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L. A. ALLEN.....IOWA CITY

PROCEEDINGS

OF THE

NINETEENTH ANNUAL MEETING

OF THE

IOWA STATE

IMPROVED STOCK-BREEDERS' ASSOCIATION

HELD AT

HUMBOLDT, DECEMBER 7, 8 AND 9, 1892.

OFFICERS:

President—C. S. BARELAY, West Liberty. Vice-Presidents—W. P. YOUNG, Mt. Pleasant;  
C. W. NORTON, Davenport; H. H. KELLY, Vinton; L. M. VAN AUSEN, Mason City;  
A. V. STOUT, Packerburg; J. C. FRASIER, Bloomfield; CAPT. W. R.  
JORDAN, Des Moines; HON. W. O. MITCHELL, Corns; H. C. WALLACE, Ames; HON. L. S. COWEN, Fort  
Dodge; HON. H. C. WHEELER, Osceola.  
Secretary and Treasurer—GEORGE W. FRANKLIN, Atlantic.  
[Reported by H. O. BRUNSTON, Atlantic.]

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

DES MOINES:

G. H. HAGSDALE, STATE PRINTER.

1893.

## PROGRAM.

WEDNESDAY AFTERNOON, DECEMBER 2.

1:00 O'CLOCK.

Welcome, by S. H. Taft, Humboldt.

Response.

President's address.

Appointment of Committees.

Enrollment of members.

"Breeding and Fattening Cattle," by A. A. Berry, Clarinda, Iowa.

"Notes on Winter Care of Stock," by J. T. Brooks, Hedrick, Iowa.

Discussion, led by A. J. Blakely, Grinnell; Richard Baker, Jr., Farley; Hon. L. S. Coffin, Ft. Dodge, and others.

WEDNESDAY EVENING.

[Special invitations to residents of the city to attend the evening meeting.]

7:30 O'CLOCK.

Opening exercises.

"The Balanced Ration—When to Use It," by Prof. C. C. Georgeson, Manhattan, Kansas.

"Grasses and Substitutes," by Prof. James Wilson, Ames, Iowa.

"The Breeder of Improved Stock Must be an Improved Man," by ex-Governor C. C. Carpenter, Ft. Dodge, Iowa.

Discussion on the above papers led by Henry Wallace, Editor Iowa Homestead, Des Moines; Hon. John McHugh, Cresco; Dan Shochan, Osage; L. I. Kinsfelter, Mason City; E. C. Bennett, Tripoli, and others.

THURSDAY MORNING, DECEMBER 3.

9:00 O'CLOCK.

Treasurer's report.

"The Progress of the Dairy," by E. C. Bennett, Tripoli.

"Corn Culture," by J. G. Brown, Marshalltown.

Discussion led by Dairy Commissioner A. C. Tupper, Osage; Henry C. Wallace, Ames; O. T. Denison, Mason City, and others.

"The Future Horse—With Reference to Market Value," by C. F. Curtiss, Ames.

Discussion led by B. F. Gove, De Witt; O. E. Stubbs, Fairfield; Joseph Wadsworth, Algona, and others.

"Western Sheep Industry," by H. A. Heath, Topeka, Kansas.

Discussion led by Prof. C. F. Curtiss, Ames; C. L. Gabrielson, New Hampton; W. O. Fritchman, Muscatine, and others.

"Some Views on Beef Production," by Henry C. Wallace, Ames.

Discussion led by Prof. D. A. Kent; C. W. Norton, Wilton; Prof. Jas. Wilson, and others.

## PROGRAM.

## THURSDAY AFTERNOON.

1:00 O'CLOCK.

"Development of Farm Animals," by Prof. D. A. Kent, Ames, Iowa.  
 Discussion led by Col. John Scott, Nevada; Hon. George Van Houten, Lenox;  
 W. F. Young, Mt. Pleasant, and others.

"Premium Stock Products—the Consistency of Show Animals as the Producers  
 of Best Results," by W. L. Addy, Dana, Iowa.

