of the lowering of the tariff in the low price of wool and the greatly reduced number of sheep in Wisconsin, estimated at 300,000, is working not only great losses to the wool-growers of our state, but is injurious to the farmers generally.

WHEREAS, Believing that it is essential to the welfare of the farmers and wool-growers of Wisconsin that the tariff of 1867 on wool should be restored, therefore be it

*Resolved*, That we, the farmers and wool-growers of Wisconsin, urgently press upon the attention of our representatives in the U. S. Senate and House of Representatives, to do all in their power to obtain a restoration of the wool tariff of 1867.

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## WOOL-GROWERS AND WOOL TARIFFS.

Speech of Hon. John W. Hinton, of Milwaukee, before the National Wool-Growers' meeting, held at the Grand Pacific Hotel, Chicago, May 19, 1884.

Mr. Hinton speaking of the resolutions he had introduced which favored the restoration of the wool tariff of 1867, said:

*Mr. President and Gentlemen of the National Wool-Growers' Association of the United States:* — I shall occupy your time not to exceed a quarter of an hour. The father of our American System of Protection to American Industries and American Labor, more than fifty years ago, said:

“It forms no part of my present purpose to enter into consideration of the *established policy of protection*. Strong in the convictions and deeply seated in the affections of a large majority of the people of the United States, it stands self vindicated in the general prosperity, in the rich fruits which it has scattered over the land, in the experience of all prosperous and powerful nations, present and past, and now in our own.” (Henry Clay's speech, Jan 11, 1832.)

As I understand it this is not a partizan meeting, but for a specific purpose. Any fair-minded speaker can make himself understood here, no preliminaries being needed, no explanations called for. All present realize the purpose of our assemblage. The lowering of the wool tariff in 1883 pulled the wool off the eyes of the wool-growers. They now know how it is themselves. It is the future we must chiefly consider, to restore the wool tariff of 1867 is our aim, so we can but briefly consider the past.

Gentlemen — You wool-growers were first deceived, and then betrayed by those you had a right to count upon as your friends.

While speaking plainly I shall be truthful and just in my remarks.

The conduct of the president of the tariff commission was very queer.

The utterances and writings of Mr. Hayes justified the belief that he was a firm supporter of the '67 tariff on wool. October, 1880, he published a pamphlet, "The Farmers' Question," signing it "Jonathan B. Wise." It was an attack upon Mongrediens Cobden Club pamphlet, "The Western Farmer." A large number had been circulated in the west and in England. The second edition appeared having a slip pasted in it — "The within paper, written by John L. Hayes, LL. D., of Cambridge, Mass., is heartily commended to the farmers of America." Signed, "Henry L. Dawes, George F. Hoar, Massachusetts."

That pamphlet shows Jonathan was *wise* and emphatically sound in 1880, when he wrote on the '67 tariff on wool, saying:

"Upon all agricultural products in which the foreign competition is more formidable, our productive duties to agriculture attain the highest range, as in rice, sugar and wool, the protective duty on the latter being higher than upon any manufactured product except those of silk. I need not show how essential this protective duty—although amounting to from three to four millions annually—is to sustain against the half-civilized growers of the Southern Hemisphere, the most cherished and wide-spread of all our

agricultural industries, our sheep husbandry, because the pioneer agriculture, the most available means of restoring the land and the chief source of cheap animal food.

The facts that the wool duties were imposed at the demand of the west, and that the many attempts made in the last ten years have met their chief resistance from the west, are sufficient to refute the assertion that "the western farmer neither receives nor asks legislation." It is amusing to hear the Cobden Club teachers proclaim to the Western farmer, the enormity of the duties he is compelled to pay on woolen and worsted goods, asserted to be 66 per cent. on the average, when more than half of this duty is the mere equivalent of the duty upon wool imposed for the protection and at the demand of the Western farmer himself."

In the report of the tariff commission, to language, really stronger in support of the '67 tariff on wool than the pamphlet, written, I am informed by Mr. Hayes. I will read a brief extract:

"The first phase of the industry of wool production that arrests the attention of the economist is its general distribution. Not a state in the union, and in some of these, not a county, but has some portions of its wealth invested in wool production.

This results from the twofold impulse of choice and necessity — choice, in those favored localities adapted to general farming; necessity, where, from the character of the surface or sparseness of vegetation, sheep are the only domestic animals that can be profitably employed, while experience has demonstrated that some kind of animals must be employed. This for two reasons: 1.—The people must have meat food. 2.—Farming cannot be successfully prosecuted over any large area under a system that does not return to the soil a fair equivalent for the inevitable tax which crop bearing entails.

The commission, recognizing this prominence of sheep husbandry in its relation to agriculture, and its additional importance as the source of material for an important manufacture, were impelled to seriously consider the effect of



any change in the existing duties on foreign wools. The law fixing these duties was passed in 1867, with the approbation of the entire body of producers, so far as any expression could be secured, and the wisdom which guided its promoters has found substantial vindication in the growth of sheep husbandry during the past fifteen years, as indicated in the figures above given. As a result of augmented production, the prices of wools has been reduced to the consumer, while at the same time the producer, by improving his stock, has been enabled to realize as much money from individual animals as he secured in former years."

Gentlemen—I think it would be difficult to frame two reasons more fully showing the necessity for the 1867 tariff, or the benefits following its enactment to the people in the reduced price on woolen goods, and the extraordinary growth of sheep husbandry of which you all know.

Then why change the tariff? Where was the necessity? Who called for it? You who were present at the tariff conventions in this city and in New York, well know that it was not then contemplated. Wool growers and farmers were lulled into security, as they too often are, by designing men. I say here candidly, that of all classes that I know of, farmers are the most easily duped with fine words of tricky, scheming men.

I addressed the tariff commission in Milwaukee after consultation with a good many farmers, all of whom, myself included, were sincerely of the opinion that the wool tariff would not be disturbed.

I dined with the commission in the evening; had a long and pleasant talk with Mr. Hayes, the President, much of it about wool and woolens, and I supposed him to be strongly in favor of retaining the '67 tariff. He recited me a verse about woolens he had published some years before in his tariff paper. I had not before heard or read it, but I have in speeches and debates frequently quoted it:

"Said a certain rich isle of the sea,  
I would like the world's workshop to be;  
Let me make your cloth, 'twill be better for both,  
And decidedly better for me."

I call that pretty good about making cloth. Now, Gentlemen, we want in this country, to make our own cloth. We protectionists think " 'twill be better for both " wool-growers and woolen manufacturers and " decidedly better " for the American people.

You, gentlemen, know the consequences of lowering the tariff; you have felt it in your pockets. And what we are after now is to obtain a restoration of the '67 tariff on wool. That's what's the matter. Can it be done? I believe it can be for you have the power to do it. But, how? By perfectly legitimate and constitutional means. That is by absolutely, unqualifiedly, unreservedly refusing to vote for any nominee for Congress who will not pledge himself in writing, over his own signature, to do all in his power, if elected, towards securing the restoration of the the '67 tariff on wool.

Cast aside, if necessary, all party ties — ignore party. Above all, watch closely that class of demagogues not confined to one party.

" Who, born to the universe, narrow their mind,  
And to party give what was meant for mankind."

A platform is too often, like pie-crust, made to be broken. Its planks like those of the pirates of old, first blindfold the believers, then drown those who trust them. They are meaningless as the shake of a landlord's hand. And gentlemen, you know there were many who on this wool tariff matter " marched with you, in the procession in the sunshine, but crept under the band wagon in the storm."

Disobedience to party behests is often beneficial, sometimes a blessing. Wool-growers of the United States, aim to do that which will *promote your own welfare*; that is not only your right, it is your duty to yourselves. You are here for that purpose. Self-preservation *is* the first law of nature.

Any one seeking our suffrages, who is above stating his views, is unfit to be your servant, rest assured he will if he can become your master. Make the politicians understand that you, wool-growers, who control fully two millions of votes, have rights which they are bound to respect, and

make them respect them. Those that are not for you, *are against you.*

Ohio did it last fall! You can do it through the Union, it is possible; then do it. As the Frenchman said, "If it is possible, it is done already. If it is impossible see that it is done immediately!" Treat with contempt the threats of politicians.

Gentlemen — I am a Republican but a Protectionist above all. I heard Hon. Wm. McKinley, Jr., presiding at the Tariff convention in this city say:

"I am a thorough tariff man, because I believe gentlemen in protection, for the sake of protection. I do not believe in a tariff for revenue with incidental protection, I believe in a tariff for protection, and if there is to be any incident about it, I would have it a tariff for protection with incidental revenue."

I applauded that expression, I thought of the old sailor who had little learning, real sincerity and no hypocrisy. He was a believer with his heart. He pasted a copy of the Lord's Prayer at the head of his berth, and before retiring he would look at it and say "Oh Lord, you know them's my sentiments; forgive us our sins, God bless us all, Amen." and then went to sleep in perfect confidence.

Gentlemen — The work before you is serious! You must throw your hearts into it. Mere resolves, mere resolutions, will amount to but little. Politicians will only laugh at them. The old lady when teaching her boy to be a trapeze performer, she watched him try several times to get over the bar, became impatient and cried out "John Henry Hobbs, if you'd only throw your heart over them bars, your body will follow."

Gentlemen, you must organize and then throw your hearts into this matter, and the restoration of the '67 tariff on wool will follow.

In conclusion, I say again farmers and wool-growers, organize, *organize*, ORGANIZE; everywhere, earnestly, thoroughly, wisely and systematically; only by so doing can you succeed. You are no small part, no mere fraction with your two millions of votes, of the American people!

Teach the politicians, aye and the press too, that part of it opposing your interests, the old lesson, the real American lesson, that: "Whoever he may be, wherever he may be, that would strike at the people's right, let him hear the people's voice proclaiming that whom it will it can set up, and whom it will it can set down."

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### THE TARIFF ON WOOL.

#### REASONS WHY THE DUTY IS RUINOUS TO AMERICAN TRADE— FREE TRADE IN WOOL ADVOCATED.

A Washington correspondent of the *New York Herald* writes: That the present wool tariff is ruinous to the American wool growers, they have asserted in many places. The Ohio Wool-Growers' Association has written the secretary of the treasury that American wool farmers are losing 90 cents on every sheep they keep. The "Smith Township (Ohio) Wool-Growers' Association," writes the secretary of the treasury:

"Do you ask, 'What is the present condition of the wool interests of the Ohio valley?' We answer that at present prices the wool grower sacrifices at least five cents per pound on his wool clip. In other words, even at the unremunerative prices of grain and hay, our wool growers by sacrificing their flocks and marketing their grain, would gain on the present prices of wool, an amount equal to from five to eight cents per pound on all the wool produced. Thus it is that our shepherds, by the thousands, are fleeing to other occupations, believing it better to labor for poor compensation, than by continuing wool growing at a positive loss, to be compelled finally to part with their inherited property."

Certainly the present wool tariff is not satisfactory to the wool growers. They say it causes them constant and serious loss. But, on the other hand, it is a fact that the highest

prices American wool growers ever got were when wool was duty free.

The reasons why the high wool duty is ruinous to American wool men, are stated very clearly by the National Association of Wool Manufacturers in a letter to the secretary of the treasury. They say:

“It may be said, the remedy for these difficulties is to be found in the exclusive use of the domestic wools, which will be abundantly supplied under due protection. To this we reply that neither our own country nor any other in the world, does or can produce to advantage, wool of all kinds and grades. Experience under high protection of wool in this country for over thirty years, has demonstrated that our domestic wool growers find it to their advantage to produce only the staple wools required for the ordinary range of woollen fabrics, and as these fabrics will always be in demand, they build up their flocks—a work of time—for the production only of the fleeces which will be profitable for a long series of years. This system, although providing admirable raw material for common goods, is incompatible with the variety required for the diversified and highly advanced manufacture, which should be our aim. The American manufacturer, to compete with the fabrics of other nations, in the endless variety demanded by our times, must have the power of selecting a portion of his raw material from all the world’s sources of supply. The sudden and exceptional demand for more or new raw material, must be supplied by importations.”

This statement of the needs of American woollen manufacturers is signed by

William Whitman, Boston, Mass., president.

D. L. Einstein, New York, N. Y.;

Thomas Dolan, Philadelphia, Pa., and

Samuel R. Payson, Boston, Mass., vice presidents.

Benjamin Phipps, Boston, Mass., treasurer.

Rufus S. Frost, Boston, Mass.;

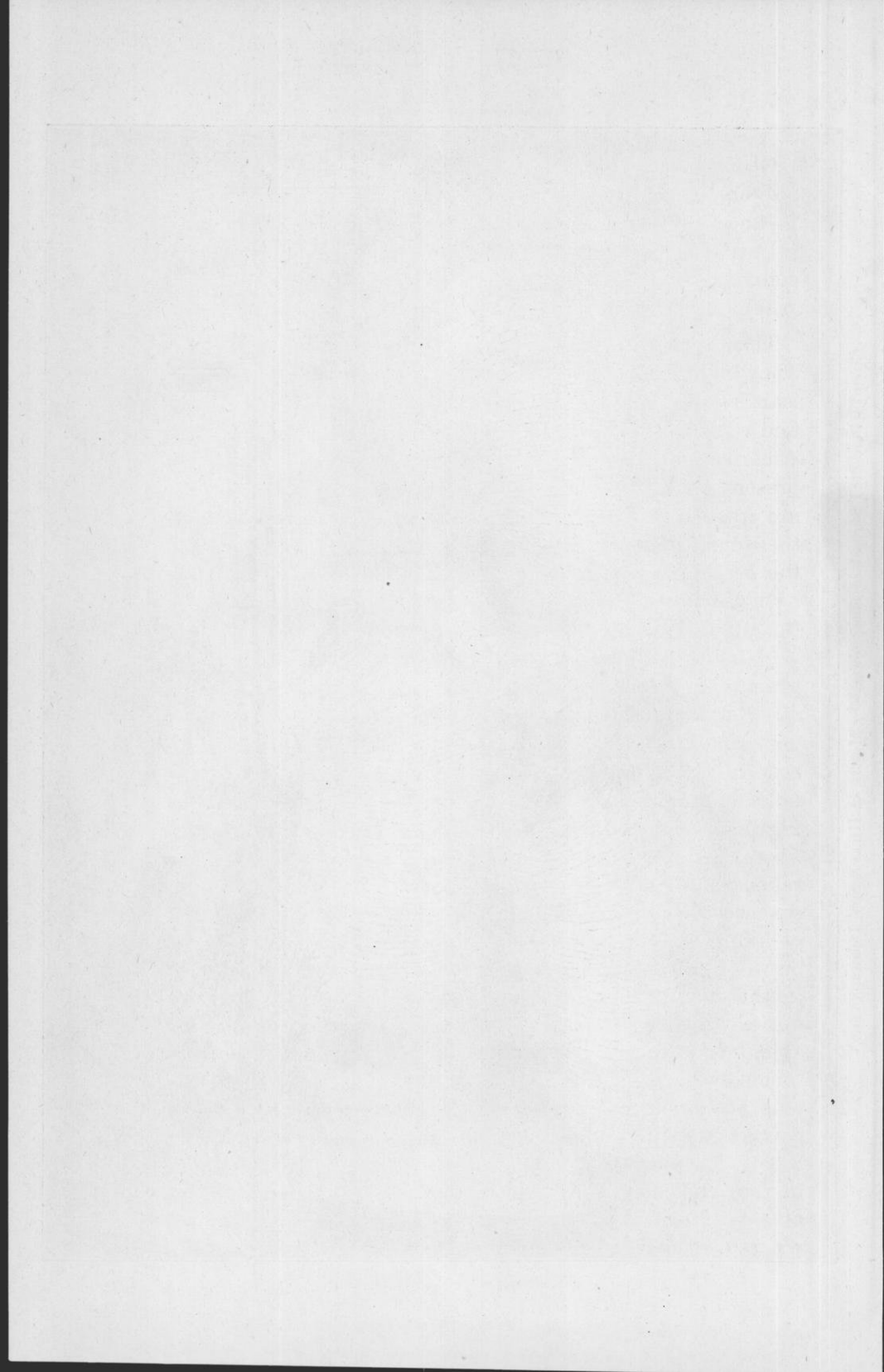
Joseph Sawyer, Boston, Mass.;

John L. Houston, Hartford, Conn.;

Charles F. Fairbanks, Boston, Mass.;



Group of Pure-Bred Merino Sheep, bred by J. W. Hulls & Son, Delaware, Ohio.



George Maxwell, Rockville, Conn.;

John N. Carpenter, New Brunswick, N. J.;

James Dobson, Philadelphia, Pa., and

Lewis N. Gilbert, Ware, Mass., members of executive committee.

John L. Hayes, secretary.

The American wool-growers do not export their wool. They depend for a market entirely and absolutely on American woolen manufacturers. When these are prosperous and when American woolen-mills are fully employed, the American wool-grower does well; when, as now, under the present wool duties, the American woolen manufacturers are crushed to the earth, the greater part of their mills idle, their operatives without work or working on half time, then the American wool-growers necessarily suffer. The same national association of Wool Manufacturers say further of the advantages of free wool:

“No duties on wool exist in Great Britain, France, Belgium, the Netherlands, and very slight duties, if any, in other manufacturing nations. Our European competitors are exempt from the direct enhancement by a duty of the cost of wool, thus requiring less capital to supply their mills, and no cost of interest on the duty required in carrying their stocks of wool and goods. They are free from the apprehension of changes in the value of wool, such as has taken place in this country in consequence of no less than seventeen changes in the tariff on wools within the memory of living manufacturers. They are exempt from the duties on wool substitutes, so usefully employed to mix with wool in the manufacture of the cheaper and heavier cloths — duties which with us are absolutely prohibitory. They are able, from the lower cost of their raw material, to relieve themselves from over-production by consigning their surplus stocks at comparatively slight sacrifice to foreign markets, to which their cheapness has already introduced them. They are not compelled, as we are, to discriminate in their choice of wool to avoid the effect of duty, and are able to select their wools in any condition, whether unwashed, washed, or scoured with reference only to their de-



sirable qualities. Through freedom of importation they have near markets, as at London, Havre, Antwerp, and Berlin, offering vast assortments and a steady supply of all kinds of wool; advantages especially favorable to the small manufacturer. This exemption from all restriction in the selection of raw material, together with the facilities for supply and the certainty that values will not be disturbed by legislation, is believed to be the chief cause of the characteristic of the European woolen industry — namely, that the manufacturer abroad obtains success by adhering with steady attention to the special fabrics he has undertaken to make and in which he has acquired excellence, while diversification of manufactures, so necessary to prevent over-production, is encouraged by the equal availability of all varieties and conditions of raw material.”

Stronger reasons for making wool duty free it would be difficult to get together.

Mr. William Dean, of Newark, Del., writes that he has “been engaged in the woolen manufacturing business for half a century,” and this is what he has to say on the subject of wool duties:

“Now let me ask the question, why one farmer in a community of a dozen farmers should ask to have his particular production protected without the other eleven being equally well protected on their different products? One may be engaged in raising cereals; another, beef cattle; another, hogs; another in the dairy business; another, cotton; another fruit. Under a just government are not each and every one entitled to an equal amount of protection? If so, and every interest in our country is equally protected, do any of them have protection? Now, let me ask why the wool-grower, as a right, asks for protection? Has he not the same fertile soil, the same sunshine, rain, and all the natural elements and advantages, as his fellow farmers engaged in raising cereals, beef, hogs, cotton, tobacco, fruit or dairying? If he has all the above why does he ask to be protected, except from a selfish standpoint, if he is their equal in intelligence and industry?”

This experienced American woolen manufacturer then

gives the following statement of what the wool duty costs the American farmers and workingmen:

"If we take the \$54,000,000 of specific duty added to the woolen goods product of America, and say, two-thirds of the duties collected on imported wools and woolens, we will find what it costs the American consumers of woolen goods to protect the handful of persons called wool-growers. The two items will amount to about \$95,000,000, or very nearly two dollars each for every man, woman and child in the United States in 1880. Now, when you add the ad valorem duty, or what it adds to the cost of all woolen goods consumed in the United States, it will make another \$70,000,000, or, with all the exactions that are taken from the consumers of woolens in the United States, over \$150,000,000, or about three dollars each for every individual in our country. Now, there are engaged in the woolen and worsted interests of the United States, about 120,000 persons of all ages and sexes. These, along with a probably much less number of persons called wool-growers, are those who extract \$165,000,000 a year from the pockets of the 9,000,000 farmers and the many other millions of tradesmen, working men, professional men, and men engaged in transportation, who go to make the grand aggregate of the American people who are taxed as above, to protect less than a quarter of a million people engaged in growing wool and woolen manufacturing."

## MISCELLANEOUS PAPERS.

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### ECONOMIC RELATIONS OF WISCONSIN BIRDS.

By F. H. KING.

[We would courteously acknowledge the use of the accompanying plate and illustrations from the hand of Prof. T. C. Chamberlain, District United States Geologist, and present this article as one of practical benefit to the farmers of the state. — CLINTON BABBITT, SEC.]

The discordant views held by prominent ornithologists and entomologists, in regard to the value of birds as insect destroyers, and particularly in regard to the actual and comparative value of certain species, prove conclusively that some of them have reached their conclusions on insufficient or false data. For this reason, and because it appears that many more facts must be gleaned and collated before final conclusions in regard to the economic value of birds can be reached, it is deemed advisable to consider briefly, as introductory to what follows, some of the more important factors which should enter into the solution of the problems of economic ornithology.

The most difficult and intricate problem of economic ornithology is that of the food of birds. In the discussion of this question it will be most convenient to bring that which birds eat under the two heads, (1) *Vegetation and Vegetable Matter*, and (2) *Animals and Animal Matter*. The food of birds thus grouped must be further identified as belonging to one or the other of the following classes.

(1) *That, the consumption of which is, on the whole, a service to man.*

(2) *That, the consumption of which is, on the whole, an injury to man.*

To determine what birds do, or may under forced condit-

ions, eat is certainly a very difficult question, and many of the problems which must be solved before their food can be properly classified as indicated embrace the extreme of intricacy. That this classification must be made before final conclusions can be reached, I think all will agree; that such a classification can ever be made complete and unquestionable, there are grave reasons for doubting; but that a desirable approximation to completeness is possible, we may feel confident.

So much is yet to be learned in regard to the real and potential industrial relations of the plants and animals affected by birds, that whatever may now be said upon the subject must be regarded as open to modification by more detailed and careful future work.

Beneficial services on the part of birds may be stated under the following propositions:

(1) *A bird renders a service when it is injurious or destructive to plants which are to be regarded detrimental.* This may occur when the bird consumes the foliage, buds, inner bark, blossoms or seeds of injurious plants.

The principal service which our birds render in this direction is in the consumption of the seeds of weeds; and the number which they destroy in the course of a season is very great. From the stomach and crop of one Carolina Dove were taken 4,016 seeds of the common pigeon grass, *Setaria glauca*. The service which a bird renders in this line, however, is not to be regarded as always proportionate to the number of seeds which it consumes, for the mere act of cultivation, necessary to many crops, so effectually controls these weeds that but little work is left for birds to do. Birds, therefore, which possess many very serious traits, and have only the habit of feeding upon the seeds of weeds in their favor, must be looked upon as of doubtful utility.

(2) *A bird renders a service when it feeds upon injurious mammals.* Squirrels, gophers, rats, mice, and hares are the principal ones, regarded as noxious, which are preyed upon by our birds. They are the smallest, the most prolific, and the most destructive of mammals. All of them are largely herbivorous or frugivorous, but some of them are some-

what carnivorous. All are familiar with the havoc which rats often make among young chickens and ducks. The ground squirrels are said to feed occasionally upon insects and upon mice. Occasionally, at least, the little red squirrel plunders birds' nests of their eggs. In June of 1878, as Prof. W. A. Kellerman and myself were passing through the cemetery at Ithaca, N. Y., our attention was attracted to an evergreen, standing near the walk, by a pair of Robins, which were dashing wildly about among its branches. On examining the tree, the nest of the birds was discovered, and just below it sat a Chickaree eating one of the Robin's eggs.

An instance similar to the above is mentioned by Edgar A. Mearns, in the Bulletin of the Essex Institute, Vol. X, 1878. He says: "Among the Robin's worst enemies may be ranked the red squirrels (*Sciurius hudsonius*), for, though their young are subject to the attacks of Crows, Jays, and particularly to the ravages of the black snake (*Rescaurion constrictor*), yet none of these enemies inflict as much injury as the squirrels, because, not only do they seek out and devour the eggs, but the young are also eaten; and their numbers are in excess. . . . On the morning in question, a red squirrel came a considerable distance out of the woods, ascended to this nest, and would have destroyed all the young ones had not the parent returned just at the critical moment." The Robin succeeded in driving the squirrel away, but not until one of her young had been eaten.

In the spring of 1879, I placed the young of the Chipping Sparrow in the cage with a young pet flying squirrel (*Sciuropterus volucella*). The bird was seized with energy and killed but not eaten.

How general this practice among squirrels may be I do not know; it suggests, however, that the little red squirrel and its nearest allies may be formidable enemies of nearly all our small woodland birds.

The fact, too, that rats and ground squirrels are carnivorous, to some extent, suggests that these may be destructive to birds which nest upon the ground in fields and on the

prairies. Mice are preyed upon to a considerable extent by some of the Hawks, and owls, and probably also by the Sandhill Crane, but whether birds of prey are especially serviceable in destroying squirrels and gophers may be questionable.

(3) *A bird does us a benefit when it feeds upon injurious birds.* This head is introduced here, not because any of our birds are known at present to render a service in this direction, but because it suggests a field in which further observation is needed.

