Annual report of the Wisconsin State Board of Agriculture for the year 1905. 1905

Wisconsin. State Board of Agriculture
Madison, Wisconsin: Democrat Printing Company, State Printer, 1905

ANNUAL REPORT

OF THE

WISCONSIN

State Board of Agriculture

For the Year 1905.

JOHN M. TRUE, Secretary.

MADISON, WIS.
DEMOCRAT PRINTING COMPANY, STATE PRINTER.
1905.

LETTER OF TRANSMITTAL.

To his Excellency, ROBERT M. LA FOLLETTE,

Governor of the State of Wisconsin.

SIR:—I am pleased to herewith submit to you, the annual report of the Wisconsin State Board of Agriculture for the year ending March 6th, 1905.

JOHN M. TRUE,

Secretary.

NOTE.

The State Board of Agriculture having changed the termination of its fiscal year, from Dec. 31st to the Monday preceding the first Tuesday in March, this report covers the transactions of the Board from Dec. 31st, 1904, to March 6th, 1905.

In the future the reports of this Board will be issued annually in March.

J. M. T.

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OFFICERS

OF THE

Wisconsin State Board of Agriculture

President—George McKerrow.
Vice President—George G. Cox.
Secretary—John M. True.
Treasurer—(Ex-officio) J. J. Kempf.

BOARD OF MANAGERS.

President—George McKerrow.
Vice President—George G. Cox, C. G. Wilcox, Grant U. Fisher, George Wylie.

MEMBERS OF WISCONSIN STATE BOARD OF AGRICULTURE.

At Large—George Wylie, Morrisonville.
At large—Grant U. Fisher, Janesville.
1st District—C. H. Everett, Racine.
2nd District—George Klein, Fort Atkinson.
3rd District—George G. Cox, Mineral Point.
4th District—W. H. J. Kickhefer, Milwaukee.
5th District—George McKerrow, Sussex.
6th District—C. W. Harvey, Beaver Dam.
7th District—J. L. Herbst, Sparta.
8th District—James J. Nelson, Amherst.
9th District—C. G. Wilcox, De Pere.
10th District—
11th District—Laurens E. Scott, Stanley.

LAWS

RELATING TO THE

Wisconsin State Board of Agriculture.

Wisconsin Statutes of 1898, Chapter 60.

Section 1456. The Department of Agriculture as heretofore established, is continued. Its object shall be the promotion of the interests of agriculture, dairying, horticulture, manufactures and domestic arts.

Said department shall be managed by a board, to consist of one member from each congressional district, and two from the state at large, to be appointed by the governor, for terms of three years from the first day of January in the year of their appointment.

Not more than two-thirds of the members of said board shall be at the time of making any appointment thereto, members of the same political party. Vacancies shall be filled by the governor for the unexpired portion of the term.

Section 1457. The members of said board shall serve without compensation, but shall be reimbursed out of any funds set apart for their use by the state, or otherwise received by them, the sums actually expended in the performance of their duties.

Section 1458. Said board shall hold its annual meeting on the first Tuesday in March, and at such meeting shall elect one of its members as president, and one as vice president, and some person, not a member, as secretary, who shall hold his office for one year unless he is sooner removed by the board.

The state treasurer shall be ex-officio treasurer of the board.

Such officers shall perform such duties as usually pertain to such offices, and such as the board may direct.

Section 1458a. Said board may occupy such rooms in the capitol as may be assigned for that purpose by the governor.

They shall have sole control of the affairs of the Department of Agriculture, and all state fairs, and state fair grounds, and may make such by-laws, rules and regulations in relation to the management of the business of such department, and said fairs, and the offering of premiums thereat, as they shall from time to time determine.

The board shall make a report of its action to the governor, on or before the first day of December in each year.

Section 1458b. Whatever money shall be appropriated or otherwise received by said board, for the Department of Agriculture, shall be paid to the state treasurer, and be disbursed by him, on orders signed by the president and secretary of the board, for such purposes as, in the judgment of the board, will best promote the interests committed to their charge.

No officer, clerk or employee of said board shall have any claim upon the state for any salary or expenses, except such as may be alowed by the board, and paid from any appropriation or funds under their control; and the state shall not in any manner whatever be liable for any debt or obligation incurred, or contract made by said board.

Section 1458c. On the presentation to him of the sworn statement of the secretary of said board, showing the amount paid by the board for premiums at their last annual fair, the secretary of state shall issue his warrant for ten per centum of such amount, and on the presentation of such a statement signed by the president and secretary of the board, certifying that the sale of intoxicating liquors has been prohibited and prevented, upon the fair grounds thereof, during the last preceding fair, he shall annually draw his warrant for four thousand dollars.

Section 1466. The principal officers of the state board of agriculture, ..., shall have full jurisdiction and control of the grounds, on which such board may exhibit, and all the streets, alleys and other grounds adjacent to the same, during all such exhibitions, so far as may be necessary to exclude therefrom all other exhibitions, booths, stands or other temporary places for the retail or sale of any kind of spirituous or fermented liquors, or other articles, that they might deem objectionable.

The president, or in his absence, any vice-president acting in his stead, may appoint any necessary policeman to assist in preserving the peace, and enforce regulations upon the grounds and adjacent streets, who, for such purpose, shall have all powers of a constable and be entitled to similar fees.

Secretary's Financial Statement.

RECEIPTS.

From January 1st, to March 6th, 1905.

January 24th, From C. W. Harvey, collection	$14 00

DISBURSEMENTS.

Order No.	To whom, and for what.	Amount.
1.	C. H. Everett, expenses	10 20
2.	J. L. Herbst, expenses	10 48
3.	John M. True, expense allowance, Jan	25 00
4.	Jas. J. Nelson, expenses	20 90
5.	Geo. Klein, expenses	19 44
6.	F. C. Jirachek, merchandise	8 65
7.	Mrs. B. L. Wentworth, help in office	8 00
8.	Geo. A. Schneider, daily papers	17 25
9.	A. Emmerich, expenses	22 48
10	Smith-Blodgett Co., merchandise	2 66
11.	Geo. McKerrow, expenses	4 00
12.	Wm. Engeland, cheese sold at fair	3 57
13.	John M. True, January salary	100 00
14.	Robert Phillip, use of horse at fair	15 00
15.	Robert Phillip, wages, January	40 00
16.	C. W. Harvey, expenses	16 17
17.	F. W. Curtis, photographs	22 00
18.	A. Le Feber, grain	35 00
19.	John M. True, expense allowance, February	25 00
20.	M. F. Greeley, convention expenses	25 00
21.	Mrs. Bertha D. Laws, convention expenses	50 25
22.	Park Hotel, bill of Mrs. Kelly, stenographer, et al	15 75

Order No.	To whom, and for what.	Amount.
23.	E. K. Morice, agent, freight on cinders	15 00
24.	Geo. G. Cox, expenses	42 70
25.	Geo. McKerrow, expenses	3 00
26.	Farmers' Sentinel, advertising	8 40
27.	J. L. Herbst, expenses	8 42
28.	Grant U. Fisher, expenses	22 23
29.	C. G. Wilcox, expenses	77 50
30.	John M. True, payment on February salary	50 00
31.	Clark Engraving Co., electrotypes	9 80
32.	C. M. & St. P. Ry., freight on cinders	10 00
33.	John M. True, balance on February salary	50 00
34.	Robert Phillip, February wages	40 00
35.	Bert Segrist, labor	7 70
36.	Jno. J. Kempf, Treas., redeemed spurious coin	1 00
37.	P. S. Wiswell, team work	39 00
38.	Democrat Printing Co., subscription to Daily	2 70
39.	The Thomas Furnace Co., cinders	20 00
40.	Mrs. A. L. Kelly, report of convention	103 34
		$1,007 65

GENERAL STATEMENT.

In Treasurer's hands, January 1st, 1905	$14,404 97
Paid to Treasurer by Secretary	14 00
Amount in Treasurer's hands, March 6th, 1905	$14,418 97
Paid out on orders since January 1st, 1905	1,007 65
Balance in treasury, March 6th, 1905	$13,411 32
Due from State, from 1904	7,354 50
Total	$20,765 82

ANNUAL REPORT

OF THE

Wisconsin State Board of Agriculture

1905.

MINUTES OF MEETINGS OF THE BOARD.

SPECIAL MEETING.

Madison, January 31, 1905.

Present—Messrs. Wylie, Fisher, Everett, Klein, McKerrow, Cox, Harvey, Herbst, Nelson, Wilcox and Thomas.

The secretary read a communication from the Chicago House Wrecking Co., relative to prices of turn stiles, and on motion of Mr. Fisher, the president was instructed to go to Chicago and investigate the general matter of turn stiles, with the power to purchase, should he deem it advisable.

On motion of Mr. Harvey, voted that at date of annual meeting, Tuesday, March 7th, Messrs. Thomas and Wylie be instructed to meet and adjourn such meeting until March 15th, at 10 o'clock, A. M.

Secretary presented letters and illustrations from secretaries

of state fairs having live stock judging pavillions, which were referred to committee on legislation.

The secretary presented proposed amendment to statutes relative to state aid to fairs, which, on motion of Mr. Wilcox, was endorsed by the Board.

Adjourned.

JOHN M. TRUE,
Secretary.

ANNUAL MEETING.

Madison, March 7, 1905.

Present—Messrs. Fisher, Wylie and Thomas.

No quorum.

On motion of Mr. Fisher, Mr. Wylie was chosen president pro tem.

On motion of Mr. Thomas, adjourned meeting until Wednesday, March 15, at 10 o'clock, A. M.

Adjourned.

JOHN M. TRUE,
Secretary.

ANNUAL CONVENTION

OF THE

Wisconsin State Board of Agriculture

Held in the Audience Room of Agricultural Building,
State University, Madison, Wis.

Wednesday and Thursday, February 1 and 2, 1905.

WEDNESDAY MORNING SESSION.

President McKerrow in the chair.

The President: The convention will please come to order. I notice that the secretary in making up this program has put, as the first number upon it, an opening address by the president. The president has no regular opening address to make, and I see a look of relief come over your faces at this remark, and I do not blame you, but I will say a word or two in regard to the past work of the State Board of Agriculture, and what they hope to do in the immediate future.

The work of the State Board in Wisconsin differs in some respects from the work of State Boards in other states. The secretary of this Board is the Official State Crop Reporter and as many of you know, the crop reports of Wisconsin for the

past two years as they have been prepared by Secretary True are as reliable as such reports can be, in fact, they are considered reliable enough for the government, in making its reports, to use them to a considerable extent, and we are rather proud of this part of our work, although it is only a minor part of the work of our secretary.

The Live Stock Sanitary Board of this state has three of its members elected from our State Board of Agriculture by selection from that Board, and we may say that we are proud of the work of that Live Stock Sanitary Board, not because they have done work like any other state, which has often put the farmers and stock breeders up in arms against the Sanitary Board, but they have done their work along sane lines and have succeeded in having much to do in driving out or partially stamping out the serious infectious diseases that trouble our live stock. The work is still a large one and we trust that the State Board of Agriculture in that part of its work will continue to do it as well as it has been done in the past.

The holding of the state fair is probably the largest and most important work that this Board has under its direction. You are all familiar with the Wisconsin State Fair; it has become a common saying both inside and outside of this state, that the Wisconsin State Fair, from its inception, has had a hard road to travel. There have been various reasons for this, one of which, probably, is that the thickly settled farming section of our state has until very recently been in the extreme souhtern part of the state, and limited in area.

The State Fair formerly were traveling shows. This has been against them, but even after they were located at Milwaukee, we found that this geographical location was to some extent against the success of the Wisconsin State Fair, because, upon the one side we had Lake Michigan, where there are no Wisconsin farmers; on the other side, to the north-west, practically of the extreme north-western part of our state, we had one of the very best State Fairs in the United States to compete with, and, naturally, the majority of our farmers, from the western

part of Wisconsin to the north-western part of the state, drifted to the Minnesota State Fair.

Another reason was that the great city near which our fair ground was located was not a fair-going city as compared with such cities as Toronto, St. Paul and Minneapolis.

We are glad to say, however, that during the past three or four years the Wisconsin State Fair has been making steady progress; steady progress as an agricultural show, steady progress in cleaning up the ground from fakirs and useless shows, although we have enough of that class yet; steady progress in favor with the farmers of the state, as shown by the increasing attendance each year, and steady progress with the people of Milwaukee who are now backing this fair, both morally and financially.

The last fair held, probably the most successful in the history of the state—yes, I will say without question the most successful in the history of the state, leaves the State Board of Agriculture in better shape financially than any previous fair in the history of Wisconsin; with a balance of over $20,000 in the treasury we feel now that we can launch out and make the Wisconsin Fair a live stock and agricultural show equal to the best, providing the state will put upon its grounds at Milwaukee the necessary buildings, walks, roads, etc., to equal those of our neighboring states. With that help we feel that we can make the State Fair second to none, one that will stand side by side with the great fairs of Minnesota and Illinois.

To put the Wisconsin State Fair upon something of a par with those that I have mentioned, we are asking the present legislature for $100,000. Now, to some people this appears a large sum and to others it appears small.

We are asking, first, for a live stock judging pavilion to cost at least $50,000. We think this is not extravagant, for when we go to Iowa we find Iowa with a pavilion that cost $44,500, built three years ago when material was much cheaper than it is now; we find our neighbor upon the south, Illinois, with a live stock judging pavilion that originally cost $37,000, but which

was added to a year ago until the cost of that pavilion has reached $70,000.

We find Ohio, to the east, with a horse judging pavilion, costing $60,000, a cattle judging apmphitheatre, costing $30,000, and a sheep and swine judging amphitheatre costing $30,000, making $120,000 invested in buildings to show live stock in. So that we feel that we are very modest in Wisconsin.

Prof. Shaw (of Minnesota): In the hope that it will not alarm your legislators, I will mention that Minnesota is asking for $200,000 to provide a proper amphitheatre for judging live stock in.

President McKerrow: Minnesota is not so modest as we are, you see. We are also asking for $50,000 for a machinery hall, for work which is very necessary on buildings on the grounds, for roads, drives, etc., and for the surfacing of the track. Horse men, who have patronized the track at Milwaukee, have always said that we had one of the best tracks in the country, barring the fact that there was gravel underneath which worked up at times to the injury of their horses in speedy work, and they have asked for the resurfacing of this track. The Board sent out for bids last fall and the lowest received for doing this work, complete, was 84 cents per cubic yard. We thought we saw a cheaper way to do it, and began work under the direction of Superintendent Harvey and covered the track on an average of six to eight inches with surface soil, which was taken from spots upon the fair ground, and did the work for $2,170 which is a saving of over $7,000 upon the lowest bid made for surfacing that track. We borrowed money out of our own fair fund to do this, believing that the State Board of Agriculture would a great deal rather advance $2,070 for this work than to appropriate $9,500, and we are trusting to their generosity in this matter to repay the fund we have expended. We are inclined to broaden out and enlarge the premium list for the coming year, under the conditions that now surround us. Livestock will receive more money in the way of prizes; agriculture will receive more money in the way of prizes; the boys and girls upon

the farms will be recognized in prize lists for the coming fair. While the Board has taken no definite action upon this, it has been discussed, and in working upon the premium list, it is intended to give prizes to encourage the young people, and in all probability our Board will vote a banner, at least, to the county whose young people win the most prizes in these junior contests.

I, for one, and the Board as a whole, I may say, feel very much encouraged with the outlook for the Wisconsin State Fair as a great educational feature in this state, and we propose to push right along the same lines that we have been following for the last four or five years, but, gentlemen, we ask for your support, we ask all of you to use your influence for the upbuilding of the Wisconsin State Fair, and we ask you all to give us your presence at the Fair of 1905. Thank you.

HOW THE FARMER MAY OBTAIN THE BEST AGRICULTURAL AND LIVE STOCK LITERATURE, WITHOUT COST.

FRANK A. HUTCHINS, Madison.

In talking over this subject with the secretary, he suggested that the most valuable result would probably be the publication of the paper in the proceedings. But I want to make an impression upon those who are here, if I can, and in order to do so, I have arranged to make an exhibit of my material which is here before you, and which I wish you would examine during your recess in the library room below, where you may also be furnished with much material which I hope will be valuable.

The government of the United States, through the department of agriculture, and through nearly fifty state experiment sta-

tions, which it subsidizes, expends many hundreds of thousands of dollars each year in careful investigations of subjects of direct practical interest to farmers. These investigations are conducted generally by men of proved ability, they are sometimes very expensive and cover long periods of years. It often happens that while such experiments are in progress bulletins are issued which secure information and suggestions from thousands of intelligent farmers and students. The bulletins, giving results or suggesting lines of experiments are widely scattered. For the fiscal year ending June 30, 1904, the United States Department of Agriculture printed and distributed 415 Farmer's Bulletins, 25 of which were new publications. The aggregate number of copies printed was 6,435,000 and the cost of publication was $104,000. The various state agricultural experiment stations issued 300 bulletins and about 3,000,000 copies, making a total of 10,000,000 copies of bulletins distributed by these agencies.

The Farmer's Bulletins treat in a practical simple and untechnical way of subjects of particular interest to farmers and gardeners. They may be obtained upon application to the department, or through the congressman, although the former is the better way. The Year Book of the Department of Agriculture is an encyclopedia of practical popular articles on specific topics and a description of the organization and work of the department. A larger edition is printed than of any other public document, and as most of them are distributed by congressmen, it would be easiest to get in that way. The Department of Agriculture publishes documents which are interesting to farmers, and it is very anxious to get its publications in their hands and is active in advertising them. A small fee is charged for certain of the publications, but most of the valuable ones are free. The Department will send its monthly list of publications regularly to any applicant, without expense. A list of publications which are available for free distribution is printed at intervals and includes those of the most general interest. Each bureau and division occasionally issues a list of its own publica-

tions which are free. The Forestry bureau has recently issued a bulletin which is called the *Woodman's Handbook No. 1.* This volume contains rules for finding the contents of logs and standing timber, methods of estimating timber, brief outline of forest working plans and a description of instruments useful in the woods. It is distributed free by congressmen and by the Department of Agriculture. It will be found especially useful to Wisconsin farmers. Circular 24, from the office of *Road Inquiry on Highway Maintenance and Reports* is a compilation of testimonials and arguments favoring good roads, chiefly from Wisconsin men and papers. The Statistics division issues monthly the Crop Reporter which can be had either through the Department or through congressmen.

"Experiment Station Work" is a subseries in the series of Farmers' Bulletins, which gives condensations of the most valuable published reports of the agricultural experiment stations in our own and foreign lands. When the reader has found a synopsis of a paper which especially interests him he can usually obtain the fuller report by writing to the publishing station. More than this, he can get into touch with enthusiastic and earnest investigators who will enjoy giving him personal aid.

I have been particularly interested to know whether our farmers used these books, and have been surprised to find how few of them were in touch with that great department in Washington. It has happened within the last year that I have lived with farmers in New York, New Jersey, North Carolina and Michigan, although I am not a farmer myself, and as a matter of fact I found in none of these places any intelligent knowledge of what the Department of Agriculture was doing, except in the mountains of North Carolina, where a Northern man is in constant communication with them, writing to the Department and even securing from the Department at Washington two visitors within a year to aid him in trying some experiments which they thought would be of value to the farmers in the Appalachian mountain district.

By sending a postal card to Washington, your name will be

put on the mailing list, you will receive every month a list of the publications of that month, with instructions how they can be obtained; you can select those that you want; most of them you will receive without cost, and the others for a very small fee. The Department of Agriculture will give without cost to any public library in Wisconsin a full set of the bulletins which are of value in the state of Wisconsin. In addition to that, it will do this: it will give a card catalogue, which is simply an index that can be kept up to date. Each card contains a reference to some article in the bulletins or year book which will also be furnished to public libraries which will agree to make it useful to the farmers. From this card catalogue, you may easily turn to and find every article in the year book or in the bulletins on desired subject. The Free Library Commission has been working for a number of years to try to get the public libraries of the state to put in the card catalogues, these and other publications, and we find it very difficult for two reasons; in the first place, the librarians are generally girls or women living in towns who have no particular interest in agriculture and farming, and they are busy and their enthusiasm is given to education in other directions. They say, "We do have some of these publications and the farmers do not come in for them."

Now, there are some places where special arrangemets are made in the public library; at Portage, for instance, the farmers from four townships are allowed access to the library and they have all this material and they are beginning to come in to get these books and look up these facts, and the law now has this provision, that wherever a public library is founded in the state of Wisconsin, the farmers, or the authorties of adjoining townships may make a contract with that library so that the farmers may have reading material and the same privileges that the village or the city people have.

The township of Madison, (which is quite a small township as many of you know, being so much of it under water,) made an arrangement with the city of Madison a few years ago, and for $25 a year, they have equal privileges, all the residents of the

city of Madison. At Portage two or three of the townships pay $10 a year which is voted at the annual meeting. At the village of White hall, which is in the center of the township of Lincoln in Trempealeau county, when the library was started, the township voted $150 to start with, and then they paid $100 a year and now $75, and they have a representation on the board, so of course they feel perfectly at home.

There are a great many other ways in which agriculture literature can be got, practically, free. I shall not try to cover the whole ground this morning, but I have made two or three suggestions in the hope that when your attention is directed to it, there will be a practical outcome. Mr. McKerrow, do you think that the farmers of the state, as a rule, get these Experiment Station records, and the farmer's bulletins as freely as they ought?

President McKerrow: No, sir; they ought to get a great many more than they do.

Mr. Hutchins: It seems to me that in your farmers' institutes, this matter might be brought up so that the farmers shall be better posted upon what their privileges are.

President McKerrow: We have had a good many of these books sent by congress and the senators of the state to different institutes.

Mr. Hutchins: Many of you know, possibly, of the work done at Cornell University, for the children of the public schools. The University has sent out some beautiful pamphlets that should be of very great interest to teachers and to children and to all who live on the farm. Each is full of practical suggestions, is beautifully illustrated and is sent out free, because the work is done by the Experiment Station and I am sure they would be a great help to the children of Wisconsin. I wrote Mr. L. H. Bailey the director in regard to this matter, and he wrote that he would send these to Wisconsin to our teachers and pupils, for the bare cost of the printing and press work and the bare cost of folding them into envelopes. I went to the State Department of Eduation and put this matter before them, and

finally they were sent to the public libraries of the state, but that was not the best place for them. The Department of Education said they were going to take it up, but that is the last I heard of it. The New York State Printer at Albany now has the matter in charge, as the pamphlets are out of print and arrangements may be made with him for the purchase at a low price of a volume which contains the most valuable material of these pamphlets.

DISCUSSION.

Mr. Mead: May a private individual obtain from the government those card catalogues?

Mr. Hutchins: I think they can by purchase. That does not include the cabinet which I have here, but these may be arranged very practically and nicely in an envelope box.

Mr. Mead: Are those cards to be strung on wire rods or are the loose cards?

Mr. Hutchins: They are to be strung on wire rods. Where you have a great many people handling them, it is better to have a cabinet, but for a small library, you can have it in a box.

President McKerrow: Let me ask, how many receive from the Department at Washington the list of publications each month? Evidently not many. I would advise everybody that does not, to write to the Department at Washington, asking for a catalogue of their Bulletins for farmer's use, then you can select from that list such as are suited to your conditions. Of course, a Wisconsin farmer is not interested in the growing of cotton in the South, for instance; but you will find in each list something that is of value, both to you and your wife and your boys, and our girls. I always look new catalogues over as they arrive to see what there is new that will be helpful to us, check it and send it back to the Deparment, and the material comes right along.

Prof. Shaw: I would like to ask whether it is the intention of the Department to continue these publications, following up the bulletins which have been issued showing experiments which have been made. For instance, some of these bulletins show experiments on soy beans and cow peas. They have been made by experts who have gathered the information. Now, what I want to know is this, will that work be followed up in the future, will the departments in the near future confirm by experimental work what has been thus gathered?

Mr. Hutchins: I cannot speak for the Department. There is certain work being done, and what I am after is to help the farmers to get the results of those investigations. I cannot go back of it, the Department is responsible for them. There is this about it, it is stated distinctly in the Experimental Station Record, published at Washington by Mr. A. C. True, that these are experiments, and that each farmer must do some work in addition, to make the results of those experiments in his particular case valuable.

Mr. Stiles: What difference does it make to farmers whether these experiments have been made and the data collected, or they have been doing experimental work of their own?

Prof. Shaw: I will answer that question by putting another, —What effect is all this going to have upon the individual efforts of men who are trying, to the best of their ability, to collect the information and put it in concise, condensed and consecutive outline for the benefit of the farming public?

President McKerrow: That brings up the question of competition between the individual and the government.

Mr. Hutchins: I am merely trying to tell you how you can get the results of these investigations, and if I can tell you in addition how you can get the results of individual experimenters I shall be glad to do that. Then you can fit them against each other and take the things you think the best. In this world we can't know everything and it is the man who knows how to find out what he wants, when he wants it, who has the advantage. My business as librarian is to show you how you can get the best

facts at the time you want to work them out. I can't furnish you brains to work them out with after you have got them, you have got to work your own brains. As to this matter the more competition there is the better. It is for the farmer to say whether it is the individual experimenter, who has got nearer the truth or has got more of the truth or the government expert.

Prof. Shaw: Mr. Chairman, although a little aside from the question matter before this audience as I think it is, because I have had a little experience in the running right up against the government of the United States in the line that I am talking about. Now, do not misunderstand me, I am not blaming the government of the United States, or finding fault with it in the slightest degree for the magnificent work that it is doing, but I do want to bring out this fact, that possibly discouragement will grow out of it to capable men who are doing splendid work in the line of book making. I have thought a little bit on these lines in recent years, as probably some of you know. This thought came to me a few days ago, and I think there is something in it. While I acknowledge the full value of the bulletins that are being issued by the United States Department of Agriculture and the Experiment Stations, I have had occasion recently to write up the question of corn, for the book that I am writing on Cultivated Crops. I had to ransack about, I think, one hundred bulletins in order to get the information that I wanted on that subject. I got that information, as applied to different localities, to certain sections, different phases of the subject. If I had been a farmer, simply wanting to get information on the growing of corn, I do not think, sir, that I would have ransacked those one hundred bulletins in order to get that information, part of which were issued by the Department of Agriculture of the United States. But if I had known where to lay my hand on a book that took up the question of corn and made it so plain that a man, who did not know what corn was before he met with that book, could begin at the abc of corn and go right on with it to the end, if I had know where that kind of a book was, that is the kind of a publication I would have

selected, rather than go through an enormous library or one hundred bulletins. Now, if that book has to come into competition with all that the Department of the United States is doing and the Experiment Stations, it is not going to have a very big sale, because it has to be bought, and the others are got for nothing. Now, I want Mr. Hutchins to show us the way out of this difficulty.

Mr. Stiles: I think you have got a snap. All you have to do is to publish this book and if the farmer would rather have it than the other, he is going to buy it.

President McKerrow: The farmer likes things boiled down. After Shaw has boiled it down, he will be glad to get it.

Prof. Shaw: A man is butting right against the Department in such work, and it seems to be there ought to be some way devised by the Department to advertise his book.

President McKerrow: Your book is getting the finest kind of advertising here this morning.

Mr. Hutchins: One of these bulletins contains what is called The Farmer's Reading Course, and in that issue are suggestions about reading circles among farmers, and there is a list of textbooks and bulletins on various subjects. In this list is Stock Breeding, by Miles; Feeds and Feeding, by Prof. Henry, and a lot of others.

President McKerrow: Mr. Hutchins has attempted to state to us simply the information that is at hand for us farmers, you can see that the man who is going to use this library must be his own sifter to sift out what will be good for him and throw away the chaff. Like Prof. Shaw, I believe that there are a great many of these bulletins that are a littte too scientific or indefinite for the farmer, but there is lots of good matter in them, and it will pay to get them, and then besides that, we must buy the best books and the best agricultural and live stock journals to keep up with the times. A bulletin issued by the government two or three or five years ago is not up with the times, for, as we all know, new things are coming up all the time, we must

keep at the front of our profession if we are going to march ahead of our class.

A Member: I think the great trouble is to get the farmers to read these documents. The United States is the most liberal institution I ever ran across, as far as bulletins are concerned. There is plenty of information down there if you will only send down and get it. I have sent for lots of bulletins on all sorts of questions, and studied them, and they have been useful, but I aways find when I want to put them into operation that I learn something that I had no learned from the United States government or anybody else, and in the process I have done some thinking myself. I sent down to Washington for some of these free books and bulletins and Uncle Sam was so generous that he sent me a whole mail sack full.

President McKerrow: I have been in the same fix and I have had books to give away, but when it was a sack full of seeds, I didn't give them away, because I didn't think they were worth giving away. I feed them to the sheep.

Wisconsin is a dairy state and questions of live stock breeding are very important to us, but I never saw any breed that didn't need good feed, too. The Wisconsin Agricultural College, under the law of the state, has been investigating different feeds put upon the market for sale, and a gentleman who has made this work one of his specialities and who is eminent, I believe not only in Wisconsin but throughout the country as being an expert in this line, has consented to discuss this question before us this morning, and I take pleasure in introducing to you Prof. Woll, of this Experiment Station and Agricultural College, who will talk about The Inspection of Feeding Stuffs in Wisconsin and Some of the Results so far Obtained.