"Summer Care of Common Farmers' Hogs," by C. Murdock, Waterloo, Iowa.  
 Discussion led by W. M. Lambig, West Liberty; George Prine, Oskaloosa; Hon.  
 B. R. Vale, Bonaparte, and others.

Election of officers.

Unfinished business.

Adjourn.

## FRIDAY MORNING.

## OFFICERS FOR 1893.

## PRESIDENT.

DANIEL SHEEHAN .....Osage.

## VICE-PRESIDENTS.

HON. B. R. VALE.....Bonaparte.  
 C. W. NORTON.....Wilton Junction.  
 C. MURDOCK.....Waterloo.  
 JNO. D. HERRICK.....Fredericksburg.  
 J. N. DUNN.....Waubeek.  
 J. R. CRAWFORD.....Newton.  
 N. J. HARRIS.....Des Moines.  
 HON. W. O. MITCHELL.....Ames.  
 PROF. D. A. KENT.....Ames.  
 EX-GOV. C. C. CARPENTER.....Fort Dodge.  
 HON. J. D. YEOMANS.....Sioux City.

## SECRETARY AND TREASURER.

GEORGE W. FRANKLIN.....Atlantic.

The next place of the annual meeting will be in Corning, begin-  
 ning December 6th, 1893.

## THE CONSTITUTION.

### ARTICLE I.

This Association shall be known as the IOWA IMPROVED STOCK BREEDERS' ASSOCIATION.

### ARTICLE II.

The objects of this Association are to increase the excellency and to provide for the preservation and dissemination in their purity of the different breeds of improved stock of all kinds.

### ARTICLE III.

Any person who is a citizen of Iowa and a breeder or owner of fine stock may become a member of this Association by paying a fee of one dollar annually, and signing the constitution or empowering the Secretary to write his name thereon.

### ARTICLE IV.

The officers of this Association shall be a President, five Vice-Presidents to represent the different branches of stock breeding, and a Secretary and Treasurer, and these seven shall constitute an Executive Committee, of whom a majority shall be a quorum for the transaction of business, and the duties of these several officers shall be the ordinary duties of such officers in like associations.

### ARTICLE V.

The annual meeting of this Association shall be held on the first Wednesday in December of each year, at which time all officers shall be elected by ballot, and they shall hold their offices until their successors are elected and qualified.

### ARTICLE VI.

This Association at any annual meeting may make amendments to this Constitution, may adopt By-laws, may fix an annual fee of membership and may do any other business not inconsistent with the purposes of this Association; *provided*, that amendments to this Constitution must receive a two-thirds vote of all members present.

[The above is the amended Constitution. The number of Vice-Presidents have by the custom of committees been changed from five to one from each congressional district. Etc.]

## INTRODUCTION.

There is one thing which characterizes all the stock meetings which are held in the northern part of the State in that if the attendance is somewhat cut short by storms, or the inefficient railroad facilities, the interest of the meetings held under such circumstances intensifies in character of papers read and discussions made in relative proportion as the attendance is cut short.

Many members were kept away from the meeting from the fact that they could not reach the place of meeting short of two days, and then would be compelled to go over two or three different lines of road. This, together with the storm that prevailed on the first day of the meeting, prevented many from attending which otherwise would have been in attendance. The local attendance was almost wholly cut off by the storm, and as it was the first storm of the season, the stock men, ever alert to the best interests of their live stock, were compelled to stay at home and attend to the wants of their stock.

We cannot help but miss some of the faces which, early in the history of the Association, lighted up the meeting. We missed at this meeting not only those who had passed over to the great beyond, but such as are connected with stock interests yet, who are too enfeebled with age to be present. The following seats were vacant in the convention: That of Moninger, Scott, Lathrop, Coffin, Cook, Gilmore, Clark, Stockdale, Wheeler, Lucas, Mills, Evans, Stubbs and others whose names we do not now recall.