(4) *A bird assists us when it feeds upon injurious reptiles.* Of the reptiles preyed upon by birds, our larger snakes are the only ones to be regarded as noxious. Snakes that are not venomous have been classed among beneficial animals, because they feed to some extent upon mice and insects. This classification, however, so far as it includes the larger species of snakes, appears to be, at present, unwarrantable. The fact that snakes also eat small birds and birds' eggs, toads, frogs, salamanders, and some of them fish, is conclusive proof that they do some injury. While my own observations indicate that both insects and mice are eaten by them, yet frogs and toads appear to form by far the larger part of their food, at least that of our common garter snake. From the stomach of a large striped snake (*Eutainia sirtalis*) were taken eleven ground beetles, two elaters, one lamellicorn beetle, three caterpillars, one millipede, and one large toad. Leaving out of this account the toad, it will be seen that, in this particular instance, the snake had done a greater injury than a service, for the ground beetles, usually regarded as beneficial, nearly double in number all the other insects combined. The fact that during the season when insects are abundant, snakes are often found with their stomachs entirely empty, suggests that, with some species, at least, insects are only make-shifts for food. It should be observed in this connection, that all snakes are capable of enduring a long fast without apparently suffering any very great inconvenience. If, then, it is true that insects are only eaten in default of other food, the services of snakes

in this direction must be much smaller than might otherwise be expected.

Our frogs and toads, in the adult stage, so far as is known, are entirely insectivorous; and are, therefore, harmless, except so far as they may be destructive to useful insects. Toads are nocturnal in their habits, and feed upon the ground in gardens and fields, where there are few animals, except the shrews and moles, to take their place. Some of the frogs, too, spend the summer in fields and meadows where birds are few, and consequently have a special work to perform. Few birds, and certainly no snake, can be more serviceable, as insect destroyers, than these animals. The facility with which some snakes climb trees, and the stealthiness with which all may approach their prey upon the ground, give them great advantage over birds during the breeding season. That the common striped snake will devour even large mature birds, when it can obtain them, is proved by an instance which came under my observation last summer. On returning to camp, after a morning's excursion, a large striped snake was seen in the act of swallowing a Downy Woodpecker, which, with several other birds, had been thrown upon the ground after its stomach had been removed for examination. Only the tail feathers were protruding from the snake's mouth, and all of the feathers were intact. The same snake had already swallowed a full-grown Catbird, with its entire plumage, and having only its stomach removed. The fact that a snake is sufficiently strong to seize and hold large toads and frogs, indicates that they are abundantly able to hold any of our common birds, provided they come within their grasp.

Although ten or more species of our birds prey to some extent upon snakes, these birds are either destructive to other birds, or to frogs and toads, or to both; it does not follow, therefore, that their services should be retained simply because they are destructive to snakes. Snakes, owing to their slow movements, are much more easily controlled by direct means than most other animals.

(5) *A bird renders a service when it feeds upon insects which are injurious or destructive to useful animals, plants*

*or materials, and which are not extensively destructive to noxious forms of life.* It is in the destruction of the members of this group that birds are chiefly serviceable, not only because insects are among the most prolific and the most destructive forms of life with which we have to contend, but because their small size and their habits make it very difficult to oppose them by any direct means. While, as entomologists have claimed, the most potent checks among these animals are among the members of their own class, yet, that these are not adequate to our needs, is conclusively proved by the results which have invariably followed from the wholesale slaughter to which birds have been subjected from time to time in different countries. Wherever the English Sparrow, the bird so much decried in our country of late, has been exterminated in Europe, noxious insects are said to have followed in such abundance that it has not only been gladly reinstated, but is now protected because it accomplishes what parasitic and predaceous insects are unable to do. When it is argued that birds feed indiscriminately upon beneficial and noxious insects, it should be observed that predaceous insects do the same, and that parasites have their parasitic foes.

Birds are insignificant in numbers when compared with the abundance of parasitic and predaceous insects, but their active habits, their longer lives, the greater facility with which they move about, and the greater range of country over which they roam, go far toward compensating for smaller numbers. It should be added, also, that birds, either in one place or in another, are consuming insects throughout the year, while, in the temperate zones, predaceous parasitic insects do nothing during one-half of the time. No insect is so large but that any bird may destroy it while it is passing through one or more of its stages, and few are so small as not to attract the attention of many of our birds. The White-Bellied Swallow captures on the wing plant-lice and flies, smaller than the wheat midge. The Purple Finch, and some of the Warblers, feed extensively upon plant-lice. Chalcidian and other parasitic flies, less than a tenth of an inch long, have been taken from the stomach of several of



our birds, even from that of the Swamp Sparrow, a bird which rarely pursues its prey upon the wing and which is counted among the seed-eating forms.

The nocturnal habits, which so many insects possess, do not offer such absolute protection against birds as some appear to think. Lepidopterous insects, so many of which deposit their eggs under the cover of night, feed in the larval state, with some exceptions, during the day, and this is the longest and so the most dangerous period of their existence, as it is the most destructive. But even when hidden during the day, insects are not secure; birds have learned their hiding places and search them out, and some of them make this the business of their lives. The Woodpeckers, Nuthatches and Creepers capture those that have hidden beneath the bark and on the crevices on the trunks and branches of trees; Warblers, Vireos and Flycatchers destroy those that betake themselves to the undersides of leaves; and the Thrushes, Finches and Starlings pick up those that seek security upon the ground and among the grass. "Mimicry," though protective, doubtless, to some extent, does not lessen the service which birds render. It simply tends to throw the heaviest attacks upon the more conspicuous forms. But protective colors; forms and surfaces can hardly be as effectual against birds as against predaceous insects, for they survey their fields from a more advantageous point of view, and they discriminate well objects both remote and close at hand. Besides, birds, and predaceous insects as well, learn to see as collectors learn to collect. They become experts in their business, and this is of as great an advantage to them as "mimicry" can be to other forms.

While many of our troublesome insects spend their larval state in the stems of plants, in various fruits or beneath the ground, feeding upon the roots of plants beyond the reach of most birds, yet even these, while searching for places in which to undergo their transformations, and in the winged state, are destroyed by birds in large numbers. If birds do not exterminate noxious insects, they nevertheless perform a serviceable mission by holding them within certain limits.

From the stomach of a Passenger Pigeon were taken nine

full-grown black crickets, and four grasshoppers over an inch long, together with two large 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 small grasshoppers, eight large square-shouldered hemiptera, and ten scorpion bugs, none of which were less than three-fourths of an inch long. Nine grammes of insect debris were taken from the stomach of another Night-hawk. Three Golden-winged Woodpeckers had in their stomachs, respectively, 255, 220 and 200 ants. In the stomach of a Hairy Woodpecker were found the remains of eleven grubs of long-horned beetles and thirteen measuring worms. A Pewee, *Sayornis fuscus*, had in its stomach ten ichneumon flies, averaging over half an inch long, five small moths and one caddis fly. The actual amount of food which the above species eat during the day, if we except the Night-hawk, is probably more than 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 6,000 insects. This would give as the aggregate number of insects consumed by the birds calculated to occupy an area equal to that of our state, the enormous total of 21,384,000,000. Add to this amount the work which these birds do in their southern homes, and we have a low estimate of the influence they exert over insect life.

(6) *A bird does us service when it feeds upon noxious mollusks.* In damp climates, such as exist in many parts of Europe, mollusks often become very abundant and very destructive to garden and field products. In the United States, however, but little injury from them appears to have been thus far realized; and in a climate like ours, but little, apparently, need be anticipated. The fact, however, that slugs have occasionally made destructive raids upon strawberry patches, should put us sufficiently on our guard to look into their possibilities for evil before we attempt to drive off or

destroy their natural enemies. It may be remarked here, in passing, that a species of *Limax*, common in the grass at Ithaca, N. Y., has several times been seen feeding upon ripe cherries that had fallen from the trees. Whether, as many slugs are known to do, this species will in damp days ascend the trees to feed, is a question worthy of study.

Mollusks, and other animals as well, may be, at times, extremely injurious, even when, so far as their food is concerned, they are practically harmless. That terrible disease known as "flake-rot," or "water-rot," which has destroyed in a single locality in Europe, during one season, 300,000 sheep, and which has ruined large herds of cattle, and which, under favorable circumstances, has even attacked man, is due to a parasite, *Faciola hepatica*. This parasite is believed by those who have studied its habits, to pass through one stage of its transformations in the bodies of fresh-water mollusks. If these mollusks are a necessary habitat of the fluke-rot parasite, whatever destroys them lessens the liabilities of its attacks. Quite a large number of birds and fishes and some insects feed upon fresh-water mollusks, but whether in so doing they are benefiting us, we cannot at present say.

(?) *A bird may render service by feeding upon noxious crustaceans and worms.* Crawfish have been so little studied in regard to their habits, that an economic position cannot be satisfactorily assigned them at present. Prof. W. F. Bundy writes me in regard to their habits as follows:

"Crawfish feed on worms, small mollusks, insects that fall in their way, small fish, and in general any kind of animal food, especially carrion. They are industrious scavengers. This latter item, with the additional ones that they form not inconsiderable part of food for fish, and their damage to meadows by burrowing, indicate where they come in the most direct relation to human interests."

The river species he regards as beneficial. Those which burrow in meadows, building mud chimneys which become sun-baked, and interfere quite seriously with mowing, he is in doubt in regard to, but inclines to the opinion that their services as scavengers more than offset the damage they do.

Crawfish are preyed upon to a considerable extent by various species of Herons and some other birds. The Cowbird is said to eat the intestinal worms voided by cattle and horses.

(8) *Birds are serviceable when they feed on carrion.* Ordinarily in a country and climate like that of Wisconsin, there appears to be but little need for large carrion-eating animals. Birds of this class, therefore, which have other and very injurious tendencies, can hardly be tolerated in abundance merely for the purpose of consuming carrion.

The injurious relations of birds may likewise be stated in the following propositions :

(1) *A bird is harmful to us when it is injurious or destructive to useful plants.* This may occur when the bird feeds upon the inner bark, buds, foliage, blossoms, fruit, or seeds of useful plants.

It is in the destruction of cereals, either shortly after they are planted or when they are ripening, that our birds are chiefly injurious in this direction at present, but even here their injuries have rarely assumed alarming proportions. Quite a large number of birds feed upon small fruits, but those which do are in other respects almost exclusively insectivorous. Even the Cherry Bird and Baltimore Oriole, which horticulturists tell us should be exterminated in mid-cherry time, feed quite as much upon insects as upon fruits. The Yellow-bellied Woodpecker is said to feed upon the inner bark of orchard and ornamental trees. The Purple Finch and some other birds occasionally eat the buds of fruit trees; their injury, however, has thus far been trifling. In the forests, during the winter, buds form a large part of the food of quite a number of birds. From the stomach of a Partridge were taken, in October, 302 white birch buds. While the number of buds which this species consumes during the winter is doubtless very great, it is probable that its flesh will always amply compensate for the injury it does in this direction, to say nothing of the insects which it consumes during the summer.

It is only when forest planting becomes a necessity that bud-eating birds, as such, can take the rank of enemies, un-

less by any means, these birds should become very abundant. In any case, only the small bud-eaters, like the Purple Finch and some of the Linnets, whose small size render them valueless as food, and which, for this reason, would have to be controlled by the awarding of bounties or some similar means, need give us any apprehensions whatever.

(2) *A bird does us harm when it preys upon shrews, moles and bats.* These animals, owing to their insectivorous and nocturnal habits, and their, so far as known, inoffensive natures, are to be regarded as of great value. They are especially to be protected because they choose a time to feed when noxious insects are abroad in abundance and when their enemies are few. Birds, therefore, which are extensively destructive to them, unless they have some very desirable traits, are to be regarded as enemies.

Owls are the principal birds known to feed upon these animals.

(3) *A bird is harmful to us when it preys upon other beneficial birds and their eggs.* A species which makes a practice of preying upon bird's eggs or their young, or which has the ability and disposition to capture mature birds, must certainly do a very important work for us in compensation to be encouraged in agricultural districts, at least until after experience has proved that its services are needed to prevent an undue increase of certain birds. All of our Hawks, Owls, Shrikes and Crows are known to be, or may be suspected of being, more or less destructive to birds in one or more of their stages of development, but to what extent, observations, so far as they have been published, are too limited and indefinite to allow any very definite conclusions to be drawn.

(4) *A bird is harmful when it feeds upon lizards and perhaps our smallest species of snakes.* As the food of these animals probably consists almost entirely of insects, they are to be regarded as beneficial, until shown to be detrimental.

(5) *A bird is harmful when it feeds upon frogs, toads and salamanders.* Enough has already been said in regard to

frogs and toads to show what their economic relations are, and how birds must be regarded which feed extensively upon them. Salamanders probably occupy a similar, though less important position.

(6) *A bird is detrimental when it feeds upon the parasites of noxious animals, and especially upon those of noxious insects.* Parasites are regarded as 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 upon which they prey have assumed such numbers as often to commit wide-spread ravages. Their influence has a tendency toward spasmodic rather than steady action. They are, as it were, the last reserves which Nature holds back for those emergencies when favorable conditions of climate shall let loose upon the world such an abundance of insects as cannot be controlled by other means.

The fateful army-worm, whose history is so well given by Riley, illustrates well what is 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 an insect at once as birds do. The larvæ which they infest are allowed to pass through the destructive period of their lives, apparently with appetites unimpaired. They save future rather than present crops, while birds do both.

How far birds are destructive to parasitic insects cannot be stated with certainty at present. The fact, however, that the contents of not more than thirty-two out of six hundred stomachs, examined carefully under the microscope, gave any evidence of parasitic hymenoptera, and that, if we set aside the probably exceptional case of the Pewee, already mentioned, usually but one, or occasionally two of these insects were found in a stomach, indicates that this group of parasites is not preyed upon by birds to the same extent that other insects are. It should be said, however, that some sixteen species of birds are proved to feed

upon these insects to some extent, and that these species represent Thrushes, Titmice, Warblers, Swallows, Fly-catchers and Finches as well as the Hummers. Large birds like the Robin and Chewink, as well as the small Kinglets and the Humming Bird, eat these hymenopterous friends. Birds, doubtless, destroy large numbers of parasites with the insects which they infest, but such a destruction is admissible.

(7) *A bird may be classed as an enemy in so far as it feeds upon beneficial, predaceous insects, spiders and myriapods.* It is in the destruction of these forms that we are to apprehend the greatest injury from our birds. They are large, conspicuous, and, as a rule, easily captured. They are extremely numerous, and frequent every situation which a bird may visit. The majority of them, to obtain food, are obliged to lead roving lives, and are thus more exposed and consequently more liable to be discovered by birds than many of the plant-eating insects are. In the directness of their effect upon insect life, they take the same rank with birds, for when they secure their prey its devastations are at an end. Like birds, too, they feed more or less indiscriminately upon whatever insects they may capture; nor does this trait detract so much from their general usefulness as might be expected. It is, in fact, this habit which enables them to maintain a somewhat steady abundance even when the caprices of climate or an over-abundance of parasites nearly exterminates certain insects upon which they commonly feed. A parasitic insect confined to one, or at most to but a few species, must fluctuate in abundance with it, and no matter how abundant or how destructive another insect may become, it is powerless to destroy it, or to save itself. With predaceous forms, however, this case is quite different, and their general tendency, like that of birds, is to maintain a steady, rather than a vacillating, abundance. Many of the wasps, the Tiger and Ground beetles, the Lady-birds, a few moths (Report of Department of Agriculture for 1879), the Asilus and Syrphian flies, many of the true Bugs, the Draggon-flies and Lace-wings, nearly all of the Spiders and many of the Myriapods, are repre-

sentatives of this group, and as will be seen beyond, all of them are destroyed to a greater or less extent by very many of our birds.

(8) *A bird does us harm when it feeds upon carrion insects.* How much of health we owe to these scavengers we can only imagine, but that they do exert a great influence in checking malarial diseases, we have no reason to doubt. Fortunately for us, birds do not appear to be very destructive to these insects, especially in their larval states.

(9) *A bird is harmful when it eats beneficial worms.* In the light of the investigations made by Charles Darwin on the "Origin of Vegetable Mould," angle-worms, or earth-worms, appear to render an important service in the accumulation of this most essential material to the growth of shallow-rooted vegetation. Not a small number of our birds feed on angle worms to some extent.

Hair-worms (Gordii) and some other similar forms are other members of this group, some of which are parasitic on grasshoppers and other insects, including spiders, during their larval stages. In the adult stages they are found in the water and are there occasionally picked up by Snipes.

Considering some of the effects of entozoa in man in connection with Dr. Leidy's statement that "their (Gordii) bulk and weight are frequently greater than all the soft parts, including the muscles, of their living habitation; nevertheless, with this relatively immense mass of parasites, the insects jump about almost as freely as those not infested," there may be a chance for error in deciding just which species of these worms are beneficial and which are detrimental. If, in the case of the grasshoppers, the parasites do not kill their hosts nor prevent them from laying perfect eggs, they must be classed as detrimental, for their presence in the insect must have the effect of increasing the amount of food consumed by it. It amounts to the same thing as hair-worms eating vegetation; but the reverse of this would be true of species infesting spiders, for they would be required to kill more insects than if not infested.

It will be observed that in the foregoing classification nothing has been said of what are commonly known as



“neutral” plants and “neutral” insects. Notwithstanding such statements as “Birds destroy insects enormously, but these are in the great part neutral,” it is doubtful if any such insects exist, at least when life is considered in its broadest relations to man. What noxious insect or plant have we which, when judged by the usual standard of neutrality, was not once neutral? Nineteen 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 but 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, and 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 wilds 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.

When it is proposed to utilize birds as insect destroyers, to increase the abundance of certain species and to exterminate or hold in check others, to encourage the breeding of

certain birds in given places and to prevent others from doing so; or, when it is proposed to introduce into a country a foreign species, other questions than those of food simply must be considered.

Some of the more important of these are the following :

(1) *The relations which the bird holds to different industries.* 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, cutworms, 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. Shall we ask our Southern friends to guard their plantations and spare the birds? Before we can do this with consistency we must know more definitely than we do now what injury and service they render in the South, what work they do in the West Indies, whither they take themselves for the winter, and what is to be the mission of the large number that pass by us in summer to the fast opening Saskatchewan country to breed.

(2) *The food and habits of the bird in different localities.* That these elements must be taken into consideration is sufficiently evident from what has been said in regard to the Bobolink under the last head.

(3) *The food of the bird during different seasons.* There are very many of our birds which, if judged alone by their food during a particular season, would be classed as injurious, when in reality they are very beneficial. The Red-winged Blackbird during the month of August, is, in many

localities in Wisconsin, very injurious, and for this reason has often been declared a nuisance. It is, however, far from being such. During the months of May, June and July, its home is in the sloughs, wet meadows and low pastures, and from these it often visits the adjoining dry fields. In all of these places it feeds, like the Bobolink, very largely upon insects. After the corn has hardened in the fall, it is again beneficial, feeding almost exclusively upon insects and the seeds of weeds, which it obtains in cultivated fields.

(4) *The food of the bird when young and when mature.* We probably have no bird except the Carolina Dove, Passenger Pigeon, possibly the Thistle Bird, and perhaps some of the birds of prey, whose young are not largely or entirely fed upon insects. The first few weeks of a bird's life (during which time the majority of our species attain their full size) is the most voracious period of its existence. Dr. Bradley has estimated that a pair of Sparrows, with a brood to feed, will consume 3,360 caterpillars in the course of a week. A pair of Thrushes are said to have carried to their young, in the course of an hour, 100 insects, principally caterpillars. A young Robin, reared by Prof. Treadwell, required not less than sixty earth-worms a day. A wood Pewee was observed by the writer to carry, to her brood of three, forty-one insects in three-fourths of an hour.

In view of these facts, it is evident that there can be but few of our birds, unless it be some of those which plunder the nests of other birds, which are not beneficial during one period of their existence at least.

(5) *When and how long the bird is with us.* The birds that are with us longest, other things being equal, are, of course, capable of rendering the greatest service or the greatest injury; and they are the birds, viewed from an economic standpoint, which should interest us most. But the service which birds of passage render is far from being so insignificant as to be overlooked. On the contrary, the services of these birds are so great that we have a right to demand their protection when they are in lands not our own.

The assertion, "Birds are only united in troops more or

less considerable at the times of migrations of autumn and spring, that is when insects are infinitely less numerous than during the summer"—however true the impression which it conveys may be for Europe, is wholly untrue for the United States both in reference to summer residents and to birds of passage. During an average of two weeks in the spring and for the same length of time in the fall, the birds of passage are probably double the number per square mile of our summer residents. They are with us then nearly one-fifth as long and in double the abundance, consequently they should do, if we leave out of account the rearing of young, nearly two-fifths as much work. We should expect them to eat more, relatively, for they are working harder. Many of them have been flying all night and not quietly sleeping among the branches as resident birds do.

Because the insects are infinitely less numerous during the seasons when birds are migrating, does not signify that the actual number of insects destroyed is necessarily so much less. The hungry and exhausted birds must be fed before they can resume their journey, and if they do not find food in abundance they only search the more diligently and scrutinize the more closely until their wants are supplied. Although most of the insects upon which they feed in the fall have nearly or quite passed through the period of their destructiveness, yet many of them are the ones which are to hibernate in one state or another, and from which the next season's ravages are to come. Those which are consumed during the spring are the forms which have survived the severities of winter, and from which far more of destruction than is actually realized would come if they were left to multiply during the coming summer. It can hardly be said, then, that in the insects which they do destroy, they render a less service than do other birds. They supplement the work of our summer residents, as it were, at both extremities, and they do it well. Let us see to it that they are properly protected.

Some of our birds of passage are quite destructive to some crops in the fall. The Tennessee Warbler, called by some, with us, the Grape-sucker, occasionally does serious injury

to vineyards by probing with its sharp bill the ripe grapes, apparently to obtain the juice. It might be inferred that as this bird is with us so short a time, its services in destroying insects can hardly compensate for the injury which it may do to vineyards, and consequently, that it is a fit subject for extermination. The very fact, however, that it is with us so short a time, should make us all the more careful in regard to what steps are taken in respect to it. For if ours is the only injury it does, and so far as is now known it is, it must lead a long life of usefulness in other places, where it may do what other birds are not able to accomplish. It is indeed, one of those small active species which feed quite extensively upon plant-lice and other very small insects which are said to be overlooked by most birds. From the stomachs of four specimens examined collectively, thirty plant-lice, and thirty small heteropterous insects, nine-hundredths of an inch long, were taken.

(6) *The place in which the bird nests.* Wherever a bird builds its nest (except the forms whose young run about as soon as hatched), there or in the immediate vicinity, as a rule, its labors are confined until after the young are able to feed themselves. In consequence of this, those birds which breed in cultivated grounds and in the vicinity of dwellings are generally the most valuable. It should be observed however, that cultivated grounds are not the only places where the insects which ravage them are bred. The army-worm has for its natural abode the wild grass swamps so common in many parts of the country, and from there, when it becomes excessively abundant, it marches out upon fields of grass and grain in such vast columns as to sweep everything green before it. The army-worm year of 1861 will long be remembered. The Rocky Mountain Locust is another insect of the same kind.

Viewed in the light of such facts as these, insectivorous birds which rear their young in such uninviting places, and where they appear to lead useless lives, shine with a new interest to us; and even though they may be somewhat destructive, they should be protected until careful study proves that they do not feed upon the army-worm or other

pests. Some of the birds which frequent these situations are the Marsh and Short-billed Wrens, the Swamp Sparrow, several of the Blackbirds, the Bobolink, the Rails, as well as other birds.

The situation in which the nest is placed has much to do in determining, the abundance of the species, especially in cultivated districts, and consequently its general usefulness. The Short-billed Wren often builds in our low, wet meadows, but its breeding season is not fully past when haying-time begins, and many a nest freighted with eggs or young is mown down and its contents destroyed. The result is, that it is far less abundant than its cousin, which selects more secure breeding places. The Short-billed Wren cannot, therefore, be offered as a substitute for the troublesome Redwing, or for the Bobolink, both of which breed in similar situations, but which get their young upon the wing before the grass is ready to cut.

Birds, like plants, may be out of place, and so more injurious than they would be if confined to their proper spheres. Blue Jays and Shrikes have no right in orchards and about dwellings during the breeding season, unless more useful birds cannot be induced to tarry there.

(7) *The haunts of the birds.* The places which a bird frequents during the season, though always including the place where it nests, are often much more varied and extensive. Upon these haunts, as upon the breeding places, depend much of the bird's usefulness or injury. All of our Thrushes, so far as food and method of obtaining it are concerned, have essentially the same habits as the Robin, but none of them are, at present, as useful to agricultural or horticultural interests as it is. Should any of them in the future become as familiar as the Robin, they will doubtless approximate it in usefulness.

(8) *The time of day at which the bird obtains its food.* Nocturnal insectivorous birds and those which feed in the early twilight are especially to be encouraged, not because they are necessarily more destructive to insects than other birds, but because they feed at a time when insects are abroad in abundance and when they have but comparatively

few enemies with which to contend. Rapacious birds, however, which obtain their food at night are to be regarded with more suspicion, perhaps, than those which fly by day. All the Owls, provided with their peculiar plumage, are able to move so noiselessly, that, under the cover of night, when other birds are in repose, they may be expected to exert a powerful influence in reducing the abundance of birds, especially of the woodland species.

(9) *The method by which the bird obtains its food.*

(10) *The situation in which the bird obtains its food.*

(11) *Whether or not the bird does an important work which other birds are not fitted to do.*

These are questions of extreme importance, especially if it is proposed to extirpate a species, or to reduce its abundance. There is such a division of labor among birds, that, as has been said, there are very few insects indeed which may not, in one or more stages of their existence, become a prey to them. And this division of labor which birds have assumed, in the face of the profusion of life from which they may choose their food, is conclusive evidence to me that the power which they exert over the abundance of insect life is far from being inappreciable. The utility of birds as a whole, judged by that of a particular species, without reference to the points under consideration, would undoubtedly lead to an unfavorable, but equally false conclusion. What we need to aim at in regulating the bird-fauna of agricultural districts, is to make it combine, in sufficient abundance all of those species which do peculiar but important work. We need in fact, to adopt those divisions of labor which nature has been so long in working out, and perhaps without modification, except so far as changing conditions and industries make it necessary that new relations should be established.