THE INPECTION OF FEEDING STUFFS IN WISCONSIN AND SOME OF THE RESULTS SO FAR OBTAINED.

F. W. WOLL.

The Wisconsin state feeding stuff law was passed by the legislature of 1901 and went into effect on January 1st, 1902. We have, therefore, now had three years' experience as to the operations of the law and ought to be in position to arrive at some definite conclusion as to whether it has been of any benefit to the buyers and consumers of feeding stuffs in this state and thereby indirectly to the whole state. The law it may be said was enacted through the demands and efforts of prominent dairymen and farmers in the state and in no way originated with the Experiment Station or any of its officers. Having had the enforcement of the law placed in our hands we did, however, take up the work with a will, firmly convinced that the best interests of our state, and especially of our farming constituency, demanded that the law be enforced to the letter, and determined that so far as it was left us, offenders should be brought to time and all adulterations that might be discovered, promptly and fully exposed in such ways as seemed most effective. In how far we have been successful in our efforts in this respect, you and the people of the state generally have had occasion to judge during the past three years. Toward the end of each year a bulletin has been published, giving the results of the year's work in feed inspection. The analyses of samples taken by authorized representatives of the station in the feed stores of the state have been published in these bulletins and such com-

ments made on the results as were considered proper and just to all parties concerned. The character of the adulterations met with during the year has been explained and a general discussion of the operations of the law has each year been given. Before we proceed to review briefly the main results obtained in the feed inspection work during the period that has passed since the enactment of the law, it may not be amiss to say a few words as to the necessity of laws of this character.

Under present-day conditions of ever-increasing competition between manufacturers of different products used as foods for farm animals, of the consolidation of great manufacturing interests making possible a better utilization of by-products, and of the ever present demand for cheap goods on part of the consumer, the temptation of adulterating feed stuffs or of substituting low-grade articles for standard goods, has become greater than at any previous time and the necessity of protecting the public against deception in this line, therefore, becomes more keenly felt. The same condition of affairs long ago brought about the enactment of fertilizer laws which placed the supervision and control of the commercial fertilizers sold in the state in the hands of the Director of the Experiment Station or of the Secretary or Commissioner of Agriculture. Manufacturers of fertilizers, doing business in practically all the states in the Union where commercial fertilizers are used, must now sell these on a definite guarantee of valuable components, and the chemists employed by the Experiment Station or by the Board of Agriculture are there to see to it that the goods sold come up to the guaranteed contents and if these are not met, exposure and prosecution will follow. This system is now so familiar to buyers of commercial fertilizers and is generally considered so much of a necessity that they wonder how the business could ever have been conducted on other principles. In the case of concentrated feeding stuffs, official control came considerably later. The first state in the Union to enact a feeding stuff law was Connecticut in 1895. Massachusetts and Maine followed the example set two years afterwards, and

other New England states adopted similar laws during the following years. As already stated our state law was passed in 1901. At the present time feeding stuff laws have been enacted in the following states: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Michigan and Wisconsin, and the question of passing similar laws is considered in a number of other states at the present time.

In the case of concentrated feeding stuffs there are two strong reasons for demanding that they shall be subject to legal control. First, the danger of adulteration which is always present and which was never more threatening than of late years, for the reasons referred to a little while ago. Second, the natural variations in the composition of the various feeds due to differences in the manufacturing processes. On account of these differences the substances utilized for human foods or for industrial purposes are more or less completely removed, thereby leaving the residue or by-products higher or lower in food materials of value in the feeding of live stock. To illustrate, an examination of the composition of the samples of wheat bran analyzed in our chemical laboratory during the last three years shows that the protein content of 178 samples varied from 12.75 to 20.48 per cent. The per cent of fat in these samples varied from 2.97 to 6.32 per cent and other components showed similar variations.

Now it would not be fair to conclude that the comparative value of two samples of bran, containing say 12 and 20 per cent of protein, would be in the ratio of 12:20, so that if the former cost $12.00 a ton, the latter would be worth $20.00 a ton; a low protein content may indicate the presence of a larger proportion of the floury part of the wheat kernels, but it is more likely to show a feed of considerably lower feeding value since it means not only that there is less of valuable food materials in the bran but that those found therein are less digestible than if associated with a smaller content of crude fiber. For this reason samples of wheat bran containing widely differing per-

centages of valuable food components are of different value as foods for farm stock, and the difference in feeding value should find expression in the selling price of the feeds.

Wheat bran is, however, exempt from the provisions of the state feeding stuff according to section 1 of the law, and is not therefore sold on a guarantee of the valuable components or subject to supervision of the feed inspection department, except so far as purity is concerned. But we find fully as great variation in the composition of feeding stuffs that are sold on a positive guarantee of protein and fat contents. Take for instance, old-process oil meal, the only kind of linseed meal sold in this state. During the past three years the per cent of protein in the samples collected by us in the feed stores in various parts of the state, has ranged between 25.66 and 38.48 per cent, that is 50 per cent calculated on the lower content, and the per cent of fat in these samples ranged between 6.37 and 14.73 per cent, a variation of 130 per cent calculated on the minimum fat content. Similar and even still greater variations have been found in the case of other feeds; the protein contents of gluten feeds have thus ranged from 18.09 to 32.31 per cent, and those of fat from 1.92 to 11.14 per cent. The protein in gluten meal has ranged between 34.09 and 37.68 per cent and the fat between 1.83 and 15.50 per cent. To take a feed of another class, molasses grains have ranged in content of protein from 11.47 to 26.13, and in fat from 1.58 to 3.45 per cent. Even in the case of a feed like blood meal, which one might suppose would be of a very uniform composition, enormous differences in chemical composition have been obtained. The lowest protein content in a sample of blood meal analyzed in our laboratory since the feeding stuff law went into operation was 50.75 per cent and the highest 85.34 per cent, while the fat content of the samples analyzed ranged from .18 of one per cent to 10.65 per cent.

It is true that some of these samples of the same class of feeds were sold under different guarantees of protein and fat than others, but we have found almost as large discrepancies in

the guaranteed components in the case of the same feeds as given in the preceding. This can be taken to mean but one thing that the manufacturers of the licensed feeds do not keep very close watch of the chemical composition of the feeds which they send out, in some cases on account of lack of chemical control at the factory, in other cases because consumers have not made it apparent that they care much whether the guarantees are met or not. These conditions suggest that the importance of the feeding stuff law is not as yet appreciated as it ought to be by the mass of buyers of feeds, or by the dealers and manufacturers either for that matter. But we have had abundant evidence of the educational effect of the law during the past few years and firmly believe that through the same educational influence the condition of the feed market in the state will be greatly improved in the future and buyers will stand a good chance of obtaining feeds of the grade and quality the manufacturers guarantee; if it should prove that a lower quality has been furnished than represented by the guarantees of the manufacturers, the latter will see the justice of making good the deficiency, and will do so as a business policy, if from no higher motive.

The large variations in valuable components of feeds included under the term "concentrated commercial feeding stuffs" as defined by section 1 of the state law, present in themselves sufficient grounds for the existence of the law, but they ar by no means the only reasons why laws of this character are desirable. Examples of violations of the law which we shall refer to presently and which have become known during the past few years, furnish still stronger evidence of the desirability, and under existing conditions even necessity of feeding stuff control. These examples emphasize two important facts: *First*, that adulterations of concentrated feeding stuffs will be likely to become common but for the existence of the law, and *second*, that but for the law the state would be made the dumping ground of worthless or low-grade feeding stuffs that manufacturers could not dispose of in states where such

laws already exist. These two propositions will, I believe, be abundantly proved by our past experiences in the work of feed inspection, some of which we shall refer to in the following.

First, a word or two to the law itself. The law refers to the following feeds: "linseed meals, cotton seed meals, pea-meals, cocoanut meals, gluten meals, oil meals of all kinds, gluten feeds, maize feeds, starch feeds, sugar feeds, sucrene, hominy feeds, cerealine feeds, oat feeds, corn and oat feeds, ground beef or fish scraps, mixed feeds of all kinds, also all condimental stock foods, patented and proprietary stock foods claimed to possess nutritive as well as medicinal properties, and all other materials intended for feeding to domestic animals; but shall not include hays and straws, the whole seeds nor the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat, dried brewers' grains, wet brewers' grains, malt sprouts, sorghum, and broom corn. Neither shall it include wheat, rye and buckwheat brans or middlings not mixed with other substances, but sold separately, as distinct articles of commerce, nor pure grains ground together."

The following digest of the various sections of the law may be of interest and will make clear to you its various provisions.

Section 2 provides that every seller of feeding stuffs coming within the law shall place on each package of feeding stuffs a printed statement, giving the address of the manufacturer, the name of the article contained, the net weight of the same, together with he percentage of crude protein and of crude fat which the feeding stuff is guaranteed to contain.

Section 3 provides that each manufacturer shall each year file a statement of guarantee with the Director of the Wisconsin Experiment Station, together with a sample of each brand of feeding stuff he intends to sell in the state during the coming year.

Section 4 provides that the manufacturer shall pay to the Experiment Station a license fee of $25 for each distinct brand of feeding stuffs he intends to sell in the state during the com-

ing year. The license fees so paid shall constitute a special fund to be used for defraying the expenses of inspection and analysis and otherwise carrying out the purposes of the act.

Section 5 provides that the Experiment Station shall each year take a sample of every brand of commercial feeding stuffs coming under the provisions of the law and shall analyze the same and publish the results in reports or bulletins.

Section 6 provides that any company or person selling concentrated commercial feeding stuffs within the state not complying with the law or selling any feeding stuff which contains substantially a smaller percentage of constituents than certified, shall be fined not less than twenty-five nor more than one hundred dollars for the first offense and not more than two hundred for each subsequent offense.

Section 7 provides that any person who shall adulterate any kind of meal or ground grain with milling or manufacturing offals unless they shall state the true composition of such mixtures or adulteration on the labels, or any person who shall sell any meal or ground grain which has been adulterated, and who does not give the true composition of the mixture or adulteration, shall be fined not less than twenty-five or more than one hundred dollars for each offense.

Section 8 provides that whenever the Director of the Station becomes cognizant of violations of the law he shall report the same to the Dairy and Food Commissioner, who shall prosecute the offender.

Under this law 40 brands of concentrated feeding stuffs were licensed by the manufacturers or dealers in 1902, 58 brands were licensed in 1903, 52 in 1904, and up to the present time 42 brands have been licensed for sale for the current year. The licensed feeding stuffs for 1905, to give you an idea of the scope of the law, are as follow: 7 different brands of oil meal, 1 brand of rape seed meal, 1 brand of cotton seed meal, 3 brands of gluten feed, 1 bran of germ oil meal, 2 brands of hominy feed, 8 brands of mixed corn and oat feeds, 4 calf

meals, 2 miscellaneous dairy feeds and 11 poultry or animal foods, like packing house feeds, mixed poultry feeds, etc.

We shall now go over to a consideration of the various kinds of concentrated feeding stuffs used by our farmers and shall give some of the main results obtained in our examination of them during the past three years.

The most important concentrated feeds on the market in this state are the flour-mill feeds(especially wheat bran and middlings), ground corn and oats, and oil meal. These three kinds of feeds are found in practically all the feed stores in the state and are the only ones handled by a majority of the small dealers besides, unfortunately, condimental stock foods which are ever-present. The classes of feeds mentioned are our staple concentrated feeding stuffs and as such are entitled to a most thorough consideration. In view of the importance of the flour-mill feeds to the farmers of our state, an extended investigation of these feeds was made in 1902, in which 147 samples of wheat bran from nearly as many different mills, 58 samples of wheat middlings and 34 samples of wheat shorts were collected and analyzed. The examination of these samples made it evident that the quality of these feeds sold in this state is as a whole excellent and that with the exception of occasional adulteration with ground or even whole wheat screenings, these feeds as found on our market are pure. Since the law exempts pure flour mill feeds from license, the miller does notguarantee the contents of valuable components in his feeds, and the buyer is therefore left to use his best judgment as to where he can get bran or middlings of the best quality for his money. The analyses published in our feed bulletins ought to furnish valuable assistance in deciding this matter.

Chart I.

	Protein. Per cent.	Fat. Per cent.	Crude fiber. Per cent.	Adulterants.
Wheat bran (178 samples).....	16.42	4.42	12.06	
Wheat bran, Tenn , (adulterated) I.	7.69	2.10	23.13	Ground corn cobs, corn stalks.
Wheat bran, Tenn., (adulterated) II	9.66	3.08	15.13	Ground corn cobs, corn stalks.
Wheat bran, Minn., (adulterated)..	14.44	4.97	.....	Whole screenings.*

*One pound of the bran contained about 50,000 whole wheat seeds.

Chart I shows the average composition of 178 samples of bran sold in Wisconsin and in the three last lines analyses are given of three samples of adulterated bran examined in our laboratory. The Tennessee brands were the two poorest ones among a number of samples received for examination from Chattanooga, Tenn. It is at once evident from the chemical composition that these samples were grossly adulterated; the per cent of protein and fat is only between ⅓ and ½ of the corresponding percentages in bran of average composition, and the crude fiber is greatly increased, in the case of the second sample even nearly doubled. The character of the adulteration was determined by microscopic examination and it was found that the bran consisted of large quantities of finely ground corn cobs and corn stalks; the party forwarding the sample stated that it was supposed to be "one-third bran and the rest corn cobs and stalks, or it may be two-thirds bran," and the chemical analysis and microscopic examination bear out this supposition. The same adulterants were found in the second sample but in somewhat smaller quantities. Contrary to what might be expected the appearance of these samples of bran was not so bad but what they might pass without creating suspicion, except on more careful examination.

The last analysis on the chart shows a sample of wheat bran brought into the state from Minnesota; here the percentage of protein or fat failed to indicate anything wrong but a mere

casual examnation showed the sample to be greatly adulterated with weed seeds; whole screenings and mill sweepings had evidently been mixed in with the bran. A careful count of the whole weed seeds in 10 grams of this bran showed that one pound of the bran must have contained approximately the following number of whole weed seeds: 28,000 pigeon grass seeds, 16,600 wild buckwheat seeds, 3,800 flax seeds and 5,100 mustard, pig weed and goosefoot seeds, besides a number of fragments of other seeds which could not be identified.

A carload of this bran was brought into the northwestern part of the state, but on learning that the transaction would come under our feeding stuff law, the shipper took the car out of the state again and sold it in the state where it came from, where no inspection law as yet interferes with the disposal of goods of this character as pure wheat bran.

Less objection can be made to the admixture of ground screenings to mill feeds, but many small weed seeds, like those of mustard and pig weed, will be apt to escape grinding, and by feeding such screenings the land will, therefore, also become infested with noxious weeds. Whether mixed in whole or ground, screenings form an adulteration, and bran thus adulterated cannot be sold as pure wheat bran without infringing on section 7 of our state feeding stuff law.

Chart II.

	No. samples.	Protein.	Fat.	Crude fiber.	Per cent adulteration.			Price per ton
					I.	II.	Total.	
Corn	208	10.5	5.4	2.1				
Oats	30	11.8	5.0	9.5				
Light oats	12	12.18	4.78	14.40				
Ground corn and oats, 1902	96	11.41	3.66	6.55	21	38	59	$27.20
1903	49	9.97	3.69	7.78	27	24	51	22.35
1904	50	9.86	3.66	5.07	2	10	12	23.94

Chart II has been prepared to show the variations in feed sold in our feed stores as ground corn and oats. If made up entirely from pure grains, these feeds are exempt from license, but in order to ascertain whether or not they are composed of nothing but pure grains ground together it is, of course, necessary to subject samples as found on the market to chemical analysis. In view of the importance of these feeds to our farmers and especially to owners of horses, we have taken pains to obtain a representative number of samples of different origin every year. The average results of the analyses are shown on the chart. It will be seen that the main difference in the chemical composition of the corn and oats lies in their crude-fiber content. The composition of mixed corn and oats must, of course, lie somewhere between that of the two components. Now we note that Indian corn contains about 2 per cent of crude fiber, while oats contain about 9.5 per cent, the highest content found in any sample analyzed being 12.9 per cent. The proportions in which corn and oats are generally ground together are 2:1, half and half, or 1:2 (by weight). It is evident that the crude fiber content of mixed corn and oats will be higher the more oats are contained in the mixture and the lighter these were (the more hulls or the more crude fiber the oats contained).

If we assume that both corn and oats were of average composition, the three mixtures given would contain the following percentages of crude fiber:

2:1, 4.6 per cent; 1:1, 5.8 per cent; 1:2, 7.0 per cent.

If the oats entering into the mixed feed contained the maximum per cent of crude fiber, the per cent of crude fiber in the mixture would stand as follows:

2:1, 5.7 per cent, 1:1, 7.5 per cent; 1:2, 9.3 per cent.

Besides the per cent of crude fiber which a feed contains, its protein and fat contents also furnish important evidence as to the purity of the food. On the whole, it is safe to assume that a low protein and a high crude fiber content give conclusive evidence of adulteration. The main materials which are used for

adulterating ground corn and oats are oat hulls, oat dust, corn bran, ground corn cobs, hominy feed, etc., all of which except the last feed given, are high in crude fiber and low in protein.

We conclude therefore that ground corn and oats containing from 7 to 9 per cent of crude fiber is suspicious and if more than 9 per cent is present the feed is very likely adulterated. The columns I and II of the table show the percentages of adulterated and suspicious samples among those collected by us during the last three years.

There is this question in regard to the interpretation of the results of the chemical analyses stated above, that the oats entering into the ground feed may have been of a very poor quality and contained more crude fiber than even the maximum determination on record; it might be argued that by grinding such light oats with corn a mixed feed would be obtained, the purity of which would be thrown into doubt by the results of the chemical analysis although it was unquestionably manufactured from "pure grains ground together." For the purpose of determining in how far this reasoning is justified, a dozen samples of light oats, weighing 22 to 28 pounds per bushel, from different parts of the state were secured two years ago and subjected to chemical analyses. The average analyses for these samples is shown in the third line of Chart II; the average crude fiber content obtained it will be noted was 14.40 per cent and the maximum per cent found in any sample examined was 16.33. It is evident, therefore, that if oats of similar composition as given on the chart be ground with corn the resulting feed might contain over 7 or even 9 per cent of crude fiber and still be composed of nothing but the pure grains. When a farmer buys ground corn and oats, however, he has reason to believe that at least an average grade of oats and corn entered into this feed unless he is otherwise informed, and the admixture of light oats in ground feed is a deception as much as the addition of oat refuse feeds, although it is not as reprehensible. In order to wrong no one, it is well however to consider samples of corn and oats containing more than 9 per cent crude fiber as "in all probability adul-

terated," or of such poor quality as to be practically no more valuable than if oat hulls or other refuse products of no feeding value had been purposely added to the mixed grains.

The total number of adulterated or suspected samples during the first two years of the feed inspection work was very high, as will be seen from the chart, viz., 59 and 51 per cent of the total number analyzed for 1902 and 1903 respectively. Last year the sum of the percentages of the adulterated and suspicious samples went down to 12 per cent. This should be a matter of satisfaction to buyers and honest dealers in ground feed, as it is to us, since it cannot be doubted that the improvement in the quality of the feed of this class during last year was brought about, at least to a large extent, through the publication of the results, with comments, of our analyses of samples collected during the preceding years in the feed bulletins of our Station. These results revealed the true condition of affairs as regards the quality of these feeds then on the market and put buyers on their guard. In view of the immense quantities of ground feed which are sold every year in this state we believe that hundreds of thousands of dollars have been saved annually to buyers of these feeds through the improvement in the quality that has taken place. We trust that the good showing made last year in regard to the quality of these feeds on our feed market will continue and will be still further improved upon in the future so that the public can buy ground feed with as much confidence as they now buy either of its component parts or most of the standard concentrated feeding stuffs on our feed market.

Another class of feeds that has a just claim on our attention is that of the oat feeds, or corn and oat feeds, so-called.

Chart III.

		Protein.	Fat.	Fiber.	Average price per ton.
		Per cent.	Per cent.	Per cent.	
Vim Oat feed	1903	7.43	2 72	32.56	$10 00
	1904	6.82	2.33	28.12	13 00
Royal Oat Feed	1902	8.95	2.33	31.20	
	1903	6.12	2.11	31.32	11 00
	1904	5.69	2.36	28.93	
Excelsior Corn and Oat Feed	1902	9 55	4.98	13.08	24.25
	1903	8.13	4.73	17.04	17.50
	1904	7.27	4.59	16.82	20.00
Imperial Corn and Oat Feed	1902	11.33	4.15	13.13	22.67
	1903	9.28	4.62	15.16	20.00
	1904	8.15	5.03	12.51	20.00
Corn stalks		6.0	1.7	32.2	
Corn cobs		2.4	.5	30.1	
Oat straw		4.2	2.4	38.6	
Oat hulls		3.3	1.0	29.7	
Buckwheat hulls		5.8	1.6	37.7	

These feeds are made up largely of refuse products from oat mills, hominy factories, and the like. Some of the licensed brands of this class on our market are pretty good feeds, containing a fair percentage of protein and fat, with not to exceed 12 to 15 per cent of crude fiber. There is no special objection to these other than that they are too expensive, costing within a few dollars as much per ton as pure ground corn and oats. The licensed feeds of this class which contain 15 per cent crude fiber or less are Victor Corn and Oat Feed, Excelsior Corn and Oat Feed, Imperial Corn and Oat Feed, Hominy Mixed Feed, and Blue Cross Corn and Oat Feed. The last two feeds have had the distinction of actually containing the amounts of valuable food material guaranteed by the manufacturers, which cannot be said of any of the other mixed oat feeds. In fact, there has been a gradual and marked deterioration in the quality of these feeds from year to year as will be seen from the chart. During 1904 the average analysis of the samples collected by us came appreciably below guarantee in case of all

these feeds but the two mentioned, viz., in case of Victor Corn and Oat Feed, Vim Corn and Oat Feed, Quaker Dairy Feed, Royal Oat Feed, Excelsior and Imperial Corn and Oat Feeds, and Victor Corn and Oat Feed was also below guarantee in fat. When you are promised 7.6 per cent protein and get only 5.69 per cent, or 9 per cent and get only 7.27 or 7.99 per cent, the deficiency is a serious matter, much more so than if a similar deficiency occurred in a feed guaranteed to contain 30 or even 15 per cent of protein. In the former case the amount present falls 25 per cent short of what you have reason to expect; in the latter there is only about 6 per cent lacking of what was guaranteed.

The value of these feeds should be judged by the amount of crude fiber they contain. A high crude fiber content is necessarily accompanied by a low per cent of protein and fat, since as we have seen, all the refuse products that are likely to be mixed into these feeds are high in crude fiber but very deficient in protein and fat. Now, you will see from Chart III that some of these feeds, like Vim Corn and Oat Feed and Royal Oat Feed, contain as much crude fiber and not more protein and fat than do ground corn stalks if these are reduced to a similar water content as the oat feeds, and still the dealers were able to get some twelve to thirteen dollars a ton for the latter feeds in some cases.

Crude fiber in most feeding stuffs is not worth much more to the animal than sawdust or shavings would be. The stomach of the animal cannot digest it and it is only in the intestinal tract that some of it is broken down through fermentation processes and thus incidentally yields a portion of its latent energy in the form of heat. A high crude fiber content in a feed is a disadvantage to the animal, *first,* because it reduces the amount of valuable food materials in the feed, and *second,* because it renders the food materials present therein less digestible than they would be in the presence of only a small amount of crude fiber, since this protects the tissues from the action of the digestive juices in the process of digestion. For these

reasons and also because the work of digestion is greater in the case of materials high in crude fiber, on account of the larger bulk that has to be treated with digestive fluids and passed through the alimentary tract of the animals, these materials are of a low feeding value and we soon come to a point, as in case of straw of the small grains, hulls, cobs, etc., where the animals would starve to death no matter how much of these they could be induced to eat. There would be no net nutrients to support the animal on, the work of digestion swallowed up what little nutrients the material contained. It is therefore a question whether it is worth the while for a farmer to purchase so-called concentrated feeds containing over 30 per cent of crude fiber. Such feeds will not be likely to contain much over 6 per cent of protein and in this case are expensive feeds at almost any price.

Letters received from different parts of the state and especially from horse men tell the same woeful story of deception in regard to the sale of these low-grade mixed feeds; how the owners had bought the feeds on the word of the dealer that they were almost as good as straight corn and oat feeds and how poorly their horses or cows were doing on them. I hold that it is a crime to sell a feed of the character mentioned on such a claim. To quote Professor Robertson's statement in regard to the value of silage from corn sown broadcast: "Such a feed is mainly a device of a thoughtless farmer to fool his cows into believing that they have been fed when they have only been filled up." The farmer may be fooled, but the cows will not.

The work done in the inspection and analyses of cattle foods in the past has helped us to place these feeds where they belong and all who are interested enough to read our bulletins can learn what has been found out and can profit from the lesson taught.

Time will only permit of my referring to one more illustration of feed inspection work in this state. About a year ago a Chicago party forwarded a sample of oil meal, so-called, for

examination, stating that he was considering the question of taking up the agency for its sale, but not knowing anything about the merits of the feed he wanted an analysis and our opinion of it before deciding whether or not to push its sale. The results of our analyses are given in the second line of Chart IV.

Chart IV.

	Protein.	Fat.	Fiber.	Ash.
	Per cent.	Per cent.	Per cent.	Per cent.
Oil meal	32.9	7.9	8.9	5.7
"Western Cereal Oil Meal"	2.44	12.25	30.15	16.02
Rice hulls	3.07	1.12	36.17	15.38
Rice bran	11.85	10.48	12.19	9.95
Rice polish	11.86	6.98	3.31	4.86

The feed purported to be oil meal, although its complete name, Western Cereal Oil Meal, would at once create suspicion. Compare now the first two lines of the chart and see what would be tacitly promised by the dealer and what the buyer would get, 2.44 per cent protein in place of 32.9 per cent, 12.25 per cent fat instead of 7.9 per cent, 30.15 per cent crude fiber instead of 8.5, and 16.02 per cent ash instead of 5.7 per cent. The higher per cent of fat was, of course, in its favor and so the higher ash might be under some conditions, although not in this case; but aside from that fact, instead of a highly digestible nitrogenous oil meal one would get a worthless material containing less than 2½ per cent of protein impregnated with a cheap oil, either rape seed oil or rice oil; microscopic examination showed the meal to be composed of nothing but finely ground rice hulls, and you will notice that the chemical analysis corroborates this result. There is a natural depression of other components on account of the higher fat content but otherwise no greater variations than are apt to occur in the analysis of the same materials of different origin.

This is the most flagrant fraud in the manufacture of feeding stuffs that has come to our notice since feed inspection was established in our state. The meal which may more correctly be called *oiled meal* than *oil meal,* was of a good uniform appearance and light brown color. As is usual in such cases the manufacturer made high claims for its feeding value, and as it could be bought for less money per ton than either cotton-seed meal or linseed meal (naturally enough), there was a strong temptation to give it a trial for the party forwarding it for examination, until our report on the analysis was made. To make the story of the meal complete I give the following extract from a letter received after our report on the analysis had been sent: "The concern was located in Peoria, but closed down there and one of the parties wrote from St. Louis, saying make no efforts to sell, or as he more forcibly expresses it, 'cut it out,' we have quit that business. I learn they had made no sales and had made up nothing more than some sample lots from which to sell. Your letter with analysis, with perhaps other discouragements, evidently put them out from making a losing investment, as they seem to have had no knowledge of the value or worthlessness of their goods."

Rice hulls.—This experience becomes of further interest to our farmers from the fact that ground rice hulls have recently been introduced into the state and but for prompt action on our part would be likely to have found its way into the ground feed on our market and may do so yet in spite of our efforts. We found that two carloads of this refuse material had been brought to Milwaukee, as the commission firm stated, to be used as egg packing material. There would, however, be no need of grinding hulls for this purpose and in the south where rice hulls are obtained in immense quantities at the rice mills, whole hulls are used for packing eggs or else they are used as fuel. It needs not much argument to convince a northern audience at least, that what is only good enough for packing eggs or for fuel in the south, is not good enough to feed northern cows or horses on. As rice hulls are a dangerous feed and cattle have been

known to have died after eating large quantities thereof, we thought it our duty to call public attention to the danger of these ground hulls finding their way into mixed feeds sold in the state and put our farmers and others on their guard. Most of you may have seen this warning published last week in the state papers.

Ground rice hulls are also used as an adulterant of rice bran or rice feed and whenever rice bran is sold at a low price it is safe to conclude that it is more or less adulterated with rice hulls. Rice mill refuse feeds, like bran, meal or polish, have not so far been introduced into this state, at least not for many years past. Lately we have, however, come across several shipments of these feeds and our farmers may therefore have an opportunity of becoming acquainted with them in the future. Aside from the danger of possible adulteration with rice hulls, there is no objection to these feeds. In fact they are very valuable feeding stuffs and may be safely fed to live stock. Only rice bran or meal will, however, be likely to find their way into our state since rice polish comes too high. In view of the danger of the adulteration with rice hulls it is not safe to buy rice bran except on a guarantee of purity backed up by chemical analysis. All rice bran necessarily contains some hulls but where there are more than 10 to 12 per cent of these present, an intentional adulteration has taken place.