To expect the Robin, with an unlimited abundance, to do the work of the Kingbird and Pewee, or that these birds can do the work of the Vireos, is absurd. Neither can the slow-winged and short-flighted Pewee and Kingbird, although they are fly-catchers, be expected to do what the Swallows are able to accomplish with their long, swift, gyratory and

zig-zag flights. Each species has fitted itself by long practice for its own peculiar work, and does it more effectually than another species can. Viewed in this light, it is evident that some birds, even though they may be somewhat destructive to particular crops, must, nevertheless, be protected, simply because they do an important work which other birds do not.

The Baltimore Oriole has been consigned to extirpation because it is somewhat destructive to grapes, destroying, at times, it is said, more than it needs to eat; and yet this bird does an important work, which, so far as I have observed among birds, is peculiar to itself. It is that of feeding upon leaf-rollers in the larval state. These are a large and destructive group of moths. They infest nearly all our fruit trees, our strawberries and cranberries, as well as many of the trees of the forest. Those which do not infest the fruit protect themselves either by folding one side of a leaf over them, or by tying a number of leaves securely together, thus forming a strong house, in which they feed secure, I fear, from the majority of birds. But the Oriole has learned their habits, and, with its strong bill, is able to demolish their houses and devour the inmates. I have seen a whole family of these birds working together in a grove, devouring leaf-rollers, and making such a noise as to lead me to suspect at first that some large animal was stripping the leaves from the trees. Prof. J. H. Comstock informs me that he has seen the same bird thrust its head through the web of the tent-caterpillar, and eat the larvæ which courted security within.

When a bird which is injurious does a special work, that work must be an important one in order that it may be urged as a reason for protecting the bird. The tent-caterpillar, although it is very destructive, is easily and completely under our direct control. Its tent makes it so conspicuous that it cannot be overlooked, while every worm in a colony may be easily removed at once and destroyed. When it is said that this evil sometimes becomes so great that even the best farmers have despaired of counteracting it, the statement only speaks disparagingly of the energy



and shrewdness of the farmers. It is not in the destruction of such pests as these that birds render their greatest service, but rather in the destruction of those that are small, though prolific, of those that do not betray their existence until after their hurtful mission is performed, and of those that feed singly and do not congregate under tents for a season of rest and security.

(12) *Size and activity of the bird.* The larger and the more active a bird is the greater will be the amount of food which it requires, and consequently, other things being equal, the more beneficial or the more injurious it will be. It is by no means however, the largest bird which is the most servicable. Diminutive proportions are, in many cases, quite as desirable as their opposites. It is the smallness of the Tennessee Warbler which makes it profitable for it to feed upon plant-lice; and it is the same quality, together with its agility, that enables the Chickadee to hang back downwards from the leaves of the outermost sprays of trees, that it may feed upon those small larvæ and other insects which can only be obtained by the larger and more clumsy species with difficulty. These small and agile birds perform, therefore, a distinct work in protecting the terminal foliage of forest trees.

(13) *Whether the bird is or is not gregarious in its habits.* It is not necessary that birds should be "united in troops more or less considerable" that they may be of material service. On the contrary, insectivorous birds can hardly be gregarious, at least to any considerable extent, for feeding purposes, while it is the gregarious habits of many granivorous birds which lends to them their chief noxious quality. Not that they would eat any less grain if they did not unite in such large troops, but that their injury would be more evenly distributed, causing each man to bear his share of the expenses incident to bird life, as he has received his share of the profits. Did our Blackbirds spread out over the country at large instead of uniting in such large troops, the amount of grain which they would consume, though just as great as it is at present, would be drawn from so many sources that the quantity taken from each would be

so small as to be almost inappreciable. Birds having gregarious habits, unless they perform some special and important work, should not be encouraged to an equal extent with other birds; and this point should be looked to especially, when it is proposed to introduce a foreign species.

(14) *The swiftness and dexterity of the bird upon the wing.* The swifter and the more dextrous and insectivorous bird is, which captures prey upon the wing, the more efficient it is, provided other things are equal. If it feeds extensively upon parasitic insects, it becomes more dangerous, as it is better able to capture its prey. Among rapacious birds, the swiftest winged Hawks are to be looked upon as the most dangerous; and if any of these birds are to be extirpated, those which are best able to capture mature birds should succumb first. Extreme swiftness of flight is not necessarily possessed by those Hawks which are to hold in check injurious mammals.

(15) *The disposition of the bird.* When different species of birds are to be associated closely together, as is the case in many cities, and as we hope will be more extensively the case in orchards, and in the vicinity of dwellings, only those, as a rule, which will live together in harmony should be encouraged. At least, a tyrannical, overbearing bird, should not be permitted to drive away from our dwellings more useful species.

(16) *The value of the bird as food for man.* Birds whose size and flesh make them valuable as food for man, have that much in their favor to offset whatever injury they may do. But birds may be too valuable as insect-destroyers to justify their being killed as game. The Prairie Chicken and Quail should be stricken from our list of game birds, at least for the present, and the Meadowlark, Killdeer, and Field Plover, should not be destroyed under any consideration, until after they assume an abundance far beyond what they have with us at present. The last three species are almost exclusively insectivorous throughout their stay with us, and they affect meadows, pastures and cornfields, where their services are much needed. The Quail and Prairie

Chicken are also largely insectivorous until after the middle of August, when the grain is harvested and out of danger from them, and as they live in uncultivated fields and meadows, their services are very valuable.

(17) *Whether the bird is or is not a necessary habitat for troublesome parasitic entozoa.* As many fishes are infested with parasites, some of which pass through one stage of their development in Herons, and other piscivorous birds, it becomes a question worthy of study to determine whether these birds may become detrimental to fish-culture, by breeding parasites which will destroy the fish or render their flesh unfit for food. This question is the more important since fish-culture has become a national enterprise.

(18) *The number of broods the bird rears each season.* Those birds which rear more than one brood during the season, if they are not injurious, are likely to be of greater service than those which are single-brooded, not only because they must be more destructive to insects directly, but because they are capable of becoming more numerous than single-brooded species are likely to become.

#### A TEMPORARY CLASSIFICATION OF WISCONSIN BIRDS ON AN ECONOMIC BASIS.

In view of the fact that so little careful study has been devoted to the food of American birds, and that the subject considered in all its important bearings, is so difficult, intricate and important, it is deemed advisable, for present purposes, to arrange our birds under the groups following. In this classification, only Wisconsin interests will be especially considered, not because the interests of other states are regarded as unimportant, but because each state, so far as its industries are peculiar, must solve its own questions.

*Group I.—Birds whose habits, so far as they are known, render them, on the whole, beneficial.*

Under this group are placed those birds whose ability to render service appears to exceed their known injurious tendencies. It may be divided into three classes:

(a) Birds whose known habits render them beneficial at all times.

While it is probable that, after a careful and exhaustive study of the habits of our birds has been made, none of them will be found wholly beneficial, it is better to regard them innocent until they are proved guilty.

(b) Birds which are known to be to some extent injurious, but whose known services exceed their known injuries.

It is probable that all of our useful birds will ultimately fall into this class.

(c) Birds whose flesh is valuable for food, and whose present abundance and slight usefulness as insect destroyers make it proper to permit their destruction as game.

Birds of this class belong properly in one of the two preceding classes, but this classification is made for an obvious special purpose.

*Group II. — Birds whose habits, so far as they are known, make it doubtful whether they are, on the whole, beneficial or injurious.*

This group is necessitated partly by conflicting evidence, partly by the absence of evidence, and partly by evidence which seems to indicate that the destructiveness and usefulness of the birds are nearly balanced. As in the first group, this may be divided into three classes:

(a) Birds whose relations of structure and habits ally them to Group I, but which in the absence of data, or on account of conflicting data, cannot be placed there at present.

(b) Birds whose known beneficial and injurious results appear to balance.

(c) Birds whose relations of structure ally them to Group III, but which in the absence of data, or on account of conflicting statements, cannot be placed there at present.

*Group III — Birds whose habits, so far as they are known, render them, on the whole, injurious.*

In this group are placed those birds whose ability to do injury appears to exceed their beneficial agencies. It is divisible into two classes:

(a) Birds whose known habits render them injurious at all times.

As in the first class of Group I, it is probable that ultimately, the members of this class will be placed in the next.

(b) Birds which are known to be to some extent, beneficial, but whose known injuries exceed their known services.

*How shall a bird's food account be expressed numerically in terms of debit und credit?* This is at once the most difficult and the most important of all the questions requiring solution in order to express the *specific* economic relations of any bird.

Nothing can be more certain than that, after the food of a bird has been classified under the heads "Elements Beneficial" and "Elements Detrimental" to man, neither the relative volumes nor the relative weights of these two classes of material can express the true economic relations of the bird.

If we compare the corn plant-louse, the gall stage of the grape phylloxera, the plum-curculio, the small parasitic military microgaster, which lays its eggs in several kinds of cut worms, the potato-beetle and the chinch-bug, with the large coral-winged grasshopper, bulk for bulk, the ratios will appear about as follows:

- 1 coral-winged grasshopper=12,000 military microgasters.
- 1 coral-winged grasshopper= 3,000 phylloxera.
- 1 coral-winged grasshopper= 1,500 corn plant-lice.
- 1 coral-winged grasshopper= 750 chinch bugs.
- 1 coral-winged grasshopper= 60 plum curculios.
- 1 coral-winged grasshopper= 7 potato-beetles.
- 1 coral-winged grasshopper= 1,000 young potato beetles.

By a system of gauging bulk for bulk, it is evident from the table that one coral-winged grasshopper eaten by a bird would give it a credit which would offset completely the destruction of 12,000 military microgasters, a proposition sufficiently absurd. The same system of gauging would also count the destruction of seven adult Colorado potato-beetles as the full equivalent of 1,000 very young beetles of the same species, while, as a matter of fact, the destruction

of seven very young beetles should be counted a greater service than the destruction of an equal number of adult forms, since not only is the food required to mature the young beetles saved, but the possibility of a deposition of seven thousand eggs (it is estimated that one female may lay one thousand eggs), is effectually precluded.

The fragmentary condition, also, of the contents of a bird's stomach renders any purely quantitative system of gauging as fruitful of false values as does the inequality of size and weight among insects. A single maxilla, a bit of elytron, or a small wing would count for almost nothing in the account by such a system, while each is positive proof of the destruction of a whole insect of some kind, no matter how small the fragment may be.

But when insects are estimated bulk for bulk with grains, weed seeds and fruits, the diversion from true relations reaches the maximum.

A peck of plums and a peck of cuculios, a peck of wheat and a peck of chinch-bugs, or a peck of corn and a peck of cut-worms, are manifestly not to be considered as equivalent values on opposite sides of any account.

Even in those cases where the individuals are nearly equal in bulk and weight, there is often little justice in offsetting one with the other, for then no account will be taken of the relative service or injury of the two species, or of the different rates of reproduction.

In view of the fact that we have no standard of insect values, and that, in the present state of progress of entomological science, a satisfactory one can hardly be furnished, the simplest, and, I believe, all things considered, the most reliable method of exhibiting the results of observations on the food of birds, as well as one which will leave the materials accumulated in the most available form for subsequent more critical examination, is to exhibit the number of individual forms of life which a bird can be proved to have eaten, in as systematic a form and as specifically as possible. In the tables which follow under the various families of birds, an effort has been made to do this. The second table in each case exhibits the details, as far as they

could be shown in the space allowed, and the first table exhibits the same facts brought together under the heads, "Elements Beneficial," "Elements Detrimental," and "Elements whose Economic Relations are Unknown." There are two general tables, introducing the body of the report, which exhibit the same results for all of the birds examined, brought together under the families to which they belong.

Tabular summary of the results of an examination of the contents of the stomachs of 1,608 birds.

THE NAMES OF THE FAMILIES TO WHICH THE BIRDS EXAMINED BELONG.	Whole number of birds examined.										Number of forms of unknown economic relations.	Number of forms of unknown economic relations eaten.							
	Number eating animal food.	Number eating vegetable food.	Number eating adult forms.	Number of adult forms eaten.	Number eating pupae.	Number of pupae eaten.	Number eating larval forms.	Number of larval forms eaten.	Number eating eggs.	Number of eggs eaten.			Number eating beneficial forms.	Number of beneficial forms eaten.	Number eating noxious forms.	Number of noxious forms eaten			
Thrushes.....	105	93	46	66	159	2	6	34	72	3	15	12	18	46	96	67	163		
Bluebirds.....	27	26	1	24	40			3	9	2	10	12	18	20	42	11	23		
Sylvias.....	16	16	1	14	23			3	9	2	10	12	18	20	14	14	64		
Titmice.....	12	13	1	12	43			2	14	1	5	2	2	3	9	17	37		
Nuthatches.....	29	27	10	26	87			2	4			2	2	5	10	20	80		
Creepers.....	3	2		2	6							2	2	5	2	2	6		
Wrens.....	27	27	2	27	108			5	9	1	5	2	2	13	23	20	87		
Larks.....	6	2	6	2	6														
Wagtails.....	2	2	2	2	6												6		
American Warblers.....	246	241	19	218	1,118			1	60	184	6	133	14	28	72	323	218	942	
Tanagers.....	29	29	4	27	120			1	8	26			15	10	38	25	94		
Swallows.....	32	32		32	281								13	67	16	124	17	109	
Waxwings.....	15	5	13	5	18								7	2	2	7	3	4	
Greenlets.....	87	85	14	62	301			1	47	114	6	88	1	50	6	6	184		
Shrikes.....	15	15		15	75			1	7	7			7	9	9	61	51	184	
Finches.....	339	156	266	102	484				35	67	5	16	13	18	62	241	110	328	
American Starlings.....	150	74	99	56	194				19	71	4	65	9	12	37	119	50	139	
Crows, Jays, etc.....	25	23	28	23	51				8	11			2	3	10	15	23	42	
American Flycatchers.....	119	119	5	118	659			11	23	5	328	32	53	41	136	113	601		
Goatsuckers.....	7	7		7	11								1	1	4	18	7	97	
Chimney Swifts.....	3	1		1	3												1	2	
Humming-Birds.....	5	5		5	1												1	5	
Kingfishers.....	6				1								4	4	1			12	
Cuckoos.....	14	14		11	62				11	83			3	3	12	102	4	31	
Woodpeckers.....	110	102	41	84	1,364		8	285	30	166			6	23	41	354	87	1803	
Owls.....	8	3	1	2	9				1	10					3	19		3	
Hawks.....	15	13	1	12	102				2	3			3	3	8	60	2	10	
Pigeons.....	16	2	16	2	26				2	2			1	1	1	15	2	12	
Grouse.....	8	5	5	2	13				2	25	1		1	1	7	30			
Plover.....	16	16		14	78				3	15	1	52	2	2	5	33	13	61	
Phalaropes.....	5	4		4	16				7	7			2	2				20	
Snipe, etc.....	45	38	5	23	150				3	19			5	17	3	6	35	7	164
Hérons.....	18	15		11	39				4	21			8	47	1	1	1	53	
Rails.....	16	9	14	3	12				7	13				1	2	9	6	58	
Ducks.....	13	7	9	1	28				1	3			1	3			6	69	
Gulls.....	6	6		5	23				2	6				3	6	5	26		
Grebes.....	6	6		5	24				2	15				2	15	5	32		
Totals.....	1,608	1,243	605	1,021	6,376	15	296	323	991	38	934	164	367	515	2,018	964	4392		

Tabular summary of the results of an examination of the contents of the stomachs of 1,608 birds.

THE NAMES OF THE FAMILIES TO WHICH THE BIRDS EXAMINED BELONG.	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of	Number of
	hymenoptera eaten.	hymenoptera eaten.	lepidoptera eaten	lepidoptera eaten.	diptera eaten.	diptera.	hemiptera eaten	hemiptera.	coleoptera eaten.	coleoptera.	orthoptera eaten.	orthoptera.	neuroptera eaten.	neuroptera.	spiders eaten.	spiders.	myriapods eaten.	myriapods.	myriapods.
Thrushes.....	73	34	45	24	1	1	2	2	93	44	23	13	.....	.....	.....	.....	.....	.....	.....
Bluebirds.....	2	1	10	6	.....	.....	1	1	13	8	23	17	.....	.....	.....	.....	.....	.....	.....
Sylvias.....	2	2	9	3	13	2	.....	.....	14	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Titmice.....	.....	.....	10	5	.....	.....	3	1	13	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nuthatches.....	5	2	6	3	4	2	.....	.....	47	17	.....	.....	.....	.....	.....	.....	.....	.....	.....
Creepers.....	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wrens.....	4	2	14	10	7	3	7	2	33	10	3	3	2	.....	.....	.....	.....	.....	.....
American Warblers.....	45	23	167	55	175	59	79	15	221	80	6	4	10	7	7	4	.....	.....	.....
Tanagers.....	4	4	26	3	6	3	6	3	47	17	7	4	10	1	1	1	1	1	1
Swallows.....	21	9	16	9	57	11	44	7	85	19	2	2	40	10	1	1	.....	.....	.....
Waxwings.....	5	1	.....	.....	.....	.....	.....	.....	3	2	3	1	1	1	1	.....	.....	.....	.....
Greenlets.....	21	5	114	43	26	8	76	10	56	26	10	9	5	4	4	.....	.....	.....	.....
Shrikes.....	.....	.....	12	4	4	2	.....	.....	18	9	24	7	3	3	3	.....	.....	.....	.....
Finches.....	10	7	67	25	11	7	138	12	96	41	28	23	4	4	3	3	4	4	1
American Starlings.....	2	2	79	26	15	6	.....	.....	80	30	42	22	2	2	2	.....	.....	.....	.....
Crows, Jays.....	1	1	3	3	.....	.....	.....	.....	30	15	8	5	.....	.....	.....	.....	.....	.....	.....
American Flycatchers.....	97	26	48	24	114	28	9	7	48	24	18	15	29	21	.....	.....	.....	.....	.....
Goatsuckers.....	.....	.....	13	3	.....	.....	.....	.....	33	5	5	1	.....	.....	.....	.....	.....	.....	.....
Chimney Swift.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Humming-birds.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cuckoos.....	13	2	77	10	.....	.....	.....	.....	10	2	26	6	.....	.....	.....	.....	.....	.....	.....
Woodpeckers.....	1,449	61	24	12	2	2	22	5	215	48	2	2	.....	.....	.....	.....	.....	.....	.....
Owls.....	.....	.....	10	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hawks.....	.....	.....	7	2	.....	.....	.....	.....	6	3	69	11	.....	.....	.....	.....	.....	.....	.....
Pigeons.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	13	1	.....	.....	.....	.....	.....	.....	.....
Grouse.....	.....	.....	24	2	.....	.....	.....	.....	5	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Plover.....	15	4	9	5	1	1	.....	.....	32	11	13	7	.....	.....	.....	.....	.....	.....	.....
Phalaropes.....	.....	.....	.....	.....	.....	.....	.....	.....	5	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Snipe, etc.....	6	1	1	1	3	3	.....	.....	45	14	5	3	.....	.....	.....	.....	.....	.....	.....
Hérons.....	.....	.....	.....	.....	.....	.....	32	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rails.....	.....	.....	.....	.....	.....	.....	5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ducks.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gulls.....	.....	.....	.....	.....	.....	.....	6	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grebes.....	.....	.....	.....	.....	.....	.....	15	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand totals.....	1,779	183	793	390	444	140	671	82	1,262	430	337	157	153	68	52	35	2	2	2



TYPES OF THE PRINCIPAL GROUPS OF BENEFICIAL AND DETRIMENTAL ANIMALS PREYED UPON BY BIRDS.

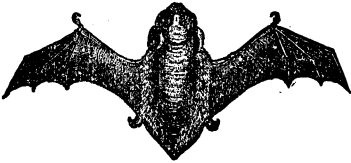
(Beneficial.)

**MAMMALS.**

(Detrimental.)

Those preying upon night-flying insects;—  
Bats. Those eating terrestrial and underground  
insects;—Shrews and Moles.

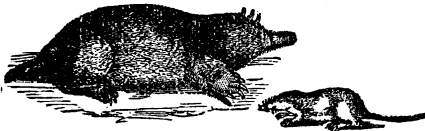
Those eating grains, birds or their eggs;  
Rats, Mice, Gophers and Squirrels.



HOARY BAT.



POCKET GOPHER.



COMMON MOLE. THOMPSON'S SHREW.



WHITE-FOOTED MOUSE.

**BATRACHIANS.** (Beneficial.)

Those preying upon detrimental insects;—  
Toads, Tree-Toads. Frogs and Salamanders.

**SNAKES.** (Detrimental.)

Large ones preying upon frogs, toads, birds  
and their eggs;—most snakes over 18 or 20  
inches long.



LEOPARD FROG.



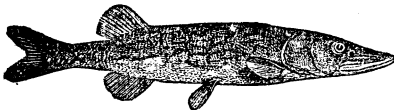
BLACK SNAKE.

**FISHES.** (Beneficial.)

Those suitable for food or for the food of  
food-fishes.

**CRUSTACEANS.** (Detrimental.)

Those building clay chimneys in meadows. (??)



PICKEREL.



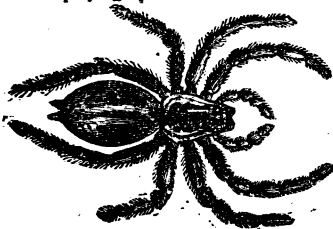
CRAY-FISH.

**SPIDERS.** (Beneficial.)

Those preying upon detrimental insects.

**MYRIAPODS.** (Detrimental.)

Those preying upon beneficial insects.



SPIDER.



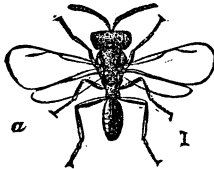
AMERICAN EARWIG.

**TYPES OF THE PRINCIPAL GROUPS OF BENEFICIAL AND DETRIMENTAL ANIMALS PREYED UPON BY BIRDS.**

*(Beneficial.)*      **HYMENOPTERA.**      *(Detrimental.)*

Those that are parasitic or predaceous on noxious insects;—Ichneumon and Chalcis Flies, Egg-Parasites and Solitary Wasps.

Those eating leaves, boring stems, or producing galls;—“Slugs,” Saw-Flies, Horn-tails and Gall-Flies.



CHALCIS FLY.



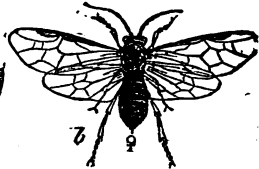
LARVE.



PUPA.



LARVE.

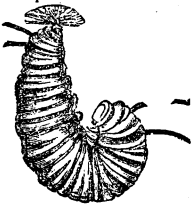


CURRANT SAW-FLY

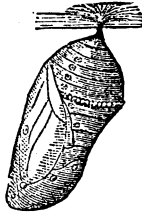
*(Beneficial.)*      **LEPIDOPTERA.**      *(Detrimental.)*

Those feeding on weeds;—comparatively few species.

Those feeding on useful plants;—Butterflies, Moths, Cut-worms, Measure-worms, Leaf-rollers, etc.



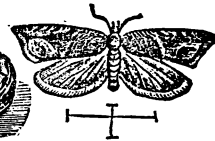
MILKWEED CATERPILLAR..



PUPA.



W-MARKED CUT-WORM.



STRAWBERRY LEAF-ROLLER

*(Beneficial.)*      **DIPTERA.**      *(Detrimental.)*

Those preying upon detrimental insects and carrion;—Ailus, Syrphian and Meat-Flies.

Those feeding on useful plants and animals;—Gnats, Gall-Gnats, Crane-, Bot- and Horse-Flies.



AILUS FLY.



SYRPHUS FLY.



SHEEP BOT-FLY.

*(Beneficial.)*      **COLEOPTERA.**      *(Detrimental.)*

Those preying upon detrimental insects and carrion;—Lady-Birds, Tiger- Ground- Carrion- and Rove-Beetles.

Those feeding on useful plants;—Click Long-horned, Lamellicorn, and Leaf-Beetles Grubs. Wire worms, Wood-borers and Weevils.



TYPES OF THE PRINCIPAL GROUPS OF BENEFICIAL AND  
DETRIMENTAL ANIMALS PREYED UPON BY BIRDS.

(Beneficial.)

**HEMIPTERA.**

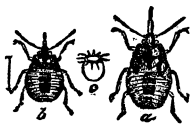
(Detrimental.)

Those sucking the blood of detrimental insects;—Reduvian and some Corisian Bugs.

Those sucking the juice of useful plants;—Harvest-Flies, Leaf-Hoppers, Plant-Lice, Chinch-Bugs, etc.



SPINED SOLDIER-BUG.



EGG AND LARVA.



PLANT LOUSE.



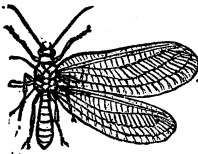
SQUASH BUG.

**NEUROPTERA.** (Beneficial.)

Those preying upon detrimental insects;—Dragon-Flies, Lace-Wings, and Ant-Lions.

**ORTHOPTERA.** (Detrimental.)

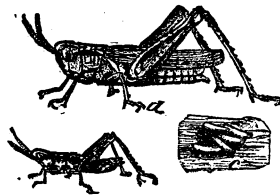
Those feeding on useful plants;—Grasshoppers, Locusts, Crickets, Cockroaches.



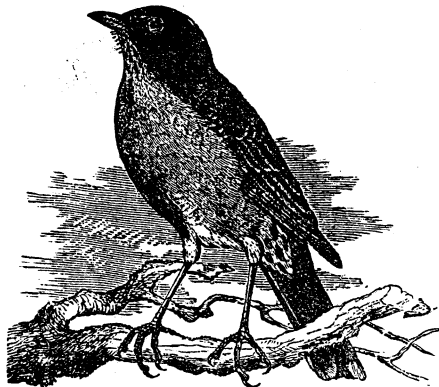
LACE-WING FLY.



LARVA, COCOON EGGS.



GRASSHOPPER, LARVA AND EGGS.



Common Robin (*Turdus migratorius*). From Baird, Ridgway and Brewer.