Incidents of the feed inspection work done during the past three years like those already given, might be multiplied, but I have perhaps already tried your patience. I trust that enough has been said to make you realize the importance of the work and to enlist your earnest efforts in behalf of pure and a still better quality of feed stuffs than we have had so far. It is a warfare against the selfish interests and the cupidity of some comparatively few dealers and manufacturers; new conditions in the feed market arise continually and new methods of deceiving the public are all the time coming up which call for vigilant control and prompt action. We have made a good start and know where the reefs are by this time. By keeping close watch and working together I do not doubt but that we

shall be successful in maintaining a high standard and as time goes on succeed in saving users of feeds from serious losses through adulteration and deception in the feed business. We need in this work the intelligent co-operation of both farmers and honest dealers, for unless they show that they appreciate a high grade of goods and demand that the guarantees of the manufacturers shall be met, our work will soon prove of but little avail. If, on the other hand, they have it understood that they will not pay in full for goods that do not come up to the guarantees of valuable components, the feed business will gradually become regulated instead of more or less chaos and somebody's "say so", as it was up to recent time.

In closing I would suggest that the feed bulletins published annually by our station be studied carefully, so that worthless feeds will be left alone and your transactions confined to feeds of merit, and to these, in proportion to the degree of merit which they possess.

DISCUSSION.

A Member: I heard not long ago that some of our wholesale dealers will sell us oats and mix with them a low grade of barley, which, of course, weighs heavier than oats, selling it to us at the rate of thirty-two pounds per bushel. Is there anything in the law prohibiting that?

Prof. Woll: Yes, that is covered by the law. The grains must be sold under their proper name. If they are not, the manufacturer or dealer is liable. If there is enough barley there to show an intentional adulteration, they are liable under the law, and all that will be necessary will be for you to send a sample and have analysis made.

Mr. Stiles: This whole matter of feeding stuffs makes me think of what Mark Twain said. He said the more he saw of men, the better he liked dogs, and the more I see of feeding stuffs in the market, the better I like what we raise at home. One experience I had,—I sold some oats, sent it to the mill and brought back wheat. Out of twelve pounds I gleaned out

several pounds of cockle seed and other things I didn't want. I don't know but the old farmer was right who said that the only way for the farmer to get rich was to sell everything and buy nothing. It is getting dangerous to buy.

Prof. Woll: It is a very easy thing to indulge in general denunciations, but harder to back them up with facts. I don't believe that the condition of the feed market in this state is so very bad. On the whole we are to be congratulated for the purity of our feeds compared with what is sent to the east, for instance, and to Europe. I have had occasion to look up the matter in the east and in Europe, and I know that we do not begin to have the percentage of adulteration of feeds that they have in those places. On the whole, I think that we are pretty well off, and one reason, no doubt, is our nearness to the large flouring mills. We get our bran much cheaper than they can in the east and therefore the temptation to adulterate is not so great here.

President McKerrow: What can you tell us about the condimental foods?

Prof. Woll: The law as originally framed, was intended to include the condimental foods, but we very soon ran up against one of the large manufacturers of condimental foods, who appealed to the attorney-general, claiming that their foods do not belong under the term "feeds," but come under the category of medicine. If you notice the circulars issued by any of the condimental food people, you will see that they are very careful not to say a word claiming that their foods are food; they go under the name of foods, but in their circulars they claim they are a medicine, and therefore not subject to the food stuff law. That is a very nice distinction, but very nice distinctions come up all the time in the interpretation of our laws.

President McKerrow: They are made for the same class of people that patent medicines are made for.

Prof. Woll: Yes, and they are sold to that class. If you talk about analysis, they compare favorably, for instance, with oil meal, but the claims that are made for them are as to their stimulating effects, which I may say it has baffled any experiment station in this country to establish. Where experi-

ments have been made with condimental stock foods and the condimental stock foods have been added to the food rations as directed, in no case has any material benefit been shown.

Secy. True: Under our laws, is there any provision for the inspection of this class of foods?

Prof. Woll: It was intended to have the inspection covered by the State Feeding Stuff Law, but so far we have not been able to include them.

Secy. True: Then ought not the law to be so changed that there should be some provision for their analysis?

Prof. Woll: Yes, I think it ought to, and that matter is under consideration at the present time. The difficulty as I see it, is that if they are mentioned in the law it may be made out that they cannot be properly classed among concentrated feeding stuffs, but any effort that would tend toward bringing condimental foods under the operation of the feed law, would be heartily welcomed by all interested in feed inspection.

A Member: There is a gluten food made in Peoria which they claim contains such-and-such a per cent of protein and other elements. Do they have to guarantee that?

Prof. Woll: Yes, they have to give guarantees. All of the feeds that are licensed for sale must be sold under a guaranty; if they do not come up to it, we shall be glad to know it, so that we may call the manufacturer's attention to the matter. I know the feed you refer to. All gluten feeds are very good feeds as to purity and contents of valuable food components.

Mr. Brigham: You speak of the values of different kinds of bran. On the market you can buy what is called "choice" or you can buy "standard" bran, or you can buy city milled bran or country milled bran. Can you tell me anything about that?

Prof. Woll: Well, it is next to impossible to give any general information on that point, because the different grades, as established by millers, vary so much. Our country mill bran is lower in protein and higher in starch than flakey bran, and it is a question then between whether you want more protein or less.

Mr. Stiles: Which do you consider more valuable for feeding purposes, bran or middlings?

Prof. Woll: Middlings would be more valuable for feeding

purposes under ordinary conditions, for the reason that it contains a higher percentage of protein. You know that the price of middlings is always higher than bran.

Mr. Hoag: In regard to the wet brewer's grains, how would they affect milch cows, either for distributing milk in the city or manufacturing butter?

Prof. Woll: I would say it is a good feed, but you should be careful how it is handled, or it will ferment in the corners of mangers and in feed alleys. Then it may not be wise to feed it so very heavy, at least I should not make it the bulk of the ration; but fed judiciously it is one of the best components of rations for the dairy cow. It must be fed while it is in good condition.

A Member: I have seen considerable of that malt fed and I know of one instance where the man that was feeding it hauled it from the brewery and put it into a large bin and I presume it took all the way from four to six days before it was fed, and it had a very sour odor to it, and I didn't think it would be a good thing to feed.

Prof. Woll: Corn ensilage has a sour odor and it is considered one of our best feeds for dairy cows.

Mr. Bingham: Have you found any special difference between what millers call "standard" bran and what they call "choice" bran?

Prof. Woll: I have not seen that distinction made in bran, but we have that distinction in middlings. "Standard" middlings are generally a little lower in protein than the "choice," but the two vary so much that it would not be fair to say that one is better than the other, and I think on the whole that there is not much choice. The price is somewhat higher.

Mr. Stiles: What about these people that put cockle seeds and other things in the middlings?

Prof. Woll: In the Minneapolis mills, they separate the mustard seed from the screenings, which they are able to do perfectly. The screenings are sold to feeders of sheep or some commission firms who sell them to feeders of sheep. The objection to using screenings as a food for farm animals lies in the danger of fouling the land with noxious weeds. I would like to ask Mr. McKerrow, as a sheep man, whether he believes

that screenings can be perfectly masticated by sheep so that there can be no objection to them.

President McKerrow: No, I think there are certain seeds they will not masticate and digest perfectly. They will come the nearest to it of any live stock, but there are some they cannot handle.

A Member: I know in the spring I will take screenings to feed the sheep and there will be a mixture of these small seeds, a good many of them, and I find the sheep pretty particular what they eat.

Recess till two o'clock.

AFTERNOON SESSION.

President McKerrow in the chair.

President McKerrow: There are some resolutions that will probably be brought before this meeting, and as these matters should have consideration, unless I hear objections, the chair will appoint a committee on resolutions at this time. Hearing no objection, we will take it as the sense of the meeting, and I will appoint as such committee Mr. J. W. Martin of Richland City, Mr. John Kizer of Oregon, and Mr. R. E. Roberts of Racine county, and any of you who have resolutions, will please hand them to Mr. Martin or some member of that committee.

I will read the following communication which has been handed to me.

MADISON, Feb. 1, 1905.

The State Board of Agriculture, Madison.

Gentlemen:—The North Wisconsin Farmers' association, composed of over two thousand farmers and business men of the counties of Ashland, Bayfield, Douglas and Iron, and organized to assist in the more rapid development of its section of the state, has now its exhibit car "Grassland," at the Northwestern depot in Madison.

A cordial invitation is hereby extended to your board and

those in attendance upon its sessions, to visit the car and inspect the products of our section. Open day and evening.

During Thursday and Friday of this week the officers of the association, and other citizens from our counties will be at the car and we should be pleased to have you meet them.

Yours very truly,

H. S. FAIRALL,
Secretary.

IMPROVING THE CORN CROP.

In the absence of Prof. B. G. Holden, of Ames, Iowa, the subject given was taken up by Prof. R. A. Moore of Madison.

Mr. Chairman, Worthy Members of the Agricultural Board:

Gentlemen:—It pleases me to have this opportunity of presenting to you what I consider one of the most important subjects today, affecting the farmers of Wisconsin. No one line of agriculture admits at the present time of so much improvement as the corn crop.

I fear we do no all realize the great importance of corn compared with other cereals and I desire to present a few facts for your consideration. We should also remember that corn is the foundation rock upon which our fat stock and dairy industries are largely based.

The money value of the corn crop of the United States exceeds the value of wheat, oats, rye, buckwheat, barley and peas combined, consequently it seems well worth the effort of Wisconsin farmers to share in the benefits of this great crop.

Wisconsin in 1903 has 1½ million acres planted to corn, which gave a yield of 43½ million bushels, valued at 18½ million dollars.

Our sister state, Iowa, for the same year had 8½ million acres planted to corn, getting a yield of 229½ million bushels, valued at 87 million dollars.

The great corn crops of Iowa have been instrumental in placing that state in the front rank as a live stock state, which is making it one of the most wealthy and desirable states in the union. Many people of Wisconsin think that because we are

not in the so-called corn belt, that it is useless to attempt to compete in growing corn with our sister states.

It is true we may never be able to grow the acreage of corn credited to Iowa or Illinois, but we can double our present acreage within the next few years and double the yield per acre.

At the present time with our mongrel breeds of corn and primitive methods of planting, the fertility of our soils is such that we are able to get an average yield per acre quite the equal of that of Illinois or Iowa.

It seems reasonable that Wisconsin with its small well cultivated farms, kept in a high state of fertility will be able to compete as far as yield is concerned if we but put forth sufficient effort in the growing and selection of the proper seed corn. It is very essential that we get standard varieties properly acclimated for the various localities of our state.

Corn is a plant that readily adjusts itself to the environments of soil and climate, and by the farmer rigidly selecting and curing seed corn especially adapted for his respective neighborhood, there is no reason why the yield per acre cannot be more than doubled on any farm where the proper system is adopted.

Illinois has clearly demonstrated by the systematic corn work taken up by the Experiment Station and corn breedsrs that the yield can be doubled. The rapid strides made in Illinois during the past five years are attracting attention throughout the world and many are eager to know the manner in which this great improvement has been accomplished.

By a general awakening to the importance of corn study such as has made itself manifest in our sister states, many million dollars can be added to the wealth of our farmers annually with very little more outlay than that experienced by corn growers at the present time.

Wisconsin has an opportunity to extend its corn area considerable by the establishment of select varieties that can be relied upon to reach maturity in the average season. This fact and the increase in yield that can be brought about makes corn culture very important for Wisconsin farmers.

I fully realize that our farmers during the past years have been dependent to a large degree on outside seed corn. This has been furnished them in accordance with the scoop shovel

method instead of being shipped in the ear as it should be. Often seed corn that has been grown under entirely different conditions than what we have in our state has been shipped in to act well its part in making conditions more trying for the Wisconsin corn grower.

Our farmers must learn to grow their own seed corn or secure it from some one who grows a standard variety in their locality and who is willing to sell it to them in the ear.

Farmers can expect to receive help from the Experiment Station and the Experiment Association in the near future. The Experiment Association has now a membership of six hundred and a large number of those will be carrying on tests with select varieties of corn in different counties of the state the coming season. Three hundred carried on tests the past season and many of them will have seed corn to sell after next season. These young men have received training at the college of agriculture in corn study and will act as cooperators in the dissemination of good seed corn.

Owing to the fact that the statement was made that the corn crop could be doubled in Wisconsin, I realize you feel anxious to know how this can be accomplished. First, the farmer should know the germinating power of his seed corn. It is of the utmost importance that he has seed of good strong vitality and to determine this he must make a germinating test. A simple plate-tester is used in making the test. This tester is made by using two tin plates, one slightly smaller than the other. Earthen plates can be used but are not so convenient and are more liable to be broken. Cotton flannel pads are cut of the same size as the inside of the under plate. The pads are soaked in water and then squeezed to remove the surplus water. One pad is put at the bottom of the larger plate and fifty kernels of corn are placed upon it. The other pad is placed upon the kernels and the smaller plate inverted and used as a cover to withhold moisture. The tester should then be left in some convenient place at the ordinary room temperature (72 deg. F.), or slightly above, at the expiration of twenty-four hours the tester is examined and if the pads are somewhat dry they are moistened. The lower pad should be raised when these examinations are made so as to admit air underneath the pad which facilitates the process of germination.

Kernels should show signs of germinating after being in the tester for seventy-two hours. All good seed under favorable conditions will have sprouted after being in the tester five days, those kernels not sprouting at this time may be rejected as worthless but should be kept at least twenty-four hours beyond the usual time so as to leave no doubt as to the reliability of the results. As the kernels sprout they can be taken from the tester from day to day and a record made of the test on a slip of paper that may be kept on top of the pad.

The character of the germination should be taken into consideration as well as the fact that all kernels germinate. Kernels that put forth a weak, sickly growth should be regarded as somewhat doubtful as the outside or planting conditions would not be as favorable as the conditions under which the tests were made consequently we desire to see a good healthy growth from the seed.

The plan pursued last season in testing seed corn at the station while not ideal is a move in the right direction. Take a sample of kernels from 25 to 30 ears, or at least two kernels from each ear, and make first test. If this gives a test of 98 or 100% you may depend that approximately all corn grown and cured under the same conditions can be relied upon. After the seed corn is shelled make a duplicate test of the composite samples and if this gives a germination test of from 98 to 100% you will make no mistake in planting the corn.

Many good corn breeders make more elaborate tests which are more accurate than this simple one for the average farmer recommended above. When absolute accuracy is desired, from four to six kernels should be taken from each ear we desire to plant and tested. The ear should be numbered and the kernels put within a square in the tester and numbered to correspond with the ear. In this manner the ears that have kernels of low vitality or which fail to germinate entirely can be detected and discarded. This plan certainly commends itself to corn breeders.

Selecting four uniform kernels.—Place the seed corn in the ear on tables or planks and select those ears having kernels about the same size. Make two or three divisions before shelling as it is very essential that considerable stress is placed upon uniformity of kernels. Unless the kernels are of uniform

size no planter will be able to drop them in a uniform manner. The check row system is desirable and we should strive to have three kernels dropped into a hill, consequently it will pay to test the planter until we have the proper plant that will drop three kernels at least 80 times or better of a possible hundred. Uniformity of stand is of the utmost importance and time spent in selecting the seed and testing the planter to drop the proper number of kernels to the hill, brings ample returns.

After the corn is planted the plate used and a sample of the corn planted should be put into a sack and saved for inspection the following year.

Cultivation.—A short time after planting and before the corn appears above ground drag well with slant-tooth harrow to destroy weeds that are just making their appearance. As soon as corn is above ground and the rows can be nicely traced it can be cultivated between the rows. Shallow cultivation is preferable to deep cultivation especially as soon as the roots put forth to any great extent. The last cultivation should be made with a single horse after corn is too high to run double cultivator.

The method I have been giving you was put in practice at the station farm the past season and as a result we secured something over 1,400 bushels from 18 acres or 73 bushels of shelled corn per acre.

By a more careful selection of the seed practiced this year and through care in curing the same it seems reasonable to expect considerable improvement in the quality of the corn and an increased yield for the coming year.

We will need in Wisconsin varieties of corn that will properly mature even in off seasons. This is important where corn is desired for the silo or fodder as well as when we desire to grow corn for seed.

Experiments carried on by several stations in regard to the best time to cut the corn crop seem conclusive that for all practical purposes the corn should be pretty well matured before cutting. The most rapid grain in pounds of dry matter per acre occurs between the roasting ear and the glazing stages. The yield of fodder is nearly doubled from the roasting ear stage to the full glazed stage.

While at the early stage the plant seems to have acquired

nearly all its protein yet is should be remembered that it is very deficient in starch, sugar, gum, etc., and has a very large water content.

It will probably be interesting to the corn grower to note from the table given in Henry's Feeds and Feeding from Geneva, N. Y. Exp. Station the following:

Water and dry matter at different periods.

Date of cutting.	Stage of growth.	Corn per acre, tons.	Water per acre, tons.	Dry matter per acre, tons.
July 30..	Fully tasseled	9.0	8.2	0 8
Aug. 9..	Fully silked	12.9	11.3	1 5
Aug. 21..	Kernels water to full milk	16.3	14.0	2.3
Sept. 7..	Kernels glazing	16.1	12.5	3.6
Sept. 23..	Ripe	14 2	10.2	4.0

When corn is harvested for the silo which is done quite largely in Wisconsin it should be cut at the glazing stage as it seems that the best returns are received at that time. The leaves drop off rapidly from that period to the ripening stage and the corn if too ripe seems to be less palatable.

DISCUSSION.

A Member: If Mr. Stiles is here, I wish he would state how much of this corn he raised last year, to the acre.

Mr. Stiles: One hundred baskets.

Mr. Jacobs: In the improvement of that Minnesota corn, the improvement in size of the ears and the yield per acre, don't you think that in the latitude somewhat south you are going to injure the early maturing quality of that corn?

Prof. Moore: At the present time we have what is known as the Wisconsin Agricultural Experiment Association and we have six hundred active members. As soon as we can get a sufficient amount of this corn, we propose to put it in the hands of these members all through this state. This corn is going to

be planted all through the state and it is going to be acclimated to every county. We had three hundred young men carrying on tests with corn this year. I could not plant all the varieties that I wished to on the station farm, on account of corn being so often pollenated, and the corn becomes coarse; it is never safe within a quarter of a mile. We desired to keep it separate and so I had members making this test on different kinds of corn. I had one known as the Park's Hill Dent. I had Mr. Renk, who sits here, experiment on that corn. I visited him when the corn was beginning to ripen and I was very much pleased with his results. I noticed this corn had been in Walworth county a few years ago, one of our farmer students by the name of Park was growing it there and it had been grown on that farm twenty years. It has characteristics about it that are very satisfactory; it is an early corn. Mr Renk tells me it has ripened nicely on his place and he has been able to sell his select seed corn at $3.00 per bushel. Some of this corn produced fifty per cent seed corn and seed corn sells from $2.50 to $3.00 a bushel, and so it means something to raise corn that will produce twenty-five to fifty per cent seed corn.

Mr. Franklin: You said something about not liking the Iowa way of testing seed corn. What is your objection to that method? And how do you individualize your own method?

Prof. Moore: Last year I came back from Iowa fully convinced that the box was the only thing to test in. Of course I tested with it out there and it was the method used there. I came back and tried it right here in my class and we had all kinds of difficulties. We could test the corn but not as readily or as nicely as we can in our simple tin test. After all, it is the little simple things that are the great things.

Mr. Franklin: After you have tested that corn, how do you know what ear to throw out when you find one kernel that won't grow?

Prof. Moore: The composite test was the first test recommended; then I can recommend you to go a step farther. When you get your ears picked out that you are going to use, take about two kernels from each ear, one from down near the butt and one above. Then have a little network to put right into this tin plate, number the ear that the kernel is taken from and put the kernels in a certain place in this network, and then

you can get a test and be able to identify every ear that you plant from. Of course that is better than a composite test, because occasionally you will have corn test right up to 100, and then all at once you will come to an ear of corn from which nothing will germinate, something has happened to the corn; probably we put it in a hot place when it was too green, or in some way it has become injured. By making the test in that way you may eliminate anything of that kind and it will be an almost exact test. Of course, here you test every grain, and it is going to be a wonderful step in the right direction.

Prof. Shaw: We will be very much obliged if you would tell us just exactly how you test the corn with those two plates. I think you take it for granted that some of us know more than we do about that.

Prof. Moore: We have ordinary cotton flannel pads. We take these two little plates, one smaller than the other. A farmer can use ordinary plates, but these are somewhat better. You take these pads and soak them in water till they are quite wet, then you put one pad upon the plate, then go to work and take fifty or one hundred kernels of corn and put them on the pad. I have fifty kernels here, and this is a composite sample. Then you take this other moistened pad and put right over the whole thing. This smaller plate is put on top to hold the moisture; then to put it under the most favorable conditions, put it in a room where the temperature is a little higher. After about two days, it is well to look at the corn and raise the pads a little so that they will not stick down together so that the corn does not get sufficient oxygen, which is necessary to promote germination. Lift the pad, let the oxygen underneath, and if the pads should be a little dry, moisten them a little and put them back. At the end of five days we should have a full test. Most of the Silver King corn that we have here has given 100 per cent test. We ran across one ear that did not give anything, but out of many tests that we have had, we have had 100 per cent germinate, good healthy germination, too.

Prof. Shaw: How do you judge of the strength of the germination?

Prof. Moore: That is a matter of judgment more than anything else. You can see if it puts forth a good strong root, or whether it comes out sickly, but that is largely a matter of

judgment. I always like to note the character of the germination, as well as the fact that they all germinate.

Mr. Franklin: If there is a kernel that does not germinate, how do you ascertain what ear that kernal was taken from?

Prof. Moore: When we make the ear test, rather than the composite test, we lay strings, or have some kind of marks on the plate, each square being numbered, and the ear of corn is numbered, and the kernels from that particular ear put in the square of the same number. You may take two kernels or four, and number the ear. Then, you have the ears all laid out on a table, and when you see that the kernels from a particular ear do not germinate, that is, the kernels in square No. 5, you know it is No. 5 ear. With the composite sample, you don't know which ear it is.

President McKerrow: In making tests from these ears, have you noticed very much difference in the strength of germination from the different ears?

Prof. Moore: Not very much in the corn I am handling this year. It all puts forth vigorous shoots.

Prof. Henry: I wish to say that the audience should distinguish sharply in the points brought up by Mr. Moore and the several speakers in this—Mr. Moore, in speaking of the composite sample, is trying to get the farmer to test at all, to test any samples, and he has shown you a way that makes a good test. Other farmers are farther along where they want to see if they cannot test individual ears. When a farmer has reached that point, he will take both tests. It has been my pleasure to accompany the Burlington Railway Corn Special which has traveled all over the state of Illinois educating farmers on seed corn. The Illinois College tells the farmers to take four grains of corn out of each ear, then keep the ear in a place by itself so they can find that ear again, and if they find a failure of any one of those tests they are able to reject that ear. The Illinois farmers have got up to that standard, or are getting there, at least they are where the Agricultural College feels it can deal with them from that standpoint. I wish we in Wisconsin could get there in some way. Producers say that each ear of corn can be tested for 45 cents a bushel, paying for the time it takes to make a composite test with four grains, allow-

ing reasonable wages for the farmer's time. That is, the farmer can get four grains out of each ear of corn in a bushel and have it cost him 45 cents for the whole bushel. Some of the Illinois farmers tell us they use sixteen or eighteen bushels of seed corn, and they can make big money by spending enough time to take four grains out of each ear, thereby raising the percentage of germinating corn from between 85 and 90 to a little above 90.

Prof. Moore: When I made the test of the corn that I planted on the large field that produced this corn, I tested in the first place about thirty ears I should judge, and I found it all tested from 97 to 100 per cent. I was pretty sure that we had corn that would test high. I went to work and shelled what I thought we would need after making a careful examination of the ears, and then made a test of the composite sample. Of course there are both ways of doing it. I would like to see you test every ear, because I realize that ears of corn like other individuals have their individuality. We know that the world is composed of people, some of whom have just sufficient vitality to hold their stations in life; others are drifting behind, and it leaves the great world, the fields of progress to a few individuals who have sufficient energy to hold their own and push to the front. So it is with ears of corn. If we are going to get an advance, we want those of strong vitality. Of course we can do best by testing every ear, but if I can't see the farmers do that, I would like to see them make a composite test at least.

Prof. Shaw: Has it been decided, definitely, absolutely, uncontrovertibly, as to whether the tip and butt kernels should or should not be discarded?

Prof. Moore: Prof. Holden's advice is that tips and butts should be discarded, for two reasons—one, tardy germination, many hundreds of tests showing that the germination was from two to four days more tardy in the butts and tips than in the middle kernels. Furthermore, they showed the product of tips and butts to be irregular, and the tips are like popcorn, we get them into the corn feeder and they will run right through and go where we don't want them, so Prof. Holden's idea is to reject the tips and butts.

Prof. Shaw: May I ask if Prof. Moore looks upon that question as absolutely settled?

Prof. Moore: No, I don't. I reject butts and tips on this plea, but I have not carried on extended experiments, so I cannot look upon it as settled. Prof. Holden has tried it.

Mr. Franklin: The reason Prof. Holden discards the butts an tips, as I understand it, is lack of uniformity.

Prof. Moore: And tardy germination.

Prof. Shaw: If that is the only thing, why, we will agree. Lack of uniformity we know about, but does it or does it not have some influence on the fertilization of the entire crop?

Prof. Moore: As I say I do not regard it as being entirely settled. I have not carried on tests with it.

President McKerrow: The thought of Prof. Shaw, as I understand it is, that the tips and the butts being a little later in germination, will be a little later in pollenizing and will more perfectly pollenize the crop while it is in a condition to be pollenized, and therefore more perfectly fill out the ears from one crop to another. I have heard that argued by a great many good corn growers, and I have watched to determine that, but I haven't seen it.

Prof. Moore: Funk Bros. are thoroughly converted to the idea of rejecting the butts and tips.

President McKerrow: Because they have made experiments which show that they get just as good a crop without planting them.

Mr. Stiles: To get a perfect stand of corn, I should be in favor of rejecting the tips, not the butts, but I think the manufacturers are making a corn planter now that will plant just what you want, either two or three or four kernels and do it ninety-nine times out of a hundred.

Prof. Shaw: Can't we all hear about that corn planter?

Mr. Stiles: Why, yes; I supposed most of you had seen it work. I have stood and watched it by the hour. It is the "Pick-up," and if it will do what they claim for it, I guess I should not be in favor of taking out the butts and tips.

Mr. Bissell: Don't you think that by taking those tips and planting them by themselves, you might get a still earlier variety of corn?

Prof. Moore: I have never tried it.

President McKerrow: There is evidently a big field for experiment yet.

Prof. Moore: I do not advise my corn class to lay a great deal of stress upon tips, because it is a fancy point. If we are going to select for specially fine tips, we are going to shorten the ears. I like to have a corn that has a good uniform kernel all the way down. Here is a nice ear of corn, it has an open tip, it is a nice ear of corn because the kernels are practically the same size way down here. I would not reject that if it did not have a covered tip.

President McKerrow: I see you advise planting in hills rather than in drills. Have you carried out any experiments in regard to the difference in yields?

Prof. Moore: No, but they have been carried out at the different Experiment Stations. For instance, Prof. Holden of Iowa is thoroughly converted to the hill system, and he has had a wide experience.

Mr. Solverson: How far apart do you advise having those hills planted?

Prof. Moore: Three feet six.

Mr. Mead: I come from the northern extremity of the state and we grow magnificent clover and wheat and peas. If we can grow corn accordingly, we have solved the entire food question, but I have my doubts about it maturing. Would it not be a good idea to work on the Flint varieties for our northern sections?

Prof. Moore: I think it would. They do not give the proportion, but nevertheless they are early. I think probably in some of our northern counties, the Flint corn will do better than our Early Dent. I think this Minnesota 13 is a corn that will mature in a pretty high latitude. If it matures, as Prof. Hays says, 100 miles north of St. Paul, it is doing pretty well.

Mr. Mead: I am just about 150 miles north of St. Paul, and our winters are very severe.

Prof. Shaw: With reference to the varieties that will mature in Northern Wisconsin, far north, I may say, that there are varieties that mature every year in North Dakota and in the Canadas, and up in Marshall county, Minnesota, which is right up against the Canadian boundary. One of the varieties is the Mercer; another is the Dakota Dent and the University No. 13, which has been exhibited here today will mature some seasons

in those counties, but not every season. Sometimes it is a little short of maturity.

President McKerrow: For want of time, we will have to close this discussion and take up the next.

BREEDING LIVE STOCK ON THE FARM.

PROF. THOMAS SHAW, St. Paul, Minn.

Mr. Chairman, and Gentlemen: I am going to talk to you gentlemen about a subject of considerable importance, and I am only going to tell you just what you know already about it.

Now, I suppose some of these students are putting the question to themselves, why did you come all the way from St. Paul to tell us what we know? Why, my dear boys, do you know the great lack of the world, not only with boys, but with men? It is not the lack of knowing, it is not the lack of knowing—one fiftieth part—as much as it is in not putting in practice what they know. People go to church on Sunday—good people do. Now, what do they go for? Do they go to find out something that they do not know? No, that is not it as a rule. They go simply to be put in remembrance of what they know already, and I have come down from St. Paul in the hope of putting you farmers and you stockmen and you students in remembrance of what you know in regard to this great subject of animal breeding.

This is a great subject, boys. It will take a man right over his head at the very first plunge, but there is one comfort about it, that it has a great many shallows in it, so shallow that a little child can wade in them without any difficulty at all. I do not propose to try to lead you into those deeps that I was talking about today, but I do propose to try to lead you into some of the shallows where anybody can walk.

You have some good live legislators in Wisconsin; that I know.

President McKerrow: Be careful; there are some of them in the room; don't say too much.

Prof. Shaw: We, in Minnesota, have been watching with the most careful interest the result of the elections in Wisconsin, and without attempting to be personal, I feel absolutely safe in saying that those elections have sent some good men to the legislature, but I tell you students, I tell you, gentlemen, that there are more good legislators in the state of Wisconsin today than there are good men who understand properly the principles that govern the breeding of live stock. Those men are rare; we do not meet with them every day, because as I have already intimated, breeding is a great, high, deep, wide, fathomless science in some of its aspects that a giant cannot follow.

Now, in addressing you boys, I would like to say what you have heard probably fifty times, that there are three principal laws that govern breeding, at least Shaw, in his book, has lai' down that there are three principal laws governing breeding.

Probably you do not know that Shaw has been watching from the first day that book was written, to see whether some man would not pitch into him for saying that there are three principal laws that govern breeding.

The first of those laws is that like produces like; or that the progeny shall be like the parents.

The second of those laws is the opposite of the first, that like does not produce like always or that the progeny shall not always be like the parent.

And the third law is the law of atavism; that is, that the progeny shall be like some remote ancestor.

I am not going to talk anything about that third law, because it is not of anything like such vital importance to us in our ordinary farm practice as the operation of the first and second laws.

Now, gentlemen, there appears to be antagonism between those laws. The first law says that like produces like, and the second law says that it does not produce like.

I have been teaching in my class room at the University of Minnesota for a number of years that that law was the Magna Charta of the breeder; in other words, that that law was strong-

er and more operative in connection with breeding along certain lines, than the other law, that like does not always produce like.

My brother Professor Green has been teaching the boys in the same room in forestry, that the law of variation was stronger than the first law. The boys are pretty sharp, and they caught on and they came to Green, they came to Shaw, and they said, "You men are teaching two different things. Now, we want you to come together and fight this question out and we will be your judges." Well, that would have been great fun, no doubt, for the boys, but it would have been pretty sure death to either Green or Shaw, so the question was not settled.

But I am satisfied, gentlemen, that whatever may be the case in regard to horticulture—I am not going to pretend to settle that question, but I do affirm that I have no doubt in my mind with regard to the live stock side of the question,—that the law that like produces like in breeding, is stronger than the law of variation. If it were not so, where would be the possibility or the hope of our ever reaching a point,—the point to which we are all aiming,—if the law of variation was stronger than the law that like produces like,—if the other law were constantly interfering with the results that we are trying to reach. But I do not require to tell you that that law that like produces like is not always equally strong in its action. It is only stronger than the other law in connection with certain conditions which must be present; one of those conditions is that the animals must have been bred pure from generation to generation, for a reasonable number of generations, and the reason for that is simply this, that with the increase or with every added generation follows an accumulation of what might be termed dominant principles in a certain line. Thus becomes stronger with every generation that particular kind of breeding, so that after a time the point is reached when the breeder can expect, with a good deal of certainty as to what shall follow from the mating of certain animals that have been bred in a certain way.

Well, then, you may be ready to ask, is there any good that comes from the existence and operation of the law that like does not always produce like, and I unhesitatingly answer to that question, yes. If there was only one law, the law that like produces like, why, it would mean simply this, that water could rise only as high as the foundation and no higher; it would

mean simply this, that when pure bred animals were used of a certain type or breed that the progeny could come up to the level of the parents, but that improvement upon that level would be hopeless, and therefore, the hope of bringing improvement in live stock would be everlastingly shut off.

Now, the law of variation makes improvement possible, because, although in a majority of instances—I cannot tell you the reason why—in a majority of instances, I think I am correct in saying that the progeny are not the equal of the parents. I don't know whether we gather all there is on that subject by going back to the Garden of Eden six thousand years ago; but I think we may refer to that gentlemen, to prove why in some instances the progeny are not equal to the parents, though sometimes they are superior.

Now, when they are superior to the parents and wisely used in breeding, it gives the breeder an opportunity by continually selecting of bringing his animals up to a higher standard or reaching a higher level. Why, if it had never been true that there was a law operative in breeding, known as the law of variation, the trotting horse would never have reached beyond the performance of his ancestors of long ago, beyond say, 2:10, whereas, it is now somewhere about 2. But because of the law of variation, some of the progeny being superior to the ancestor, these results have been attained to which I have referred.

I have often wished, students, that the law of variation in regard to men were so operative that boys would be always better than their fathers—it ought to be their aim to be better than their fathers whether they are or not. It would be a good thing for the world if it were so, and that should be the aim of every boy.

Now, in order to effect improvement in breeding live stock, improvement that is reasonably certain and reasonably sure, prepotency must be present.

Prepotency is the ability of the parent to enstamp itself on the character of the offspring in a marked degree.

I do not need to tell any breeder the value of prepotency, particularly in the sire, but suppose I ask the question, how are we to know whether a sire that has not been tried is prepotent or not, before we have tried him? I wonder how many gentlemen here today can answer me that question.

Now, I think I am safe in saying this in taking up the answer to that question, that I do not think we can be absolutely certain that a sire will be prepotent, with all the guarantees that may be given us; but I do think that we may be so certain about it that in probably ninety-nine cases out of a hundred we will not be disappointed. If I am correct in that estimate, then I think we are certainly in a position to choose a prepotent sire with almost as dead level certainty as if his prepotency had been proved.

Now, then, how shall we know whether a sire is prepotent or not? I will say that before it can be possible that we can know he is prepotent and will stamp himself upon his progeny, that that sire must have been properly bred for a pretty reasonably long number of generations. If you ask me how long should that number of generations be, it is not an easy question to answer, because a good deal would depend on the nature of the ancestry and on the nature of the principles of the breeding of the ancestors, but I think I would be safe to say that if a sire has been bred absolutely pure for ten or twelve generations,—at least, you have a pretty good assurance that he has been properly bred, and you have a pretty good assurance that so far as his breeding is concerned, he is likely to prove a prepotent sire. That is one guide.

I lay a great deal of stress, not on the tenth ancestor and what the character of the tenth ancestor was, but what the character of the second ancestor was, and the third and the fourth ancestor, both on the side of the sire and the dam.

A man is breeding a Clydesdale horse and he has a horse that goes probably ten or twelve generations back to that famous horse McGregor. I would like to ask how much McGregor blood is there in the animal he is dealing with? But, suppose McGregor had been the sire or the grandsire of his horse, then it would be an entirely different thing: then I would say that he would have a right to build upon the fact that his horse was descended from the great McGregor.

The point I want to impress upon your minds is this, you get parents that have been good performers in the next generation back and the next back, and the next generation back, to the fifth generation, and you may be pretty sure that you are going to have a pretty good type of sire. Of course I would

like the pure blood to go back farther than five generations, but I would be ten times more concerned about the second, third and fourth generations of that ancestry, what the character of the ancestry was and how they had performed as breeders or in other ways. That would be my chief concern, rather than chasing way back to an ancestor ten or twenty generations back that had been famous in his day.

Now, in regard to prepotency. I do not believe it is a question of superlative importance, gentlemen, as to the character of the dam. Do not misunderstand me; I do not mean to say that it does not make any difference what the individuality or the breed of the dam is; but I do mean to say that in my judgment it is ten times more important to understand what the breeding and character of the sire is. Try to get the sire right and you will soon get everything else right, if your work is carried on on intelligent lines.

Now, being positive of having a sire purely bred, I would like, if possible, to have that sire bred in line.

Now, you say, what is meant by breeding in line? Line breeding and in-and-in breeding are not exactly the same thing. In-and-in breeding is closer breeding than line breeding. Line breeding is breeding within the limits of the family for a number of generations. For instance, suppose a man was breeding Duchess shorthorn cattle, the sires had been chosen from a Duchess strain for generations back and there has probably been close breeding with that line of breeding, an instance is furnished of line breeding—Line breeding intensifies prepotency and gives a greater power to a sire to transmit himself to his progeny than he would otherwise possess, every great breeder understands that. I think Mr. Martin and probably Mr. McKerrow could tell you more about that than I can, in their particular operations. Amos Cruickshank gave great attention to it, although he was not very particular in the beginning what the blood lines were in his cattle, but the time came when he wanted line bred sires.

I do not think line breeding matters very much in the dam, though probably some of you gentlemen do not agree with me, but it does in the sire, because it gives the sire a greater prepotency than he otherwise would have had. So here is the sec-

ond guarantee that the sire is going to be prepotent if we only have the judgment to recognize it when we see it.

I will take one of Mr. McKerrow's Southdown rams to illustrate what I mean. Look at that ram, imagine him walking along. His step is quick, his head is up, his eye is clear, his neck is arched, he is observing everything that is going on around him. His ears are pointed a little upward; everything about the movements of that ram shows animation, and it is because the animal is overflowing with energy, strength, vigor, vitality. You get that in the male along with a proper formation in breeding and you have one of the strongest and best guarantees of propotency in that sire that you can have.

Now, as I said before, a man can not be absolutely sure even with those guarantees that his sire is going to be prepotent. But when he purchases a sire, if he purchases the sire intelligently, I do not think that a man need have very much to fear regarding the prepotency of the sire which he is introducing into his flock or his herd.

Now so much for pure breeding.

There is another kind of breeding that is of more importance to the farmer.

I oftentimes wish, Mr. Chairman, that I could get the ear of every farmer in the United States to talk to him a little while on this question, or it would please me better still if I could get his eye to reach him through the eye.

I do not require to tell you men who are breeders here today, that you have heard and I have heard as probably everybody has heard that the average farmer is apt to say, "Why you men are always preaching about pure bred sires because your are advocating the interests of the breeders of pure bred stock, you are trying to help them in their business at our expense."

Now, gentlemen, that is not true. That is a slander, whoever says it, and I propose to show you that it is not true, and that is the principal reason that brought me down here to Wisconsin today to talk to the farmers with regard to this very question.

For every man that breeds pure breds are probably five hundred who will breed grades, and if we can get the five hundred who are breeding grades to breed those grades on intelligent lines, we are going to do a great deal more for the country

than simply to help the breeders to do their breeding on intelligent lines. When we tell a man who has a common stock to use a pure bred sire, we are doing him a kindness, no matter what he thinks about it,—we are his friends and we are the best friends he has, so far as giving advice is concerned in live stock lines,—when we tell him to discard grade sires and have nothing to do with them if he can get a pure bred sire for a reasonable price. I will now try to tell you why it is so important he shall use pure bred sires on his own stock.

We will suppose a man is beginning to improve his common stock, and they are very common, he himself may be almost ready to say that they are scrubs,—suppose they are, in blood lines, that wouldn't matter so far as I am concerned, if they were mine; suppose there were twenty different elements of blood mixed up in their composition; that would be no objection to me if they were mine and I was seeking to improve them. You ask the reason why. The reason why is simply this—purity of blood gives added power as it increases to transmit itself—follow me closely—purity of blood gives added power with every generation to transit itself to the progeny. Now, what is the converse of that? Mixed up blood gives decreased power to transmit itself and the greater the mixture of the blood, the greater the decrease in power to transmit itself to the progeny. Have I made myself clear?

Now, then, we will suppose a man is beginning with grade sheep. He has bought them, we will say, at the stock yards, and they have come from the ranch, and they have a dozen or more different kinds of blood elements mixed up in their composition and he wants to improve their mutton qualities by using, we will say, a Southdown sire. He begins his work, but when he begins his work, we will say that one hundred represents the difference in blood elements between the sire and the dam. Here is the Southdown sire on this side, and on this side the grade dam. Now, he selects a Southdown sire, one that is purely bred and prepotent; he selects a good sire. The farmer will say he doesn't need a good sire for his common sheep. Well, the goodness of that sire will depend on the number of his flock. If he has a very large flock, he is the very man that needs a first class sire, and the very man that can afford to pay for it, as I think I can show presently. He secures his sire, the two are mated.

Reasoning carelessly, we would say, the progeny had fifty per cent of those elements from the sire and fifty per cent of those elements from the dam, but that is not true, gentlemen; it cannot be true. It could only be true on the supposition that that dam was prepotent as that sire and we know that the dam with her mixed blood cannot be so prepotent as that sire; it is an impossible thing, it is not true.

Now, you ask me, how many of the blood elements from the sire the progeny has. I can not answer you that question, but I can tell you this, what you have observed a hundred times. You have observed that the lamb from that kind of mating looks almost exactly like the sire and not very much like the dam. Why is that? Because the sire because of his prepotency has transmitted his properties to the lamb and the dam has not. Now, I am assuming and that is the only thing that can be done; I am assuming that that lamb has seventy-five per cent of his properties from the sire, and it will then have twenty-five only from the dam. Now, a pure bred sire is chosen again from the Southdown breed. Here 100 represented the difference in the blood elements. Twenty-five now represents the difference in the blood elements between the sire and the dam when you choose a Southdown sire the second time. The sire will have the advantage in the second mating, and the progeny will be more like that second sire than the second dam. You find here that change so great in the first instance, is not so great in the second. Now, you cannot make so great a change. Here was the difference, of 100 in the blood elements in the first instance, and only 25 in the second, but the change will be in the direction of better. We will assume that fifteen more are added to the blood elements from the sire, which would make 90 from the sire on the part of the lamb and there would be only ten of the blood elements of the dam in the second generation.

Now, you go on and make the cross in the same way, that is, with a pure bred sire, and this time we will see that it is increased to about six points in three generations—see the result. Make your cross twice more. How much of the blood of the dam or the elements of the dam are in the progeny, I would like to ask? They are practically all gone over to the other side, and your fifth generation is just about a pure Southdown. Of course it won't be a pure Southdown according to the rules

that govern registration, but I say to you this, that if those different generations of individuals have been properly fed, that you are going to have a lamb that is just as good as a pure bred Southdown for sending to the block.

Mr. Everett: But not for breeding?

Prof. Shaw: No, not for breeding, that is right. Now, I do not think there is anything extravagant in that demonstration, and what does it mean? It means simply this, that on the assumption that all the grade stock in the United States today were improved by five generations of breeding in the line that I have been demonstrating and that improvement added to this other 25 per cent, which is a very moderate calculation, it would mean simply this, that the live stock in the United States, at the end of those five generations, would be worth just that much more than it is worth today. It is a matter of considerable importance that I have been talking to you about, one thousand million dollars.

Of course it is impossible that can be done in five generations, for the reason that there is nothing like enough pure bred stock in the country to bring it about, but the point I want to urge upon the farmers is that that is the goal for every man who has live stock to be reaching out after, and that when he says that the friends of pure bred stock are simply advancing and interests of the breeders of pure bred stock when they advise him to use a pure bred sire on his grade flock, that he is saying what is not true and what he ought not to say; he is saying what is unjust to those men. So much for what may be termed up-grading.

Now, let us give a little attention to the question of crossing, then I will not keep you any longer.

We read in the agricultural papers of today, some of them,—I know I am treading on tender ground when I enter this field, but I am going to enter it because I believe it. We see in many of the agricultural papers today advice something like this,—it is usually given in a sort of a general way—it is very good to breed two pure-bred animals of different breeds together for the first time and you are very likely to get something better than the ancestors; but the second time you do it, you are going to get something inferior, and the third time something still more inferior. I am talking about cross-breeding in the strict-

est and broadest sense, meaning the mating of two purely distinct breeds together, the sire from one and the dam from the other; but cross breeding is sometimes used in a sense a little looser than that. For instance, you take a Shorthorn sire on one side and a very high grade Hereford on the other side, you mate these together, and that is called cross breeding.

Now, the point I want to make with regard to those statements which have appeared so frequently in certain sections in the press is this, that sometimes those statements are true and sometimes they are not true. Almost everything depends on the intensity of the breeding on both sides.

I will try to make plain what I mean. If those statements that I have referred to were unalterable under all circumstances, it would practically eliminate the place of cross-breeding, it would result in checking the work of grading up live stock. Those statements are true in circumstances like this; suppose you mate two breeds that are of about equal prepotency; that is, have been bred from a long line of high breeding. Take the Southdown ram on the one side and the pure bred Merino ewe on the other. You mate thus, and you will get something in the first cross; you mate them again and you are certain to get something not so good? And why? Because the breeding on both sides has been so intensely strong that in the case of crossing there is the tendency to reversion and there will be an inclination to one side or the other; which side it will be will depend on the greater intensity and purity of the breeding on the one side than the other, and probably, to some extent, on the individual stamina of the animal at the time it is mated.

But suppose you cross the breed as follows—it is all right. Suppose you have a short bodied hog, we will say of Duroc Jersey type but a grade. They are short and broad, fine in bone, and short in limb. Suppose you cross that with a Yorkshire that is purely bred. You will get something good, and suppose you cross again with the pure bred sire, you are still going to get something good. Why? Because the Duroc Jersey was simply high grade and they have not been bred pure for anything like so long as the Yorkshires, therefore the Yorkshire is naturally more prepotent. You get into that kind of breeding and it is very different to this other kind of breeding, it is up-grading. You go on crossing till the time

comes when the progeny is about equal to Yorkshire, or the breed from which the sires are taken.

Sometimes I think it is a good thing to introduce an out-cross. Suppose a man uses a Southdown sire and under his conditions he finds that his grade sheep after awhile are losing size beyond what he thinks they ought to have; it may be a good thing for that man to introduce an Oxforddown for one cross;—getting the size, getting a little more wool,—and then go back again to the Southdown and continue breeding as he did before, with the added size of body and the added length of wool which that one cross has brought.

But here is the way that a great many men want to breed. There was a gentleman on the train this morning, I don't know whether he is in the audience, but if he is he will not take it unkindly, if I tell you what he told me. He was using a Short horn sire, and he came down to Madison today to get a Holstein sire. I am a great admirer of the Holstein breed and I don't want you to think in what I am going to say that I have anything against the Holsteins, but I do think that man is making something of a mistake if he has been reasonably successful with a Shorthorn sire to go to work and mix with Holstein. Suppose this man had used a Southdown sire the first time and the second time suppose he had used a Lincoln, then what would he have got? Can anybody in this audience tell me?

A Member: He would have got left.

Prof. Shaw: Now, supposing the next time he had chosen another sire. This is just what that man is doing. He goes back and forth and he ends his breeding career just about where he started and yet that is the most popular and the most common style of breeding in the country. Why, that man said this morning that the price of beef had gone down. Suppose it has, how long is the price of beef going to stay down? Farmers are funny men sometimes.

If there is any breed that is going to satisfy you, let prices go up or go down, stick to that breed and it will bring you out all right in the end. If you do your part, the breed will do its part.

Now, gentlemen, I thank you for having listened so patiently to this sort of rambling talk. If there is anything else you can bring out, you are welcome to all I can give you.

DISCUSSION.

Mr. Jacobs: Under one condition, is not this man all right in choosing his Holstein sire? Suppose his conditions justify him in going into dairy work, and that the Holstein breed is his choice and that he is going to stick to that, stay by that breed and grade up in that line. Then wouldn't he be justified in using his Holstein sire?

Prof. Shaw: But notice, gentlemen, the man assigned as a reason for making the change that the price of beef had gone down.

A Member: And butter had gone up.

Prof. Shaw: If the man had told me that he had come to admire Holstein more than the other breed and that he believed he was going to get more milk, to which I would have agreed—he would get more skim milk for his customers—if he was going to keep right on breeding Holsteins I would have patted him on the shoulder, and said, "Wise man."

Mr. Martin: Wasn't that what he intended to do?

Prof. Shaw: I don't know, I wish I could answer that.

Mr. Martin: We have had a gentleman down here that has made a success along such lines.

A Member: Would you accept that as cross breeding?

Prof. Shaw: That is crossing with a vengeance.

Mr. Franklin: If a man has been breeding scrub sheep for about twenty-nine years, he would have thoroughbred scrubs, wouldn't he?

Prof. Shaw: He ought to.

Mr. Franklin: That would be considered then a breed of sheep, wouldn't it?

Prof. Shaw: Yes.

Mr. Martin: Suppose you had one of Mr. McKerrow's Southdown rams and bred on that thoroughbred scrub, would it be cross breeding or would it be grading?

President McKerrow: I would rather he would buy the ram for somebody else.

Prof. Shaw: Under those conditions, I think it would be cross breeding, but I will tell you how I would like to work

that. I would use some other kind of a ram the first time to weaken the blood elements in that scrub breed, and then get Mr. McKerrow's Southdown. Then you have it.

Mr. Jacobs: You said the weaker the blood was on one side, the more you would get on the other and this gentleman has it as weak as he can get it.

Prof. Shaw: You did not catch the thought. He was talking about a scrub breed of sheep, a flock. I admit that those scrubs are a breed, because they are bred twenty-nine years in line. I admit they are a breed and I want to improve them with Southdown blood, so they will produce better mutton. I say I would take some other breed the first time, some pretty strong prepotent breed and cross on those scrubs the first time to weaken their power of transmission, and then get your Southdown.

President McKerrow: He breaks them up, he takes some breed that will improve them somewhat. You would not cross them with aonther scrub breed?

Prof. Shaw: Oh, no.

A Member: Are there two scrub breeds?

President McKerrow: Yes, about as many scrub breeds as there are scrub farmers.

Mr. Chambers: Wouldn't you advise every breeder going into the breeding of stock, whether it is dairy or beef, wouldn't you advise them to use some thoroughbred breeds, either in the dairy or the beef breeds, and then breed that as a specialty, not cross at all, not cross Holsteins and Shorthorns and then cross again, but select some breed and stay by that breed from the time that he is twenty-one till he is a hundred.

Prof. Shaw: Unquestionably that is the proper system of breeding. First, fix upon the breed, be careful, too much care can not be exercised in fixing on the breed; but having fixed upon it, stick to it, continue to handle that breed unless there is some very potent and particular reason why a man should not continue to handle it, and he will make a success of it.

President McKerrow: And he will be more apt to live to that hundred years by doing it.

Mr. Roberts: Is not this criss-cross breeding one of the most serious mistakes the farmers are making today, without any definite end in view?

Prof. Shaw: I regard it as the most serious, the most senseless. I cannot understand how men who will think upon the subject at all can do it. It simply shows that they do not think upon the subject or they wouldn't do it.

Mr. Cunningham: If I understand you rightly, you prefer what you call line breeding rather than to go out and select from another line of breeding, and I would like to ask why you do so, because in line breeding, according to your explanation we can not rise any higher than the foundation if we continue in line breeding, for the stock gets to its height and if you go out of that line breeding, and select another strain, don't you run a chance of going higher than the orginal foundation of your line breeding?

Prof. Shaw: You do, but you run a chance of going lower, and it is because of that danger that I would be very careful about doing it. You may have to run the risk. If your animals that are line bred are too closely bred, so closely bred that they have lost in their stamina, then you have to do it.

President McKerrow: Have not some wonderful results been produced by going just outside the line, making an outcross?

Prof. Shaw: Oh, yes, but there is an element of uncertainty about it.

President McKerrow: Sometimes you may go out and get something that is better.

Mr. Cunningham: That you think is better.

President McKerrow: You want to be pretty sure.

Prof. Shaw: You may get a better individual, but you will not get the same strength of prepotency.

President McKerrow: Providing that other individual is as strongly bred in some other line.

Prof. Shaw: Yes, that will be all right.

Mr. Cunningham: Then where would you stop in line breeding? Would you wait until you saw that your stock was getting low in strength, or is there a place where you would stop?

Prof. Shaw: Well, I don't think there would be any danger in continuing it, until you saw some evidence that the standard was beginning, just beginning to go down. I think that thing should be watched very closely and you should not con-

tinue selecting line bred sires if you think you see any evidence of deterioration in the average of your progeny.

President McKerrow: And you always, in selecting these line-bred sires, or any other for that matter, aim to select sires that would make up for the weaknesses that are showing in your herd.

Prof. Shaw: Unquestionably, and I would like to drop this thought; we speak of line-bred sires as being more prepotent than other sires. Remember that I think line bred sires are especially for breeders of pure bred stock; that it does not matter anything like so much if men are grading up their stock and are getting a good sire, whether he is line-bred of not.

Mr. Hill: I think Mr. Shaw has brought to us something that is of infinite value to us in this talk that he has given us. This question of the prepotency of the sire is something that none of us knows enough about, and while it is true that in the present system it is possible to know what experts have done for several generations, I would like to have the gentlemen tell us how would you find out what the good qualities of a sire are? Would you take those whose ancestors have been the prize-winners, or how would you get at it?

Prof. Shaw: The gentlemen wishes to know, in choosing pure breds, what would be the character of the performance on the part of the ancestors of those animals that should be made to count, or should be laid down as important in their selection. Now, in answering that, I may say that it will vary with the object for which you are keeping those animals. In dairy animals, it would be somewhat different than in beef animals. In beef animals, I think a good deal of regard should be paid to the winnngs of those animals or their relations in the show ring, and a great deal of attention should be paid to the proper grade of performance in making meat, both on the side of the sire and the dam in the immediate ancestors. Now, in the dairy line, I think the most important thing of all would be the performance of the cow at the pail, or the performance of the cow's dscendants from her sire at the pail. So that, the breeding and the production, if we may use the terms, are the two principal things that we must look to.

Prof. Henry: A good many here are interested in dairying. I wish to say that there is in progress in this state one

of the very best forces for work along this line that has ever been inaugurated. There is now in operation by the different breeders' associations the official tests of dairy cows. If the breeder of a Holstein cow or a Guernsey or a Shorthorn—pure bred animals I am talking about—thinks he has got a cow of unusual excellence, he can have that cow tested by assistants from the Experiment Station for the cost of personally conducting the test. The university will supervise the test, send a person there to take the test, take up the work and vouch for its accuracy. This work, started by the station a few years ago, has grown until this year the expense of such work to individual owners, the cash outlay will run over $3,000. That is, the owners of the cows will not pay out this money, but there are young men sent out from the Experiment Station who come to their places and test their cows, charging $2.00 a day for their services while working and traveling. The university gets nothing out of it. We have had in the field at times eight men at a time making tests and the result is that hundreds of cows have been tested, careful records kept as to their actual production, weekly or monthly tests, and a breeder now who wishes to buy a pure bred animal can look over these records without questioning their accuracy. Now, if that work can be extended and widened, then, when a man wishes to buy a dairy sire of prepotency, he can look at the records and have a sure and sound foundation to build his dairy on and since the dairy business is such an enormous force in the state of Wisconsin, I think you will appreciate what we are doing in this regard. These young men go out and stay right at the farms, sometimes stay all night with the cows, sometimes two men go to the farms and stay there when the test is an unusual one, the two men go there and one stays with the cow during the day, and the other at night, to see that there shall be no tampering, watching while the milk is drawn, analyzing the milk, so that the product is known exactly. If there is any reason to doubt the work of one man, another man can go there, and make further tests. This matter is meeting with the support of the breeders of the state, the Red Polled breeders, the Shorthorns, the Jerseys, to a small extent; the Guernseys, to a very considerable extent. The Wisconsin Station shows no favoritism whatever, we are committed to no breed, and we vouch for the accuracy of the

test as far as that is possible by human care and the most careful attention and supervision.

Mr. Martiny: There is one thing I do not just exactly understand, and that is, will the progeny from an animal be more prepotent if that animal is kept at hard work during the time it is breeding? For instance, will the progeny from a dairy cow be better if this cow is kept at her maximum in the production of milk, or a mare by exercise.

Prof. Shaw: I would imagine that the progeny would be benefited by exercise on the part of the horse, by production on the part of the cow; but to that point in both instances which did not in any way weaken their vitality.

President McKerrow: The records, as far as we know, agree with the professor's statement.

Adjourned till 9:30, next day.

THURSDAY MORNING SESSION.

February 2, 1905.

President McKerrow in the chair.

The first business of the day, was the receipt of the report of the committee on resolutions, which was read by the chairman of that committee and their passage recommended by the committee. On motion, duly seconded, the report of the committee was adopted and the resolutions unanimously passed.

WHEREAS, There has existed and now exists wide dissatisfaction on account of exorbitant railroad charges, and

WHEREAS, The discriminations which have prevailed and still prevail in favor of certain shippers and certain shipping points are unjust and greatly detrimental to the general welfare, and

WHEREAS, There appears to be no adequate remedy for these evils short of government authority, therefore

Resolved, That the Wisconsin farmers in convention assembled, endorses the recommendation of President Roosevelt in his late message to congress and favors such powers for the Interstate Commerce Commissioners as will enable said commis-

sioners to put into immediate effect such rates as they shall find to be just, equitable and reasonable, in any case investigated by them. Such rates to remain in force until and unless set aside by the highest court to which such case shall be taken.