## COMMON ROBIN.

The Robin is the largest and most abundant of the Thrushes, as it is the most confiding and familiar. With us, it frequents, by preference, agricultural districts, and is especially attractive to towns and villages and to the suburbs, parks and cemeteries of large cities. Not less than a hundred pairs of Robins reared their young, in 1878, within the city limits of Ithaca, N. Y.

In its method of obtaining food, and in the situation from which its food is gleaned, the Robin performs a very important work, and one for which few other birds are so well adapted. So important is this work that the quantity of small fruits which it consumes is but a stingy compensation for the services which it renders, and I know of no bird whose greater abundance is likely to prove of more service to the country. Its eminently terrestrial habits, its fondness for larvæ of various kinds, and its ability to obtain those which are hidden beneath the turf, give it a usefulness in destroying cut-worms, in the larval state, which no other bird possesses in the same degree, and for this feature of its economy alone its greater abundance should be encouraged.

Early in the morning and towards the close of the evening, the Robin may often be seen searching after cut-worms in lawns, pastures and meadows, and when thus engaged, it hops about apparently gazing more at distant objects than searching for something near at hand; then, suddenly, it commences tearing up the old grass and turf with its bill; and, in another instant, it stands triumphant with its wriggling prize in its bill, for it rarely digs in vain. I have seen a Robin capture, in this manner, five cut-worms in less than ten minutes; and five other birds, within view, were doing the same work.

Almost invariably the larvæ were beaten upon the ground and more or less mangled before they were eaten; and by taking advantage of the Robin when she lays her prey upon the ground, by throwing something at her she can usually be driven away and whatever she has captured obtained.

How the Robin discovers these cut-worms is not easily explained. It is possible, however, that the larvæ while gnawing at the bases and roots of the grass stems, while secreting themselves after their night's raids, or while, toward evening, they grow restless and hungry, the slight movements which they produce among the grass are sufficient to betray their hiding places to the Robin. It should be observed in regard to these cut-worms, that large numbers of them are destroyed by various birds just after showers and during cool, drizzly and lowery days, when the absence of the scorching rays of the sun enables them to feed with quite as much comfort as during the night. Facts like these should weigh heavily against such *a priori* reasoning in regard to the general utility of birds, as "many (insects) are nocturnal and hide by day, with that instinct of self-preservation which is as much developed in them as in larger animals." It may be added here, that possibly the greater activity which birds evince at the approach of and during stormy weather may find a partial explanation in a corresponding activity of insect-life, which would enable them sooner to obtain a meal.

While the Robin obtains a greater part of its food upon the ground, it does not reject those insects which it meets while passing among the branches of trees and shrubbery; and its ability to discover these insects is quite remarkable. I have seen it throw itself from the boughs of an oak tree into a grape vine standing three rods distant, and, without stopping, seize and bear to the ground a hog-caterpillar-of-the-vine which had attained about two-thirds its full size. The expedition with which this capture was made convinced me that the Robin must have marked its prey before it left the tree, and that, after all, "mimicry" of colors does not furnish that protection to insects against birds which appear to be supposed.

All are familiar with the situations in which the Robin builds her nest, and in this connection it need only be added that it is always located out of the way, where nothing but wilful hands and marauding cats are likely to disturb it. The two or three broods of from three to five individuals

each indicate how destructive to insects it must be, and how abundant it may become if properly protected and encouraged. It is generally amicable in its relations with other birds, and allows those whose haunts are similar, but whose work is different, to associate with it. Should this species become excessively abundant, it may be easily reduced without resorting to fire-arms — instruments whose murderous use has made them terrifying to birds of all kinds — for their nests are easily discovered and reached.

The results obtained from an examination of thirty-seven stomachs of the Robin are indicated, in a general way, in the two tables introducing the family. Of these specimens one was taken in March, one in April, eleven in June, thirteen in July, five in August, six in September, and one in October.

Five birds had eaten eleven cut-worms; three, five wire-worms (Elaters); five, six grub-worms; two, two caterpillars (Artians); one, a hog-caterpillar-of-the-vine (*Choerocampa pampinatrix*); five, eight scarabeans; two, two curculios (*Brevirostres*); one, a click-beetle (*Elater*); one, an ichneumon-fly (*Anomalon?*); two, two spiders; one, a millepede; two, two angle-worms; six, nine grasshoppers; two eight grasshopper eggs; one, a moth; three (young birds), pellets of grass; one, choke cherries; two, black cherries; one, raspberries; one, grapes; one, sheep berries; and one, berries of Indian turnip.

From the stomach of one Robin were taken seven cut-worms, 1.25 inches long, six other caterpillars, varying from three-fourths to one inch long, two small curculios and five grape seeds.

From the stomachs of three young Robins — all of the same brood — were taken respectively, (1) one wire-worm, one grub-worm, one caterpillar, several beetles, and a pellet of grass; (2) one wire-worm, three larvæ, one ground beetle, one lamellicorn beetle, and a small pellet of grass; (3) one one grub-worm, one caterpillar, several small seeds and a pellet of grass.

The food of the Robin, as indicated by others, is as follows :

"Its principal food is berries, worms and caterpillars; berries, those of the sour gum and poke berry" (Wils.); "Chiefly insects — especially worms — and berries" (Cooper); "Worms, insects, berries, and fruits" (De Kay); "Grubs and caterpillars, crickets, grasshoppers, grubs of locusts, harvest-flies, and of beetles, the apple-worm when it leaves the apple, cut-worms, silk-worms" (Samuels); "Larvæ of Bibionidæ" (Packard); "Larvæ of *Dryocampa senatoria*" (A. J. Cook). Prof. S. A. Forbes concludes, from an examination of the contents of 41 stomachs, that 78 per cent. of the food was insects; 2 per cent. myriapods and spiders, and 28 per cent. grubs. Twelve per cent. were caterpillars, 7 per cent. beneficial beetles (*Harpalinæ*),  $6\frac{1}{2}$  per cent. noxious beetles, 8 per cent. orthoptera and  $1\frac{1}{2}$  per cent. noxious myriapods. This record, he concludes, indicates fully as much injury as good done by these forty-one birds.

#### WOOD THRUSH.

This rich-voiced songster, though a summer resident, is far from being common at present, even during the migrations. Its favorite haunts are the osier and alder thickets which embrace the winding streams of our low, deep woods, but during the fall and spring, more open woods and groves are visited by it. Like the Robin, it is terrestrial in its habits, and appears to obtain its food in a similar manner; but its secluded retreats forbid any direct relation to agricultural interests at present. There are indications, however, that its habits are changing, and that it is becoming more familiar.

In the Germantown (Pa.) Telegraph for May 8, 1878, occurs the following from the pen of its editor:

"But within the last five years, it (Wood Thrush) has appeared in our gardens, builds its nest and rears its young. Last year they had considerably increased upon our premises, notwithstanding much of the cover had been cut away; and already this season they have made their appearance quite numerously, and have begun to entertain us with their charming song. They have also become quite tame, fully as much so as the Robin or Catbird. This, too, in the very

face of our colony of House Sparrows." If these are facts, by due encouragement and protection we may hope to have the Wood Thrush much more abundant and familiar than it now is.

Of two specimens examined, one had eaten two ants, fragments of beetles, and one caterpillar; the other had eaten fruits and beetles.

Its food, according to Wilson, consists of lichens, berries, caterpillars and beetles. Audubon states that it eats berries, small fruits, and occasionally insects and various lichens.

Prof. S. A. Forbes says of the contents of the stomachs of twenty-two birds which he examined, that "seventy-one per cent. of their food consisted of insects and twenty per cent. of fruit, a small ratio of spiders and an unusually large percentage of myriapoda making up the remainder. Blackberries, strawberries, cherries and gooseberries appear among the fruits. The twelve per cent. of myriapoda were mostly *Palydesmus* and *Inulus*. Harvest-men were among the two per cent. of arachnida, orthoptera were six and hemiptera one per cent. Wire-worms and snout-beetles make up thirteen per cent. and the carabidæ amount to six per cent. The coleoptera make eighteen per cent. and the diptera twelve per cent. Lepidoptera were taken in about the same amount, one-third being recognized as cut-worms, while ants reached the unusual average of fifteen per cent.

#### CATBIRD.

Known to almost everybody, looked upon by children as a peevish, snarling bird, and regarded by the farmer and gardener as a sly, sneaking robber, the poor Catbird has but few friends. Although not one of the best birds, he renders far greater service and does much less injury than many give him credit for. Extremely abundant in his favorite resorts, with us the whole summer, of good size and active habits, his aggregate consumption of food is large. Loving best willow, oiser, and alder thickets, where woods slope into marshes, the brush piles and brambles about old clearings, the hazel patches fringing groves, and the tan-



gled hedges that often grow along fences, the Catbird can do but little harm while in these haunts. On the contrary, he must render there material service, for such places are the nurseries of hosts of insect forms. It is only when he intrudes upon orchards, gardens and vineyards for small fruits that he can be looked upon as injurious; this, however, he rarely does unless his favorite haunts are near at hand. Occasionally he nests in those gardens where much shrubbery grows along the fences, and his familiar feline "mew" is sometimes heard in our villages.

Of twenty-two specimens examined, six had eaten twenty-four ants; two, three grasshoppers; one, three crickets; three, three beetles; one, sheep berries; two, dogwood berries; one, blueberries; one, choke cherries; one, raspberries, and one, black cherries. From the stomach of one bird were taken three crickets and two grasshoppers, and from that of another were taken one ground beetle (*Harpalini?*), one tipulid, one heteropterous insect and one larva (caterpillar?). Its food, according to others, consisted of strawberries, cherries and pears (Wils.); insects, worms, fruits and berries (Cooper); berries, worms, wasps and other insects (De Kay); canker worms (Maynard). Prof. Forbes, in discussing the economic relations of the Catbird, after having examined the contents of seventy stomachs, concludes that the beneficial, injurious and neutral elements eaten by the birds stand in the relation of 41 to 15 to 44. Among injurious insects he finds the birds have eaten saw-flies one per cent., lepidoptera seven, leaf-chafers two, snout-beetles one, chinch-bugs one, and orthoptera three, making a total of sixteen per cent.; while among beneficial insects he finds predaceous beetles five per cent., predaceous hemiptera one, and arachnida two, making a total of eight per cent. Deducting the eight per cent. of beneficial insects from the forty-one per cent., it is seen that thirty-three per cent. of the food consisted of garden fruits, while fifty-two per cent. represents the amount of fruits of all kinds eaten by the birds.

#### THRASHER.

Although a common and familiar bird, the Thrasher is not as abundant as the last species. Its haunts, too, are sim-

ilar, but it prefers to choose them in opening and prairie sections rather than in heavy timbered districts, where the Catbird exists in greater abundance. In proportion to its numbers, it also makes more frequent visits to the vicinity of dwellings. The Brown Thrasher is eminently terrestrial in its habits, and obtains much of its food beneath the fallen leaves and mold of its favorite haunts, and for this work the strong decurved beak serves its owner admirably.

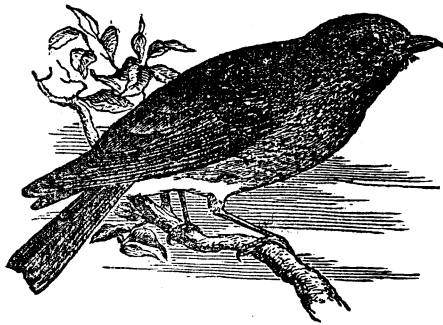
Of ten specimens examined, one had eaten two crickets; one, two grasshoppers; five, eleven beetles — among which were two species of *Harpalus*; three, three larvæ — among them caterpillars and a grub of a tiger beetle; two, two mollusks; five, seeds; one, wheat; and one, wild grapes.

“Its food consists of worms, which it scratches from the ground, particularly a dirty-colored grub more pernicious to corn than nine-tenths of the birds, ‘wasps’ and beetles. It is accused of scratching up corn.” (Wils.). “It eats insects, worms, berries of all sorts, ripe pears and figs,” (Aud.). “Worms, insects and various kinds of berries.” (De Kay). Prof. Forbes has examined the contents of the stomachs of sixty-four of these birds, and estimates the beneficial, noxious and neutral elements to stand in the relation of 33 to 26 to 41. Among the injurious insects eaten were seven per cent. lepidoptera, ten leaf-chafers, two, spring-beetles, two snout-beetles, one chinch-bug and four orthoptera, while among the beneficial insects were six per cent carabidæ, two predaceous hemiptera, one spider and one of predaceous thousand-legs. From this it is seen that twenty-six per cent. of the insects eaten were injurious and ten per cent. beneficial, including the spiders and myriapods. Twenty-one per cent. of the food consisted of small fruits.

#### EASTERN BLUEBIRD.

The Bluebird has so many excellent qualities that it promises to become, under proper management, one of the most readily utilizable insect-destroyers which we have among birds. It is, with us, almost exclusively insectivorous, and is especially destructive to grasshoppers. It captures its prey upon the wing and upon the ground, giving it a wide

range of food, from which it may be expected to maintain, under favorable conditions, a steady and considerable abundance. Its long summer residence, its rearing of two, sometimes three, broods each season, its fondness for cultivated fields, and its willingness to breed in bird-houses protected from the ordinary enemies of birds, and beyond the disturbance of the machinery and live-stock of the farm, are other qualifications which tend to place it in the front rank of usefulness.



Eastern Bluebird (*Sialia sialis*). From Baird, Brewer and Ridgway.

How to cause this bird to take and maintain a greater abundance than it now has is a question of great practical importance to all classes of farming. The fact that its familiar and confiding nature has not made it more numerous among us, appears to be readily explained by its breeding habits. In its unmodified condition, its nest is usually placed in some hollow limb or tree; and as a natural consequence the Bluebird is driven away when its nesting places are destroyed. But as Bluebirds accept so gladly the houses which are sometimes provided for them, I can see no reason why, if sufficient and suitable breeding places were put up, they might not in a few years become far more numerous than they are now; and I would earnestly recommend that our farmers generally should put up cheap bird-houses, or even small boxes provided with suitable openings, in convenient places about their premises. Not one, simply, but several. Let them be put up in the trees which stand out

in the fields and along the fences, so that the birds may be induced to live where their services are most needed.

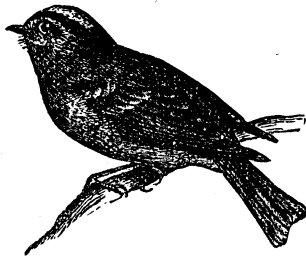
Of the twenty-seven birds examined, one had eaten two ants; two, three moths; four, seven caterpillars; one, two tiger beetles; one, a ground beetle; sixteen, twenty-one grasshoppers; one, one cricket; and two, a spider each. One bird ate a few raspberries.

Others record its food as follows: Principally insects, among which are large beetles and spiders. In the fall, berries of sour gum; in the winter, those of red cedar (Wils.). Numerous insects, among these, grasshoppers (Samuels). Beetles, caterpillars, spiders; in autumn, grasshoppers and various kinds of ripe fruits (Aud.). Multitudes of noxious insects; in autumn, cedar berries and wild cherries (De Kay).

Prof. Forbes, after examining one hundred and eight stomachs of the Bluebird, finds them to contain, among noxious insects, twenty-six per cent. lepidoptera; three per cent. leaf-chafers, and twenty-one per cent. orthoptera, making a total of fifty per cent.; among the beneficial insects, three per cent. ichneumons; caradidæ, seven per cent.; soldier-beetles, one per cent.; soldier-bugs, three per cent., and spiders, eight per cent.—making a total of twenty-two per cent. Seventy-eight per cent. consisted of insects, eight per cent of spiders, and one per cent. of myriapods, making, with thirteen per cent. of vegetable food, the whole amount.

Our representatives of this family are among the pigmies of the forest, and feed upon insects of proportionate size. From the stomach of a Ruby-crowned Kinglet were taken a chalcis-fly .08 of an inch, and two beetles only .07 of an inch long. In their method of obtaining food, they combine with the habits of the Fly-catchers, those of the Nuthatches and Warblers; but while they frequent similar haunts and feed upon the same grounds as the birds whose habits they imitate, their diminutive size and great agility enables them to perform a *special* work by feeding more extensively upon the smaller insects. How destructive they may be to parasitic insects cannot be said at present. That their whole make-up fits them for such work, and that they do occasion-

ally destroy them, is certain, but that they feed as extensively upon these insects as upon other forms is far from probable.

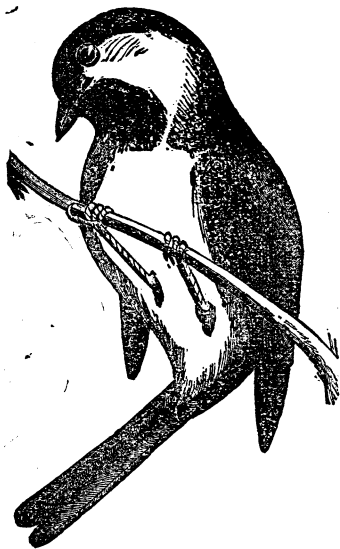


Golden-crested Kinglet (*Regulus satrapa*). After Baird, Brewer and Ridgway.

#### BLACK-CAPPED CHICKADEE; TITMOUSE.

The Titmouse, with its sympathy-enlisting "chick-a-dee-dee," is one of our abundant, hardy residents and most useful little foresters. During the breeding season it is principally confined to larch and pine tracts; but at other times it searches for food wherever trees may be found — along fences, in orchards, about dwellings and among village shade-trees, as well as in groves and woodlands. At Ithaca, N. Y., it has been a frequent visitor to the University campus all through the spring and summer. Its small size, its method of feeding, and its great agility enable it to perform a very useful and special work. In feeding it searches most diligently among the outermost branches of the trees, where it often hangs back downward from the leaves to obtain those small larvæ and insects which are accessible only with difficulty to larger and more clumsy birds. The habit which it has of picking open buds for insects which they often contain has led some to infer that it is injurious. Whatever injury it may do in this manner must certainly be trifling when compared with the service it renders. If the Chickadee is as destructive to insect eggs as it is said to be, its winter residence and its searching habits must lend great additional value to its services. Evi-

dently if this bird could be induced to so change its breeding habits as to nest commonly in orchards and about dwellings, it would become one of the most valuable aids in destroying noxious insects. It does not appear improbable, in view of the fact that these birds build in sheltered situations, even though usually excavated by themselves, that they might not come, in time, to nest in houses like Bluebirds and Wrens, if they were properly encouraged to do so. Could such a change be induced, we might then bring them readily into closer relationship with us; for they are already becoming familiar in cultivated districts out of the breeding



Black-capped Chickadee (*Parus atricapillus*). After Coues.

season. I believe that an experiment worthy of thorough trial in this connection would be to put up in their breeding haunts some sort of cheap houses, perhaps imitating interiorly their own excavations, to ascertain whether it is not possible to induce them to nest in such places. If such a change could be brought about, first in their breeding haunts, we might then expect to bring them about our dwellings. No very marked immediate results could be expected from such a course; but future prosperity is not the last consideration with which we should deal.

Of twelve specimens examined, seven had eaten fourteen larvæ, ten of which were caterpillars; seven, thirteen beetles; two, two spiders; one, three heteropterous insects related to the genus *Tingis*; and one, five eggs of some insect. One individual of the twelve had in its stomach a few seeds.

Food according to others: Pine seeds, sunflower seeds, insects and their larvæ (Wils.). Nuts, numerous insects and their larvæ (De Kay). Eggs of the moth of the destructive leaf-rolling caterpillar and of the apple-tree moth and canker-worm; larvæ which infests buds, caterpillars, flies and grubs (Samuels). Though omnivorous, they prefer insects to all other food. Destroys the chrysalis of the woolly-bear, *Leucaretia aceræa* (Brewer). Insects,—their larvæ and eggs — berries, fruits, acorns, seeds of pine and sunflower, and poke-berries (Aud.). Canker-worms (Maynard). Caterpillars and plant-lice (Forbes).



White-Bellied Nuthatch (*Sitta Carolinensis*). After Baird, Brewer and Ridgway.

#### WHITE-BELLIED NUTHATCH.

This species is another of those birds whose possibilities for usefulness appear to be among the highest; but it is one which can hardly attain, under present management, that abundance in thickly settled districts which could be desired. It has conclusively proved its desire to assume familiar

relations with man, and this with only the slightest encouragement. The orchard, ornamental and shade trees, as well as the groves and scattered patches of woods of thickly settled districts, offer it an ample supply of food and need its protection; but few yet appear to realize that if these birds are to become abundant and of service, they must have places in which to rear their young. They usually place their nests in holes in trees and stumps, which they find ready formed, or excavate for themselves. It is usually regarded as in harmony with thrifty husbandry, in gathering the years fuel, to select from the woods those trees which give evidence of decay. Such an economy, however, if carried to an extreme, will ultimately leave the Nuthatches and Woodpeckers, and all those species which breed in hollow trees, without nesting places, and will necessarily extirpate them from sections so modified, and deprive the country of their services, except so far as some of these birds may be able to form new habits which are more in harmony with the altered conditions. The practical questions which these facts suggest are these: Are the services of this class of birds sufficiently great to justify the preservation of their nesting places? Is it probable that these birds can so modify their habits as to place themselves in harmony with the new features which our country is assuming so rapidly? That this Nuthatch gathers its food from a field where some of our most destructive insects abound, there can be no question. In proof of this, it need only be said that almost its whole time is spent searching about and upon the trunks and larger branches of trees in quest of insects, and that in such situations as these the wingless female of the canker-worm, the larvæ and pupæ of the codling moth, the adults of the round-headed and flat-headed apple-tree borers, and a host of nocturnal moths and other insects may be destroyed by it. That the particular insects which have been mentioned are so destroyed cannot be asserted positively at present, yet it is highly probable that they are, for its record of food, meagre as it is, proves that it does feed upon closely allied forms.

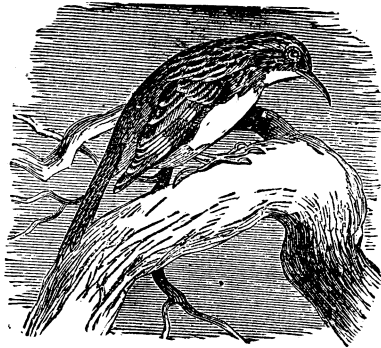


Food: Of twenty-five specimens examined, fourteen had eaten thirty-two beetles — among which were three elaters, one long-horn and a lady-bug (?); one, two ants; one, two caterpillars; one, two grubs of a beetle; one, a spider; one, a chrysalid; one, small toad-stools; five, acorns; and one, corn.

According to others: Ants, bugs, insects and their larvæ, spiders, (Wils.). Larvæ and eggs of insects (Samuels). Insects are its favorite food at all times. It seems to break open acorns and chestnuts for the included insects (Aud.). Prof. Forbes records finding in the stomachs of four birds of this specie evidence that it eats many beetles, Nitidulidæ, Cetonidæ and lady-bugs. One had eaten corn.

#### BROWN CREEPER.

The Brown Creeper is another of those birds, which, like the Nuthatches, scrambles about the trunks and larger branches of trees in quest of food, using its long, slender, decurved bill to remove those small insects that hide in the crevices of the bark and under it. In the northern portions



Brown Creeper (*Certhia familiaris*). After Baird, Brewer and Ridgway.

of the state it is resident throughout the year. In the fall it spreads southward, to return again in the spring. Its favorite haunts are the deep, heavy woods, but during its migrations it ventures near the abodes of man, and is often seen in cities. Mr. Nelson states that he has seen as many as a dozen of these birds upon the sides of a house at once, in Chicago, searching after small spiders.

Enough has been said, in the introduction, to indicate the value of the kind of work which this bird does, and that it should be more abundant. It is difficult to explain why birds which lay as many eggs as this and the Black-capped Titmouse do, and in places apparently so secure from the plunderers of birds' nests, as we know them, do not become more numerous. The subject is one which needs careful investigation. It may be added, in connection with what has already been said of squirrels robbing birds' nests, that the chipmunk has been known to capture and carry away young chickens, and that this fact suggests that it may also be a dangerous enemy to small birds. If so, its small size enables it to enter almost any nest which is built in hollow trees, and, hence, only the ability of the bird to ward off its attacks remains as a safeguard against it. I make these statements, not as an accusation against the little striped squirrel, but as indicating a field in which careful observation is needed. The flying squirrel, too, as I have shown in another place, is fond of birds' eggs, and might rob the nests of these and other birds in their absence. The little red squirrel, in many cases, might also enter the nests of this species.

Food: Only three stomachs of this species have been examined; one was empty, one contained three small beetles, and one three small insects.

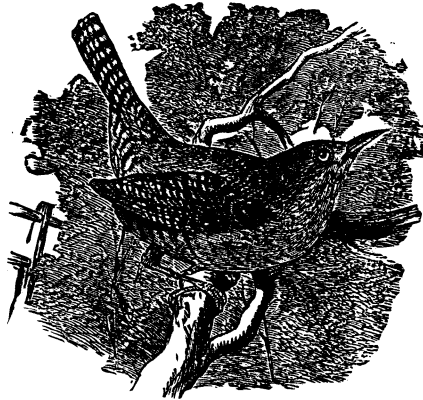
Bugs, pine seeds and fungi (Wils.). Insects and the seeds of pines (De Kay). Spiders (E. W. Nelson).

#### HOUSE WREN.

The House Wren is a common summer resident, but at present, with us, a bird of heavily timbered districts rather than of openings and prairie sections. In the older Eastern and Middle States it has assumed much more familiar and intimate relationship with man than with us; there it is common about dwellings and nests in bird-houses, in the cornice of buildings, under the eaves, and in hollow cherry trees. Habits similar to these are being assumed by our birds, but at present they are most abundant in woods where the upturned roots and tangled branches of trees

are common. It is very destructive to insects, feeding almost entirely, if not wholly, upon them, and is, therefore, a bird which any abundance cannot make destructive to grains or fruits. It rears a large family, and often two each season.