Resolved, That we urge our representatives in congress to use all honorable means within their power to give legislative sanction to the recommendation of President Roosevelt upon the railroad question in his last message to them.

Resolved, That we heartily endorse the recommendations of our esteemed governor on the subject and that we urge upon our legislature now assembled to take such action as will fully cover the rate situation.

Resolved, That the farmers in this convention are much interested in the growth of the movement to introduce the study of the elements of agriculture in the common schools. We believe this movement to be of great importance to the future of agricultural growth and progress. It promises to impart a useful basis and understanding to the sons and daughters of the farm. What is needed is the growth and development of the farm intellect. A broadening of understanding of what science can do and a better knowledge of the complex problems which attend good farming everywhere. To this end we believe this teaching of the elements of agriculture in the common schools will greatly aid this much desired result.

Resolved, That we in convention assembled respectfully ask the legislature now assembled to appropriate $100,000 for permanent improvements necessary upon the state agriculture grounds.

President McKerrow: The first topic to be taken up this morning is:

"THE FARM AND THE SCHOOL."

I am pleased to be able to introduce to you this morning a lady who has made a reputation which has extended beyond the borders of her own state.

Mrs. Laws: (Appleton, Minn.) This is certainly an unmixed audience for a woman to speak to, but I am very glad

when speaking upon the subject of school work and the farm to have such an audience, because we women know that the only way we may get any effect is by our nfluence on the man.

I think one of the most important things you can turn your attention to in these days is education, both in the home and in the school, because, after all, that is what makes the difference in the success of people, and it seems to me so much more so in this country than in any other. Last summer I was traveling through Europe, and it was forced upon my attention, the great difference because people over there work along in ruts more than we do; the son is almost fated to do as his father did before him, whether his father was a little farmer or a big official. This is entirely different in this country and we have got to meet all sorts of emergencies in training, and we have to do most of this training in the schools, because the homes are so scattered and the fathers and mothers are so busy that they haven't time to take into consideration the training of the boys and girls.

My subject is the general subject of the girl in the home, but the same reasoning applies to the boy, to get at the practical things we need. It seems to me today that the schools in this country are doing a great deal more in teaching things that we may happen to want to use, the things that will be a pleasure to know, than in teaching the things we have got to use, that we must know if we are going to make a success in life, be it ever so plain or practical. Now, the schools, it seems to me, have gotten away from the original idea of the school. What is the common school for today. It should be for the common people, but as the common school is arranged today, it is for the few, the very few who expect to get up high into education. The end and the aim of the common school of America today is just one thing, and that is to feed for the university, to be a stepping stone to the university. What per cent of the boys and girls of the common schools of America today ever see a university? Do you know that not four per cent of them ever get inside of a high school, not to mention a university? Do you know that 80 per cent of all the children of the public schools of America today only stay in school five years? Now, don't you see what you are doing? It is a very poor business policy; you are sacrificing the interest of the immense 80 per

cent for the interest and the welfare of the very small four per cent. Out of your four per cent come a great many children, a great many students who are well to do, whose parents can afford to send them to any kind of a private school. Out of your 80 per cent come all of the poor children who can not get anything in this world except what the common school will give them. You are sacrificing all of them for the welfare of this very small four per cent who could afford to pay for their own education, a great per cent of it. Now, that does not seem to be good business policy.

It seems to me that when we do put anything practical into our schools,, we begin at the top; we put a little domestic science, a little nature study, into the higher grades, which are never reached by 80 per cent of the children: They have to go into your five grades if you want to give that training to the people who cannot get it anywhere else. Begin with the kindergarten, the primary grade, and work up, and patch on all the education you want in the higher grades. Put your practical things, your necessary things, your essential things in the lowest grades where the children are who are going to go out and earn their living. They don't care for the university, what good does it do them when they are starving for want of work, that they are in a fair way to the university? They have got to earn bread and butter and they have not had anything in their school life that will help them to do it.

So it seems to me we have got to get at something more practical, especially in the lower grades.

In the country, in the district school there is so much ground to cover, the district school teacher is so poorly paid, she can not afford to get a good special education on any line for the salary you give her; that is impossible, but when you centralize your schools—of course I am well aware of the fact that Wisconsin is ahead of Minnesota in some things; I visit other states where that work is progressing, and it seems to me one of the splendid things, this centralizing of your rural schools. I come here from Guelph, from a meeting very much like this, though very much larger. You know Guelph has a splendid reputation, and Dr. Freeman told me that 71 per cent of the graduates of Guelph are farmers, working on their own farms, and I think that is a splendid average for an agricultural col-

lege. He told me also that thirty-five states of the union are employing graduates from Guelph, and that is a very good reputation for any agricultural college to have. Over there there was an immense auditorium packed with men and women, and we were, among other things, dedicating the McDonald Institute for Girls, where they would be taught things that relate to their life as women afterward.

Your daughter may begin at the beginning of the public school, go through the grades, the high school, the university, and in all these years she scarcely hears mentioned the three most important periods of her life, her womanhood, her wifehood and her motherhood. She doesn't know anything about how to take care of her own home, she scarcely knows anything about how to take care of her own body.

Some of you went through the educational exhibit at the World's Fair at St. Louis; you found exhibits from all these great colleges, Wellesley, Vassar, Smith, they show you years and years of study in Latin and Greek, and at most from twenty to fifty hours in all given to physiology and hygiene; not one single hour along lines of sanitation, ventilation, and how to take care ofthe home. Do you know that Wellesley has kept account of the girls who graduate from her halls, and she finds that for two hundred that teach a few years, there are six hundred that go into homes of their own; where there are three who become doctors and physicians, there are six hundred who become home-makers. They have all this study of mathematics, all these dead languages, all their philosophy and what good does that do them when their children are dying of typhoid and diphtheria, when a little bit of knowledge of sanitation and how to keep the home would have done them a great deal more good than all their higher education.

So it seems to me it is very poor business policy for such good business people as Americans to pursue.

Up there in Canada there is a man who is very much interested in this sort of work, you may have heard the story of Sir William Macdonald, who gave $200,000 for the Mercantile Institute at Guelph, and who has now given $5,000,000 to establish an Agricultural College and a Science School at Montreal, to be open only to the sons and daughters of the farmers of Canada, and he says, "If that is not enough, I will

give you more." He wants them to have a chance to get a practical education that they may use in the life which they are to meet.

Now, it seems to me that when you think that only four per cent of our children get into the high school, what per cent ever makes a great mark in the line of literature, and art and medicine, and law, and that sort of thing? A very small per cent, compared to the great mass of humanity in the lower grades of our schools.

After all, the test of education is, does it fit you for life, and what is your life to be? An education that fits you for life, the life you are to lead, that is real education. You say the schools are so very crowded, we can't introduce anything new, but the time is coming when you must make your choice. What would you rather have when you send your son and daughter to a school? Would you rather have them come back to you pale, worn out, hollow-eyed, absolutely ruined in health, but their brains crammed full of knowledge; or would you rather have them come back wholesome and healthy, ready to take hold of any work that the world has to offer them, and possibly with a little less of the knowledge of higher education? I think no one would hesitate as to which they would choose. If you have your health, if you have your strength, you can always get culture as you go along. After all, that is the best kind of an education. But you cannot make a foundation of all these things and then step in and get the practical built upon it unless people are forced to it. I met a man who was forced to it; two years ago I was traveling in Alaska. One stormy, windy night we were all huddled around the smokestack of the steamer, way out by the Aleutian Islands. With us was a man who had spent fifteen years in Alaska. He was a carefully educated man, expected to practice law, but his health failed him and he went to Alaska. What did all his study then help him? Not a bit. He said, "I have been fifteen years in Alaska and it took me ten of those years to learn how to do anything. No one knows what I would have given for a little knowledge of practical things instead of all this which has not been of any use to me." He had to unlearn so much before he could get ready to learn anything that

would apply to his needs, and it seems to me that that is the test of education.

Yesterday at this time I was speaking before the schools of Menomonie, and we all know that they are fine schools up there. We found a class of boys interested in cooking. At first glance, that almost seems funny, that is the only idea you would get of it, that it was amusing; but there is something way beneath that. Those boys were doing just one thing intelligently to fit them to meet any kind of an emergency, and I think that is a fine thing. I do not believe that all boys, necessarily, should study cooking, but they thought they might need a little of it some time in their life, and they would rather take that than to take their chance of studying along the line of science or literature, which they were very certain they were not going to use. I tell you in Alaska the men find it very important to be able to know a little something about what kind of food contains the most nourishment, what will sustain life the longest and how to prepare it in the best and simplest way. You can't tell when you may want to know those things. In the struggle for bread and butter, it certainly can do you no harm to know how to keep a healthy, sound body, and a man who does know that is going to have many chances against the other man, who knows nothing about that and does know a lot of other things. At any rate he will very likely find time for the other things, too.

In our schools we take up and study the wold flowers, and they are beautiful, but why not study corn? There is no more beautiful plant that grows. Why not study clover, that wonderful plant that takes nutrition from the soil and puts it into the crops? Can anything be a more fascinating study than clover? You can get as much mind drill, if that is what you are after, out of the study of clover as out of the study of wild flowers. Then, you study chemistry. Did you ever hear any one speak in your schools about the wonderful processes that go on in nature, the chemical changes in the growing plants? Those things are well worth studying. You can study science right at your door. You study physiology and the first thing you are told to remember is the number of bones in the human body. What good does that ever do you? You can't change the number of bones in the human body, but you do not hear

any one tell ing how to make those bones that form the frame strong and sound as the child is growing up.

Out in Nebraska I was talking before a little school; they were beginning with nature studies, and they took up the subject of the rat, the teacher said, "Now, Johnny, how would you go to work to study the rat?" Johnny says, "Well, I would go and look at the Enclycopaedia Britannica." "Yes, and you probably could find out something about the rat." She said to another little boy, "Tommy, what would you do?" "I would look into the dictionary." "Now, Willie, where would you look?" Willie said, "I would look at the rat," and I think he was on the right track, he was going to the highest authority, right to the rat.

So it seems to me we want to get more of that idea into our education of going to the foundation, not always to books. The modern school reminds me of a large nest of young robins all with their mouths wide open and mother robin coming along with a wriggling worm and jamming it into their mouths. The robins have nothing to do with it. It seems to me the schools are like that, the students all with their mouths wide open and the teacher dropping in little wriggling worms of information. They do not digest them. Whatever we get at first hand we always remember longer than what we get from books, and that is one of the advantages of traveling, the things we see in traveling we never forget.

You say in this scheme of education, one leaves entirely out of account the bright student, the student who is not going to be on the farm, the girl who is not going to be in the kitchen. Do you know it seems to me it is a pity to spoil a splendid farmer to make an editor or a lawyer, to spoil a good housekeeper to make a stenographer, and that is exactly what our education is doing; but in this scheme of education you don't have to forget your bright students. We are glad for the bright women who have made their mark in the world. We are glad for such women as Harriet Beecher Stowe who wrote that wonderful book, "Uncle Tom's Cabin," and for Madame Curie working side by side with her husband, the discoverer of radium. We are glad for all our bright women, but the ordinary girl, her possibilities do not lie along in that direction. I find that most of the women, our girls, the lines of their life

are very much like certain birds, modest little birds. The birds that we love are the birds that build their nests low. The birds that come and go, the migratory birds, we scarcely know, the birds that build their nests high, we do not love them, but it is the brds that build their nests low, make modest quiet little homes. Those are the ones that stay with us all summer long, they help us, they are busy, cheery, and we are always glad to find them.

When I was out at the Yellowstone Park, we looked out over the canyon; it looks as if all the painters of the world had spilled their paint pots dry to get all those colors mixed together. We were way up on the peak, looking down into the canyon, and there at the very tip of the mountain an eagle was building her nest. She was a pleasing part of the landscape, but there was nothing that woke our admiration about that eagle. You go into the woods where the hermit thrush is, you try to find her and you love her, because her home is so quiet, her life is so sweet, and so it is with girls, it is the quiet, simple home work that the world needs. The world can get along without Harriet Beecher Stowe, it can get along without Madame Curie, but the world can not exist without the woman that stays at home and does here work in the quietest, simplest, plainest kind of a way; she is absolutely essential to the requirements of the world.

Last summer we went to London, and there in Westminster Abbey I found a white marble bust with the name "Sir John Franklin" on it and on the marble is an inscription which says:

"Not here, the cold North is your resting place."

My thoughts flew back to Alaska, to the time when I stepped off the steamer, and a little Russian landlady met me and led me to my bedroom, and she said, "I hope, Madam, you will like this room. It is the room that Lady Franklin had when she was here and waited so many weeks for Dr. Franklin. She sat here and waited and waited for him, and he never came back. So then she took the steamer and sailed around Cape Horn and went to Sitka. Day after day she waited for the steamer that was to bring him to her and he never came." So when we think of Dr. Franklin, we think of Lady Franklin and

admire her just as much. All this work, the common, plain work done along common, plain lines is what the world admires after all. We don't build our homes high up on the mountain tops, we do not build them deep, deep down in the valleys. We build and live and work on the common planes of life and that is where we have got to be, that is where we have got to work if we are going to be any help to the world. You may possibly think differently, you may work as the astronomer does, spend your life in the study of the stars, but don't you know it seems pitiful that after your life is done and your work is all over, you have not succeeded in changing the course of a single star; but if we work along these common, plain levels we may succeed in changing the course of human life. Thank you.

LANDED HOMES.

HON. M. F. GREELEY, Gary, So. Dakota.

Mr. President, I sometimes feel, in introducing these subjects upon a Farmers' Institute platform, or before a gathering of young men whose minds are upon land and agricultural things of that kind, that possibly it may seem to some of them as though we were departing from the object of such gatherings. We are not talking of hogs or horses or fertilizers, or feeding or breeding, but then we come to that thought, what are we farming for if it is not for the home, and I am quite clear you are working along the lines of good farming when I find that these subjects are creeping into our agricultural schools, they are creeping into our farmers' institutes, they are being everywhere appreciated and carried back into the home and into the farms and making them that much better all around.

It seems to me, too, in looking over our times and the growth of these things, such as our institutes, agricultural colleges and all that, that we are drifting in the right direction. We are beginning to appreciate more and more what it is to have the practical and the useful, and that we can make it of account in

our lives and in our education, and I am so pleased to find that we are turning so much to the soil and to this matter of elevating agriculture to its proper level.

It is certainly a great thing; we can hardly realize what a change has taken place in the last few years and what a change is taking place today in that direction; how the profession of farming is comng up to the higher level, is being looked at, appreciated as it did not use to be when I was young.

Now you probably know as I do living in the west that we are getting through with our free lands. We used to take care of everybody that came out west; we gave away to anybody that came from the old country or from the eastern states and now we have no land left, no good land. I have been over a good deal of the land through the west, and I know that the fertile lands are gone, and most of that which is not fertile, and still the population is increasing. We have caught up with the soil in this country; old country conditions are coming and are right on our track. Lots of people do not seem to realize, our boys particularly, when they get tired and leave the old farm, they do not seem to realize that agriculture is going to mean something and to own a piece of land and to know how to handle it is going to mean more.

I was up here traveling near Ripon where as a boy I used to work on a farm by the day and by the year. I was surprised at one thing and that was the beautiful country, plenty of water, plenty of forest, plenty of prairie, the finest country in the world to make a home in. I went through that section of the country nearly across a whole township, looking up the places I used to work in, to see if I could find anybody I knew, and do you know that for miles and miles not a single one of those farms were owned by the men who owned them when I was working out on those farms; they have all gone off into the cities. The farmers brought their boys up and if they were pretty bright boys, they sent them off to school and trained them in a profession. Now, do not think for an instant that I would disparage higher education, but it has been so long the case that the bright boy was sent away from the farm that it seems to me we have come to the time when we should stop this movement.

Now, who owns those lands there today? I found many a man who worked with me in the field behind the binders, boys

who could not speak our language, but they came from a country where it meant something to own land, it meant more to be caught without land, and they knew what it was, gentlemen, and those hired men own the land themselves today. They came from Germany, from Norway and from other countries, and they own large tracts of that land. I am glad they have it, they have earned it, and they are going to appreciate it, and the men from whom they got it can't get it again from them. Their boys and girls, some of them fill good positions in different parts of the world, but the vast majority of the boys and girls that went from those farms would give all they have today if they owned one quarter of the old homestead and knew how to handle it and make a home of it. It seems to me that we do not realize that we are coming fast to that place where it is going to mean much to own land and know how to handle it. We are beginning to look upon the farm as something that requires the brightest minds to win and hold.

In my travels about the country, I have found places where on one side of the road we saw fine, rich acres and fine stock, and on the other side just the reverse of that exactly, everything sliding along, going to pieces, taken possession of under the mortgage on the land, etc. We are sorry for the man who is unfortunate, who has sickness or anything of that kind to contend with, but what is the reason of this difference in the same neighborhood. It is not an accident; it is because one man is a farmer and the other man is not a farmer. He doesn't know how to handle the soil and get the most out of it.

I have said, and I mean it, that if I had a boy and he was pretty dull, of no particular promise of being a bright man at all, I would try to make a lawyer of him or something of that kind, but I would not, for the world, try to keep him on the land and make a bright strong farmer of him. In that way we would build up a profession of farming. I lived here thirty odd years on a farm in this state, and when we came here the land was new and rich, there wasn't much competition, we had pretty fair markets, and after we got started under such conditions, when the land is new and rich and everything going your way, you can hardly tell a good farmer, but when the bad years came along, competition came in and the fertility of the

soil began to leave it, then we look around and can pick out the man who knows how to farm every time, he stands as a monument in his neighborhood. We want first class farmers everywhere, and it pays well to get them. I tell you, farming is a profession, it is a trade, and one that needs the carefulest attention from intelligent men. A man that owns a few acres on this earth and that knows how to handle that land, is the most independent, self-helping creature in the country. Sometimes I think I am biased on this subject, but I have thought this out so many times until it seems that of all things to do, a special ambition for a young man is to own a piece of land and then know how to make that land respond to his care and attention.

There is one thing I want you to remember,—what a great big difference there is between a city home—home is a sacred place wherever it is, but I am speaking on the farmer's side of this question this morning, and I have watched this thing. A city home, no matter how rich it is, no matter how much money it has cost, when that owner is laid away and when that family needs that home more than any other time in all their lives, I have so often seen them compelled to go out from under its shelter at that pitiful time, because that home is so helpless to feed them, it could not give them a single meal, it was not a self-supporting home, it couldn't pay its own taxes. What kind of a home is that for a man that wants to have a place that will support him, pay its own taxes, and if he is carried away still feed and support the family that is left upon it. A young man ought to think whether he is making a home that he must support with money from outside, or is making a home that will support him and his family, if he leaves them; a home which is a permanent source of income, something reliable for any individual to live on,—or for the state to live on. I used to ride on the rivers of this state and everywhere I could hear the swing of the ax. Now, I go over this state and I find the hill silent, you do not hear the ax in the woods any longer; that is gone. We have great mines in South Dakota where I live, but they are working on them day after day, exhausting those mines and nothing will be returned from the land at last, but when a man leans on agriculture, he leans on something more permanent, our crops are everlasting crops, our income is perpetual, if we treat the land right, and that is something that individual and the

state can safely lean upon. Where some of your forests of lumber used to be, they are bringing back that land into fields, and are using it to bring it into agriculture, and that is what they have to do. The cities go down into crumbling elements, but agriculture is the safest thing, the most permanent thing for the individual or for the country. Then again, it helps everything.

I talked with Secretary Wilson awhile ago, and he said to me, "Do you know, I go over this state of Iowa, but what do I find? He says, "Our trades and professions are badly crowded; we have splendid physicians, we have too many in some towns, we have too many lawyers; our merchants are competing with each other until the merchant's profits are just as small as they can stand and live, but there is room for thousands of farmers, good farmers, better farmers than we have everywhere. Our farms are too large. We are not farming as intensely as we should." When you put a farmer into a neighborhood, you help that whole neighborhood, you help the value of its land. Just as far as you can see the better tilling, the richer acres, all around there that land will rise in value because that better farmer is there. Every time we make a better farmer, we benefit the whole community.

Of course I know that it is often the case when we talk about farming that the first thing the farmer boy thinks of is the drudgery connected with it. The Lord knows there is drudgery connected with farming. I have worked on farms in this state where it seemed to me that when the poor tired mother was laid away, it would seem to be the appropriate thing to write on her tombstone, "Stopped doing chores"—such a day.

But then again, I have worked on farms where I had time to read, time to think, I had evenings and Sundays and occasionally we had picnic parties, and I was invited to go with the boys and girls of the farmers. Today if I find a boy or a girl on the land where I used to find them, I find them generally owning it, and I find a good many changes in that matter of drudgery. We used to think that a man that did not get up at three or four o'clock in the morning was not a good farmer, but I have changed my mind on that, and when I find a man that has to get his wife and children and help up at that time of day, I conclude there is something wrong; he either does not understand

his business at all, or else he is working harder than he ought to work, and so are the wife and children, and it is very unwise because he is just simply driving them off the land, and they ought to go, I would go if I was there, it is not a natural way to live. If there is a man on earth that can let his children sleep in the morning and his wife live properly, it is the man that owns land, and he ought to run things so that they can sleep till a reasonable time.

It is said that the farmers of the United States who specialize along some lines of farming simplify the chores and the work. On my farm, and I am proud to call it my farm, I have eliminated the chores until there are just as few as I can have and still have the place properly looked after. I don't want to make a lot of work, make slaves of everybody around. I am only going to live once, and I can't afford to make a slave of myself and discourage the boys on the farm, because I happen to own a piece of land, from working too hard. That is part of advanced agriculture, to know how to simplify and plan so that there shall be time to live, even on the farm.

I remember one woman, her husband owned a very fine farm, they had almost every thing there, and there were some old friends called one day and as they were going away, one of them said to this woman, "You ought to be happy, you have a beautiful farm, beautiful buldings, fine cattle and good horses, you have everything, it seems to me." She answered, "We have everything but one thing, we have everything but time to enjoy it." That they lacked. I think that we as farmers in striving for better crops, better stock and better yields, and all that kind of thing, should be very careful that we do no forget to save time to live and give the wife and children a chance to enjoy life on the farm. It seems to me the time is coming, is right here, as we get thicker populated, when we shall get labor cheaper; competition will make it so. When the population is thick, labor is always cheaper, land will be higher, lands will keep going up and we shall get more for our profit. Everything tends right for the man that owns the land and knows how to handle it. Then, as time goes on, it will bring more. We already have rural delivery, we have telephones, electric cars and I believe we shall live, some of us, to see the electric

cars going all over this country, and all this will help the man that owns the land and knows how to handle it.

Again, there is something about this ownership of land that puts something into a man that he can't get any other way. It seems to me that the farm boy has an opportunity to learn a great many things that he cannot learn away from the farm. I know it puts a certain amount of independence into a man that he never can feel until he owns land. Some one has said "I like the kind of education that enables a man to go out and hunt a home and not hunt a job." We are loaded, we are educated, for some kind of a trade, or some kind of a profession, and we go out and have to hunt a job. How much better to go out to build a home than to hunt a job. I like the education that trains a man for the home, trains the girl for the home, trains the man for the landed home and teaches him how to make the most of it when he gets it. I believe when a man first owns land, something goes into the men, a thrill, something, that he never feels until he stands on land that belongs to him. I remember when up in Waupaca county I traded an old watch for a piece of pine slashing. The watch wasn't worth very much, neither was the land, I remember my father said I paid too much for the land, but I am glad today that I made the trade. When I went out there and stepped across the line onto my land, a thrill went through me, as I stood upon that little strip of land and realized that I owned it, I owned it to the center of the earth and to the stars above me, and I never felt such pride as when I stepped on that land and felt that it was mine, a piece of property that I could back up on and stand there against the world. I have always had that feeling, and I have never been from that time to this without a piece of land I could call my own.

Another thing, there is something in growing up on our land, something both for the farmer and his children. We think it is lonesome sometimes, but that doesn't hurt us. Some one says you can not grow a tree on the pavement and it is just as true that you cannot grow a grand man on the pavement. Why, a boy growing up in the city is where the boys are so thick that he can hardly tell where one begins and the other boy leaves off. How are they going to have a strong individuality, such as they can have where they have more room to

grow. If you go out to pick out a splendid evergreen tree, you don't go into the shrubbery where they are crowded together, you go out where the tree has room to spread its roots and branches, and there you will find a grand tree.

I think we are in danger, in our education of our boys, we put the boy in with a lot of others and we try every way to eliminate his individuality. We turn him out as nearly as we can, just like every other boy. Over in the great universties of Europe, that is true of the schools. I was reading a book awhile ago, in which the question was answered why the Anglo Saxon races rule in the world, the book was written by a French writer, and he says in France they discourage individuality. Have you ever thought what a nation of individuals we are? I believe half the men in the United States are competent to head an army or fill the president's chair. I wouldn't go half a mile to see a president. I can look into the faces of men on the street who are just as grand, just as capable men, standing head and shoulders with any president or any general that ever lived, because they have grown up under this great western country sky, and they have had room to develop.

King William says that he will encourage no more of these universities until they do something to develop more individuality in the schools. This writer I speak of attributed the fact that this race is spreading over the earth because we have spread over so many new countries and developed so much individuality. We make men when we make a country, every time, because all these men have room to grow, have room to be themselves. Some of you boys know that when we buy fence posts they are all just alike, they are like all the boys who have been in the university ten years, they look just alike, they develop toward the top as a great many men do from such places, they are square and even, just as fine looking as they can be, yet I have seen some of those fence posts I could snap over my knee. When you educate a boy across the grain, let him be himself, no matter what else he is, let him be himself and then you will have a post like these split posts we have seen, you couldn't break them over your knee. And so you see men and so you see boys, and when they grow up on their land, then more and more do they grow to be themselves and develop their individuality, and become something more than they could ever be in closer surroundings.

You know always in life, if you follow it up, you will find that the great thinkers, the great workers, the great individuals are the men who have been sometime or other alone. If there is anything in him, under those circumstances it will grow, and come out and you cannot get it out in any other way.

The story is told that there was a flower that grew away in a distant valley in the mountains which if a man would pluck for himself he would become immortal, he would not die. There was a prince who was a very old man, he wanted to get this flower and he couldn't go where it was and he took one of his men, a trusted servant, and sent him into that far country to get that flower and bring it to him. They went into this far country and when they got there this man left his party up on the side of a mountain and went down in the valley. He was gone a long time and did not return, and finally they went to the edge and looked over, and along where he ought to be, and they couldn't see him. Then they remembered that shortly after he went into that valley, they saw a white bird move out of the darkness and disappear into the mountains and then they realized the truth that that man to get that flower must go down into that valley alone and pluck with his own hands the immortal flower.

That is the way with men, no matter how much you are helped by teachers, by the reading of books, if a boy or a man can not pluck the flower himself and grow up strong, he can not be the man that he would be if he has an opportunity to do this, and it does seem to me that this farm life is a life that gives us more great men, more individuals than any other kind of life we can have. The little things about us, communication with the stars and the trees and the soil leaves an impression in the mind of the man that he can not efface.

I remember when I was a boy up here working out by the month on these farms in Wisconsin that I thought all the bright boys and men came from the city, I really thought it, and I am ashamed today to own it, but I did think that as a boy on the farm. I remember one year I got a job working out for $15 a month. Do you know I have said that if I had just $1,000 to put into a child's education, I would cut it in the middle, I would put $500 of it into his schooling and I would spend the other $500 in travel. I would take them to the seashore, take

them to the great mines, take them to Washington, and in that great city I would show them many things to interest and quicken them; take them to the great centers. You don't know how a little travel broadens a boy or a girl beyond what they simply learn in their schools. All education does not come out of books or schools, it comes in a practical way. Well, when I was on this farm another boy and myself saved our money and we took a trip down to Washington. I remember the morning we came into that great city. We both thought all great men came from that city. I remember we visited Mount Vernon up on the river; we went over to Arlington where so many of our brave men rest, then we went across that long bridge into Washington, the sun was just touching the dome of the capitol and right at the tip of the 650-foot marble monument that commemorates Washington. In every park I found in marble or bronze some great jurist, general or statesman, and I took down the names of these great men. We felt we were on sacred ground. We thought of the past and remembered where these men came from. I remember one place we found the figure of a slave with the shackles falling from his wrists, looking up into the face of the Great Emancipator. I stood there a long time, because I knew that represented one boy that knew what hardship was. Then we went into the capitol, into that circular room where are in marble many of our great men. We took down their names, and do you know when we went back home onto our farm up here in Wisconsin, we had a few books and we looked up all the names on our list, where they came from and their histories, and do you know I was so surprised after going through the whole thing I found that more than ninety per cent of all those great men had spent their boyhood on the land. Many of them had grown up to manhood before leaving the farm; the father died, and they had to help take care of the farm and they had developed that personality that comes from being alone, and when the nation needed them, and called them, it was not mistaken in the men it called. They were grand men, both at home and in the wide country. If there is a boy or a man that I could believe in beyond others, it is the boy or the man that is working hard on a piece of land, because I know he owns something, I know that boy will develop into a man, an individuality that I can respect, and it seems to me

that it is the highest ambition for any boy to own a piece of land and then whatever comes he knows he has that land behind him. If I couldn't have but five acres, I would have it. I would own a little piece of land and I would know how to handle it if occasion called for it. Thank you.

LIVE STOCK ADVERTISING POSSIBILITIES.

By FRANK B. WHITE, Chicago.

Mr. President and Friends: Let me preface my remarks by saying that the first speaker this morning gave us a most excellent address; she gave us a picture of an ideal country home. It has been a very great pleasure to me to be here and to listen to these splendid addresses.

Taking up my own topic, I will say the American atmosphere is a business atmosphere. American farm life is becoming more and more a business proposition; how to increase the business of the farm is one of the most serious and vital questions confronting the farmer today, and while I am here to talk about advertising, I must interject some of these remarks on the side as I go along, because it is very important that we should know exactly upon what ground we base our argument.

I want to say that I am not here to deliver an address. You have listened to two very excellent and eloquent addresses. I am in the habit of talking to people when I have a chance—usually it is one man, the other side of the table or the desk in his office, and I am doing the talking. I endeavor, however, at such times, to put forthe best that is in me, because it may be a fatal moment for me.

In my talk to you this morning, I want you to know that it is simply my experience, having to do with the phase of American agriculture that I believe it is well for a young man to understand as to the details, and I am very glad to see that the majority of my audience are young men.

I know of no better illustration to give you than that of the

experience of some who have made a place for themselves in a class by themselves along advertising lines. The possibilities of advertising as related to agriculture are very great, and particularly as relating to live stock breeding,—I might put it live stock advertising possibilities, perhaps that would more clearly designate my meaning.

There are some things in connection with this advertising proposition that I would not inflict upon you at this time, I would not attempt to analyze the term or to apply the commonly accepted analysis of the term here. One of the best advertising propositions lies back of man's works. It is not so much what we show to the world, but it is what we produce that helps and benefits the world, that appears to be the lasting and helpful advertisement.

Newspaper advertising is one phase of the subject and but one phase. Advertising such as circulars, literature and all that sort of thing is another phase. The live stock man finds a great many possibilities that lie beyond any of these considerations that I have referred to.

I think now of one of your honorable citizens, Mr. Taylor, whom I knew as a boy. His home is at Orfordville and he has made himself famous in the production of one animal—"Brown Bessie." Mr. Taylor had the opportunity of his life and he took advantage of it, and ever since that time he has had no trouble in selling Jersey cattle, all that he could produce, at very handsome figures. This was not done by newspaper advertising, it was accomplished through works, and it has been the best advertisement that he could possibly put before the world.

I am glad to see that your institution here is running an advertising agency in connection with it. Prof. Henry very kindly took me through the establishment this morning, and showed me the thorough manner by which they are disseminating the results of their experiments by the aid of bulletins and other literature. Surely that is a good work and the foundation of it is this, it is based upon actual experience, the work of this great institution is being advertised in that way, and that is a good sign, augurs well for the success of your college here.

As a business proposition for the farmer, this advertising question may be considered.

Day before yesterday I was at Urbana, Ill., and after a few

remarks they asked me several questions. One question I thought was very timely, and that was put by a breeder, I think either of Polled Angus or Hereford cattle. He says, "Can a man afford to raise animals and do advertising of them where they are worth $1,000 apiece, on land, say, worth $150 an acre?" and my answer to that was, "That you can not afford to do anything else, in my judgment." I believe that the time is coming when the man that produces something on the farm is going to find an outlet for it by means of publicity, not alone by newspaper advertising but other means.

As I was driving through northern Ohio a year or two ago, I found all along the roadside, bulletin boards announcing things for sale, clover seed, early Ohio potatoes and different articles in the farm product line that were being offered to passers-by, and one thing that particularly attracted my attention was "Plymouth Rock Eggs $1.00 per Sitting." That made an impression upon my mind, and if it made an impression upon my mind, it would make an impression upon others. We little realize how many people pass on our public highways, and what advantage there is in announcing our products, either on bulletin boards or in placing in the pasture signs where people can see and have their attention called to the fine product that we are producing in live stock lines. Those are all little suggestions. Now, let me give you a few examples.

I had occasion to speak to a gentleman this morning about the Hon. J. H. Hale, of South Glastonbury, Conn. We call him the "Peach King." When he began the production of peaches in Connecticut, he at once sought to specialize his work and to send forth "Hale's" peaches as the best product in the market, and he has made a great reputation simply by the peach itself. He had each peach carefully wrapped and on each wrapper it was advertised that it was a "Hale" peach, and in putting up packages, he was careful that every peach should be the same, from the top to the bottom of the package. In doing that, he said he found great difficulty, because he even had to discharge men who insisted upon putting nicer peaches at the top. He said, "I had to discharge my men and employ girls, because the girls are more honest than the men." After that he had no trouble whatever. But when he put these peaches in the great markets of the east, he found that the commission

merchants rather discouraged the idea, they didn't care to bother with them. He demanded a better price, and he just asked the privilege of putting them in that people might know what Hale's peaches really were, and it was but a short time before he had them coming for his peaches; letters were being sent to him from different parts of the country, saying, "Send on your peaches, our customers want them," and from that little beginning he now has 2,300 acres of peaches in a bearing condition, and last year he shipped 210 large refrigerator cars from his Georgia orchard to the markets of the north and had a ready market for all he could produce. He made that market by judicious advertising of the article itself.

Bear in mind, it is the man on the farm that will make the success just as surely as it is the man behind the gun that will win the victory.

Another little experience occurred just over the line out in the western part of Illinois. A man had grown a lot of gooseberries. That particular year there seemed to be a great quantity of gooseberries. He went home and told his wife that gooseberries were bringing five cents a quart in the market and they had something like fifty or sixty bushels. She said, "I will not pick those gooseberries, I will let them rot on the bushes before I will pick them or have my daughters pick them." So he saw he couldn't do a thing. Finally he went into town and he thought he would drop a couple of lines in the office of the local paper and see what it would do, just a chance proposition, and he said something like this, "Gooseberries,"—naming a certain variety, "picked fresh from the bushes at 12 cents a quart, delivered to your home daily." He went away for a business trip, and when he came back his wife said, "I am glad you came, I have done nothing but answer that telephone ever since you went." "Have you sold any gooseberries?" "Yes, I have sold forty bushels." And she had sold them for twelve cents a quart, and the same parties took his entire crop of blackberries and in that way he worked up a trade in other lines. That ad. cost him 75 cents. A pretty good investment, wasn't it?

The same rule applies to the live stock proposition just as thoroughly and just as definitely. It is frequently the case that our live stock breeders will send way down in the east for some animal for breeding purposes when they might have got the ani-

mal just as well within a few miles of their home if they had known about it; but all our breeders seem to think that the way to make a success of this matter is to produce the best specimen that they can and say nothing about it, they fear somebody else will go and do the same thing, and in that way they usually have their animals and the business element is lost sight of. They accomplish what they set out to do, to produce a good thing, but they do not have the business instinct to sell it at the proper value.

Let me say further that the produce of the farm in every line, whether live stock or any other, may be handled through an advertising proposition in a successful manner. You have in your state here a man that is well known to you, he is an ex-governor of your state, and I guess two-thirds of the people in Chicago know about Hoard's creameries, and I guess if the truth was known that Mr. Hoard cannot supply the demand for his butter in the city of Chicago alone.

There is a man down there that manufactures a by-product—I guess he must have taken the clue from Governor Hoard, he manufactures sausage and he advertises that to the Chicago people, and a goodly number of them send up into Wicsonsin and buy that sausage.

I think the best example in the way of farm products being successfully advertised was that of the Gates' farm down near Syracuse, New York. It was an old farm that had been occupied by farmers for a hundred and fifty years or more, the present generation still living on the farm, a son of Mr. Gates living on the old homestead. About seven years ago two young men went from that farm to Cornell university; they learned some things, and they got their heads together, and as they were going home on a vacation, they cornered the old gentleman—as they put it when telling me about it,—and they told him that if he would allow them to come back from college after they had finished their course and to farm that farm as it should be farmed, they would give up all idea of going away to business or a professional life. They returned to the farm, agreeably to the old gentleman, each married a farmer's daughter near by, one built a home right near the old homestead and the other just across the way, and after they had gotten in their homes comfortably, they built a telephone line connecting with other's

houses, and also with the homes of their wives' people, two or three miles distant, and they had modern conveniences in the home, a bath room and everything that is modern, a system of heating and all those things. They cleaned out all of the scrub stock, put in thoroughbred cattle, and poultry and sheep and swine and got a good foundation for a business proposition, and they accomplished this result inside a period of about two years. They had the business proposition there in good working order, but they didn't have the business, and the thing to do was to find an outlet for the product; and to make it a success, a man must get a higher price than market values. So they went down to Syracuse and they arranged with one of the leading grocers there for an egg proposition and every Saturday they took their eggs to this merchant. Each one of the eggs was stamped with the Gates' stamp and the date that it was laid and they received ten cents a dozen extra for their eggs, with a guarantee that for every egg that was complained of, they would replace it with two. They put their guarantee back of it and the butter they put up in nice little cartons, each marked "Gates' Farm" and named it some particular kind of butter. They arranged with another merchant to handle all their butter at a premium of five cents a pound. Finally, they invented a new cheese and one of the young men said "This cheese will be a success if we can find a market for it." And he went down to New York, and went to one of the fine clubs and arranged with that club to take their entire product up to a certain amount. And so all the way through they showed a business instinct in the entire handling of their farm operations. They got out a letterhead "Gates' Farm," So-and-So, Manager; another Gates, Secretary and Treasury, and so on, and it looked like business. So all th way through they managed. When they wanted a pair of rubber boots, they would get a lot of them together and send down to a wholesale establishment and buy a case of rubber boots.

I remember one instance, they wanted a manure spreader. They went to Kent and Burke, and said they were farmers and they got their manure spreader at wholesale price. The last I heard of those young men they were buying railroad stocks. They had improved their farms, increased their products and were making money and making it rapidly. Now, they did a little advertising. Whenever they found a choice specimen that

was too good for ordinary service and good enough for fine breeding, they offered them at a price that was just and in a little while they had a business coming to them through that publicity of method.

Now, all that may be duplicated in a great many other places in our country, and it is that sort of thing that we who are interested in this publicity question and have a pride in building up the foundation of our American agriculture, that makes us feel that there are great possibilities along live stock advertising lines.

I know of several other instances where men have gone out to advertise and by a little judicious application of that principle, have made themselves wealthy in the handling of their farms.

This is a serious matter, this advertising question. It is no joke. To know how to do it and just when it should be done and what method to employ is not an easy proposition. There is no stereotyped form that I could give you, no rule that could be laid down to work by with equal success. It requires an individuality, and a strength of mind as positively as any business or profession that I know of. It is after all, the force and the life and the courage of the man back of his proposition that makes it a successful issue.

One of the things I presume that would interest you as much as anything is to know just how you can do it. I can't tell you. I don't know how you are situated. No man can advise you on that subject until he knows the circumstances surrounding the case. If you have some good live stock too good for beef, good enough for breeding, if it is good enough to pass on, a real good thing in a breding capacity, let the world know about it. I can't tell you how you ought to do it. It may be done through the shows—I understand you are to have a discussion on that this afternoon, so I will not dwell upon the exhibition of live stock; it may be done through your neighbors and acquaintances, you don't know but what they may want just what you have to offer, but if you say nothing about it, how are you going to expect a customer? If you have more than a little and wish to reach out to greater distances, the use of the legitimate agricultural press or live stock mediums will help you do that. You can talk to a great many people through the papers of our country, and that is one method.

But the success made in advertising is usually dependent upon the man that comes in touch with the inquirer or up against the possible customer. I mean by that, that when an inquiry is received, everything depends upon the handling of that inquiry, as to whether business comes from it. Now, publicity is one thing. Not all kinds of advertising is good. If you were to advertise a bull fight out on the campus here, it would no doubt attract a great crowd of people, be a great publicity enterprise, but I don't believe it would do your institution a very great deal of good. So, not all kinds of publicity is good advertising, but when you have got in touch with a possible customer, everything depends upon the way in which you treat that customer. To treat a customer as you would a guest in your home and to handle a correspondence in a frank, honest, manly way is, after all, the real test of this advertising possibility. Letter writing is a great science; business letter writing is a wonderful thing. To be able to write a letter to a man that when he gets it, will be absorbed and interested and attracted to your proposition, so that you can hold his attention and convince him of the merit of your proposition, is a wonderful thing. While you have his ear in reading that letter, there may be somebody waiting outside to see him, but he has got your letter before him without any interruptions at all, and you may be able to drive home an argument and satisfy him of the genuineness of your proposition in a way that you could do in no other way, unless it is by word of mouth, and let me say not all advertising by word of mouth is the best way. Many times in talking to a man you will say something that will weaken your argument, but a letter that you have thought out carefully and planned, is after all a wonderful piece of argument, and I want to commend this method particularly to you live stock dealers, this method of correspondence. A great many of our breeders depend simply upon personal talk and that is very good, where you have a limited supply of stock; but when you look at the proposition with the idea of growing, extending your business and you want to consider the elements of permanent growth and substantial development, that takes you right back to the man behind the gun.

Another thing, great care should be taken after you have the possibility of an advertising enterprise, that you do not over advertise. It should be a growth, a development just the

same as anything else. If you have a little stock for sale, consider how much you could afford to pay to dispose of that stock, and advertise in the best and most effectual way with the idea of accomplishing that result. If you have good possibilities for the future, it might pay you to put in a little more expenditure in one form or another in order that the publicity advantage might accrue for the later benefit, looking to the future, so that the business will come easier later on.

An advertising asset is a thing that is not reckoned with by our commercial agencies. An advertising asset you can not burn; it is a subject that many of our great institutions, if they were to be absolutely wiped out so far as all material property is concerned, would still be worth millions of dollars, simply because of their reputation, the good will, the advertising benefit possible. That same idea may be carried out with live stock breeders.

Just one thought more, and I will quit. Do not forget that it is possible for any one to make for themselves a place on the farm and build a business there. It is not a thing that is intended for the few, but you cannot all do it the same way. I would be careful in handling my business matters on the farm just as we business men must be in handling our effects. Above all things, I would keep an account of every transaction that enters into this publicity question, so that you may govern yourself in future years in accordance with past results. There is nothing like past experience as a guide for future action, particularly as affects this publicity question, and that is good doctrine along other lines. Every farmer ought to be a bookkeeper, a good business man. So I say be careful about your expenditure, in keeping the record of it, and when you do that, do not consider that you can always trace the full value, but you can determine values very largely and the determination of those values direct you in future expenditure. I thank you.

Prof. Henry: I want the boys here to know that Mr. White is one of the great successes in his line all over America and I wish we might have time for discussion of this important subject.

Adjourned till 1:30 p. m.

The convention met at 1:30 p. m., Thursday, February 2, 1905.

President McKerrow in the chair.

THE HORSE'S FOOT.

By DR. A. S. ALEXANDER, Madison.

Mr. President and Gentlemen: I hold in my hand a model of a horse's foot, made in sections so that it can be taken apart and studied, and this is a portion of a model of a whole horse that cost about $1,000. You can take any part of this horse's body and dissect it, just as we can this foot here. We can use this kind of a specimen to illustrate our work at the college here, and it is much more easily understood, and each man in his particular department has things of this sort to work with. There is nothing too good for the teachers or the students of the Wisconsin University, so far as I have found.

Now, I want to interest you in the foot of a horse. Did it ever strike you that a horse has got to go to bed with his boots on? There is his shoe, a fixture on the end of the leg. You get a new shoe that pinches, and if you think it is going to bother you, or cause a corn to grow, you simply unlace it, take it off and throw it in a corner, but if there is anything hurting about the horse's foot, he has to grin and bear it—if a horse can grin. He can *suffer*, we know that, and we know that he does. We also know that the foot that the Lord put on a horse always fits him and doesn't hurt at all, because it is naturally developed, gives plenty of room for the free-action and comfort of the structures that are inside this horny box. But the foot that man mutilates grows to be something that is too tight, that causes pain and the horse can not get rid of it.

I want you to bear in mind that this foot is something else besides a mere piece of horn that can be whittled and cut and burned and nailed and hammered at the will of man without injury. Yet this seems to be the ordinary idea, that this is just like a piece of white pine that the politician whittles, sitting on a soap box when he is discussing things at the country store. As we look at that hoof, I want you to see what is in-

side of the wall. There is the hoof wall. Now, what is inside of it? You notice that that is red. The red color is due to the blood and that means that there are thousands of little blood vessels here accompanied also by nerves, and yet there is all the distance that there is, a quarter of an inch from the outside of that horny hoof until you come to this sensitive foot below; just a quarter of an inch through the wall just a quarter to a half of an inch through the sole. The inner portion of this horny wall is formed of a large number of little horny leaves, called horny laminae. There is no feeling in those leaves, they are part and parcel of the outer horn, but between each of these layers of horny leaves are fleshy leaves that are full of blood and nerves and there is just a quarter of an inch from the outside of these fleshy leaves between these horny leaves. The fleshy leaves give rise to these horny leaves, they produce them, throw them out, give birth to them, and in a normal condition, those leaves do not press down upon these fleshy leaves and hurt them, they fit into them comfortably without any difficulty.

From those leaves then grow this inside portion of the hoof. From the bottom of the inner sole, which you see is full of blood-vessels, little fingerlike fleshy bodies project into the horn sole. The velvety tissue and the fleshy bodies referred to produce and throw out horn, which goes to form the sole. The outer portion of this foot throws down from that little band, just below the hair—the band which becomes white when you put water around the hoof—a substance the purpose of which is to act as a varnish to protect the hoof. The next portion of the hoof or the middle portion of the wall is circled by another band, which is deeper and lies in this groove inside the foot. The coronary-band passes down into the hoof tissues little fleshy fingers, which carry hoof, and their receiving tubes are held together in bundles by a gluelike material. Thus we have four ways in which this hoof is produced, from the periopley comes the varnish matter, from the coronary band these masses of little tubes, from the fleshy leaves, the horny leaves and from this fleshy velvety tissue the sole of the foot.

That is Nature's way of growing the foot. Suppose the horn is left alone, it grows, as regards a colt on the pasture, the foot

is kept moist, it is not touched by the rasp or the knife or the nail, it grows naturally, it is kept moist and soft.

Did you ever notice what a tremendous change takes place in the condition of the horse's foot after her has been kept in the barn, say, for three or four years? Just compare that with the foot of the colt, and what do you notice? First of all, that the heels have become contracted and the sole has either become very concave or very complex; that this frog has wilted or wasted, atrophied and shrunk in this portion up in to the center of the hoof—it has become wrinkled, looks dry, different in shape here and there, not uniform and symmetrical. Now, suppose those things have happened; what do you think is the condition of these sensitive parts of this foot below? Contract that wall and those fleshy leaves are pinched down upon by these horny leaves, necessarily, because they become less in size. At the same time, that shrinking means that each of these little tubes shuts down upon the little fleshy finger that enters into each tube. Each of those little horn tubes contracts upon these fingerlike fleshy little tubes and the horse gets sore and becomes stiff. He is in exactly the same condition that you are when you put on tight shoes, that is, the sensitive tissues of the foot are being squeezed and pinched and pressed upon.

That is not all, that is merely a matter of causing pain, but if you press upon the blood vessel, you reduce the size and the calibre of the blood vessels. Squeeze upon these blood vessels and you remove part ofthe nourishment of the foot and the foot ceases to grow, necessarily.

Now, we will see what the ordinary blacksmith thinks about this. His grandfather told his father how a horse should be shod, and what a horse's foot was made of, and how it should be treated. He learned those lessons from a mighty good source, he took them as Bible truth, just as much as he took his Bible lessons at his mother's knee, but he is right on one side and dead wrong on the other. I want each of you men that has a horse to remember that he not only owns the horse, but his foot, and when you take him into a shoeing shop, you have a right and privilege to say something regarding what the blacksmith shall do with those four pieces of property of yours. He will get angry, he is a difficult man to approach, because he knows more about it than anybody else,—he thinks so,—but still if you are

very polite and gentle and persuasive and pay him enough, he will probably do what he is told.

Now, what does he ordinarily do? I want just to talk on the most practical parts of this subject. From long experience, he has decided that that sole should be whittled away until it is so thin that you can press it in with the thumbs. It doesn't look clean and tidy and nice otherwise. It doesn't seem as if he is earning his money unless he has done that much cutting. But now what happens when he cuts it? He simply takes away two thirds of this sole and the more he cuts the closer he comes to this sensitive tissue. Suppose you had to go out and walk on the gravel, or the rough land in your stocking soles, wouldn't it hurt? A horse with a sole that is soft and thin feels everything he steps upon.

Having removed this dry sole on the outside, you reach this new growing sole that is only half formed. The new sole grows from this sensitive part, and it is only half made, and Nature, to protect it, keeps on the same old sole. But the blacksmith cuts that all away and exposes the newly made sole that is soft. That is adding insult to injury. Then he takes a hot iron and slaps it onto this denuded sole and the heat dries up the new horn that is forming, at once causes evaporation and as it dries, it pinches down upon every one of those little fleshy papillae that give birth to this new sole.

Further, he has been taught that the frog in a horse's foot is too large and it doesn't look well when it is left the size that the Creator made it. So he takes his knife and cuts a great big slice out of each side of this frog, takes off all the old tissue so that the nice new frog may show. That is another evidence that he is earning his money, but the Creator has provided that if any part of the frog is excessive, not required by the horse, she will get rid of it herself, and twice a year, left alone, a horse will shed off the outer part of this frog, only shedding it when the underlying part of the frog is ready to be used. Cut away this frog with a knife and you expose half made frog tissue that is not ready to come into contact with the ground, but, half made, it proceeds at once to contract and dry up. The tendency then is to shrink. But that is not all. The Creator turned the corners of these walls around here and brought them in toward the point of the frog. Those are called the "bars,"

and the office of those bars is to act just like the side timbers of the king post in a roof, to keep the roof sides apart. What would happen if you should go up with a saw and cut those away? The next snow that comes the roof caves in. But the blacksmith says that doesn't look well, and he cuts that out of there and he does that to open this foot, to spring the heels and give it width. What absurdity to cut those parts away! The parts commence to contract necessarily.

Is that all? No. To further help the mechanical improvement of this foot he next takes his knife and cuts a great big V-shaped piece out at each side of this frog. You have all seen it. He has taken away those two bars; there was but one brace left, and he cuts that away as a last resort. He will tell you that he does it to open the heels. It just causes and makes absolutely certain the shrinking of these heels together, and he is not finished yet.

Now, this poor fellow is not doing this intentionally, he doesn't mean to be mean to this horse, don't think that I have no sympathy with him or that I am roasting him to hard; it is a mere matter of ignorance.

He has not finished yet with his work, he wants to earn his money, so, after the shoe is nailed on and it doesn't fit very well, is a little too small for the foot, he takes a rasp and rasps the foot all around and makes the shoe fit just as nice as can be, and the Lord put on this cuticle here for the special purpose of protecting the underlying tissue in this horn, but the blacksmith cuts it all off. That varnish keeps the foot from drying out; remove it, and evaporation takes place, every one of these little tubes begins to dry out, and so you have the same process going on in every part of this foot, causing contraction—and what does that contract upon? It contracts upon this red part that is full of blood vessels and nerves; the blacksmith calls it the "quick." Take and rip down your fingernail only a little bit and it hurts like the dickens when you get to the quick. Well, it is the same way with the horse. You have lessened the size of this hoof he is wearing on his foot and you are going to hurt his foot. Your way is to take it off, the horse can't do that. The shoer's way is to take a piece out of the shoe the same as you cut your shoe to keep it off a bunion.

Now, then, you have several parts of this foot contracting. Not only is the quick interfered with, but all these parts of the foot require room to work in. Under this horny frog is this fatty frog, which is sensitive. Under that is other tissue; this red part is simply a stocking, pulled up over the more sensitive tissues. Inside of this stocking we have got the coffin-bone, the coronary-bone and the navicular-bone. There are some synovial bursac—oil vesicles—up here and some down here. Those joints have to have room to work, haven't they? The Creator gave them lots of room. The horse that has been shod for several years, as many of them are, will go as if he has got "katzen-jammer" in the morning, simply because his foot is contracted and he cannot move freely.

The next point to remember in connection with these feet is that there are other sensitive tissues inside the foot, right under this wall. We call them the lateral cartilages, each is a piece of rubber-like, elastic tissue, called a cartilage. It is at each side of the heel in there, sticking up a little above the foot. The purpose of that in nature is to help expand and contract the walls. When the horse steps upon his frog, it causes a partial expansion of the heel, and this cartilage brings it back after it is expanded. Can it expand in this contracted foot? No, there is no room for it; it is pressed and pinched down upon and the result is that Nature turns it to bone, it becomes sore, it hurts,—Nature says if we prevent all motion there, the pain will cease, and so it does. First, the pain gives rise to inflammation; then the inflammation causes swelling; then a bony deposit forms and this turns the cartilage to bone, prevents motion and that stops the pain.

The lesson from this simply is, that in shoeing a horse you will request the blacksmith, first, to leave the soles alone, or only lightly remove those portions that are coming away anyway; that he shall absolutely not touch the frog, or cut those parts; that he shall absolutely not cut those notches on each side of the foot and then, that he shall put on a shoe that fits and not take his rasp and fit the foot to the shoe.

Furthermore, let him leave this varnish alone, and not use the rasp anywhere, except just under the nails where they clinch, and then only sufficiently to make a notch into which the nail

can find a resting place. Then the foot of a horse that has been shod year after year will look like that of a colt.

Go home and look at your horse's feet and see if they look like those of your three year old colt, and unless they do, you may be sure the horses are not comfortable, they suffer pain, they say nothing about it, but they feel it just the same, because the foot is not growing naturally, and the horse's usefulness is partially destroyed.

Gentlemen, the average life of a draft horse on the streets of Chicago or Milwaukee under the best and most satisfactory and hygienic care and stabling, with the best shoeing we can get, is about seven years. With bad shoeing, we can shorten this term to about two years. The simple improvement in shoeing, proceeding from an intelligent, modern idea of the foot and the proper way of treating the foot, would increase the utility and life of the horse several years, and that would mean millions of dollars throughout the country in working animals. That foot can be grown as a farm product just as much as are your turnips or any other crop. Did you ever think of it in that light? No.

That foot is the product of a certain constituent of the ration. Keratin is a product of the protein ingredients of the food and it forms the albumenoid portion of the foot; in the horse's ration there must always be that ingredient that goes to form the keratin which is the matter from which the horn is formed. In oats and bran and the other cereals apart from corn, we get plenty of those things which go to form a good hoof.

Mr. McKerrow could tell you that in his sheep, if he had one that had been sick and lacking appetite for three or four weeks, that from the fleece of that sheep he could take the wool and run his finger down the pile and find a place that was weak, a poor place, which would correspond to the period during which that sheep was sick. Now, that is only to show you the influence of food upon the fleece, and food also has a similar influence upon the growth of the horn in this hoof. Knowing that the foot comes from certain ingredients in the food, can we in the breeding of horses expect, by an excessive use of corn, to produce ideal feet? No. But we try to, a good many of us. You can grow a great big foot that is short in the proper tissue that we must have in a good hoof.

The first thing that is looked to in the market in Chicago or elsewhere is the horse's feet. You watch those "sharpers" on the street, those fellows down at the Stock Yards; you trot out a horse, are their eyes looking at his nice ears or neck or body? No. They are looking right down on the ground at that horse's feet, and if they find they are little, contracted feet, or great big, soft, loose tissued feet that won't stand wear and tear, you will soon hear from it, and find out that the price of that horse depends on the class of foot he has got as much as upon the bone, and the rest of him above the hoof, and one of the worst faults of all our farm colts that go into the city of Chicago or that are being bought by the Ohio and Pennsylvania men, is poor feet. Not poor to look at, but poor in structure, poor in tissue.

Remember, that in our breeding of horses, it is just as important to breed good feet onto them as to get weight and blood into them. It is even more important, because a horse that has a tremendous body and good legs and a set of poor feet is not good for much. We must put good feet on him.

First of all, the ration must be right. Then, just as each of these boys has to be brought up by his mother so that he will have a stout, well-formed frame, so that foot has got to be trained from weaning time till the horse goes to market. You have got to take time at least once in every few months to remove the growth of the foot so that at all times a horse may stand level and true upon the ground, dependent upon the levelness of the hoof, and the shape of the bones that are superimposed above the foot. To illustrate, take a clock and put it on a place which is not level, does it run true? Take any of these great horizontal engines and if the bed be not level, the engine very shortly will go to pieces or go wrong somewhere; it must be level and have each part of the engine so it may work truly.

So, with this leg above this foot; cant it to one side or the other from the natural position of these bones above, and as that foot grows, from weaning time, so depends the structure of the leg above and upon the structure of those legs depends the action of the horse, and upon the action of the horse depends his price when he goes to market.

If in the foot of the colt one wall gets a little too high, it cants these bones above so that they get out of position, and as he

grows on, a little further, the leg twists more and more and after a while that abnormal condition of the leg becomes permanent and cannot be removed. That can absolutely be prevented by simply trimming this foot level.