No pains should be spared in attracting these birds to our dwellings and in establishing their homes along the fence-rows of cultivated rows. The accusation that is brought



House Wren (*Troglodytes domesticus*). After Baird, Brewer and Ridgway.

against them in the east, of their driving Bluebirds out of their houses and appropriating them to their own, is no great objection. Houses enough and to spare should be gladly provided for both species. This, however, is to be said in regard to the disposition of both two species upon the farm. The size of the Bluebird, its methods of obtaining food, and its haunts, fit it best for work in the open fields, where it should be especially encouraged; the House Wren is especially fitted to do work among the shrubbery of orchards, gardens and yards, and these, particularly, should be the foci of its labors.

Food: From three specimens were taken seven caterpillars; from two, nine beetles; and from one, a grasshopper.

Insects and their larvæ (Wils.). Insects, their larvæ, and spiders (Samuels).

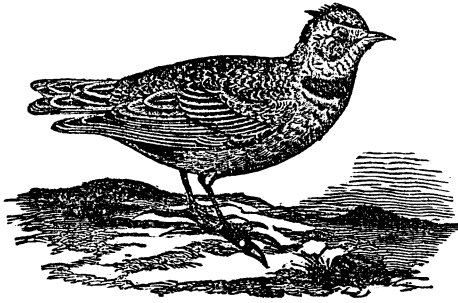
Four specimens examined by Prof. Forbes contained only beetles and hemiptera. The beetles were ground-beetles and Hydrophilidæ.

## WINTER WREN.

In the northern portion of the state among the heavy timber, where this species is common, it is a summer resident. In this region it frequents the line of the Wisconsin Central Railroad, and often affects the large piles of slabs that are drawn out from the saw-mills. In the southern portion of the state it only occurs during its migrations.

Food: Of three specimens examined one had eaten three ants; one, a geometrid caterpillar; one, three beetles; and one a dragon-fly.

Insects and their larvæ (Wils.). Prof. Forbes found in one stomach evidence of ants, moths, caterpillars, ground-beetles, rove-beetles, diptera, day-flies and spiders.



Horned Lark (*Eremophela alpestris*). After Coues.

## HORNED LARK; SHORE LARK.

Without reference, in the present connection, to the varieties of this species which have been designated, except to state that *leucolæma* is probably the only form that breeds in the state, it may be said that this highly terrestrial and graminivorous bird is rather common in suitable places during most of the year, but that it is only abundant late in the fall and early in the spring. Except during the breeding season, it is gregarious in its habits, and its usual haunts are dry, open fields. Fields of newly sowed grain are sometimes visited by these birds both in the spring and fall, but the little injury that they do in picking up grain at present is slight when compared with the immense amount

of seeds of various weeds which they consume during the year. Although it rears two broods each year, the exposed situations in which its nest is located appears to preclude any very considerable abundance.

Food: Five out of six specimens examined had eaten only the seeds of weeds, among which were those of the black bind-weed, the pigeon-grass and pig-weed; the remaining specimen had in its stomach winter wheat.

Small black seeds, buckwheat, oats, buds of sprig birch and larvæ of certain insects (Wilson). Seeds and insects which it finds among the grass (Cooper). Seeds of grasses, insects and mollusks (Samuels). Of seven specimens examined by Prof. Forbes, one had eaten ground-beetles; one a fungus-beetle (*Cryptophagidæ*); one, a rove-beetle; two, leaf-chafers; one a predaceous hemiptera (*Reduviidæ*); and six seeds of weeds.

If this active little species was ever more closely united, in habits and structure, to the "*wood warblers par excellence*," it has probably, in some distant time, found with them so vigorous a competition as to oblige it to seek a living with a much smaller class of birds. Whatever may have been its habits in previous ages, it is to our advantage that it has assumed the creeper-like life it leads. It is another of those birds which has learned that a large number of nocturnal insects court security by day in the crannied bark of trees, or resort there to undergo their transformations, and like the Nuthatches and true Creepers, upon such forms it feeds. Sometimes it pursues upon the wing moths which it has startled from their hiding places, and occasionally it searches for insects among the foliage of trees.

The Black-and-white Creeper is a rather common summer resident, and it usually affects, during the breeding season, unpastured groves and woods, where it builds its nest upon the ground, depositing therein from three to seven eggs; from these places, after the middle of July, it disperses over other woods and groves, and often appears in orchards and about dwellings. It has been known to build its nests in the immediate vicinity of houses, and the fact bespeaks for it a growing familiarity and a greater useful-

ness. It is doubtful, however, owing to its breeding habits, whether it can ever become abundant about dwellings during the breeding season, at least where dogs and cats are allowed to live. These birds are often doomed to become the foster parent of the Cowbird, and no doubt their general abundance is generally reduced on this account. Owing to the small size of these birds, they find it profitable to feed extensively upon very small insects. For this reason they are able to do a work for which the Nuthatchers and Woodpeckers are not so well fitted. It is, therefore, especially desirable that they should attain a greater abundance with us.

Food: Of seventeen specimens examined, three had eaten five ants; two, twenty-one caterpillars, twenty of which were small measuring-worms; three, four moths; three, five diptera; six, sixteen beetles, one of which was a curculio; two, seven heteroptera; one, a caddis-fly, and one small snail (*Physa*.) Two had eaten one hundred and one insect eggs, but these, I believe, were contained in insects which the birds had eaten.

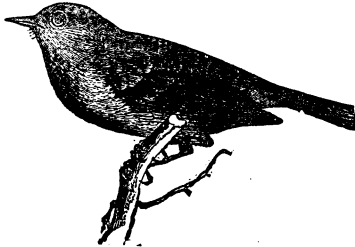
Ants and other insects (Wilson). Insects and their larvæ (Brewer). Insects which hide under the bark of trees and in its crevices (De Kay). Beetles and moths (Forbes).

#### NASHVILLE WARBLER.

Both Dr. Hoy and Mr. Nelson speak of this Warbler as common during the migrations, along the lake shore, in the spring and fall. This has not been my experience for Central Wisconsin. The only specimens which I have seen were taken near Waupaca. They represented both sexes and were taken in different localities. The first, a male, was taken July 21st, while perched upon the limb of a dead poplar which was standing in an old "clearing" overgrown with small poplars, between large piles of brush. The second was obtained in a grove of small tamaracks, while it was nimbly searching for food among the delicate sprays. Mr. Allen states that at Springfield, Mass., during two or three weeks of the spring migration, these birds are common in the orchards and gardens, actively gleaning insects

among the unfolding leaves and blossoms of fruit trees. It nests upon the ground.

Food: The two specimens examined had in their stomachs four small green caterpillars, and a few very fine fragments of insects.



Orange-Crowned Warbler (*Helminthophaga celata*). After B., B. and R.



Black-and-White Creeping Warbler (*Miniotilta varia*). After B., B. and R.

#### GOLDEN WARBLER.

This elegant little species and common summer resident frequents most commonly the willow clumps of alluvial meadows, but is also to be seen in groves, along wooded water-courses, and in villages, orchards and gardens. In the Eastern and Middle States it is much more familiar and abundant than with us. At Ithaca, N. Y., it nests very commonly in the city, building in the shade and fruit trees, sometimes so close to the windows of the dwellings that its nest can almost be reached from them. It only requires suitable breeding places to become, in time, extremely serviceable as a destroyer of garden and orchard insects. It loves to search for insects in rosaries and among berry bushes.

Food: Of five specimens examined, two had eaten four small larvæ; two, two beetles.

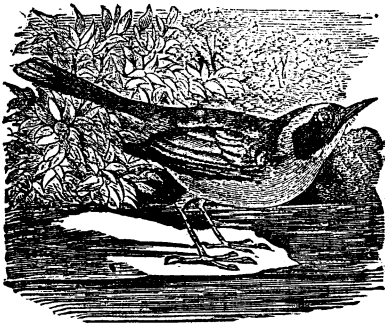
Small green caterpillars (Wils.). Said to feed on juicy fruits in autumn (Cooper). Canker-worm (Maynard). Hymenoptera, moths and caterpillars, among them canker-worms, beetles, diptera, hemiptera, spiders and myriapods (Forbes).

## GOLDEN CROWNED THRUSH.

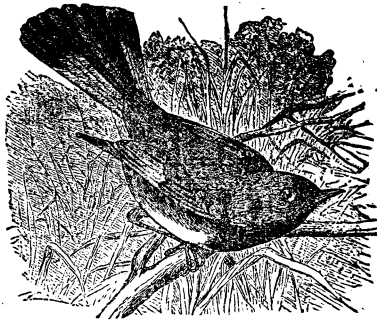
This trim bird-of-the-woodlands breeds with us commonly. Dry groves and woods are its usual haunts, but it also frequents osier and alder thickets. Most of its time is spent upon the ground, running and scratching among the fallen leaves for food. Here, too, its quaint nest is built, and diligently sought for by the Cowbird as a receptacle for her eggs. Two broods are said to be reared each season.

Food: A considerable portion of the food of this species consists of seeds gathered in the woods. Eight out of ten specimens examined had eaten seeds; one three caterpillars; and one three beetles. In the stomachs of five there were fine bits of insects, none of which were identified.

Ants, small beetles, and caterpillars (De Kay). Small insects, smooth caterpillars, spiders and berries (Audubon). Seeds, mud-insects, caterpillars, and small turbinated snails (Gosse).



Maryland Yellow-Throat (*Geothlypis trichas*). After B., B. and R.



Redstart (*Setophaga ruticilla*). After B., B. and R.

## AMERICAN REDSTART.

A few Redstarts breed in the southern part of the state, but the great majority pass northward, at least beyond Waupaca, to nest. During the last days of July or early in August, they become suddenly abundant and remain so until the middle of September, after which only loiterers are to be found. Its favorite haunts are the interior woodland, both damp and dry, the wooded banks of streams, and



low, damp thickets. Groves, fence-rows and orchards are also visited by it frequently.

In its method of obtaining food, the Redstart is a fly-catcher of the most expert and vigorous sort, but its small size, its great dexterity, and its peculiar hunting grounds enable it to do a work quite distinct from that of the true Fly-catchers, even of the woodland species. Instead of stationing itself on the terminal branches where it can survey the openings between the tree-tops or command the fields above or below them, its peculiar field is within each particular tree-top, and here it plunges headlong through the branches, turning somersaults and performing such aerial movements in pursuit of its prey as only a Redstart can. It does beat out into the open air and plunge in hawk-like swoops to the ground, but these are its sports—its trespassing upon the rights of others. Its broad-based bill, and strong depending rictals, giving to the mouth, when open, the shape of a wide funnel, its keen vision, and its whole aerial outfit are adjusted to the gall-flies, leaf-miners, and other diminutive insects among which it lives, and upon which, I have no doubt, it feeds. Could it be induced to live in orchards, vineyards, gardens and parks, it would do there a work which the Pewee, the Least Fly-catcher and the Kingbird cannot. Mr. Samuels says that he has known a pair to build, and rear a brood, in a garden within five rods of a house.

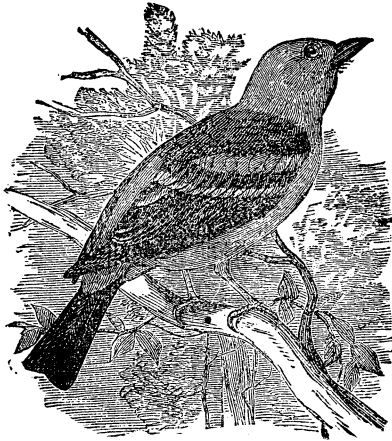
Food: From the contents of eleven stomachs, examined collectively, were taken fourteen small beetles—some of them .09 of an inch long; four very small moths, four small hymenopterous insects—one, an ichneumon, and one, one of the *Proctotrypidae*, .1 of an inch long; one heteropterous insect, .08 of an inch long, and a large number of dipterous insects, the majority of them less than one-tenth of an inch long. Three others had in their stomachs a single small larva each.

Winged insects (Wilson). Various insects and their larvæ (De Kay). Winged insects and larvæ (Audubon). Three specimens examined by Professor Forbes gave evidence of

having eaten an ichneumon-fly, moths and caterpillars, beetles and leaf-hoppers.

SCARLET TANAGER.

This brilliant bird is very common with us, and breeds abundantly in groves and the borders of woodlands, and, occasionally, in orchards. These situations are also its usual haunts during the summer. In its choice of food and in its manner of obtaining it, the Scarlet Tanager is quite comprehensive. It is quite an expert fly-catcher, but, apparently, seizes only the larger winged insects. I have seen it beat out into a field, from the border of a piece of woods, and capture a butterfly (*Colias philodice*), which was flying ten rods distant. If proper breeding grounds are provided for it, I see no reason why it should not maintain a steady and considerable abundance, and prove itself a very useful bird. The few berries which it occasionally eats are valueless compared with the services which it is capable of rendering.



Louisiana Tanager (*Pyrranga ludoviciana*). After Baird, Brewer and Ridgway.

Food: Of twenty-nine specimens examined, one had eaten ants; three, three ichneumon-flies two of [them *Thalassa lunator*?, the other a small species having an extent of wing of one-tenth of an inch; eight, twenty-six caterpillars; three, six diptera, three of them tipulids; seventeen, forty-

seven beetles; three, six hemipterous insects; four, seven grasshoppers; one, a small dragon-fly; one, a very large spider; and two, ten harvest-men. Curculios, elaters and leaf-chafers, some of them three-fourths of an inch long, were represented among the beetles. From the stomachs of three young birds less than a week old were taken four caterpillars, one fly, one small grasshopper, one hemipterous insect, together with undetermined fragments.

Wasps, hornets, humble bees and other large winged insects; also, cherries, huckleberries and other fruits (Wils.). Insects found among tall cottonwood trees, and frequently a kind of bee found on laurea bushes (Cooper). Insects and their larvæ, preferring nettles, wasps, etc; also, berries and grapes (De Kay). Insects (Samuels). Cherries, dogwood berries and cedar berries. Spends much of its time in pursuit of insects (Audubon).

*Tabular Summary of Economic Relations showing the number of specimens containing animal and vegetable food, and the number of insects, spiders and mollusks taken from the stomachs.*

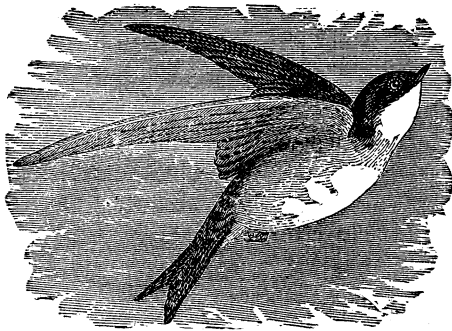
NUMBER AND NAME OF SPECIMENS EXAMINED.		CLASSIFICATION OF FOOD.		RATIOS REPRESENTED BY LINES.
Of eleven Barn Swallows examined.....	11	Contained	Animal food...	
	1		Vegetal food...	
	4		1 Beneficial.....	
	5		35 Detrimental ..	
			28 Unknown .....	
Of fourteen White-Bellied Swallows examined .....	14	Contained	Animal food....	
	6		Vegetal food...	
	9		35 Beneficial .....	
	7		68 Detrimental....	
One Eave Swallow examined .....	1	Contained	63 Unknown .....	
	1		Animal food...	
	1		Vegetal food...	
	1		2 Beneficial .....	
Of five Purple Martins examined...	5	Contained	19 Detrimental....	
	5		6 Unknown .....	
	2		Animal food ...	
	3		Vegetal food...	
			28 Beneficial .....	
			2 Detrimental....	
			12 Unknown .....	

*Table showing the number and kinds of insects, spiders and mollusks eaten by the Swallows.*

NUMBER AND NAME OF SPECIMENS EXAMINED.		CLASSIFICATION OF FOOD.		RATIOS REPRESENTED BY LINES.
Of fourteen White-bellied Swallows examined .....	5	Contained	5 Hymenoptera ..	
	3		10 Diptera.....?	
	13		63 Beetles .. .....	
	3		23 Hemiptera .....	
	2		2 Grasshoppers ..	
	6		33 Dragon-flies ....	
	1		1 Spider .....	
	14		142 Adult forms. ...	

## BARN SWALLOW.

The Barn Swallow, familiar as it is in most thickly settled districts, for which it has abandoned its native haunts to obtain dryer and securer breeding places, nowhere receives that attention and encouragement which it merits. The trim, tasty barns, so fast supplanting the old oaken excises, intentionally exclude the Swallow in almost every case; even the projecting rafters under the generous eaves are so smoothly cased as to preclude a foothold for the birds. There is nothing out of the way in a tight, tasty barn, but it should make special provisions for both the Barn and Eave Swallows. The trifling litter which they may produce in the barn is nothing when compared with the service they



White-Bellied Swallow (*Iridoprocne bicolor*). After Baird, Brewer and Ridgway.

render, nor the half of what is often freely permitted from poultry. He who excludes them because of their twitter must be irritable indeed. Generous swallow-holes should be made in the gables. If brackets, designed with a view to their adaptability to birds, were put up under the broad eaves, they would serve the double purpose of ornamentation and utility. Robins, Pewees and Chipping Sparrows are all learning the inaccessibleness of such places to cats and other enemies, for I have found their nests in such situations, and Eave Swallows could certainly secure their nests much more readily if such provisions were made.

One great advantage of the Barn Swallow, and of all of them in fact, as a bird to be encouraged in agricultural dis-

tracts, is its independence of woodlands and groves, which must necessarily grow smaller and fewer as land increases in value. Again, their strong power of flight enables them to remain persistently upon the wing for hours at a time, and thus to do in the open fields, away from fences and trees, what other fly-catching birds are not able to accomplish. I have seen a squad of these birds follow a horse-rake back and forth across a stubble, apparently catching insects which were frightened into the air by the rake. They often hover about a flock of sheep, either to capture the flies which trouble them, or the insects which they startle while feeding. As the Swallow feeds to a considerable extent upon small dipterous insects and upon moths, we may expect to learn by careful study, that the Hessian fly and the clover-moth, which flies to some extent during cloudy weather, are destroyed by it in considerable numbers, as well as allied forms which affect similar situations.

Food: Of eleven Barn Swallows examined, seven had eaten fourteen small moths; seven, forty diptera, among which were thirty-three tipulids (*Pachyrrina ferrugina?*); two, six beetles; and one, a small dragon-fly.

Insects (Cooper). Destroys numerous noxious winged insects (De Kay). Of two specimens examined by Prof. Forbes, each had eaten hymenoptera; one, leaf-chafers; one, diptera; one, hemiptera; and one, dragon-flies.

#### PURPLE MARTIN.

This species, so common, familiar and confiding, is quite as general a favorite as any bird we have; how justly, however, recorded facts, so far as I know them, do not warrant an assertion. Apiarists enter severe complaints against it, and with some justice, as my own notes indicate. But its injuries are not confined to the destruction of bees. Dragon-flies, tiger-beetles, and predaceous wasps and flies are destroyed by it, apparently in large numbers. These insects are, presumably, as beneficial, so far as the character of their food is concerned, as any purely insectivorous bird can be.

Let us suppose that, during the first one hundred days of

the Martin's stay with us, it destroys on an average, besides noxious insects, three insects per day, each as beneficial as a tiger-beetle. The entire destruction, during the time, would be three hundred individuals. Allowing each insect to lead an average active life of thirty days, and to destroy insects at the rate of three per day, 27,000 insects would represent the aggregate destructiveness of the three hundred individuals. It would, therefore, be necessary for the Martin to consume noxious insects at the rate of two hundred and seven per day for one hundred and thirty days, to recompense the services of these insects.

It is Dr. Brewer's opinion that the Martin is, on the whole, very beneficial, and were it only destructive to bees, there could be no doubt that his views are correct. As it is the few definite facts which we have must be held until many more can be placed with them before final conclusions can be reached. It should be said that the destructiveness of this species to bees is not confined to those birds which chance to breed near the hives. The four young birds from which the following notes were obtained were bred in a martin-house which stood fully two miles from any hive, and there was no extensive apiary in the neighborhood.

Food: In the stomachs of four young birds about eight days old were found respectively, (a) two butterflies (*Colias Philodice*, and a skipper), six honey-bees and many bits of shells of small mollusks; (b) two large dragon-flies, a large bee-fly, two honey-bees and bits of shells of small mollusks; (c) one large dragon-fly, three honey-bees, and fragments of the shells of small mollusks; (d) two medium-sized dragon-flies, one honey-bee, and small pieces of shells. Another young bird, which had recently left the nest and was being fed by its parents, had in its stomach the remains of seven tiger-beetles (*Cicindela vulgaris*), with a few minute fragments of insects. As an offset to the above, Packard states: "When a storm prostrated a martin-box, one of its compartments was found literally packed with the dried remains of the little yellow and black squash beetle."

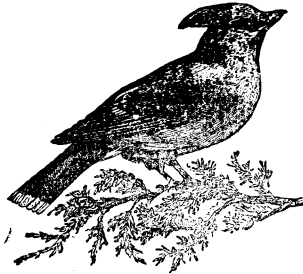
Large beetles—among them the Goldsmith beetle,—wasps and bees (Wilson). Various winged insects, as wasps,

bees, and large beetles (De Kay). Large numbers of bees (I. L. Hersey, *Am. Nat.*, Vol. VII, p. 434). The larger kinds of insects, especially beetles (Brewer).

## BOHEMIAN WAXWING.

An irregular winter resident, often appearing in large flocks.

Food: Berries of the mountain ash, the hawthorn and the ivy; it also feeds on insects, catching them on the wing as dexterously as a Flycatcher (Brewer). Juniper berries (Samuels). Chiefly insects and berries (Cooper). Juniper berries (E. W. Nelson).



Cedar Waxwing (*Ampelis cedrorum.*) From Tenney's Zoology.

## CEDAR WAXWING; CHERRY BIRD.

The Cedar Bird, like the last species, leads a wandering life, but unlike that bird, it is a common summer resident. It is also one of the earliest birds that reaches us in the spring, sometimes arriving in February. As yet, with us, it is confined principally to wooded districts until after the breeding season, but it does occasionally nest in orchards and villages. Late in July and early in August they unite in small squads, composed of two or three families, and rove here and there about the country. It is an exceedingly hardy and voracious bird, and for this reason has become adapted to a wide range of food. During the spring and early summer they are said to feed almost exclusively upon insects, and my own notes prove that during the last of July and August they feed to a considerable extent upon them.



They are dexterous fly-catchers, and when in the woods they labor in a field almost peculiar to themselves. There they often station themselves on the topmost branches of some dead tree-top which commands a view above the forest, and there watch hours together for insects, every few minutes beating off and up into the air to secure the winged forms that are passing above them. On the borders of woods they often beat out into the fields, six or more rods, for passing insects. Besides being fly-catchers, they search much among the foliage of trees for larvæ of various kinds.

Notwithstanding the many times this handsome bird has been sentenced to extirpation because it is especially fond of cherries, the justice or injustice of such decisions yet remain to be established. And this leads me to suggest that it may yet be found advisable for farmers to plant cherry trees for the express purpose of attracting birds about their premises. Many of our Western farmers are not only scrupulously careful to cut down every tree that may be growing in their fields, but they are often equally careful to grub out those that remain about the fences. In view of the great service which insectivorous birds render to agriculture, and the conditions which must be observed in order to retain them in abundance in agricultural districts, the destruction of trees to which I have referred must be looked upon as false economy. There are very few of our birds which can or will withstand the piercing rays of the midsummer noon-day sun, unprotected by shade of some sort; and a still smaller number of the insectivorous species which are so common and useful now can possibly remain after the groves and woods are gone, unless some special provisions are made for them.

Food: Of fifteen specimens examined, all but two had eaten cherries; two, raspberries; and two, red elder-berries. One had eaten five ichneumons (?); two, three beetles; one, three crickets; one, four tipulids; one, fifty tipulid eggs; one, two lace-wings; and one, a caddis-fly.

Whortleberries, berries of sour gum, red cedar-berries, cherries, and a few beetles and other insects (Wilson). Myrtle-berries (Cooper). Cherries, small beetles, canker.

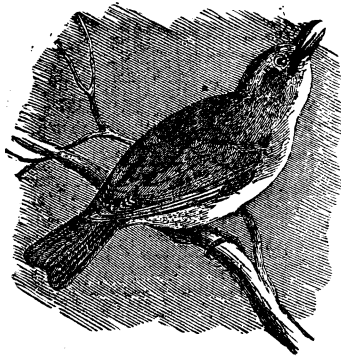
worms, and other caterpillars (De Kay). Cherries and caterpillars (Samuels). Caterpillars, beetles, canker-worms and various insects. It more than pays for the cherries it eats (Nuttall). They are, by preference, eaters of berries and other vegetable food, except in the spring and early summer, when they eat insects almost exclusively, feeding upon the larvæ of the span-worms and canker-worm and small caterpillars, by supplying these to their young (Brewer). Wilson, speaking of its food in the South, says: "Berries of red cedar, myrtle holly, Cassine shrub, many species of smilax, together with gumberries, and a profusion of others with which the luxuriant swampy thickets of those regions abound, furnish them with a perpetual feast." He also states that they feed upon winged insects, of which they are very fond and remarkably expert at catching.

How destructive these birds are to caterpillars, at times, is shown conclusively by Prof. Forbes in one of his excellent reports on the food of birds. He says, in discussing the food of some birds which were collected in an orchard, severely attacked by canker-worms, in May, 1881: "Next comes the gem of our ornithological beauties, the Cedar-bird, sometimes called the Cherry-bird, and greatly persecuted for its love of cherries. A flock of about thirty had apparently taken up their residence in this orchard. The food record of the seven which were killed is very brief — canker-worms one hundred per cent. expressed it all. The number of canker-worms in each stomach, determined by actual count, ranged from seventy to one hundred and one, and was nearly one hundred. Assuming that these constituted a whole day's food, the thirty birds were destroying three thousand worms a day, or ninety thousand for the month during which the caterpillar is exposed."

#### RED-EYED GREENLET.

No vireo in Wisconsin is as numerous, and no summer resident of the woodlands as abundant as this species. The depths of deciduous forests, the outskirts of swamps, low damp woods, and thick groves of young trees, are its usual haunts; occasionally it enters orchards, gardens, and the

shady portions of villages, but these it generally leaves to its cousin, the Warbling Vireo. The greater portion of its food is taken from the foliage of trees and shrubs while at rest, but it often pursues and captures on the wing the moths and other insects which it startles from their hiding places beneath the leaves. A departure from its usual habits leads it occasionally from the woods and groves into adjoining wheat fields, where it feeds upon chinch-bugs. This departure is a very desirable one, but it is doubtful whether, even with a generous planting of shade-trees, this species can become sufficiently abundant to render any appreciable service in this direction, but its ability to render service in other directions is very great. It is almost exclusively insectivorous, and particularly fond of caterpillars, both naked and hairy, and other larvæ. These birds are often the foster parents of the Cowbird.



Red-Eyed Greenlet (*Vireo olivaceus*). After Baird, Brewer and Ridgway.

Food: From the stomachs of eighteen of this species were taken fifteen caterpillars, five other larvæ; eight beetles—among them five weevils, one long-horn and one darkling beetle, seventy heteropterous insects—among them sixty-seven chinch-bugs; sixteen winged ants, one ichneumon (?), five dragon-flies, two dipterous insects—one of them *Tabanus atratus*; three small moths, two grasshoppers, one aphid, one chrysalid, two spiders, and seven dogwood berries. Of thirty-six other specimens examined, fifteen had eaten caterpillars; two, other larvæ; nine, beetles—among

them two *Coccinella mali*; three, grasshoppers; two, ants; two, moths; four, insects, none of which were identified; and seven, fruits or seeds, among which were raspberries, dogwood berries, berries of prickly ash, and sheep-berries.

Insects and berries (De Kay). Caterpillars, noxious larvæ and winged insects (Samuels). Canker-worm (Maynard). Caterpillars (Forbes).

#### WHITE RUMPED SHRIKE.

This bird is a common summer resident, but happily not very abundant. It is peculiarly a bird of open countries and frequents fields, pastures and meadows of both high and low lands. It possesses many of the traits of the last species, but is a smaller and weaker bird. Dr. Cooper has seen



White-Rumped Shrike (*Lanius ludovicianus excubitoroides*). After Baird, Brewer and Ridgway.

it kill a Sparrow, but he thinks that the occurrence is exceptional; and Mr. Ridgway found a Chimney Swallow which it had impaled on a thorn. He also saw one of these birds dash upon a canary bird cage, and when the frightened inmate thrust its head between the wires, the Shrike seized and tore it off with its powerful beak. I have seen four Robins together attempting to drive one of these birds from the vicinity of a nest of half-grown young; and the Shrike only shifted its position upon the limbs of the tree to face its enemies, until my gun brought it to the ground. A nest

which was built in an apple tree, but recently abandoned, I found literally lined with the wing-covers and legs of three species of tiger-beetles.

Since writing the above there has come to my knowledge positive evidence of this species having killed three other birds. One of them was a canary bird which belonged to Mr. Thomas Martin, of River Falls. The bird was hung in its cage outside the door, where it was discovered by this Shrike and its head torn from its body. This spring, 1882, a pair of these Shrikes built their nest in an evergreen standing in the cemetery at River Falls. Mr. Harry Smith, while passing one morning, observed a Shrike flying toward the graveyard with a small bird in its mouth. He followed the Shrike and observed him fix his bird in the crotch of a limb and proceed to pick off the feathers. Very soon the Shrike tore off the head of its prey and ate it, after which another piece was removed, and this was carried to the nest and disposed of there. The remainder of the bird Mr. Smith carried away. Two days after this event I visited the scene described, in company with Mr. Smith, and we found in the tree where the bird had been torn in pieces, two short, sharp, stiff, dead limbs standing in two forks of other limbs which were on opposite sides of the same small burr oak. Each of these sharp stubs had been used as a spit, for both were coated with a thick layer of blood, to which were adhering small olive-green feathers, probably those of some Warbler. From this evidence and that of Mr. Smith, it is certain that this pair had killed at least two birds, and, judging from the thickness of the layer of blood, I suspect that more than two had been spitted upon them. On another tree in the vicinity of this Shrike's nest, we found another short, dead limb similarly situated which had been used in the same manner. It was thickly coated with blood, and to it were adhering the hairs of some mouse. We whittled these limbs and returned some days afterward to examine them, but they had not been soiled. Two birds and one mouse at least must have been destroyed by this pair of Shrikes while breeding in the place named. The nest had four young birds in it one week old at the time of our visit.

From what is here recorded it is evident that, wherever else this Shrike may be allowed to breed, it should not be tolerated about dwellings and orchards where small birds are so serviceable.

Food: Of fifteen specimens examined or observed, one had eaten seven moths; three, five caterpillars; two, eleven diptera, among them five crane-flies; nine, eighteen beetles, among them three ground-beetles, three carrion-beetles and two leaf-chafers; five twenty-two grasshoppers; two, two crickets; three six May-flies; two, four snails. Two had killed three birds — one, a Canary-bird, and one, two warblers; two, two mice. One of the birds was shot while in the act of killing a meadow mouse (*Arvicola riparia*).



Thistle-Bird (*Astragalinus tristis*). After Baird, Brewer and Ridgway.

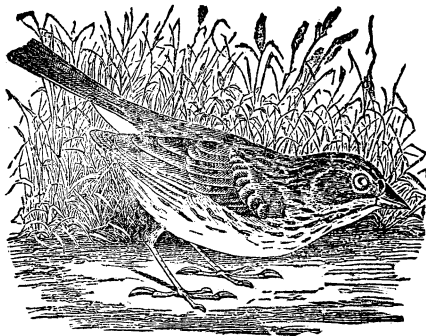
It depends on grasshoppers and other insects (Cooper). Snakes, lizards and tree-toads (S. O. Gedney, *Am. Nat.*, Vol. III., p. 160). Mice, young birds and large insects (P. R. Hoy). Mr. Ridgway has found shrews, mice, grasshoppers, spiders, and as stated above, a Chimney Swallow, spitted to the sharp thorns of the honey-locust.

#### AMERICAN GOLDFINCH; THISTLE-BIRD. •

The elegant little Finch is one of our most abundant birds, and, to a considerable extent, resident throughout the year. In its less showy winter dress, however, it is not so well known. Its almost universal distribution through the open fields, pastures and meadows, together with its ten-

dency to unite only in small flocks, completely counteract the concentrating tendency of its gregarious nature, so that, practically, its effects are those of a bird which is not gregarious. Few birds are more completely graminivorous than it; but it feeds so extensively upon the seeds of noxious weeds that the little grain and garden seeds which it eats are but a just compensation for the service it renders. No class of seeds suit it so well as those of the Composite Family, which are readily hulled, and the service which the Thistle-bird renders in destroying the seeds of the almost uncontrollable Canada thistle, throughout the Eastern and Middle States, must be very great. With us it renders an equal service by destroying the seeds of the pasture thistle, and those of other troublesome weeds. Dr. J. M. Wheaton states that it feeds upon the Hessian-fly. I have seen it feeding upon the plant-louse mentioned in connection with the Purple Finch.

Food: Thistle, dandelion, burdock, bitter-weed and lettuce seeds, seeds of fox-tail grass (*Setaria viridis*), and corn cockle, wheat, rye, and clover seed. Seeds of composite flowers in summer, and of cotton-wood and cockle-bur in winter (Cooper). Thistle, hemp, lettuce and salad seed (Wils.). Sunflower, lettuce and thistle seeds (De Kay). Seeds of various weeds and grasses (Samuels).



Bay-Winged Bunting (*Poæsetes graminea*). After Baird, Brewer and Ridgway.

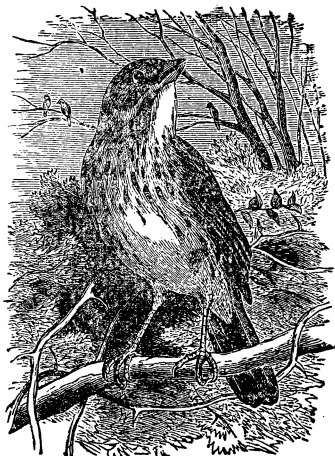
#### SNOW BUNTING; SNOW-FLAKE.

This boreal, eminently terrestrial and gregarious species is an abundant winter resident. It makes its appearance

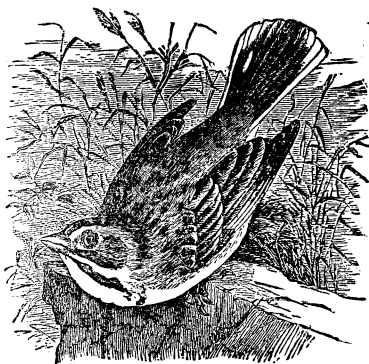
late in October and retires early in April. They frequent cultivated fields in large flocks, and feed largely upon the seeds of troublesome weeds. Their terrestrial habits preclude their becoming injurious to the buds of trees.

Food: Seeds of black bind-weed, and foxtail grass (*Setaria viridis*).

Grass seeds, insects and small mollusks (De Kay). Seeds of various wild plants and small mollusks (Samuels). Larvæ obtained on the houses of Greenlanders (Brewer).



Song Sparrow (*Melospiza fasciata*). After B., B. and R.



Lark Finch (*Chondestes grammacus*). After B., B. and R.

#### SONG SPARROW.

No Finch in Wisconsin is as abundant, and none of the summer residents arrive as early or tarry as late as this species. The borders of cultivated fields, and the fringing shrubbery of woodlands, groves, and banks of streams, are its favorite haunts; from these it sallies into the adjoining fields for food. They are particularly fond of the weedy hedges that often grow along neglected fences, and I am not sure but that these tangles, so irritating to the thrifty farmer, better be encouraged in the back fields than rooted out. Like the last species, it is insectivorous from its arrival until it leaves, and two if not three broods are reared each season. I have found the young unable to fly as late as September 6th.



Food: Of fifty-two specimens, twenty-nine had eaten a few or many seeds; one, two kernels of wheat; nine, twenty-five beetles — among them a lady-bird (*Coccinella tibialis*), several ground beetles and lamellicorn beetles; four, five grasshoppers; three, four grasshopper's eggs; one, a moth; one, two dragon-flies; one, a cricket; one, a spider; one, a millipede; two, four dipterous insects; one, a heteropterous insect; and one, small fungi, chiefly insects (De Kay). Grass seeds, some berries, grasshoppers and other insects, some of which it takes upon the wing (Audubon). Caterpillars and other larvæ, and small moths. The canker-worm is a favorite article of food (Brewer). Seeds of weeds (Forbes).

#### WINTER SNOWBIRD.

A very abundant migrant. A few summer in Northern Wisconsin. Weed-grown fields, the hedges along fences, the borders of groves and woods, and willow, osier and alder thickets are its favorite haunts, but it is much about dwellings, and often enters villages. During their migrations, these birds are almost exclusively graminivorous.

Food: Seeds of foxtail grass, pigweed, and occasionally an insect. Seeds (Wilson). Grass seeds, berries, grains and insects (De Kay). Small berries, seeds of grasses, and other small plants, insects and larvæ (Brewer). Seeds of weeds (Forbes).

#### WHITE-THROATED SPARROW.

This species is a migrant in the southern portion of the state, but from Wisconsin Valley Junction and Angelica northward it breeds in abundance. In its summer home it is partial to wind-fall tracts. In the fall they frequent the hedges along fences and other places where rank weeds abound. They are feeding their young as late as July 26th, from which it may be inferred that they rear two broods each season. It feeds mostly upon the ground, and, until after July, its food is largely insects.

Food: Of sixteen specimens examined, thirteen had eaten many or a few seeds; one, raspberries; one, a grasshopper; two, four caterpillars; two, four beetles; and one, a caddis-fly.

Seeds of rank weeds (Wilson). Seeds and insects (De Kay). Seeds, berries, and insects (Samuels). Caterpillars and seeds of weeds (Forbes).

It is killed by the Sparrow and Sharp-shinned Hawks, and especially by the Marsh Harrier (Audubon).



Bobolink (*Dolichonyx oryzivorus*).  
After B., B. and R.



Red-Winged Blackbird (*Agelaius phoeniceus*). After B., B. and R.

#### RED-WINGED BLACKBIRD.

In suitable localities no bird is as abundant as this species, and none as gregarious. All are familiar with Blackbird-concerts in the spring and with the clouds of Redwings which scud across the fields in the fall. Late in May or early in June these birds disband and repair to wet meadows or to the sloughs bordering streams, ponds and lakes, and these places, together with the high lands immediately adjoining them, are their feeding grounds during June and July. Until after July — nearly four months — these birds feed almost exclusively upon insects and lead lives of nearly unalloyed usefulness. They breed, it should be remembered, in the native haunts of the army-worm, and it is most presumable that they exert a great influence in holding them in check. Most of the corn-pulling which is attributable to the Blackbirds is done by the Purple Grackle, at least this has been my observation.

It is only late in August or early in September that these birds do any considerable damage, and then only in localities not far removed from their breeding grounds, for, as is

well known, they return to the wet, reedy swamps to roost at night. After the corn has passed through the milk state and become hard and firm on the cob, the Redwings trouble it but little. They do not appear to be able to remove the kernels. They continue to visit the corn and stubble-fields, but it is for the purpose of obtaining the seeds of weeds and insects. Even while corn is in the milk state, the birds which visit the corn-fields appear to feed more upon the seeds of weeds than upon corn. All but five of the eighty-four specimens whose food is given below were taken between August 9th and September 5th, and the majority of these either while they were in the cornfield or just as they were returning from them. By examining that list it will be seen that more than two-fifths of them had eaten no corn at all, while less than one-tenth had eaten only corn. Were the little injury which this species does evenly distributed over the country, instead of being localized about its breeding haunts and roosting places, I am convinced that it would never be felt.

Food: Of eighty-four specimens examined, thirty-seven had eaten corn and seeds of various weeds; thirty-one had eaten only seeds; seven had eaten only corn; three, rye; two, oats; eight, wheat; two, tender herbage; five, seven beetles; four, seven grasshoppers; one, a moth; and one, a caterpillar. In the stomachs of two birds there were bits of insects none of which were identified. Eight had eaten small mollusks; and one, berries.

The gleanings of old rice, buckwheat and corn fields in the fall and winter, and grub-worms, caterpillars, and other larvæ in the spring (Wilson). Cankerworms (Maynard). Caterpillars, beetles, spiders, wheat and seeds of weeds (Forbes).

#### MEADOW LARK.

The sweet-voiced Meadow Lark is one of our most useful birds, and few are persecuted more than it. Every sportsman — and they are many — must learn to shoot on the wing, and invariably this bird is doomed to be their target. What is even worse, boys from the towns are permitted to stroll through the fields, shooting, in their recklessness,

almost any bird they meet. Farmers must stop all of this if they would have birds do effective work in protecting their crops. The Meadow Lark is almost exclusively insectivorous and nearly one-half of its food consists of grasshoppers. It is always in the open meadows and pastures where other birds are few, and its large size would enable it to render an immense service if it were permitted to become more abundant. Its flesh is sweet, but its natural enemies are too numerous, its nesting places too exposed, and its usefulness in destroying insects too great to justify its sacrifice to the taste of the epicure. In the south it is accused of pulling rye and wheat, but the only injury which I know of its doing in Wisconsin is its destruction of some of the ground and tiger-beetles:

Food: Of twenty-one specimens examined, twelve had eaten forty beetles—among them a may-beetle; one a weevil; eight, ground-beetles; and one, a tiger-beetle; eleven, nineteen grasshoppers; four, seven caterpillars; and three, four other larvæ. Among the caterpillars a hairy form. Two, two small moths; one, a small dragon-fly; and one, a single thistle-seed.

Insects, grub-worms, caterpillars and grass seeds (Wilson). Seeds and various insects (De Kay). Beetles and various other insects, and grass seeds (Nuttall). Caterpillars, beetles—among them ground-beetles, one of the Silphidæ, flower-beetles and plant-beetles; grasshoppers, myriapods and corn (Forbes).

#### ORCHARD ORIOLE; CHESTNUT HANGNEST.

Mr. Nelson gives this species as a rather common summer resident in Northern Illinois, and it has been so reported by Dr. Hoy from Racine. It is certainly a rare bird in Central Wisconsin. As its name implies, it is partial to orchards, is almost wholly insectivorous, and has not been known to molest any of the products of husbandry. Its southern habitat, however, excludes it from the state at large.

#### BALTIMORE ORIOLE; GOLDEN ROBIN; HANGNEST.

This energetic and brilliantly attired vocalist and its ingenious hanging nest are familiar objects to all. Shady

villages, orchards, and the vicinity of dwellings where trees abound are its favorite haunts, but groves and the borders of woodlands also offer it special attractions. In New England it is accused of feeding upon the esculent pods of pea-vines; and horticulturists complain that it feasts upon their berries, grapes and cherries—destroying at times more than it eats, by biting into the fruit. For these misdemeanors it has been consigned to extirpation; and yet, it would be equally consistent and generous to discharge a faithful servant for eating a few of the fruits he tends.

The Golden Oriole appears to be very fond of caterpillars of various kinds, and what is still more in its favor, it feeds extensively upon some forms which are either not relished by other birds or are protected in some way from them. Prof. J. H. Comstock informs me that he has seen it thrust its head through the web of the tent-caterpillar and remove the inmates. An instance which came under my own observation shows how destructive they are to those leaf rollers which tie themselves up so securely in the leaves of various trees and shrubs. While walking through a dense grove of young oaks, my attention was attracted by a loud noise of tearing leaves. On approaching the spot a family of Orioles flew to a large tree near by, and the noise ceased. In the stomach of one of these birds were found twenty of the leaf-rolling larvæ, which were very common at the time on the red oak. The strong beak of this bird fits it well for tearing open the firm cases which enclose these pests. It may be seen searching in the corners of the guards about shade-trees for chrysalids, and it often resorts to clover and grass-fields for insects.

Food: Of eight specimens examined, six had eaten three, twenty-five, fifteen, four, two and one caterpillars respectively. Three had eaten seven beetles; and two, two snails. Twenty-five of the caterpillars were leaf-rollers, and seven of them the larvæ of a species of *Vanessa*.

Caterpillars, bugs and beetles, particularly one of a brilliant metallic green color (Wilson). Of three specimens examined by Prof. Forbes three had eaten caterpillars; one beetles; and two, blackberries. Flies, beetles and caterpil-

lars (De Kay). Smooth and hairy caterpillars and other injurious insects, particularly the tent-caterpillar (Samuels). Caterpillars and green beetles (Audubon). Canker-mswor (Maynard). Canker-worm, tent-caterpillar and green peas (Brewer). Tent-caterpillar (Prof. J. H. Comstock). According to Harris it is said to eat the pea-weevil and to knock open the pod to get the grub in the green pea. Tent-caterpillar (Le Baron).

## RAVEN.

This species rarely visits the southern portion of the state, and only in the winter. During October and November, 1877, it was very common throughout the whole length of the Flambeau river. Several were observed daily, and it always occurred singly or in pairs. Notwithstanding the carrion-eating propensity of this species, its insectivorous habits, and the fact that it does not now frequent the settled portions of the state, its reputed robbery of birds' nests must class it among the birds whose injuries exceed their services. Its large size, its fondness for flesh, and its ability to move where it will, all indicate that but few birds which breed in its haunts may not suffer from its attacks.

Food: Dead fish, and animal matter of all kinds, birds' eggs, young ducks, chickens, lambs, reptiles, grubs, worms and mollusks (Wilson). Dead animals, birds' eggs, young chickens, lambs and fawns, when they are found unprotected, lizards, snakes, and occasionally potatoes and grain (De Kay). Small animals of every kind, dead fish, carrion, insects, worms, eggs, nuts, berries, and other kinds of fruits (Audubon).

## COMMON CROW.

The Crow is common throughout the southern portion of the state, and, to a considerable extent, resident during the winter. It is not, however, numerous, and I have not seen it north of Stevens Point, in the eastern part of the state. In the western part it occurs as far north as New Richmond. As in the Eastern States, it frequents agricultural districts, and is most abundant in the wooded sections. It is much upon the ground in open fields, but there is no piece of woodland through which it does not stroll.

The wary suspicious nature, so characteristic of the Crow in the Eastern States, appears to be wholly acquired, and is not possessed by the Crow of the Western Plains, nor of that of unsettled districts, where it is not molested. However desirable an unsuspecting and familiar nature may be in a bird like the Robin, when possessed by one likely to become rapidly abundant, when left to itself, and whose propensities are those of the Crow, it detracts from rather than adds to its usefulness. With all deference to the opinions of ornithologists, who should speak with authority on this subject, I must believe that they err when they advise the withdrawal of restraint from this species. Every element of its nature fits it for an almost unlimited abundance when fostered by the conditions of agriculture; no bird can take its food from it, and there is nothing edible which it may not eat. Its familiarity with man in regions where its rights have never been questioned, and the readiness with which young birds accept domestication, leave no doubt that it would take unbearable liberties about dwellings. Nesting, as it does, in high, inaccessible tree-tops, it has no natural enemies, in thickly settled districts, which could hold it within safe bounds. Its ability to overpower any of our small birds, its ravenous appetite for flesh, especially when young, and its fondness for the eggs and young of birds, would, under conditions of no restraint, make it more destructive to bird-life than all the Hawks and Owls combined. There are only a few large injurious insects, like the may-beetles, which it can destroy better than other birds, while its large, clumsy body, utterly disqualifies it for the vast work which is done by the birds whose life it would not permit. Viewed in this light, the Crow can but be regarded as one which must be held in the scantiest abundance.

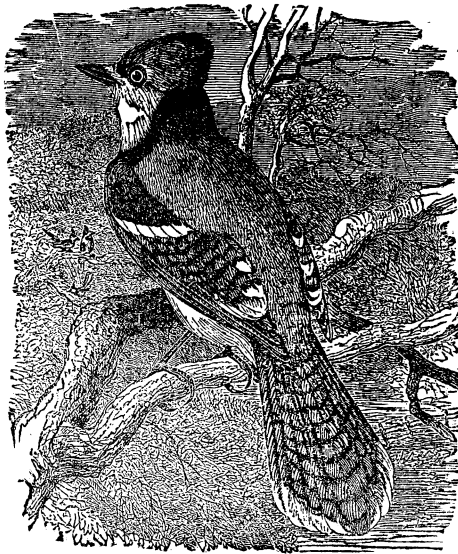
Food: Of two specimens examined, each had eaten corn, and one a small chrysalid. In the stomach of one were found two very small pieces of bones.

Myriads of mice, moles, beetles, grubs, caterpillars and worms, young birds and their eggs. It robs hens' nests, and kills young chickens. In the spring it pulls young corn;

sometimes whole corn-fields are laid waste by the feeding of a single flock lighting upon it at once (Wilson). Fish, immense numbers of grubs and grasshoppers, clams and oysters (Cooper). Follows the plowman for worms and larvæ of insects; pulls corn; eats corn in the milk state, and kills young chickens, turkeys and goslings, and destroys every egg in its reach (De Kay). Fruits, seeds, vegetables, snakes, frogs, lizards, and other small reptiles; worms, grubs, insects, and eggs of birds (Aud). Insects and various vermin, young Robins and birds' eggs (Samuels).

## BLUE JAY.

The Blue Jay is distributed throughout the state, but, like the Robin, is far more abundant in settled than in unsettled portions. It is a summer and winter resident, but less abundant in the latter than in the former season. Groves,



Blue Jay (*Cyanocitta cristata*). After B., B. and R.

fields, villages, and the vicinity of dwellings are more frequented than woodlands; and although it is an arborial species, it is much upon the ground in quest of food. Occasionally it extracts insects from the crevices of the bark on the trunks of trees. When unmolested it becomes more



and more familiar, and keeps closer to dwellings; and during the winter, particularly, they crowd into villages to feed upon the crumbs from the kitchens. It is so like the Common Crow in very many of its traits, that much which has been said of that bird applies equally well to this. Its smaller size, however, renders it less dangerous to other birds as a class, and better fitted to do service in destroying insects. Did not the destruction of the eggs and young of other birds appear to be a general trait rather than an individual peculiarity of the Blue Jay, it would be necessary to throw but little restraint over it. As it is, it must be held within narrow limits. The Jay is not an especially valuable bird to agricultural interests when compared with other species. From the first of August until the first of April, two-thirds of the year, not more than one-tenth of its food consists of insects, and during the rest of the year, less than two-thirds of it consists of this material. During August, September and October, about one-tenth of its food consists of grain and other useful products, and it is not especially destructive to the seeds of weeds; while during May and June it is known to feed to a considerable extent upon the eggs and young of other birds.

Food: Of thirty-one specimens examined, nineteen had eaten acorns; fifteen, thirty beetles, among them several species of *Harpalidae* and a *Cetonia*; two, two caterpillars; two, two grubs; one, some other larvæ; two, grasshoppers; five, corn; one, wheat; and one, berries. No stomach was found to contain only insects; and of those which contained beetles, their remains never composed more than one-fifth of the entire contents, and usually less than one-tenth. One bird was observed to kill three out of a brood of four young Robins and to eat one of them.

Young birds, carrion and acorns (Wilson). Chestnuts, acorns, cherries, large insects, carrion, and the eggs and young of birds (De Kay). The larvæ of *Dryocampa senatoria* (A. J. Cook). In the winter, berries of barberry or black-thorn, with a few eggs or cocoons of insects. In the spring, buds of shrubs, caterpillars and other insects; late in the spring and through the greater part of summer, the

eggs and young of smaller birds; later in the summer and early autumn, berries, small fruits, grains, and a few insects; later in the autumn, chestnuts and beech-nuts (Samuels). Beech-nuts, chestnuts, acorns, corn, pears and apples (Audubon). Grubs of the may-beetle (Harris). Tent-caterpillar (Dr. Kirtland). Eggs, young birds, insects, caterpillars, acorns, chestnuts, corn and small fruits (J. M. Wheaton). Caterpillars, corn (Forbes).

## CANADA JAY; MOOSE BIRD.

The Canada Jay is a common winter resident in the pineries, where it makes itself familiar about every logging camp. A few may breed in those regions, but I could not learn that it was ever seen there during the summer.