See what Nature does as to trimming that foot! There is a plaster-cast of a horse's foot in Racine county, Wisconsin. The colt ran away, threw the man's wife out and hurt her. He got mad at the colt and put it into a shed, never cleaned it out, left him alone, and in three years there is the kind of set of feet that horse grew. That man was prosecuted by the Humane society of Wisconsin and was punished, as he deserved to be. Of course that is an exaggerated form, but it shows you what can happen if a man does nothing to assist Nature in keeping the foot in shape. Yet, we take it for granted many of us that our colts if bred right and with all our skill in feeding, are fed properly, will grow up with good feet and legs in good condition even without giving them the necessary care.

Gentlemen, it is absolutely necessary to train up this foot in the way it should go just as we fathers attempt to train up our children in the way they should go, and the Bible says they won't depart from it afterward—we hope that is so.

So I say, this foot is not simply a piece of wood: it is something far more important than most men think. Not only in the selection of sires and dams that have ideally perfect or at least good sound feet must we be careful, but we must make it our chief end in the production of the horse for labor that he shall have excellent feet, not only because he will bring a bigger price, but because that horse is going to suffer less in life, and that is quite a little item, to save an animal pain. They are our servants, they are dumb, they cannot say, "Oh my, that foot hurts!" We can at least do our part to keep it from hurting, and incidentally if we do so, it will pay us best. Then having grown that kind of a foot, let us try to educate our blacksmith friend, handle him gently, try to show him some of these things I have shown you and he will look upon this foot, not as a mere piece of pine that can be whittled, without thought, but as a box in which is contained a number of the most sensitive tissues that cannot be handled without injury to the animal. I thank you.

DISCUSSION.

Mr. Brigham: You said not to make much of a cut where the nails are clinched. How much can I insist upon the blacksmith's making?

Dr. Alexander: It is quite legitimate for him to rasp a groove sufficiently deep to give the clinch a proper seat that it may hold, but do not allow him to finish up the work by rasping the hoof all around and especially no rasping up to the hair. The hoof is much thicker up toward the hair than down below, so special rasping at this upper two-thirds of the foot is very injurious.

Mr. Brigham: A blacksmith makes a shoe fit as nearly as he can, then he always takes the rasp and just rasps off the very lower edge of the foot, so it will make the shoe a pretty good fit. That is all right, isn't it?

Dr. Alexander: It is far better to make the shoe a right good fit. I would rather pay him a quarter more for a set of shoes and have him fit them well, than have him cut the foot to make the shoe fit.

Mr. Brigham: He ought not to cut the foot a quarter of an inch or an eighth of an inch to get the outside edge of the foot down to the shoe?

Dr. Alexander: You can cut this outside wall, or bear an iron on there, but the Creator put this material here as a special varnish and to prevent evaporation does harm.

Mr. Cunningham: In this matter of feet, does it make a difference the kind of field that the horse or colt is on?

Dr. Alexander: Very materially so. You take the Fen counties of England where the land is an alluvial deposit, that is, a sediment from water and where the grass grows very long and watery, deficient in nutrition, you get a corresponding growth of foot, a large, loose tissued foot. On that kind of soil a turnip, instead of growing a solid, nice tissue, a juicy root, becomes a large splendid looking root, but very small in feeding qualities. It grows a coarse foot.

Prof. Henry: Is Wisconsin with its soil, its grasses and its grains, a good region for raising a fine quality of horses?

Dr. Alexander: I know of no better. We have a soil that is rich in the mineral matter that goes to form bone, phosphate, lime, carbonate of lime and other mineral salts, we have our great rivers; we have soil in Wisconsin that produces heavy oats, soil that produces legumes, rich in protein. This foot is the product, as I told you, of keratine, we can produce keratin for the production of feet as well in Wisconsin as any place I know. The early progenitors of the English shire horse are identically the same as those which give rise to the Clydesdale horse. It was merely the difference of the different district that developed one horse that was individually different from the others. In the Fen districts it was a moral impossibility to grow horses with flinty bone and close textured hoofs. The same class of horse they put up in the Clydesdale district where there is a clay soil, rich in minerals, where oats grow forty-five bushels to the acre. The class of food and soil change as a matter of environment, as an influence of district. For a like reason, a horse long raised on the Missouri flats along the Mississippi and brought up to Wisconsin shows invariably a vast improvement in quality of bone, in the quality of the hair and in the quality of the hoof. We have the opportunity, if we are only wise enough to take advantage of it, and we are going to try if we can all get together and approach it in a sensible manner.

It is just as true of sheep. I spoke of Mr. McKerrow's wool showing weak places corresponding to the time when the sheep was sick. That illustrates that wool can be influenced by accidents just the same as that foot. The same class of soil gives us a good strong quality of fleece as gives us the same kind of foot.

Mr. Bissell: Do I understand that side-bone arises from an improper trimming of the foot?

Dr. Alexander: Not necessarily at all. It comes, first of all, largely from concussion; that means a strong blow that causes irritation, then inflammation, then we have an excessive supply of blood to the part. It would seem then that if this part is inflamed through concussion that nature seeks to change it from an elastic tissue to a bony one, for the reason that movement creates pain. When this structure is changed to bone, the pain ceases, the animal does not suffer, but he is stiff. Side-bone is largely due, first of all, to the shape of the foot.

Mr. Bissell: You would not consider side-bone much of a blemish?

Dr. Alexander: It is decidedly a blemish. It is a shape of the feet we do not want.

Prof. Henry: What is the advantage of using bran as a feed for a horse so far as it can be reasonably used?

Dr. Alexander: In order to keep a horse healthy, we have to have a fairly laxative food that the bowels may be kept regular, that is one reason. The second reason is that bran is very rich in earthy matters, mineral matters that go to form bone, it is a protein food rich in nutrients, such nutrients as are necessary to the production of strong bone and which will put the proper amount of horn on the hoof which always goes together with that class of bone. Bran plus oats along with our grain feed and the excellent hay we have in this state are admirable feeds for the raising of the kind of horse I spoke of, and the country begins to recognize that our draught colts are not developed largely in Wisconsin until they are five years old, and we begin to find a market in Pennsylvania and Ohio. You will be surprised to know how many Wisconsin colts that go to Chicago, go beyond there to Ohio and those eastern states. And why? Because we can raise the foundation, the structure, upon which can be built the ideal frames of draught horses.

ADVERTISING LIVE STOCK BY ATTENDING FAIRS, ETC.

By J. W. MARTIN, Richland City, Wis.

Mr. President, Gentlemen: I don't know much about this subject—I wish I did. I think as Mr. White said, this morning, that it is one of the most serious things that we have to deal with, this advertising.

To begin with, I say do not advertise what you haven't got; do not overdo what you have got; rather keep a little bit under.

Show them something better than you say you have got all the time.

As for showing at fairs for the purpose of advertising, you certainly are advertising what you are showing, and if you bring your animals out there in good condition, you will show them in good condition. The benefit you will derive will be according to the way you show. If you bring them out there and make excuses, say "I haven't had time, they are just off the grass, you see them just as we keep them at home," you are advertising a fact, gentlemen, which shows that that is the way you keep your stuff, and you must expect your customers prepared to pay for nothing more than you have got and produce before them.

On the other hand, Mr. White told us this morning that it all depended on the man behind the gun. Partially that is true, the man behind the gun isn't there forever, though. I have seen a man with a gun run just as hard as anybody I ever saw, and it was because there was no ammunition behind the gun. That is one of the greatest secrets of advertising altogether. Let it be through fairs, the papers, or any other way, if you have the stuff at home to correspond with what you show, there is where the benefits of your advertising come in, and it seems to me that is developed better by showing at fairs than any way you can possibly utilize on paper. Why? Because a large per cent of these men that see these animals at fairs never come to your farm, never will come to your farm. Many of them are men that are too busy, and they want to make investments in this line and they go to these fairs on purpose to see these animals and they judge them for what they see. You may tell them, "My best stuff is at home." Why is your best stuff at home? If you have got better stuff at home, why don't you bring them out? My advice is, Don't make such remarks; give them a chance; bring them out and show them the very best you know how. Be there every minute of the time or have somebody there to tell people what you have got, and don't tell them about any other fellow's, you have enough to do to advertise your own stuff. There is room for all of us; we have no quarrels. If the other fellow has quarrels, let him have them. He is welcome to them all.

Then, when you have got them to the fairs and got them there in the right condition, spend your time with them in answering

questions that the people ask. If you are a little bit tired, have done your own work and are somewhat of a nervous disposition, you will be tempted sometimes to give very short answers to the questions asked. The questions that are asked at our fairs are sometimes very, very foolish. Sometimes you can hardly keep from swearing, and other times you can hardly keep from laughing, but we ought to keep from swearing or laughing, because these questions are generally asked for information. Sometimes a body gets tired and he can't quite see why this man should ask the same question that seven or eight hundred others have already asked.

Another thing, don't leave your man alone too much, he will get impatient and won't stand as much as you do. When he gets tired, let him go and get a drink of coffee. One drink of fair coffee will settle anybody's nerves for some time.

Again, our fairs have to put up specialties, as we call them. I believe they are gotten up to attract people away from us fellows; at any rate they do it. They must have the horse races, which are all right and essential in a measure, but while those races are going on sometimes—one time on the Iowa state fair ground some years ago I remember I was the only man left in the live stock department, every other man, woman, boy or child, except a nigger I found trying to steal something, every one of our people was over at the grand stand seeing the smashup of two old engines that were bought for $15 and $10. Well, what does that mean? It means that I hadn't anybody to look after except one nigger that afternoon, but at your races, ordinarily, that is just the time that you will find the busiest man, the city manufacturer who has a piece of land and wants to put some good animals on it, and wants information about them, you will find him around among the cattle, while most everybody else is down at the races, and it is the best time you will ever have to do business with him. He is there for that purpose and he wants to see the owner, he don't want to see anybody else. He wants to meet him when there is nobody else to interfere with their conversation, and he generally does business with him. He seldom ever goes to a farm, he hasn't the time to leave his business. This is a side line to him, he wants to spend some money at it and if there is anybody on earth we want to help spend his money, it is that kind of a fellow.

There is another feature of fair advertising which comes through the newspaper reports of your winnings and showings at the fair. If you are there in proper condition, in good condition, the newspapers will say so, and even if you do not get a first, a second or a third,—you may not win any prizes,—yet if you have been there with things in good condition, the papers will frequently comment on that, and it is no disgrace to this man to be beaten, and he will reap practically as much benefit from the advertising part of it as the other man. The newspapers, like all the rest of us, prefer to be honest. They have their business to look after and they can't state too many things and tell the truth all the time as they would like to, but the man that is back on the farm that wants some of these animals, will see the newspaper reports and figure on what he can buy, from those reports. If the reports say that this man was not quite strong enough to win, yet his cattle were good and in good condition, I say he reaps just as much benefit, practically, as the man that has won, because it shows on the face of it that the other man won because he fitted his animals a little bit better. It is the man behind the gun, he is putting a little more of himself, a little more feed and finish, though he has really no other product than the other man had, and a large part of these people who read these reports and are staying at home, can see all this.

Then there is another feature that we have to figure on—correspondence. I read a little article a day or two ago about a gentleman who was soliciting advertising. He came into a gentleman's office, who had two or three hundred letters to answer, and he asked him to look them over. Among them he found one from a man whom he knew. He passed it up to this manufacturer and he says, "What would you think of that letter?" "I would think that man wasn't much of a man, hadn't any education, didn't care much whether he got what he wrote about or not." Well, the other gentleman said, "I happen to know that man, he owns 800 acres of about as good land as there is in our state, he has everything paid for, and has everything good about him, everything is all right, but he simply doesn't know how to write a letter."

Another feature is to study your man through the letter. This man who was advertising, could not study a man through his letter. I don't care whether the man has education or any-

thing, if he can write enough so you can read it, you should make a study of studying the man through the letter. The best of us will fail at that sometimes, yet I never read a letter but what when I am through I can form an estimate of that man. I may be as far off as any other man, but I have made that a matter of practice since I was a boy to try to bring before me the individuality that appears on that paper. I know I have read them right, and I know I have read them wrong, but I study the situation, I try to place myself in that man's shoes as he expresses himself in that letter, and if he does it as many of our foreign-born people, not educated in our land do, sometimes his way of putting it is considerably mixed, sometimes very hard to get the sense of it, yet if you read between the lines carefully and make a practice of doing that, you can form a pretty good idea of what that man wants. Try to feel what he wants. I consider that, gentlemen, the hardest proposition that a breeder has.

In my business of selling animals, I sell in almost every state in the Union, and ninety-five per cent of my customers I never see or have not seen before the purchase. If I can see a man in in the yard five minutes, I know what suits him, but if I never see him I must study him from his letter. Now, to give you an illustration, a man once wrote to me for ten cows; he wanted them so that a straight edge laid on head to tail, you couldn't put a sheet of paper under. He wanted them thirty-six inches wide in the hips and thirty-two wide on the shoulder and deeper from there to the head. He drew this, you understand, on a piece of paper, set up stilts for them to stand on on a perfect square, and asked me what was the lowest cash price would buy these ten animals. That occurred to me ten years ago. I would know what to do with that man today, because I have learned that that is the easiest man to satisfy in the whole proposition, because he absolutely does not know what an animal is, he knows nothing about it. Any boy that ever saw a cow or a bull or a steer or a horse, any boy ten years old knows better—there is no such thing. At that time I studied a long time, I made a trip of two hundred miles, and went to see that very man to study him, and what kind of a brute it would be that could write such a letter as that. I found out this, that I could have sent him

the ten poorest things that I knew of, and he would have been tickled to death.

That was the hardest letter to make out that I ever got in my life. I have studied that same proposition from that day to this, and when a man writes and tells me he wants an impossibility, I know I can fill the order and suit him with anything. I guess that is about all I have to say.

DISCUSSSION OF MR. WHITE'S PAPER AND MR. MARTIN'S.

Prof. Henry: I want to ask Mr. White what he thinks about a farmer putting in an advertisement in some of these fourth or fifth grade agricultural papers, such as flood the country. We are overwhelmed with these cheap so-called agricultural papers, made up by some one who apparently knows nothing about the business. They get a hold of the word "agricultural" in some form with a big glaring title, yet when you read its editorial columns there is no character or purpose to them. When you read the other matter, it is plate matter and runs off into sporting news and everything else, and yet I suspect that those papers are used by stock men and the farmers for advertising, and I judge they live quite largely off of such advertisements. I would like to know what Mr. White thinks of those papers as a means of raising the farmers' and stockmen's standard.

Mr. White: Prof. Henry has asked a question that I want to answer in yankee fashion. As a matter of fact, he has touched the very center of this advertising proposition, particularly as it relates to agricultural newspapers, and if you will allow me, I will make a little explanation before answering the question, that you may understand my answer better. There are over four hundred and fifty agricultural papers, so-called, good, bad and indifferent; there are probably one hundred agricultural papers that are entitled to the name, and only fifty good ones; fifteen to twenty choice, and you have practically the whole story as regards the agricultural newspaper situation of our country today.

One of the most objectionable features that we have to contend with is just that kind of papers that Prof. Henry has spoken of. As a matter of fact there are a whole lot of newspapers that simply exist on wind, without any merit, without any right to existence, and they ought not to be permitted to use our mails. Unfortunately, our government does not discriminate against such papers, and in their effort to reform the second class mail matter, they have overlooked, in my judgment, the greatest and most essential qualification. The few newspapers that are entitled to patronage from you live stock breeders ought to be singled out and classed by themselves. I do not think, Prof. Henry, that the live stock breeder takes enough care or is particular enough in making his selection of the medium for his advertising, and if I might just refer for a moment to the specialty which I represent, I believe that therein lies the greatest help that an advertising man who is in touch with all the papers is enabled to give, unbiased information to those that are desirous of knowing what is best for their purposes. If he is honest and unbiased, he can save to advertisers a great amount of money that would otherwise be expended in a useless way. Some of these papers that Prof. Henry has spoken about have some of the brightest representatives that you will find anywhere. They are of the kind that can get business through their personality, through power to present their proposition irrespective of the merit of the medium, and that makes it hard when such representatives as we have present today, of such papers as the Wisconsin Agriculturist and the Iowa Homestead, the Breeders' Gazette, and that kind of papers, when they present their cause to advertisers, and in a quiet, honest, manly way, tell them of the merit of their proposition, they have to overcome a great deal of what we term in the vernacular of the street "hot air." That is one of the unfortunate conditions that confronts the advertising man today. This matter seems to me to be one of the things that every advertiser ought to post himself on and ask himself whether the quality of the paper in which he is advertising is the best.

Mr. Mead: I would like to inquire of Mr. White if he would intimate on behalf of some of the gentlemen from Northern Wisconsin, how we can present to the public the benefits of the north half of Wisconsin as a desirable place for farming. There

are about a million acres up there that is wanting farmers. How can we do it?

President McKerrow: There is another hard nut for you to crack.

Mr. White: That is a very timely question, however, and it seems to me it is a very important one for the live stock breeders of this state to consider. Dr. Alexander told you something about the desirability of your soil for live stock purposes, and particularly for horse raising. I have had occasion to visit Northern Wisconsin several times, usually on fishing trips. The advertising man wears out once in a while, and he has to go north to the woods of Wisconsin or somewhere, and let me say there is no place on earth finer than up in the northern woods of your state. I have come in touch with a great deal of your timber land, with the timber cut off. Here and there we have seen little farms and I have been astonished and surprised to find what has been raised on those farms. This last season I was up there and went past a farm where they were growing potatoes, and I noticed they were of immense size and I got out of the wagon and asked to have a few of those and I got three. I said I wanted to take them to Chicago and show them to people interested in that state, they were very fine specimens. This man was making money growing potatoes on a piece of ground he cleared off, timber land. I believe that there are a whole lot of people in this country, not only in your own state, but throughout the central west and, even in the eastern country, that would be glad to know of the possibility of Northern Wisconsin farming lands.

Of course this live stock proposition has come to this point, and we might as well face it. The time was when the larger portion of our meat supply came from the range. We must in the future look to the ranch, the small farm, and we must look to the closer proximity to the great markets as well, and these farm lands in Illinois, Wisconsin and Indiana and Michigan, all near to the greatest market in the world, are bound to be utilized to supply the great meat demand of the world. Not only are our own people increasing in their consumption of meat—the demand is very much greater—but foreign lands are looking to us in an increasing desire for the meat supply. Now, the north land is good for stock raising, and it is particu-

larly good for dairy purposes. You have some most excellent grass lands up there, you get your brush timber off those lands and you will grow such grass as I have never seen any place in this country, green and rich—the live stock show it. That feature advertised to people that are thinking of moderate sized farms at reasonable price, it seems to me ought to do immensely well, but in doing so, I would give the entire truth about it, show by example just what you are doing for the development of the country and its possibilities. I don't know that I have answered your question.

President McKerrow: And be sure to visit this car "Grassland" down here at the North-Western depot, and then go to the big exhibit down below here of the products of that country. I don't know that they have the same three potatoes that Mr. White brought down, but I will guarantee they have bigger ones.

Mr. Bissell: Mr. Martin, that letter that you got fifteen years ago, you say you were puzzled how to answer it. How would you answer such a letter as that today?

President McKerrow: I venture to say he sent the poorest cows he had in the herd, but he can answer for himself.

Mr. Martin: No, sir, you are entirely wrong. I priced for the man everything I had for sale, and let him make his choice. If I were answering it today, I would tell him as near as I could, what each individual animal is that I price. Give him a full description of the individual and the price. That is the only way I could figure at it and answer that man, then he has got his choice before him.

President McKerrow: Isn't that the best way of answering anybody that does not give you a reasonably definite proposition?

Mr. Martin: That is the plan that I follow.

Secretary True: I would like to ask Mr. Martin, in his experience as a stock breeder, what comparative importance has he attached to those bargains that have been gained by showing at fairs in comparison with other means of advertising?

Mr. Martin: Well, that can not be divided. My best class of sales, for the best prices, have been made entirely after acquiring somewhat of a reputation, and that reputation has been made by both showing and advertising and trying to do business to satisfy the customer.

Secretary True: Have you made some advantageous sales that you could not have made as a matter of correspondence or ordinary advertisement? Haven't you reaped an advantage from the object lesson that you were able to give those seeking good stock as you showed it at the fair?

Mr. Martin: Undoubtedly that is so, undoubtedly.

President McKerrow: Or to put that question another way, if you had not made a reputation at fairs, do you think your business would be what it is?

Mr. Martin: I do not think it is possible. A question comes in right there. I believe I am strong; there is good stuff on the farm. I have generally shown my best stuff, but I have got just as good at home. That is a point I have tried to keep up to at all times, and not have a man go and buy what I have at the fairs and get all I have. He can go back to the farm and get any amout of the same kind. That is the proposition I tried to get in before I did any heavy advertising, and I think I got it in.

Prof. Henry: I wish you would speak to these young men as a man of your experience can in regard to the importance in the matter of seizing the opportunity in advertising. I know some of these young men will have some Poland Chinas, or some Jersey calves or something else to sell pretty soon, and they will wonder why everybody does not come to buy those animals right off, and they will be where you and Mr. McKerrow are. They want to get there in one jump, and I think they will appreciate a word of encouragement and explanation from a man like yourself.

Mr. Martin: Well, I will say to the young man that the ladder is pretty steep and there are a good many rounds. You cannot expect, any more than you can expect to come down here in a week or two and get a scientific education, or in two months get what the long course boys get in four years. You are only getting brushed up with a little thin paint on the outside, that is all you will get for years after starting in to breed with pure bred animals. It takes time. But in time, if you love your business, you will get there and you will enjoy the time spent in it. Now, to give an illustration. My reason for being in this business just at the present time is on account of those boys at home, have worked hard and I have worked long; my wife has

worked harder and long—too hard—and is doing so today because we can not get sufficient help in the house; but I can not bring myself to give up those cows till that little eleven-year-old boy that loves them as I do, gives me a rest. That is the only reason that I am today in the business. My cattle have made me, financially and every other way. I owed every dollar for my farm, when I bought the first $5,000 worth of cattle and about $2,700 of the purchase money on the cattle, that was where I stood financially. They paid for the land, they paid for themselves. If I hadn't done a thing that none of you ever should do, and that is, sign papers for some other fellow, I would owe no man on earth a dollar today. I do owe a little at the present time, because I had to pay $10,000 for another fellow. But in twenty-five years those cattle have made $40,000. I have sat up with them nights; for the first ten years I was in this business, if I was at home, I never had a cow calve in the winter time that I was not there and stayed there until I was too far gone to stay another hour, and that very seldom occurred that I left those animals. I went to England and I came back home at ten o'clock at night and I stopped at my barn door and called and no less than ten of those cows knew my voice and answered, and nobody else can do that with my cows—the boy says I don't give him a chance. The boy says when there is a new pasture gate to be opened for the cattle, with fresh feed, I go and do it myself, and I do. I am the master of those cows, I want them to know me better than anybody else. I love them. I have an old cow there today that produced her fifteenth calf for me on the first day of this year. If I outlive her, she will be buried in the orchard just below the house with as good a monument as I expect to have.

Prof. Henry: There are several hundred young men in this room, and I knew that there was more in Mr. Martin than we got out of his first address, and I am sure I got it out of him the second time. Now, Mr. President, Mr. Martin, and the older members here, I want you to know that my educational burden is this, getting these young men to appreciate what it costs to get there. They come here and they see a man like Mr. Martin, or they read of Mr. McKerrow's winnings, and they think it is easily done. They think he has a nice place, he probably reads the papers and works a few hours and occasion-

ally is home. They have heard how these cows are cared for by Mr. Martin himself, and they have heard of the principal thing, which is that intense love for the business. Now, Mr. Martin did not have always the idea of making money in front of him. He loved his cattle and what money he has made has grown out of that side of his business. Now, Mr. President, a great many of these young men will go and hire out for the summer or go home to their fathers' farms to work. These boys will try some of them, will prefer to get $30 a month on any kind of a farm, rather than take $20 a month on the best stock farm, they think that will help make them rich. The wisest boys that are here will come to a man like Mr. Martin, they will say "We want to go to work with the best stock man we can find, or the best fruit man or the best something. If we can get the same wages, we will be glad, for we need the money, but, first of all, we want to get with the right man." Young man, if you could go to work on Mr. Martin's farm or Mr. McKerrow's farm, you would better work for those men for your board and clothes than to go to work with some slip-shod farmer who promises you fine, high wages and sometimes pays them and sometimes not. But when you can get such experience as these men have wrought out, when you can shorten the time by living with them and see how they handle the land, those are the men to go with. You can shorten your period of learning to handle animals by staying right with such men. You can learn a lot of wrong things by going with the careless man. You should pick out the man you are going to work for just as carefully as, in the stock business, you would pick out the animals you are going to work with; it is of more importance to you, to get the right man in order to gain experience. You can't make money at your age, you have to have the experience. You are starting out without any and you must have it.

One word more on another line. Iwant to talk to these young men about the enormous importance at this time of our legislators and our stock men realizing that Wisconsin has before her the opportunity to become the principal live stock breeding state for the central northwest. Our little farms are all favorable. The agricultural schools are giving splendid education in furtherance of the live stock business; our markets lie about us. We are shipping cattle to Mexico, to Japan. We

can ship stock to all the states about us, and are doing it. Our small farms, our proximity to these great mills—it would be a calamity for Wisconsin or for this country to lose the great mills at Minneapolis. The bran and middlings that are produced there so near to our state keep down the prices of other feed. It is worth millions of dollars to Wisconsin to have the flouring mills right there. This bran and middlings are brought into this state and put into pure bred stock and we are able to ship animals out of the state that have cost only a few dollars in the fertility they carry in their carcass. If we ship a $25 steer out of Wisconsin, we have sold as much protein, as much phosphorous, as much potash as when we sold a Red Poll or a Holstein or the same weight of horse or pig that would bring for that weight one hundred or two or three hundred dollars. In other words, we want to manufacture a high grade of products and let Iowa and Nebraska and the other states that are very largely cornfields produce four and five cent meat. If you sell a cow for $100, you get ten cents a pound for her. You sell a steer for $40 or $50 and you get four or five cents a pound, about. There are a number of legislators here, and I want to beseech you to take a statesmanlike view of this thing in helping the agricultural and live stock associations and the agricultural college. I want them to rise to the situation and I will venture to say that if they will give their help, we can make this the greatest live stock state in the world.

President McKerrow: Prof. Henry reminds me of a little correspondence I have been having this winter with a firm of brokers in New York City. I have shipped a few sheep to the British West Indies, and these brokers have studied this subject. They are engaged in a mercantile trade with South America and they watched our record at St. Louis. They had found out that some high class stock had been taken to Great Britain and some to Argentine and brought very high prices, and they wrote me they believe that there is a field in Brazil that they can reach, particularly with Shorthorn cattle and some of the breeds of mutton sheep. In one of their letters they remarked that one of the reasons for writing to me in Wisconsin is that Wisconsin, in her conditions of climate, soil, water, grasses and grains, is so much like Scotland, which seems to be sending out some of the best live stock in the world, that they

thought it might be a good idea to investigate before starting in with the trade with Brazil. One of their firm is now in Brazil, investigating the prospects of the live stock trade and they wrote me a letter only two or three weeks ago, which states that they will keep me fully posted on what their representative finds in Brazil and they hope to be able to do some business up here in Wisconsin in the future, if conditions there are satisfactory. Of course this is only a pointer; it seems that other people have found out that Wisconsin has the proper conditions to produce high class live stock as well as some of us who live here in Wisconsin and that is just what we want to do, Mr. White, is to let the rest of the world know that we have got it. It is quite necessary, and that is the reason we have had you here from Chicago on this floor today, and that is the reason we have had Mr. Martin here, namely, to get at the meat of advertising, to let the rest of the world know what we already know, that Wisconsin is second to none along these lines.

Now, gentlemen, for want of time we will have to close these discussions.

I want to say in closing this convention, in a general way, that Mr. True, who prepared this program, with Mr. Harvey of the Live Stock Breeders' Association, is very much pleased with the outcome of the meeting. I certainly am personally well pleased with it, and I can say on behalf of the Wisconsin State Board of Agriculture and on behalf of the Wisconsin Live Stock Breeders' Association that we have been pleased with the prompt attendance and the interest shown; we have been pleased and thankful for the accommodation offered here by Dean Henry of the Agricultural College and by the presence of the young men who have been in this room and listened to the different discussions. We hope you boys have put in some good hours here. You have not probably received the same class of instruction that you would have received in your class rooms, but you know we all like a little variety, variety is the spice of life, and you can not every day listen to such professors as Martin, White, Greeley, Mrs. Lawes and others who have addressed you here. You may listen to better, but you can not listen to the same ones, and you have gotten this variety, you have gotten a great many things to think about, and—I don't know how eloquent Prof. Henry grows in the class room, but he

has certainly said some good and eloquent things here that may have been prompted by a little difference in the surroundings, that you know about and will remember.

We thank you for your presence.

Convention adjourned sine die.

PAPERS

READ BEFORE THE

Wisconsin Tobacco Growers' and Dealers' Convention.