Food: In the stomachs of two specimens taken in October, were grasshoppers, cockroaches, larvæ and small seeds.

Seeds, insects and berries (Cooper). Berries, caterpillars, eggs of birds and carrion (De Kay). Eggs of ants, insects, leaves of fir trees. Robs Crows' nests (Audubon). I knew of a single pair of these birds destroying the young in four nests of the Common Snowbird (*J. hyemalis*) in a single day (Samuels).

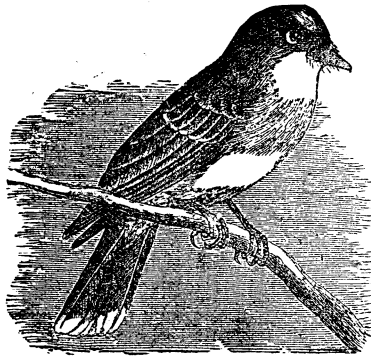
## KINGBIRD; BEE MARTIN.

The Kingbird arrives early in May, and many of them appear to withdraw before the close of August. It is very common and frequents fields, pastures, meadows and the vicinity of dwellings. Nearly all of its food is taken upon the wing, but it occasionally comes to the ground in the manner of the Bluebird for insects. In "Birds of Northeastern Illinois," it is stated that Mr. Rice saw one of these birds plunge repeatedly into a stream in the manner of a Kingfisher. An examination of the stomach of this specimen showed that it had been eating aquatic insects. I have taken from the stomachs of young birds of this species bits of shells of small mollusks (*Sphærium*); how they are obtained is unknown to me.

It often nests in orchards, sometimes close to the house, and the solitary trees standing in fields and pastures are very desirable breeding places for it; from these places it

has a good chance to watch for passing insects. It would tend to make these and other birds more abundant if more trees were left standing in the cultivated fields, or were planted there.

Dr. Brewer is of the opinion that writers have somewhat exaggerated the quarrelsome disposition of this species. According to his observations, Hawks, Owls, Crows, Grackles, Jays and Cuckoos are about the only birds which it regularly attacks. For these it is always on the alert, and with good reason, no doubt. He also states that a pair of these birds once had their nest in an apple tree in which the Baltimore Oriole and the Robin had their nests at the same time, and that the three families appeared to entertain the most amicable relations. My own observations are in harmony with these statements. A pair of Warbling Vireos once had their nest in an oak tree in a pasture which also bore a nest of the Kingbird. The two nests were only four feet apart, and both contained half-grown young when the discovery was made.



Kingbird (*Tyrannus Carolinensis*). After Baird, Brewer and Ridgway.

The only apparently serious objection to this species with which I am acquainted is its destruction of dragon-flies, and of these insects it appears to be rather fond. How serious this objection may be, future investigation must decide.

Food: Of twelve specimens examined, four had eaten seventeen beetles; four, four dragon-flies; one, a bee; one, six crane-flies; one, a large moth; one, a butterfly (*Pieris protodice*), and three, a few raspberries.

Bees, the large black gad-fly and other insects (Wilson). Insects, among them bees, and some berries (Cooper). Mostly winged insects, occasionally grasshoppers and bees (Samuels). Dragon-flies are a favorite food; it also eats bees and may-beetles (J. L. Hersey, *Am. Nat.*, III, 437). Of seven stomachs examined, two contained hymenoptera: one, a wasp; five, lepidoptera; two, caterpillars; four, beetles; one, ground-beetles; three, orthoptera; one, crickets; one, locusts; two, grasshoppers; one, a spider; one, a harvestman; one, wheat; and one, fruit (Forbes). Of the food of two specimens shot in an apple orchard, canker-worms, which infested it, made forty-three per cent., vine-chafers (*Anomala binotata*) seventeen per cent., spring-beetles (*Melanotus*) ten per cent., scavengers, 20 per cent., Lampyridæ three per cent., and various hymenoptera seven per cent. (Forbes).

#### WOOD PEWEE.

No Flycatcher is so abundant in Central Wisconsin as this species; even in the deep woods of Clark and Chippewa counties its prolonged whistle proclaims its abundance there. With us it is as yet a retiring species, keeping closely within the woods and groves, or, at most, venturing upon their borders. At Ithaca, N. Y., however, it is becoming much more familiar. There it breeds in orchards, about dwellings and in the city. According to Nuttall, it displays at times a tyrannical disposition. So far as I have observed, it is perfectly peaceable and allows other birds to pass it unmolested. Nearly all of its food is taken upon the wing, and when in the woods it usually selects some small opening between the tree-tops for its hunting-grounds.

Food: Of forty-one specimens examined, eighteen had eaten sixty-six small beetles, among them seven metallic-green beetles and several lamellicorns; fourteen, forty-one dipterous insects, among them twelve large crane-flies; two, a butterfly each, one of which was an *Argynnis*; nine, thirteen small dragon-flies; eleven, twenty-nine hymenopterous insects, among them twelve ants, an ichneumon-fly (?) and one of the *Augochlora* (?); one, a heteropterous in-

sect (*Corisicæ*); one, a moth; one, a grasshopper; and one, a larve of a saw-fly (?).

I have seen one Wood Pewee capture and feed to its young, which had recently left the nest, forty-one insects in the course of forty-five minutes. Several of these insects were moths.

Winged insects (Wilson). Insects caught on the wing (De Kay). Of three specimens examined, one had eaten hymenoptera; one, caterpillars; two, beetles; one diptera; and one, dragon-flies (Forbes).

#### WHIPPOORWILL; NIGHT-JAR.

This very useful nocturnal bird is a common summer resident, but its breeding habits and its fondness for secluded retreats during the day appear to preclude it from maintaining abundant number in thickly settled districts.

Food: Its food, as indicated by two specimens, appears to consist largely of moths, some of which have an extent of wing of two inches. It also eats many beetles, among which are click-beetles and small lamellicorns.

Large moths, ants, grasshoppers, and such insects as frequent old logs (Wilson). Exclusively winged insects (De Kay). Almost entirely nocturnal lepidoptera (Samuels). Ants, large moths and beetles (Audubon).

#### NIGHT-HAWK; BULL-BAT.

The Night-hawk, by many supposed to be the Whippoorwill, seems gradually growing less numerous. Where twenty years ago, it was common to see thousands of these birds towards sunset, pursuing insects low over clover-fields in swift and tangled curves, now it is rare to see more than twenty thus engaged. At Ithaca, N. Y., both it and the Whippoorwill are uncommon birds. Dr. Brewer, however, states that it is becoming more numerous about the larger Eastern cities, and that in Boston it has taken to breeding on the flat Mansard roofs of buildings. It is exceedingly destructive to insects, and is especially active during cloudy weather and in the morning and evening twilights. It is very desirable that it should maintain an ample abundance.

This is the more desirable since it frequents, so much, cultivated fields. The sportsmen of some of our cities are in the habit of going outside of the city limits toward sunset, and practicing shooting these birds on the wing, preparatory to duck-shooting in the fall. The services of these birds are too valuable to justify such a practice.



Night-Hawk (*Chordeiles popetue*). After Bd., Br. and Rdg.

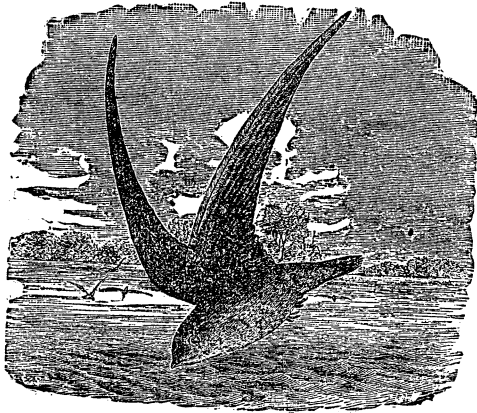
Food: In the stomachs of four specimens were found may-flies, a large dragon-fly, beetles, water-boatmen, scorpion-bugs, berry-bug-like heteroptera and grasshoppers. The material taken from the stomach of one specimen weighed nine grammes. From the stomach of another were taken five small grasshoppers, eight larvæ of hemipterous insects (*Corisiæ*), and ten scorpion-bugs, none of them less than three-fourths of an inch long.

Wasps, flies, beetles and other insects. Nearly a snuff-box full were taken from the stomach of one (Wilson). Winged insects (De Kay). Beetles, moths, caterpillars, crickets and grasshoppers (Audubon).

#### CHIMNEY SWIFT.

The Chimney Swift, in July, 1876, was much more abundant in the northern unsettled portion of the state than I ever saw it in the southern. There it doubtless follows its primitive habit of breeding in hollow trees. We have no bird so incessantly on the wing or so dexterous and swift in

its aerial movements. While it is abroad at all times of the day, it is out earlier in the morning and later in the evening than the Night-hawk; and it is said to feed its young at intervals during the whole night. Such traits as these appear to make this a very valuable bird; and when we know more definitely than we do now in regard to its food, it may be found advisable to erect cheap hollow towers for it to breed in, in order that it may become more abundant away from cities.



Chimney Swift (*Chaetura pelagica*). After Baird, Brewer and Ridgway.

Food: Of three specimens examined, two had nothing in their stomachs, and the other stomach contained two flies.

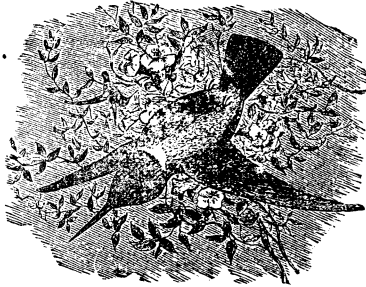
Of three specimens examined by Prof. Forbes, three had eaten hymenoptera; two, ants; one, lepidoptera, adults; one, beetles; one, ground-beetles; one, rove-beetles; one, plant-beetles; two, dipterous insects; two, hemiptera; and one, spiders.

#### RUBY-THROATED HUMMING-BIRD.

This exquisite little species is very common with us, and, according to my observations, quite as much a bird of the woodlands as of open, sunny places, where flowers abound.

I have met with it commonly in the heart of the heaviest timber of Jefferson county, and among the deep woods in the northern portion of the state. In these places it moves high among the outer branches of the trees, searching for insects upon the leaves, as it does for honey and insects

within the corollas of flowers. The wooded banks of streams, willow and alder thickets, hazel patches and the depths of tamarack swamps are also visited by it. They appear to be pugnacious and quarrelsome among themselves, and the little Black-capped Chickadee retreats before these emerald pigmies without the slightest resistance, as if it had long ago acknowledged their superiority.



Black-Chinned Humming Bird (not found in Wisconsin). After Baird, Brewer and Ridgway.

Food: From the stomachs of five specimens were taken three small spiders, one aphid, and one small chalcidian (?), together with twelve other insects.

Honey of flowers, small beetles and winged insects (Wilson). Principally insects (Samuels). Sweet juice of flowers (De Kay). Small beetles, spiders and winged insects, most of which are captured in the corolla of flowers (J. M. Wheaton).

#### BELTED KINGFISHER.

A common summer resident, frequenting all our streams as long as they are free from ice.

Food: Six specimens examined had eaten only fish.

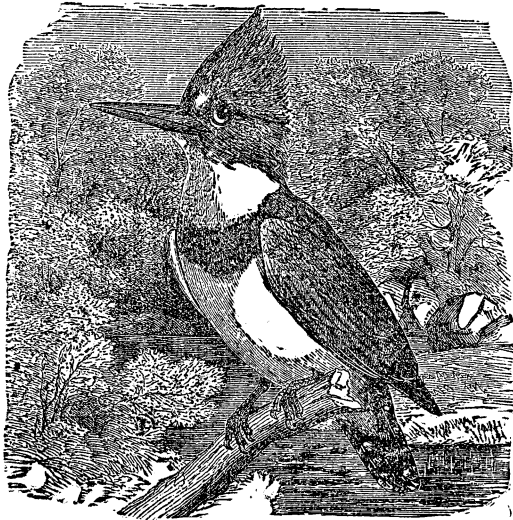
Fish (Wilson, Cooper). Mainly small fish (De Kay). Fish; occasionally a frog or meadow-mouse (Samuels).

#### YELLOW-BILLED CUCKOO.

This species is a summer resident, but not common. I have seen but one specimen. Its habits are similar to those of the last species, and economically, probably it ranks with it. In speaking of its relations to other birds, Dr. Coues says: "Although not parasites, like the European species,

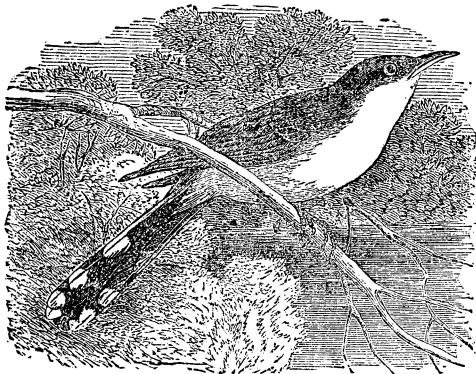


devoid of parental instinct, they have their bad traits, being even worse enemies of various small, gentle birds; for they are abandoned thieves, as wicked as Jays in this respect, continually robbing birds of their eggs, and even, it is said, devouring the helpless nestlings.



Belted Kingfisher (*Ceryle alcyon*) After Bd., Br. and Rdg.

Food: The specimen which I examined had its stomach crammed almost to overflowing with a large, black, slightly hairy caterpillar, with a faint dorsal stripe of white, which is often so abundant on black walnut trees as to completely defoliate them.



Yellow-Billed Cuckoo (*Coccyus americanus*). After Bd., Br. and Rdg.

Caterpillars, particularly those which infest apple trees, and the eggs of other birds (Wilson). Insects, and, at times, small birds and their eggs (Cooper). Hairy caterpillars, large beetles, berries, grapes, and occasionally the eggs of small birds (De Kay). Caterpillars, and other larvæ destructive to fruit and shade trees (Samuels). Caterpillars, butterflies, beetles, wood mullusks, mulberries, grapes, and the eggs of small birds (Audubon). Various large winged insects, various grubs, wood-inhabiting mollusks, different kinds of berries and other soft fruits, and the eggs of small birds (Coues). Of four specimens examined, three had eaten caterpillars; one, beetles; two, harvest-men and vegetable substance (Forbes).

#### YELLOW-BELLIED WOOD PECKER.

This species is an abundant summer resident in most localities, but during the breeding season it is confined quite exclusively to forests and deeper woodlands. At other



Yellow-bellied Woodpecker (*Sphyrapicus varius*). After B., B. and R.

times, between the last of March and the first of October, it frequents, besides its breeding haunts, more open woods, groves, orchards and villages. Like the preceding species, it is seldom seen upon the ground; but, unlike them, it rarely feeds upon wood-boring larvæ. My own notes appear to indicate, however, that it is quite as insectivorous as

they are. "The peculiar formation of its tongue," upon which some lay so much stress in deciding its ability to destroy insects, it should be observed only disqualifies it for obtaining wood-boring larvæ, and not for other insects.

That the Yellow-bellied Woodpecker does sometimes suck the sap of trees is rendered probable by an instance which came under my observation April 22, 1878. On this date one of these birds was observed at work on a small pignut hickory standing on the campus of Cornell University. Two horizontal series of holes had been recently pierced through the bark, one above the other, but on nearly opposite sides of the tree, and separated by a distance of about four feet. The Woodpecker was seen to pass along each of these series of holes from one end to the other, deliberately, but not forcibly, thrusting its bill into each successive perforation, as if removing something from it. When it had visited every hole it flew to another tree of the same kind standing near by; there it was seen to perform the same operations upon a similar series of holes. After loitering about the second tree for two or three minutes, it returned to the first and repeated the action already described, when, after a short interval, it repeated its visit to the holes on the second tree. On returning from dinner, about twenty minutes afterwards, I found the Woodpecker still at work, and the sap was running down the trunk of the tree from one of the series of holes, wetting it to a distance of a foot below the perforations. On examining these holes they were found to extend through the bark and into the wood to a depth of about an eighth of an inch, and to have a diameter but little greater than that of the bird's bill near its base; toward the bottom they narrowed greatly along their vertical axes, and widened considerably along their horizontal axes, so as, at the bottom, to be narrowly oblong—so narrow, indeed, as, in most cases, to be mere incisions through the inner bark. I have examined a large number of the holes made by this species in the bark of the apple or maple, and wherever there has been a series of holes the series has always been horizontal, and the holes have conformed to the description of those above, ex-

cept that often the wood was merely indented by a close series of punctures. These holes have always been in sound wood, and I detected no evidence that any insect had been at work beneath the bark at the points where the perforations were made; and the holes have all been so narrow where they have passed through the inner bark that it does not appear probable that the inner bark could have been the object for which these punctures were made.

This species is, however, very generally accused of feeding extensively upon the inner bark of trees. In regard to this point Dr. Brewer says: "In the spring of the year these birds prey largely upon the inner bark of trees, and where they exist in great numbers they often do a great deal of mischief. In April, 1868, I visited gardens in Racine, in company with Dr. Hoy, where these Woodpeckers had every successive spring committed their ravages, and was an eye-witness to their performance. Their punctures were unlike those of the *pubescens*, being much deeper, penetrating the inner bark, and, being repeated in close proximity, the bark becomes entirely stripped off after a while, often resulting in the girdling and complete destruction of the tree. In one garden of some considerable size, all the mountain ash and white pine trees had thus been killed. In prairie countries, where trees are deficient and their cultivation both important and attended with difficulty, these birds prove a great pest, and in a few hours may destroy the labor of many years." Dr. Coues, in his "Key to North American Birds," in speaking of the genus to which this species belongs, says: "Birds of this genus feed much upon fruits, as well as insects, and also, it would seem, upon soft inner bark (cambium); they injure fruit trees by stripping off the bark, sometimes in large areas, instead of simply boring holes."

Food: Of thirty specimens examined, twenty-six had eaten two hundred and forty-two ants; five, twenty-two beetles; one, a crane-fly; two, two grasshoppers; one, a caterpillar; one, wild grapes; one, dogwood berries; one small seeds; and six had in their stomachs a few bits of fib-

rous material. Of those birds which had eaten ants, fifteen had nothing else in their stomachs.

Principally insects, among them beetles (Wilson). Insects, worms and berries (De Kay). Wood-worms, beetles, grapes and various berries (Audubon). Several alcoholic specimens sent to the Smithsonian Institution by Dr. Hoy, from Racine, were examined by Prof. S. F. Baird, who found in their stomachs, beetles, larvæ and boring beetles, ants, and fragments of the inner bark of the apple tree (Dr. Bryant, Boston Soc. Nat. Hist., X, 91). Of four specimens, two had eaten beetles; one, hemiptera; and three, wood (Forbes). Sucks sap from the white beach (Am. Nat., Vol. XV, p. 810, H. C. Bumps).

#### RED BELLIED WOODPECKER.

This rather southern species is uncommon in Wisconsin. I have taken but a single specimen, in September, 1876. Wilson states that many of the young which leave the nest before they are able to fly, and climb to the top of the trees, are killed by Hawks.

Food: The single specimen examined had in its stomach small fragments of beetles and pieces of acorns, corn, insects and Indian pepper (Wilson).

#### RED-HEADED WOODPECKER.

This species is an abundant summer resident in openings, and in thickly settled heavy timbered districts. It is a frequent visitor to orchards and cultivated fields, but is only occasionally seen on the ground. Often it sits upon a fence post and watches for passing insects, which it takes upon the wing in the manner of the Bluebird. So far as I have observed, it is not destructive to wood-boring larvæ, and although it feeds extensively upon insects, other materials furnish it with much of its food. There are some records against it which awaken grave apprehensions as to its usefulness. Audubon accuses it of sucking the eggs of Bluebirds, Martins and Pigeons; and in the American Naturalist (Vol. XI, p. 308) Mr. Charles Aldrich has a note accusing the Red-headed Woodpecker of killing very young Cayuga Ducks. It kills the ducklings by a single blow

upon the head and then eats the brains. As this Woodpecker performs no work in the destruction of insects peculiar to itself, and as it is somewhat destructive of grains and fruits, its depredations upon small birds must be very limited indeed to warrant any encouragement being extended to it.

Food: Of eighteen specimens examined, twelve had eaten beetles, among them two long-horns, one click-beetle, one common beetle (*Silpha peltata*), and one ground-beetle; one a grasshopper; two, three crickets, one, a caterpillar (*Edema albifrons*); three, apples; two, wild black cherries; and one corn.

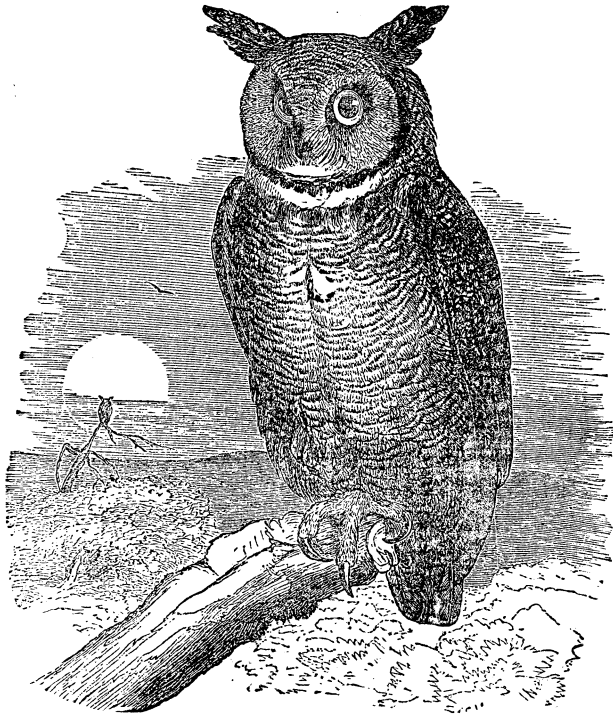
Cherries, pears, apples, berries of sour gum, corn in the milk, wood-borers, bugs, caterpillars and other insects (Wilson). Apples, pears, cherries, Indian corn in the milk, and insects which infest decaying trees (De Kay). It is more fond of berries than most of its relatives (Samuels). Cherries, apples, pears, peaches, figs, mulberries, and corn; it sucks the eggs of Bluebirds, Martins and Pigeons (Audubon). Sap of the sugar maple (C. A. White, *Am. Nat.*, VII, 496). Young Cayuga Ducks (Charles Aldrich, *Am. Nat.*, XI, 308). Corn from the barnyard, and grasshoppers (*Am. Nat.*, Vol. XIII, p. 522, C. Aldrich). Beetles (Cetoniidæ), seeds of weeds and other vegetable matter (Forbes).

#### AMERICAN BARN OWL.

This species appears to be a rare bird in all the Northern States east of the Rocky Mountains, but farther south it is more abundant. Dr. Hoy records it as occurring near Racine.

Far too little is yet definitely known in regard to the real economic relations of nearly all birds of prey to satisfactorily determine whether they render more of service than of injury. In the "*Report on the practicability of establishing a close time for the protection of Indigenous Animals*," there is no doubt expressed in regard to the great utility of Owls, it being there affirmed that these birds are of the greatest use to the agriculturist in destroying the small mammals which injure his crops. However serviceable

Owls may be to the agriculturist in England in destroying noxious mammals, the evidence in regard to the food of the Little Barn Owl, as determined by Dr. Altum, indicates that it is nearly as destructive to useful animals as it is to those that are detrimental. It will be seen that of the remains of 2,562 small animals discovered in the pellets which Dr. Altum examined, there were the remains of 1,204 Bats, Shrews, Moles and birds, all of which are insectivorous, and, there-



Great Horned Owl (*Bubo Virginianus*). After Bd., Br. and Ridg.

fore, presumably beneficial—and especially so since the mammals are nocturnal. In view of the fact that field-mice do not appear to become more abundant in thickly-settled districts, as Hawks and Owls diminish in numbers, it is evident that there are other powerful checks which oppose them, and that an Owl or Hawk which feeds extensively upon bats, shrews, moles or birds must be regarded as injurious so far as its food is concerned, even though it

may be more destructive to rats and mice than these animals. The destruction of one field-mouse cannot compensate for the life of a bat or mole.

Dr. Brewer regards the Barn Owl as one of our most useful birds, and attributes its rarity in the Eastern States, and its thoughtless destruction, to short-sighted and mistaken prejudice. It is certainly to be hoped that the opinion of Dr. Brewer will be speedily confirmed, but facts, so far as we know them, and the great need of a more ample abundance of small birds, do not appear to bear him out.

Food: The stomach of one contained four mice (Wilson). Shrews, moles and field-mice (De Kay). Principally field-mice and rats (Audubon). Rats, mice and other mischievous and injurious vermin (Brewer).

#### MARSH HAWK.

The Harrier is by far our most abundant representative of this family, and a summer resident. Most of its time is spent in soaring over treeless tracts in quest of food, but marshes and the vicinity of water are its favorite resorts. It lacks the spirit and dashing movement of Falcons, and for this reason is not as dangerous to mature birds; the young, however, of species which breed in marshes and meadows may suffer greatly from its depredations. Wilson states that it makes sad havoc among the Rice Buntings in the South, and Audubon accuses it of feeding extensively upon the Swamp Sparrow in some localities, while Dr. Coues has found it particularly fond of frogs. It rarely molests poultry, but, when pressed by hunger, has been known to attack Partridges, Plovers and even Teal.

Food: Of two specimens examined, one had in its stomach four, and the other two meadow-mice (*Arvicola*). I saw one capture a striped gopher (*Spermophilus tridecem lineatus*), and another, a Red-winged Blackbird. Insects, especially grasshoppers, frogs, small quadrupeds and reptiles (Coues). Mice and the Rice-bird in the South (Wilson). Small birds, mice, occasionally poultry, snakes and grasshoppers (Cooper). Field-mice (Samuels). Swamp Sparrow, Chipping Sparrow and Virginia Rail (Audubon). Small



birds and mice (Mr. Gunn). An indiscriminate feeder upon snakes, fish and even worms; I took two green snakes from the stomach of one of them (Downes). Mice, lizards, serpents and other reptiles, frogs, and occasionally poultry (De Kay). I have lately seen this bird digging open the ridges formed by *Scalopus Aquaticus*, and I once saw the bird overtake and kill the beast, but it did not eat it (Charles C. Abbott, Am. Nat., IV, 377).

#### CHICKEN HAWK.

This Hawk is much larger, more audacious, feeds less upon insects, and is more destructive to poultry than its congener. Its flight is described as silent, gliding and swift, exceeding that of the Wild Pigeon. It is said to secure its prey by giving open chase, and to dive down upon its quarry with almost incredible velocity. With such powers and tendencies as these, and living constantly among our most useful birds, which it follows south to their winter homes, this Hawk is evidently a most dangerous species.

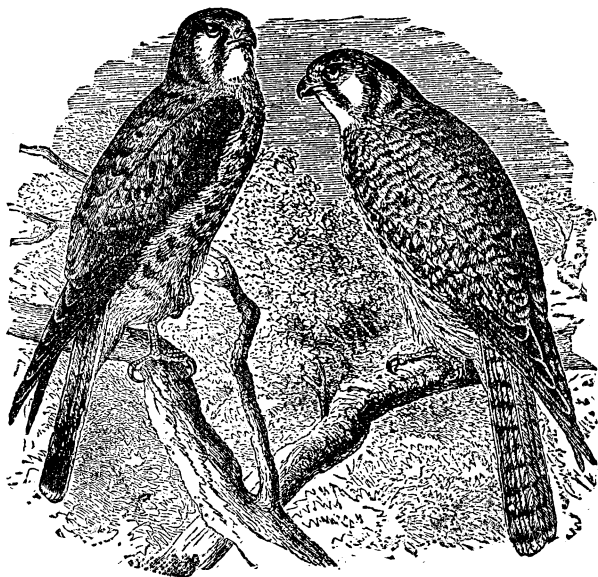
Food: Often comes to the very door for poultry (Wilson). Chiefly the smaller birds (De Kay). Hares, squirrels, poultry, Grouse, Ducks, small birds, snakes and other reptiles, grasshoppers and crickets (Samuels). The Ruffed Grouse (Brewer). Many Quails and young Grouse, which, together with poultry, constitute their principal fare (Dr. Hoy). It attacks and destroys hares, Grouse, Teal, and even the young of larger ducks, beside capturing the usual variety of smaller birds and quadrupeds, and it occasionally seizes upon insects (Coues).

#### PIGEON HAWK.

This spirited, swift-winged little Hawk has been described as one of the most destructive of its tribe. It captures birds upon the wing with little difficulty, and is so audacious as to destroy Ptarmagan birds larger than itself. Its sagacity leads it to take advantage of gregarious species, and it follows all our birds in their migrations north and south. Dr. Hoy states that those which nest near Racine, regularly morning and evening, visit the lake shore in quest of Bank Swallows, which they seize with great dexterity. It appears

to breed, as a rule, north of the United States, but Mr. Nelson mentions it as a rare summer resident in Illinois.

Food: Small birds and mice. It often follows flocks of Blackbirds, Pigeons and Robins — many of which become its victims (Wilson). It catches birds as large as itself, follows gregarious species, and preys much upon mice, gophers, and squirrels (Cooper). Destroys Robins, Bluebirds and Sparrows in great numbers, and attacks the Pigeon and Dove (Samuels). Robin, Wild Pigeon, Golden-winged Woodpecker, Yellow-billed Cuckoo, and pursues Snipe and Teal (Audubon). Bank Swallows (Dr. Hoy). Feeds upon small birds, but is not troublesome to farmers (Mr. Downes).



Sparrow Hawk (*Falco sparverius*). After Bd., Br. and Ridg.

#### SPARROW HAWK.

Except the Marsh Harrier, no Hawk is so abundant as this little Falcon. It is more abundant in wooded districts than in prairie sections, and the borders of woodlands and fields with scattering trees are its favorite resorts. It is too small to be destructive to poultry, except when very young, but it is none the less dangerous on this account to our most

useful small birds. It captures birds on the wing with little difficulty, is more than a match for the Brown Thrasher, and tears open the bottle shaped nest of the Cliff Swallow to secure the inmates. When autumn comes and our birds go south, "in their rear rushes the Sparrow Hawk." I have seen this species come close to a house and attempt to capture one of a brood of young Robins which had recently left the nest. At another time a Song Sparrow only escaped its pursuer by diving into a brush pile; and once one of these Hawks flew close over my head, bearing off a small bird in its talons. But its food does not consist of birds alone. Indeed, it consumes so many noxious insects, and is such an excellent mouser, that Dr. Coues says it is to be held a benefactor to the agriculturist, and this view is also entertained by Dr. Cooper. My own notes, viewed with reference to the conditions stated in the Introduction, do not, however, point in this direction. It will be seen that it is very destructive to noxious insects, but it should be observed that these insects are destroyed in great numbers by many less dangerous species. As an insect destroyer it is not, therefore, especially needed. Small birds are not so abundant at present as to demand the assistance of a large number of Birds of Prey to hold them in check; and plows, cultivators, reapers, mowers and horse-rakes work such havoc among field-mice as to preclude their ever becoming excessively abundant in regions where these implements are used. For this reason the service which Rapacious Birds render by destroying mice in agricultural districts is not as great as it appears to be.

Food: Of seven specimens examined, two had eaten two mice; four, twenty-five grasshoppers; three, twenty-five crickets; one, six beetles; one, five moths; and one, two hairy caterpillars (*Arctia*). One was seen to take a young Robin from the nest and one to capture another bird not identified.

#### HEN HAWK.

In speaking of this Hawk and its close allies, Dr. Coues says: "They are unfitted, both by their physical organization and temperament, for the daring feats that the Falcons

and Hawks execute, and usually prey upon game disproportionate to their size, which they snatch as they pass along. I have, however, found nearly the whole of a rabbit in its craw." While such sluggish species are far less liable to be destructive to mature birds, they may be expected to be proportionally even more dangerous plunderers of birds' nests than the swifter winged species. Necessarily restricted to slow-moving prey, while their appetite for flesh remains, they are forced to a diligent and scrutinizing search, and are thus likely to be brought in contact with the hidden nests of birds. Of two Hawks which prey upon birds, the addicted nest-robber is the more dangerous.

Food: Hens, frogs and lizards (Wilson). Small quadrupeds and poultry (De Kay). Very destructive to poultry, and feeds upon the Ruffed Grouse and hares (Samuels). Small quadrupeds, small birds, and snakes (Brewer). Marmots (Richardson).

#### GOLDEN EAGLE.

A regular winter visitor, but only in small numbers.

Food: Living quadrupeds, birds, etc., but it rarely touches a dead body (De Kay). Young fawns, raccoons, hares, wild turkeys and other large birds; also carrion (Audubon). Ducks, mice, fawn of the reindeer, Partridges and other animals (McFarland). Carrion (E. W. Nelson).

#### WHITE-HEADED EAGLE.

This species is resident throughout the year and common in the northern portion of the state.

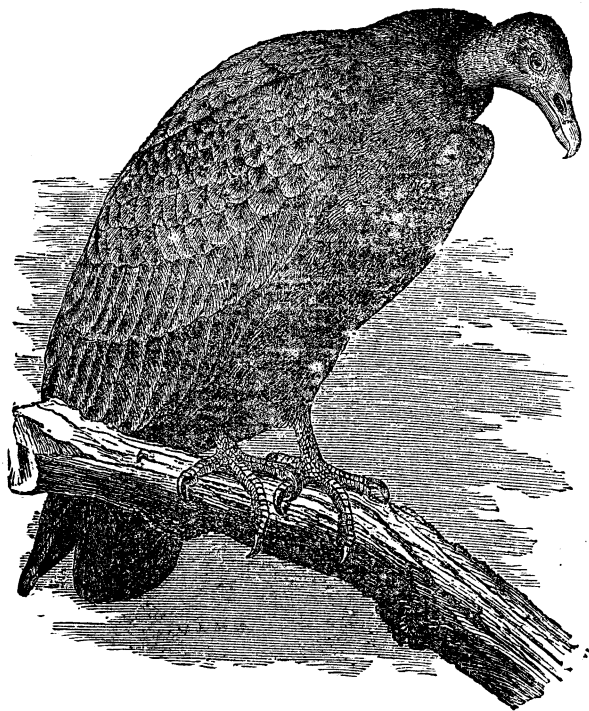
Food: Ducks, Geese, Gulls and other sea-fowl and carrion (Wilson). Weakly lambs, calves, and other animals (Cooper). Fish, wild fowl and small quadrupeds (De Kay). Wild Geese and other wild fowl, small animals, and is very partial to fish, which it takes from the Osprey (Samuels). It fishes when no Fish Hawk is around (S. S. Haldman, Am. Nat., Vol. I).

#### TURKEY BUZZARD.

Reported as occurring in the state by Dr. Hoy.

Mr. Trippe states that it is abundant in Minnesota and that it breeds there. From this statement it is probable

that it occurs frequently along the Mississippi in Wisconsin, but in the eastern portion of the state it is very rare. Since writing the above I have found it at River Falls. Although generally a scavenger, the Turkey Buzzard, when pressed by hunger, kills young pigs and lambs and other weak and disabled animals. "One excellent service which the Turkey Vultures render," says Dr. Coues, "in warm countries, is the destruction of alligators' eggs." It is also accused of sucking the eggs and devouring the young of many species of Herons. Such tendencies as these render a bird like this of doubtful utility in a climate like ours.



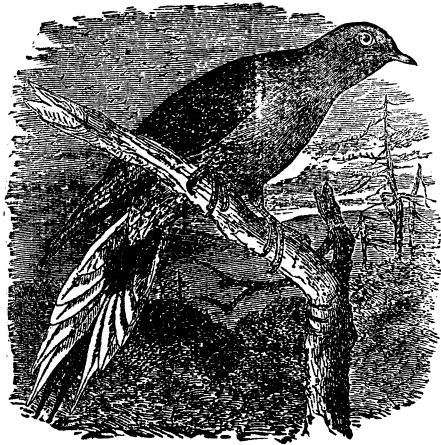
Turkey Buzzard (*Cathartes aura*). After Bd., Br. and Ridg.

Food: Carrion (Wilson). The carcasses of animals (Cooper). Carrion, disabled animals and eggs of birds, etc. (De Kay). Eggs and young of many species of Herons (Audubon). Skunks in traps (Am. Nat., Vol. XII, p. 821, W. Kite).

## WILD PIGEON.

Food: Acorns and other nuts, grain, buckwheat and various small seeds are its usual food. From the stomach of one specimen, however, were taken two large caterpillars—one of which was an *Edmea albifrons*—one harvestman, nine black crickets and four grasshoppers.

Buckwheat, hemp-seed, Indian corn, hackberries, huckleberries, acorns and chestnuts (Wilson). Beech-nuts, acorns, berries, rice and seeds (De Kay). Acorns, beech-nuts, berries, grains and weed-seeds (Samuels). Acorns (Forbes).



Wild Pigeon (*Ectopistes migratorius*). After Bl., Br. and Ridg.

## SPRUCE PARTRIDGE.

A very common resident in the coniferous forests of Northern Wisconsin, where it is partial to the swamps.

Food: Buds and cones of spruce and larch (De Kay). Buds, seeds and foliage of evergreens (Samuels). Berries, young twigs and blossoms of several species of plants and berries of the Solomon's Seal (Audubon).

## SOUTHERN SHARP-TAILED GROUSE.

This species is resident from Berlin northward, and was abundant in the vicinity of Lake Flambeau in October, 1877.

Food: Tender leaves, thorn-apples, rose-hips, wheat and grasshoppers.

In winter, buds of elder, poplar, etc. (Cooper). In the fall, chiefly grasshoppers, only varied with a few flowers, weed-tops, succulent leaves, and an occasional beetle or spider; in winter, chiefly berries of the cedar, and buds of the poplar and cottonwood or willow (Coues).

#### PRAIRIE HEN.

A common resident, but rapidly disappearing before the zeal of sportsmen. From early in the spring until after the middle of August this species is confined almost exclusively to meadows, and during this long period it is probable that its food consists very largely of insects, and that the services it renders by holding in check cut-worms and grasshoppers are very great, while its injurious effects are almost inappreciable. There are but few sections in the state where the destruction of the Prairie Hen should not be entirely prohibited, at least for a term of years.

Food: Insects of various kinds, wheat, corn, buckwheat and other grains, weed and grass-seeds and some vegetable material.

#### RUFFED GROUSE.

The Ruffed Grouse, or Partridge, as it is often called, is a common resident during the whole year in all portions of the state suitable to its tastes. Unlike the Prairie Chicken, this species is emphatically a woodland bird, though it is not confined to heavily timbered districts. The numerous dense groves of small trees bordering the prairies and in thickly settled districts, are the haunts which please it well. From these resorts it rarely invades cultivated fields. This bird appears to be very fond of the buds of certain trees, upon which it subsists to a considerable extent during the cold months, but it is not likely to become so abundant as to injure shade or forest trees to any appreciable extent.

Food: Of six specimens examined, two had eaten twenty-four caterpillars; one, the grub of a beetle; one, two grasshoppers; one, seven harvest-men; one, fruit; one, foliage; one, seeds; one, partridge-berries; and three, buds.

A young chicken, probably not over a week old, had in its stomach thirteen caterpillars, the grub of a beetle, and

seven harvest-men. An adult bird, taken in October, had in its stomach and crop three hundred and four white-birch buds.

Various vegetables, whortleberries, partridge-berries, blackberries, seeds of grapes and chestnuts. In winter, buds of alder and laurel, occasionally ants (Wilson). In summer, seeds, berries, grapes and other fruits. In winter, buds of various trees (De Kay). Various seeds, berries, grapes and insects; also leaves of evergreens, buds of trees, pieces of apples left on the trees, mosses and leaves of laurel (Samuels). In the spring, buds of various kinds of trees, especially birches. In Maine, buds of black birch. In summer, largely esculent berries, as raspberries, blueberries and huckleberries. In Maine they have been accused of visiting apple-orchards and fruit-buds (Brewer).



Quail (*Ortyx Virginiana*). A ter Bd., Br. and Ridg.

QUAIL; BOB WHITE.

This species is a common resident throughout the year, though far from being as abundant anywhere in the state as it was twenty years ago.

In its haunts, it stands on intermediate ground between



the Ruffed Grouse and Prairie Chicken, occupying the borders of groves, hazel patches and open fields. When abundant in the fall, they congregate in flocks of from ten to thirty, often consisting of the two broods reared during the summer, and, if not molested, remain together until spring, moving about from field to field in the vicinity of the breeding grounds. I believe its destruction should be prohibited, for a number of years at least.

Food: Of two specimens examined, one had eaten one potato beetle, one elater, one ground-beetle (*Anisodactylus*), one grasshopper and five grasshopper eggs, probably from the grasshopper eaten; the other had eaten wild buckwheat, wheat and one beetle.

Grain, seeds, berries and buckwheat, also insects and berries (Wilson). Grains, seeds and berries (De Kay). Potato beetles (Am. Nat., Vol. VII, p. 247, A. S. Packard). One specimen examined by Prof. Forbes had eaten beetles, hemiptera (*Coreidæ*), grasshoppers, spiders and vegetable materials. Plant-beetles were among the beetles; seeds of various plants and berries. In the fall and late summer, largely grasshoppers. Buckwheat, corn and all kinds of grain (Brewer).

#### KILLDEER PLOVER.

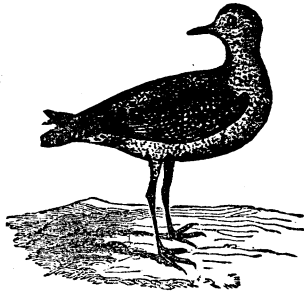
So generally distributed throughout the state and so abundant is the Killdeer Plover, that even the Robin is scarcely better known than it. Unlike most of the waders, it is a summer resident with us, frequenting upland pastures, meadows and open fields, as well as the low flats adjoining bodies of water. I have known it to enter corn-fields infested with wire-worms, and to feed upon these pests.

The food, habits and haunts of the Killdeer are such as to bind it closely in economic relations with that all too small band of birds which, like the Meadow Lark, frequent the open, cultivated fields. On account of this relationship, the Killdeer Plover should be stricken from the list of "game birds," and encouraged to breed in greater abundance in cultivated fields and meadows.

Of thirteen specimens examined, ten had eaten fifty-seven adult insects, and three, ten angle-worms; five had eaten twelve larvæ, and in the stomach of one was found fifty-six grasshopper and cricket eggs.

Four birds had eaten fifteen ants; two, three caterpillars; one, three moths; one, a crane-fly; nine, twenty-eight beetles; one, a grasshopper; four, seven crickets.

One bird had eaten three wire-worms; two, three leaf-beetles; two, four curculios (*Brevirostres*); one, a copris beetle.



Golden Plover (*Charadrius dominicus*). From Tenney's Zoology.

Worms and aquatic insects (Wilson). Earth-worms, grasshoppers, crickets, beetles, small crustacea and snails (Audubon).

Of six birds examined by Prof. Forbes, all had eaten insects; two, caterpillars; three, beetles; one, cray-fish; and two, vegetable miscellany.

Of those eating beetles, one had eaten Histeridæ; two, plant beetles; and two, curculios.

#### AMERICAN WOODCOCK.

This game bird is not uncommon during the summer in damp woods bordering streams and other suitable localities. I have found it in the corn-field as well.

Food: Of two specimens examined, two had eaten three angle-worms; one, a beetle; and one, some vegetable matter.

Various larvæ and other aquatic worms (Wilson). Chiefly earth-worms and aquatic insects (De Kay). Worms and animalculæ procured from soft earth (Samuels). Earth-

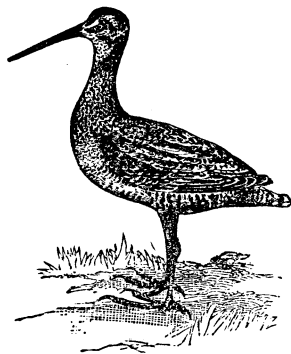
worms, grubs, etc. (August Fowler, Am. Nat., Vol. IV, p. 761).

#### AMERICAN SNIPE.

Wilson's Snipe, incorrectly called the English Snipe by many, is very abundant during the migrations, and doubtless breeds with us in considerable numbers, as they were abundant on the banks of the Fox river early in July of 1876. They frequent the wet, treeless banks of streams and low, wet meadows. During the fall they may be seen at times in flocks of from thirty to fifty.

Food: Of eleven specimens examined, ten had eaten thirty-five insects; three, fifteen beetles; one, a dipterous larvæ; and five, vegetable matter.

Larvæ of water insects, leeches, and occasionally grasshoppers and other insects (Samuels).



Wilson's Snipe (*Gallinago Wilsoni*). From Tenney's Zoology.

#### UPLAND PLOVER.

No member of our wading birds has departed so far from ancestral customs in the search for food as this species. It seems to have abandoned very largely, if not altogether, the muddy shores cherished by its allies, and taken to the dry marshes and broad prairies. It is very abundant on the broad, dry prairies of Minnesota, and is a common summer resident with us. This change of habit introduces it into a band of workers much more closely related to agricultural interests. It is not much hunted for its flesh, and doubtless

should not be until it assumes a greater abundance with us than it has at present.

Of three specimens examined, one had eaten six ants, two larvæ and three beetles; one, four snails; and one, three grasshoppers.

Beetles and other winged insects (Wilson). Grasshoppers (De Kay). In the fall, grasshoppers, crickets, grains and seeds (Samuels). Mainly insects, especially grasshoppers, of which they must devour enormous quantities in the aggregate. They also feed on other small animal substances, as well as upon various berries (Coues).

#### GREAT BLUE HERON.

The Great Blue Heron is a common summer resident throughout the state, and is often, though incorrectly, called the Blue Crane. Its favorite resorts are slow streams and muddy lakes. Here it is known as an expert fisherman, who finds a ready market at no more distant port than his own capacious stomach, which is reached by a thoroughfare of alarming capabilities. I removed from the stomach of one of these birds a bullhead eight and one-half inches in length. The fish had been swallowed entire, and with those rigid side spines set at right angles to its body. Another bird had eaten two sunfish and five dragon-fly larvæ.

Food: Fish, mice, dragon-flies and seeds of spatter-dock. It has been known to eat fifty moderate sized dace and roach in one day. In a carp pond, one has been known to eat one thousand stone carp in one year (Wilson). Crabs, eels, shellfish and various fishes (De Kay). Snakes, frogs, mice, fishes and insects (Samuels). Fish of all kinds, frogs, lizards, snakes, birds, shrews, meadow mice, young rats, aquatic insects, moths and dragon-flies. It destroys great numbers of Marsh Hens, Rails and other birds (Audubon).

#### AMERICAN BITTERN.

The American Bittern, or Stake-driver, as it is often called, is the most abundant of all our Herons and the least retiring. It is found in all meadows during the summer where there are small sloughs.

Food: Of four specimens examined, two had eaten eight small fish; one, a crawfish; one, a water-scorpion; one, a large water beetle, one, thirteen dragon-flies; one, a spider and its egg case; one, a meadow mouse; and four, six crawfish.

Meadow mice, aquatic reptiles and fish; also large winged insects (De Kay). Fish, frogs, other reptiles and insects (Samuels). Mollusks, lizards, frogs, small snakes, and fish as well as insects (Coues).

#### LEAST BITTERN.

This is a common resident, but a very retired species, confining itself among the reeds of the swamps and lakes.

Food: Of four specimens examined, one had eaten five beetles and two other insects: one, a water-scorpion and twenty water-boatmen; one, four insects and a dragon-fly; and one, a small fish.

Small fish (Wilson). Snails, slugs, tadpoles, water lizards, small shrews, and occasionally field-mice (Audubon).

#### BRANT GOOSE.

Mr. Nelson states that the only instance known to him of the capture of this species in this portion of the country, is a specimen taken by Dr. Hoy, near Racine, which is in his collection. Mr. Paul B. Wood writes me that he has taken this Goose near Peshtigo.

#### COMMON WILD GOOSE.

Food: Green leaves of sea cabbage, roots of sedges (Wilson). Fond of lighting in corn-fields and feeding on fresh blades, often committing great havoc; grass and earth-worms (Audubon).

#### MALLARD.

A very abundant migrant and still a summer resident. They are becoming sensibly less numerous year by year, under the steady fire of sportsmen. Many breed about Lake Puckawa, and in many other similar places.

Food: Purely omnivorous. Putrid fish, garbage of all sorts, snakes, small quadrupeds, nuts and fruits of all kinds, rice, corn and other grains. They are expert fly-catchers (Audubon).

## GREEN WINGED TEAL.

This exquisite duck is a common migrant and summer resident. It breeds about Lake Puckawa, and near Berlin, and doubtless elsewhere in similar situations.

Food: Feeds on various kinds of grass; also leaves of tender vegetables (Wilson). Various water insects and their larvæ, seeds or aquatic plants, and tadpoles of different frogs (Samuels). Seeds of grasses, small acorns, fallen grapes and berries, aquatic insects, worms and snails (Audubun).

## BLUE WINGED TEAL.

This is our most common summer resident, breeding in large numbers in most suitable places.

Food: Of four specimens examined, three had eaten sixty snails; one, vegetable matter; and one, seeds and duckweed.

Seeds and vegetable food (Wilson). Aquatic insects and seeds of aquatic plants (Samuels).

## SPOONBILL DUCK.

A rather common migrant. It may also breed in the state, as it is said to do so in Illinois.

Food: Various aquatic insects and tadpoles, but eats but few seeds of aquatic plants; small crustaceans (Samuels).

## WOOD DUCK.

This handsome Duck breeds in abundance along Bark river and about small wooded lakes south and east of Whitewater, as well as along the wooded streams in Northern Wisconsin, and doubtless generally in similar situations.

Food: Of five specimens examined, one had eaten two dragon-flies and three water-larvæ, three, black cherries; one, burr oak acorns; and three, seeds.

Seeds of wild oats, acorns and insects (Wilson). Acorns, seeds of aquatic plants and insects (De Kay). Food of young, aquatic insects, flies, mosquitos and seeds. When older they chase dragon-flies, or pick up locusts that have fallen into the stream. Old birds eat acorns, beech-nuts, grapes, berries and rice; insects, snails, tadpoles and lizards.

## AMERICAN POACHARD; RED-HEAD.

A rather common migrant.

Food: Stems and roots of *Vallisneria*, various aquatic plants, small fish, aquatic insects (Samuels).

## CANVAS-BACK.

A common migrant. Many are shot on Lake Puckawa.

Food: Roots of *Vallisneria* (Wils). *Vallisneria* (De Kay).

## BUFFLE-HEAD; BUTTER-BALL; SPIRIT-DUCK.

A common migrant and more abundant than the preceding members of this genus. It remains upon our streams until they are frozen over, and it is among the first to return in the spring.

Food: Shellfish, shrimps, etc. (Wilson). Aquatic vegetables and insects (De Kay). Small fish and crustaceans (Samuels).

## SMITHSONIAN HERRING GULL.

A migrant and winter resident on Lake Michigan. Dr. Hoy records it as common on the lakes. Mr. Nelson states that a colony breed on an island between Green Bay and Lake Michigan.

Food: It consists principally of herrings, of which they destroy great numbers; also other fish, shrimps, crabs, shellfish, as well as young birds and small quadrupeds. They suck all the eggs they can find. The young are fed chiefly upon shrimps and small crustacea (Audubon).

## RING-BILLED GULL.

A rather common migrant, and, with the last, was obtained at Whitewater.

## KITTIWAKE GULL.

Of this species, Mr. Nelson writes: "A rare winter visitor to Lake Michigan. Dr. Hoy writes that in the winter of 1870 a single specimen of this species kept about the harbor for several days, but was too shy to be shot."

## FRANKLIN'S ROSY GULL.

Dr. Hoy states that a specimen was obtained at Milwaukee, and is preserved in a collection at that place (Nelson). Mr. E. S. Richmond writes me that he has obtained it at Whitewater.

Wisconsin State Ag. Society.

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