February 3, 1905.

HOW TO IMPROVE THE QUALITY OF WISCONSIN TOBACCO.

(Farmers' Standpoint.)

By O. P. GAARDER.

The matter of improving the quality of Wisconsin tobacco is a question which appeals directly to the grower, dealer and manufacturer. There is always a good market for a first-class article, this applies to any farm product, especially tobacco.

In introducing this subject, I wish to place great emphasis on the importance of pure seed for the Wisconsin grower. If the tobacco growers of the state of Wisconsin could secure pure Havana seed for the entire crop, and burn all the old seed on hand, in the state, it would mean at least a half million dollars, net profit, to the farmers, and a larger profit to the packers of the state the first season.

The State Experiment Station during the last season has grown one acre of pure Havana seed as a starter, and in the near future with the hearty co-operation of both farmers and dealers, will be in a position to supply the growers of the state with the very best seed obtainable, and suited to the conditions and environments of Wisconsin soil and climate. This is the commencement of a good work, which should be fostered by state legislation, and appreciated by the tobacco growres of the state.

EARLY STRONG PLANTS.

As a rule, the tobacco growers of the state, who make a success of growing tobacco, aim to have good early, stocky plants, ready for transplanting early in June. In order to make a success of a crop of tobacco, the grower should provide himself with an abundance of early plants. As a rule one acre of good early tobacco is worth more than two acres of late un-ripe tobacco, and the net profit, to say nothing of the satisfaction, to both grower and dealer, is much greater.

SUITABLE SOIL.

In order to produce a first class binder crop of tobacco, the soil is one of the first considerations. As a rule there is no profit in raising tobacco on poor soil; better raise fewer acres, and have the land in good condition. A profit on one acre is better than a loss on five. Good rich sandy loam is well suited to the growth of a tobacco crop. Generally speaking, tobacco growers do not spend sufficient time in fitting and preparing the soil for the crop. (From personal observation and experience the tobacco ground should be manured and plowed in the fall, or manure spread on the ground during the winter months, and plowed under the following spring. The soil should be thoroughly pulverized, and mellowed after plowing at intervals until the plants are ready to transplant.)

TRANSPLANTING.

Select only good stocky plants with fibrous roots. Much depends on an even stand the first setting, and in order to secure a good stand, the preliminary work must be thorough, and hearty plants provided. Much depends in the manipulation of the setter; the rows should be straight, and the plants evenly distributed with an abundance of moisture.

CULTIVATION.

If the soil has been thoroughly prepared for the crop, cultivation should commence at least three days after setting. Shallow cultivation is preferable. Never allow the soil to become packed and sour for lack of cultivation. Tobacco is a crop which should grow rapidly, and the plant depends on the fibrous roots which obtain nourishment and plant food close to the surface, hence the argument for shallow cultivation. Farmers should bear in mind that tillage is for the purpose of improving the physical condition of the soil, and is a means of liberating the plant food within the soil. The fining of the surface soil increases the number of soil particles, thus giving the fine rootlets a greater opportunity to find the plant food within their reach; this fining of the soil also allows a freer circulation of air, a very *essential* element in the growth of all plants, and especially tobacco. Without an abundance of *oxygen* supplied by the air, bacterial life could not be as active as is necessary for the liberation and assimilation of plant food; this fining of the surface soil also enables it to warm up more quickly in the spring time, a very important factor in the cultivation and growth of the tobacco crop, especially where one is required to deal with lands that are cold and heavy. In a dry season the most important office of this cultivation, the *stirring* of the soil, is the increasing of the amount of water which the soil will contain.

TOPPING.

As a rule, farmers who have the good fortune to grow an even crop of tobacco and top the same as soon as the buds show, must invariably secure a well matured early crop of tobacco. Never allow the crop to blossom out, as this has a tendency to make the tobacco coarse, and woody in fibre. This is one of the greatest mistakes noticeable in the tobacco sections of Wisconsin. Farmers who are unfortunate in getting a good stand, at first setting, and transplant, as a rule *practice* the evening-up process by allowing the first setting to go to seed, and then topping the whloe crop at one time. This is a great waste of Nature's energy, and is a sure index of a hard crop to handle with profit after it reaches the dealers' hands.

HARVESTING.

It is safe to commence harvesting the crop in three to four weeks from date of topping. Much depends upon the weather after topping. Never cut the tobacco until the top leaves begin to mottle. Always sucker three days prior to harvesting. Tobacco should stand at least one day after heavy rain storms to take on gum. Avoid cutting until after the morning dews have evaporated. It is unprofitable to harvest tobacco until the crop has well matured. Much depends on the good judgment manifest in harvesting, and the grower should exercise eternal vigilance in looking after every detail and not allow the help to cut and slash and ruin a good crop of tobacco. Every plant should be handled with sacred care. Chop down only what can be carefully handled without getting sun-burned or wet. Never attempt to do more in one day than can be carefully and well done. Don't crowd too many plants on the lath. Look after the spacing in the shed when the tobacco is hung. Leave at least six inches between plants, and see that the tobacco is not bruised and torn in handling.

VENTILATION.

Look carefully to the proper ventilation of the shed, as much depends upon the proper curing of the tobacco, and especially the first two weeks after the tobacco is hung in the shed, as this is the crucial test. Many a good crop has been ruined for lack of careful attention when first hung. Open wide the bottom and top ventilators, and let the air circulate up under the crop freely. The matter of curing is sadly neglected by a large number of growers, and I wish to emphasize the importance of making this a special study. Watch the condition of the crop from day to day, see that the symptoms are healthy and favorable every morning; strive to avoid the dire calamity of shed-burn and pole-rot. Some seasons this requires great skill and knowledge. Wisconsin weather is liable to be treacherous and disappointing. There is also danger of too rapid drying of the crop during the curing process. After the first three weeks tobacco should cure slowly, and have time to absorb all the ingredients of the stock. Growers should realize the importance of proper ventilation, and use every precaution in controlling the atmosphere in the shed.

To successfully raise, cure and market cigar leaf tobacco of the finest quality is therefore a business of great care, and involves attention to every detail of management at the different stages. The importance of attention to these details is of greater consequence in this crop than in any other grown. To successfully grow the crop in the first place is a difficult matter; to cure it properly is of almost equal importance. A thorough knowledge of every phase of culture and curing is essential to success, and it is difficult to say that one is of more consequence than the other, but if such a comparison were made, the preference would be given to culture, for although a finely grown crop may be injured by careless curing, no skill in curing can make a first class product of a poorly grown crop.

ARTIFICIAL HEAT IN CASING TOBACCO.

By S. B. HEDDLES OF JANESVILLE, WIS.

In treating with the subject of fermentation I only try to give you a brief outline of the process from my own actual experience, and will not attempt to treat the subject from a scientific standpoint.

One of the greatest problems confronting the leaf tobacco dealers in Wisconsin today is how to care for their packings in the curing process, and how to avoid the danger which occurs to more or less extent every year in going through the natural curing process, or which is generally termed the sweat. In my judgment the climatic condition has as much to do with the curing of tobaccos as it has the growing of it, and when both are favorable we have sound tobacco. The question I have been asked to treat with is artificial heat in curing tobaccos.

This, I believe, is the only safe way, and the only way known to me, to avoid damage from must, or even black rot. But great care must be exercised in the treatment of new tobaccos. In order to cure with artificial heat it is necessary to equip our warehouses for the work, which means to put in a steam boiler, pipe the building, and make such arrangements so that we can maintain a reasonable degree of heat and moisture in our curing rooms at any or all times.

In the treatment of cigar leaf wrappers or binders, taking them as they are regularly packed in the sorting room, they should be placed in curing room with the temperature about 60 degrees Fehrenheit. At this degree of heat fermentation will start slowly and thereby avoid the danger of giving the tobacco a re-sweat smell. The only moisture required at this period will come from the new tobacco in passing through what is commonly termed the water sweat.

My experience has been, where I have kept a hydrometer in my curing room to ascertain the humidity or moisture, that it would register at about 50 degrees or normal. After goods have been in the sweat from three to four weeks, a greater degree of

heat can be used without risk of damaging goods, and as the goods advance in the sweat it will be necessary to maintain a higher degree of temperature. I aim to run my curing room at 70 to 75 degrees. And as soon as the summer season comes on we only use artificial heat in the event of cold or damp rainy weather. One of the greatest advantages of artificial heat is to be able to maintain the proper degree of heat required for fermentation besides keeping our buildings sweet and free from damp, foul air, as the latter condition is sure to generate must or mould. Good results have been obtained by me in my experiments of curing new tobaccos by putting the goods in the curing room about four or five weeks, or until they are partly cured, and have shrunk about 7 per cent, then removing them to other storage above freezing point and allow them to finish in the natural sweat during the summer months.

It is conceded by nearly all that proper fermentation improves the aroma and quality of all tobacco. But the fad for light wrappers and binders has compelled the trade to throw upon the market a raw and uncured product which they can only obtain by light packing and not allowing the goods to ferment properly.

Tobaccos cured by artificial heat, when properly treated, have a tougher fibre, finer aroma and a surer burner than the natural sweat goods.

MARKETING THE TOBACCO CROP.

By F. W. Coon, Editor Edgerton Tobacco Reporter.

The most reliable statistics obtainable bring to light the information that Wisconsin is producing the largest amount of cigar leaf tobacco and selling the product at the smallest price per pound of any state in the Union. Just how much of this anomalous condition is due to the methods that prevail in preparing this crop for market is difficult to determine, but it is none the less a bad commentary upon the intelligence of our tobacco growers that this statement is true.

The nature of the position which Wisconsin tobacco occupies in the markets of the country—that of being the great binder state—is not of itself a sufficient reason why we sell our product at a lower average price than those states that produce the wrapper or filler grades. The great object, therefore, to be strived for is to increase the value of our product. What means shall we adopt to accomplish this end?

EXPLAINS INCREASED ACREAGE.

I am free to state that whatever fault the tobacco growers of this state have fallen into in preparing the crop for the market, the buyers of this product are largely responsible for. The unseemly haste in making contracts for the tobacco, prevailing the last few years, before the crop is fairly matured in the fields, much less cured or ready for market, leads into careless and slipshod methods of handling that at last become reprehensible. The ease with which farmers have been able to dispose of their tobacco while yet in the green state has led hundreds of farmers into tobacco growing that had no previous experience or skill in the culture of this product. Here you have a reasonable solution for the enormous strides in the increase of acreage the past few years.

SKILL REQUIRED.

What results need be expected under such conditions? We are told that the three important requisites of tobacco culture are: First, soil adapted to special variety; second, climatic conditions; and third, experience in handling. Nature provides the first two of these, and after she has fulfilled her mission and the grower had added his labor to the housing of the crop, it is from that time on that the expertness of experience comes into play.

To know when the crop has reached the proper stage to be removed from the curing sheds, to know how to strip, bundle, sort and pack it requires skill derived only by actual experience. This knowledge is the chief stock in trade of the successful tobacco grower.

The farmer who embarks into tobacco raising without providing himself with these essentials, trusting largely to luck, is pretty sure to be disappointed with the financial results he obtains. I do not presume in this paper to instruct the average tobacco grower in the expert details of handling the crop obtained only through years of experience, as I lay no claim of superior knowledge above that of the farmer who has devoted years to the culture of the crop. Being familiar with the marketing of Wisconsin tobacco for nearly thirty years past, I am satisfied that the growers obtains the best results when their work of preparing the crop is honestly done.

HOW TO STRIP TOBACCO.

If any portion of the crop has shed burn, rust or pole-sweat, or contains muddy leaves, or unripe tobacco, let it be kept separate at stripping, and let it be sold separately on its merits. Do not attempt to deceive the buyers by mixing the good with the damaged leaf, for it rarely succeeds, and leads to trouble on delivery.

If the defective portions are kept by themselves, buyers are quickly able to determine what the percentage of damage may be, otherwise, if mixed throughout the crop, they will invariably discount the price large enough to cover all chances of loss. Trickery rarely succeeds, and the farmers who practice deceit are invariably found out and suffer in the long run.

MUCH MUDDY CROP.

The amount of muddy tobacco in the present crop, owing to the wet season at harvest time, is probably larger than ever before known in this state, and growers should be especially careful in laying aside all such leaves when stripping.

One of the peculiarities of the market for Wisconsin leaf is that the demand for fillers has steadily declined the past few years. This fact, taken in connection with the tendency of these grades to damage by mold and rot, has made their purchase decidedly unprofitable. It is no way probable that dealers will continue to pay old time prices for fillers until the market shows an upward tendency.

The outlet for Wisconsin filler has generally been found in an export market, which now declines to take anything but sound, prime goods, and these must be laid down at tide water at low prices. Under such conditions, trashy goods that in former years might have passed for fillers have little or no value, and growers might better drop all such leaves when stripping.

THE MARKETABLE FILLER.

The marketable filler of today must be sound, clean goods, and should be tied in neat hands, and kept entirely separate at stripping. The practice of stripping all grades together should be discontinued, and we understand that nearly all the dealers are making their present contracts to conform to this rule. The tendency to damage of the filler grades is also augmented by the practice of some growers to shingle the bundles at stripping, and this defect, too, ought to be remedied.

Nothing is lost the tobacco grower by doing honest work in the preparation of his crop for market.

We have always consistently argued that the time to sell tobacco was after it was cured and prepared for market. The trouble and litigation experienced by the growers of this state in concluding delivery and settlement for crops purchased before they were cured, or their character or value determined, sustains the opinion we have contended for.

CONTRACT LOOPHOLES.

We concede that it is very advantageous for the grower to dispose of his crop in the bundle, and from the growers' standpoint in exceptional cases where attractive prices are offered to enter into contract for sale while the crop is yet standing in the field. But the grower must remember that he is assuming all the risks and uncertainties that befall his crop up to the time the delivery is made. If it cures out all right, is properly randled, and prices have not declined in the meantime, he may be able to realize the contract price on delivery day, otherwise he must stand deductions, but the usual contract contains so many loop-

holes that permit the purchaser to get away from his part of the bargain that very many of the transactions result unsatisfactorily.

The courts are disposed, in the litigations that have reached them in recent years, to construe the written contracts for the sale of tobacco very literally. They hold the farmer strictly to account for all the requirements he has subscribed to.

So, if we are permitted to give advice, we say: Be very careful what you sign, and be sure you understand the requirements of the contract thoroughly, and after having entered into an agreement to sell your crop, try and carry out the terms of the agreement in an honorable and businesslike manner.

NEED MORE GROWERS.

Prepare your crop for market in the best manner you know how. What our state needs more than an increase in the number of growers is farmers who will bestow more care, time and attention to perfecting the methods they now put into practice. With the assistance of more scientific experiments, tobacco culture will become one of the fine arts of agriculture.

Strive for the reputation of being a painstaking and careful handler, which is worth dollars to you in the sale of your product. We could mention buyers who keep a list of men who are progressive and strive to improve their methods. The reputation of Wisconsin tobacco is in the hands of such as these, and may their tribe increase.

Laws Affecting Agricultural Interests

Passed by the Legislature of 1895.

CHAPTER 446, LAWS OF 1905.

AN ACT to amend section 1463 of the statutes of 1898, as amended by chapter 274 of the laws of 1901, and section 1464 of the statutes of 1898, so as to render state aid to all agricultural fairs, definite and uniform.

The People of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. Section 1463 of the statutes of 1898, as amended by chapter 274 of the laws of 1901, is hereby amended so as to read as follows: Section 1463. There shall be paid within ten days after the first day of February, out of the state treasury, to each organized agricultural society, association, or board in the state, which shall have substantially complied with the following conditions, forty percentum of the total amount of premiums thereby paid at its annual fair for the preceding year, provided that in computing the amount upon which such percentum is to be paid, not more than one-half thereof shall have been paid for trials or exhibitions of speed, or other contest, for which published premiums have been offered. On or before the first day of February, in each year, the president and secretary of each society, association or board, claiming state aid, shall file with the secretary of state a sworn

statement of the actual amount of cash premiums and purses paid at the fair of the preceding season, which premiums and purses, must correspond with the published offers of premiums and purses, and a further statement that at such fair, all gambling devices whatsoever, and the sale of intoxicating liquors had been prohibited and excluded from the fair grounds, and all adjacent grounds under their authority or control. Such statement shall be accompanied by an itemized list of all premiums and purses paid, upon which such forth percentum payment is claimed, a copy of published premium list and speed list of fair, and a full statement of receipts and disbursements for the past year, duly verified by the secretary. Copies of such statements shall be deposited with the secretary of state and the secretary of the state board of agriculture. Such money shall be paid to the treasurer of the society, association, or board, upon his receipt, countersigned by the secretary. Provided, that the amounts to be paid to any such organized agricultural society, association or board, during any year, shall not exceed the following amounts, to-wit:—to the State Board of Agriculture the sum of ten thousand dollars, to the Northern Wisconsin State Fair or the La Crosse Inter-State Fair Association, the sum of five thousand dollars each, and to any county agricultural society or other association or board above mentioned, the sum of one thousand and seven hundred dollars each.

SECTION 2. Sections 1458c of the statutes of 1898, 1458d of the statutes of 1898, as amended by chapter 356 of the laws of 1901, and chapter 337 of the laws of 1901, as amended by chapter 290 of the laws of 1903, are hereby repealed.

SECTION 3. Sections 1464 of the statutes of 1898 is hereby amended so as to read as follows: Section 1464. All moneys received by any such society, association, or board, either from the state or any other source, after paying the necessary incidental expenses thereof, shall be paid out annually for premiums awarded, in such sums and in such way and manner as its by-laws, rules and regulations shall direct, on such live animals, articles of production, agricultural implements and tools, domestic manufactures, mechanical implements and productions as are the growth and manufacture of the district which such society, association or board represents, but live stock, the growth of any other county, state or country, may receive the

same premiums as those which are the growth of the district where fair is located, should the society, association or board governing so decide.

SECTION 4. All acts or parts of acts in conflict with the provisions of this act are hereby repealed.

SECTION 5. This act shall take effect and be in force from and after its passage and publication.

CHAPTER 116, LAWS OF 1905.

AN ACT to regulate the public service of stallions in Wisconsin.

The People of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. Every person, firm or company standing or traveling any stallion for profit or gain in this state shall cause the name, description, and pedigree of such stallion to be enrolled by the department of horse breeding of the college of agriculture, university of Wisconsin, and procure a certificate of such enrollment, from said department, which shall thereupon be presented to and recorded by the register of deeds of the county in which said stallion is used for public service.

SECTION 2. In order to obtain the license certificate herein provided for, the owner of each stallion shall make oath before a notary public that such stallion is, to the best of his knowledge, free from hereditary, contagious or transmissible unsoundness or disease, or, in lieu thereof, may file a certificate of soundness signed by a duly qualified veterinarian, who shall be a regular graduate of a recognized veterinary college, and shall forward this affidavit, or veterinarian's certificate, together with the stud book certificate of registry of the pedigree of the said stallion and other necessary papers relating to his breeding and ownership to the department of horse breeding of the college of agriculture.

SECTION 3. The officers of the department of horse breeding of the said college of agriculture, whose duty it shall be to examine and pass upon the merits of each pedigree submitted, shall use as their standard for action the stud books and signatures of the duly authorized presidents and secretaries respectively of the various horse pedigree registry associations, societies or companies recognized by the departmnt of agriculture, Washington, D. C., and shall accept as pure-bred, and entitled to a license certificate as such, each stallion for which a pedigree registry certificate is furnished bearing the signature of the president and secretary of a government-recognized and approved stud bood.

SECTION 4. The owner of any stallion standing for public service in this state shall post and keep affixed, during the entire breeding season, copies of the license certificate of such stallion, issued under the provisions of the next succeeding section, in a conspicuous place both within and upon the outside of the main door leading into every stable or building where the said stallion stands for public service.

SECTION 5. The license certificate issued for a stallion whose sire and dam are of pure breeding and the pedigree of which is registered in a stud book recognized by the government department of agriculture, shall be in following form:

University of Wisconsin,

College of Agriculture,

Department of Horse Breeding.

CERTIFICATE OF PURE-BRED STALLION NO. ——.

The pedigree of the stallion (name).....
Owned by .....
Described as follows:
(Color) ..... (Breed) .....

Foaled in the year ——, has been examined at the college of agriculture, and it is hereby certified that the said stallion is of pure breeding and is registered in a stud book recognized by the department of agriculture, Washington, D. C.

(Signature) .....,
Dean of the college of agriculture.

The license certificate issued for a stallion whose sire or dam is not of pure breeding shall be in the following form:

University of Wisconsin,

College of Agriculture,

Department of Horse Breeding.

CERTIFICATE OF GRADE STALLION NO. ——.

The pedigree of the stallion (name).....
Owned by .....
Described as follows:
(Color) .....

Foaled in the year ——, has been examined at the college of agriculture, and it is found that the said stallion is not of pure breeding and is, therefore, not eligible for registration in any stud book recognized by the department of agriculture, Washington, D. C.

(Signature) .....,
Dean of the college of agriculture.

The license certificate issued for a stallion whose sire and dam are pure bred, but not of the same breed, shall be in the following form:

University of Wisconsin,

College of Agriculture,

Department of Horse Breeding.

CERTIFICATE OF CROSS-BRED STALLION NO. ——.

The pedigree of the stallion (name).....
Owned by .....
Described as follows:
(Color) .....

Foaled in the year ——, has been examined at the college of agriculture, and it is found that his sire is registered in the ..... and his dam in the .....
Such being the case, the said stallion is not eligible for reg-

istration in any stud book recognized by the department of agriculture, Washington, D. C.

(Signature) .....,
Dean of the college of agriculture.

SECTION 6. Every bill, poster, or advertisement issued by the owner of any stallion enrolled under this act, or used by him for advertising such stallion, shall contain a copy of its certificate of enrollment.

SECTION 7. A fee of $2.00 shall be paid to the horse breeding department of the college of agriculture, university of Wisconsin, for the examination and enrollment of each pedigree and for the issuance of a license certificate in accordance with the breeding of the stallion, as above provided.

Section 8. Upon a transfer of the ownership of any stallion enrolled under the provisions of this act, the certificate of enrollment may be transferred to the transferee by the department of horse breeding of the college of agriculture upon submittal of satisfactory proof of such transfer and upon payment of the fee of 50 cents.

SECTION 9. Violation of any of the provisions of this act shall be punished by a fine of not exceeding fifty dollars.

SECTION 10. This act shall take effect and be in force from and after January 1, 1906.

CHAPTER 272, LAWS OF 1905.

AN ACT relating to the importation of cattle.

The People of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. The importation of cattle into the state for breeding or dairy purposes is hereby prohibited, excepting when such cattle are accompanied by a certificate of inspection made by a duly qualified veterinary surgeon who is a graduate of a

recognized veterinary college in the United States, Canada or Europe. Such certificate shall show, that at the time of said inspection and within six months prior to shipment, said cattle had been subjected to tuberculin test and were free from tuberculosis or any other contagious disease of a malignant character, or in lieu of such an inspection certificate as above required, cattle may be shipped in quarantine to their first destination within the state, there to remain in quarantine under the direction of the local health officer until properly examined, at the expense of the owner, by an inspector duly appointed by the State Live Stock Sanitary Board.

SECTION 2. In case animals are inspected outside the state, duly certified certificates of inspection, giving in full the temperature records of the tuberculin test, must be prepared in triplicate, one of which is furnished the shipper, one furnished the transportation company hauling the cattle, and one forwarded immediately to the State Live Stock Sanitary Board at Madison, Wisconsin. The expense of such inspection and certificate shall be paid by the owner of such cattle.

SECTION 3. In case any cattle (including dairy cows, neat cattle for breeding, feeding or for temporary show purposes) are not accompanied with a duly certified certificate of inspection, the railroad company accepting such animals for shipment must immediately notify the secretary of the Live Stock Sanitary Board at Madison, Wisconsin, giving the name of the consignee, the number of animal shipped and the destination of the same, and the time of shipment from the starting place. The owner or shipper of such stock shall also notify the secretary of the Live Stock Sanitary Board at Madison, Wisconsin, of such shipment, stating that said animals have not been examined prior to their delivery to the transportation company transporting the same. Such statement shall be certified to before a notary and shall include a statement of the number of animals shipped and full description of the same, and the use for which they are immediately intended.

SECTION 4. The Live Stock Sanitary Board shall upon the receipt of such notification, notify the local health officer of such quarantine. In case the owner certifies that such animals are immediately and only intended for feeding or temporary show purposes, the Sanitary Board will order their release from

quarantine, but, in the case of animals intended for breeding or dairy purposes which are not furnished with a properly certified certificate of inspection, the same shall be duly examined by an inspector appointed by the board. If after such examination said animals shall be found to be free from disease, the same shall be released upon the payment by the owner of the expenses of such quarantine and examination. If upon such examination said animals, or any of them, shall be found to be affected with tuberculosis, or any other contagious or infectious diseases, then and in such event, the Wisconsin State Live Stock Sanitary Board shall quarantine such animals and the same shall be disposed of in the manner provided in chapter 440 of the laws of Wisconsin of 1901, and the laws supplementary thereto and amendatory thereof, except that in no event shall the owner or shipper of such animals receive any indemnity from the state in case such animals are slaughtered, or the owner may reship affected animals to party or parties from whom the same were purchased. The expense of such quarantine, or the examination of such animals and subsequent disinfection of quarantined yards where disease is found to exist shall be paid by the owner or shipper of said cattle, the cost of such examination not to exceed seven dollars ($7.00) per day and expenses.

SECTION 5. The provisions of this act shall not apply to persons transferring cattle through the state on cars to points beyond the state, or to persons living near the state line and owning land in adjoining states, and who may drive said cattle to and from said land for pasturage.

SECTION 6. Animals brought into the state for purposes of exhibition at county, state or other fairs, if sold within the state, must be subjected to the same test as breeding or dairy animals.

Transportation companies unloadng cattle in this state which are not accompanied by a certificate of inspection as above designated, except as provided in section 3 of this act, shall be subject to a penalty of not less than fifty dollars nor more than two hundred dollars for each car so unloaded in this state, such penalty to be recovered at the suit of the state, brought by the attorney general.

SECTION 7. Any person or persons bringing into this state cattle that are not accompanied by a certificate of inspection as hereinbefore provided for, or failing to comply with the pro-

visions of section 3, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars, nor more than two hundred dollars.

SECTION 8. This act shall take effect and be in force from and after its passage and publication.

CHAPTER 374, LAWS OF 1905.

AN ACT relating to legal fences.

The People of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. There is hereby added to the statutes of 1898 a new section to be known as section 1390a, which shall read as follows: Section 1390a. No fence constructed or rebuilt after the passage of this act shall be deemed a legal and sufficient fence unless the same shall be constructed or rebuilt in either of the following manners:

1. A fence made of strong woven wire, the strands to be not less than No. 12 wire; cross wires or meshes to be not less than No. 16 wire. If cross wires are used they are to be not more than twelve inches apart, and if meshes, they are not to exceed eight inches square; the height to be not less than twenty-six inches, with three barbed wires at the top, the top wire being not less than fifty inches from the ground; the posts to be not more than sixteen feet apart.

2. A fence made of strong woven wire, the strands to be not less than No. 12 wire; cross wires or meshes to be not less than No. 16 wire. If cross wires are used they are to be not more than twelve inches apart, and if meshes, they are not to exceed eight inches square; the height to be not less than thirty-six inches, with two barbed wires at the top, the top wire being not less than fifty inches from the ground; the posts to be not more than sixteen feet apart.

3. A fence made of strong woven wire, the strands to be not less than No. 12 wire; cross wires or meshes to be not less than

No. 16 wire. If cross wires are used they are to be not more than twelve inches apart, and if meshes, they are not to exceed eight inches square; the height to be not less than forty-six inches, with one barbed wire at the top, the top wire being not less than fifty inches from the ground; the posts to be not more than sixteen feet apart.

4. A fence made of strong woven wire, the strands to be not less than No. 12 wire; cross wires or meshes to be not less than No. 16 wire. If cross wires are used they are to be not more than twelve inches apart, and if meshes, they are not to exceed eight inches square; the height to be not less than fifty inches, with posts not more than twenty feet apart.

5. A fence not less than fifty inches high consisting of boards firmly fastened to posts well set, not more than eight feet apart, the space between the ground and bottom board and each space between the posts to the height of thirty inches being not more than six inches.

6. A fence not less than fifty inches high, consisting of two boards and three barbed wires firmly fastened to posts well set not more than eight feet apart, the bottom board being not more than six inches from the ground and the space between the bottom board and the second board being not more than six inches, and the space between the second board and the first wire being not more than six inches.

7. A fence consisting of a combination of wire and pickets with posts well set not more than sixteen feet apart and connected by three or more wires not less than No. 12, with pickets not less than four feet long woven in or fastened thereto, and set not more than six inches apart.

8. All fences consisting of rails, boards or stone walls or any combination thereof, and all brooks, rivers, ponds, creeks, ditches or hedges, which shall in the judgment of the fence viewers, within whose jurisdiction the same may be, be considered equivalent to either of the fences herein mentioned. All measurement herein mntioned shall be made at the place of attachment in all cases.

SECTION 2. This act shall take effect and be in force from and after its passage and publication.