The program of this meeting was of unusual interest, and was one of the most interesting of any of the years preceding. Two papers were of especial interest and elicited a great deal of valuable discussion. They were the papers of Professors Kent and Georgeson. In speaking of these papers it does not follow that any of the others were without interest, for they were not. They were all above the average as regards practical thoughts and infor-

mation. The stockmen who meet from year to year are becoming more enlightened on some of the subjects which pertain to rations, and if a formula given by some theorist is not about right, they lose no time in saying so, giving the theory a sifting.

Prof. H. C. Wallace was to have prepared a paper on "Some Views of Beef Production," but a severe spell of sickness prevented the preparation of the paper. Prof. C. F. Curtiss, for the same reason, was prevented from preparing his paper on "The Future Horse—With Reference to Market Value." We have endeavored to have these two papers prepared for the printed proceedings, but the writers prefer not to have a paper appear without having had an opportunity to be discussed at the meeting.

For the first time in the history of the Association we failed to get railroad rates. The railroads are getting more strenuous each year, and they require one hundred members or persons coming over the railroads to get the regular reduction of one-third return rates. The Passenger Association appointed one of the railroad agents at Humboldt to confer with the secretary of the Association, and in case he found one hundred persons had come over the railroads he was to stamp the certificates which, when signed by the secretary, would entitle the holder to return home at one-third rate. We sent three times to the agent who had the business in charge and could neither find him in the station or at his residence. The certificates were signed by the secretary and many of them were presented to him and he refused to sign them. It seems that the railroads are entirely too strenuous with a class of people who pay about as much money to the railroads as any class of patrons. They are constantly shipping live stock, both for breeding purposes and for the market, paying full rates and, in some instances, double rates.

It is to be hoped that we will not be hampered by poor railroad facilities at our next meeting. Corning, our place of meeting, is on the main line of the C., B. & Q. railroad and can be reached from almost any part of the State.

As usual the custom of bidding adieu to the stockmen, the citizens of Humboldt gave a banquet to the few who remained to attend the closing ceremonies. It was one of the most enjoyable occasions of the meeting, and those stockmen who left for home before this time will never know how much they missed. All left Humboldt with many pleasant remembrances of the citizens of this northern city, hoping that when we make our next visit, they will have many roads wending in all directions.

## CORRESPONDENCE.

MADISON, WISCONSIN, September 30, 1892.

GEO. W. FRANKLIN, *Atlantic Iowa*:

DEAR SIR—Yours of September 20th was duly received, and I have delayed replying, hoping that I might be able to promise to attend the next meeting of your Stock Breeders' Association, Humboldt, Iowa, December 7th. I fear, however, owing to overwork here this fall, that it will be impossible for me to be with you this year. I read the reports of your meetings with great interest and much profit, and hope the time is not far distant when I shall be able to get better acquainted with your people and meet them personally in these important meetings. If matters so arrange themselves that I can be with you, I will write as soon as that fact is ascertained. With high regards, very respectfully,

W. A. HENRY,  
Director.

MADISON, WISCONSIN, October 21, 1892.

GEO. W. FRANKLIN, *Secretary Stock Breeders' Association, Atlantic Iowa*:

DEAR SIR—Your very kind letter urging me to attend your forthcoming meeting has been received, and I have given the matter very thoughtful attention. It is impossible for me to be with you this year, much as I wish to do so. I was away for some time in the summer, the first vacation I have had in three years, and I find now that the work piled up very greatly and that it is by no means straightened out yet. Last year I was with your dairy people in their annual meeting and had a most enjoyable time. Nothing would give me more pleasure than to meet your energetic, pushing stockmen, for I could learn a good deal from them, but this time you will have to excuse me.

It is out of the question to think of preparing a paper. The calls on me are so heavy here at home that I have not a moment's time to give to such a subject at this time. My failure to be in attendance is through no lack of appreciation of the importance of your meeting on my part, but owing to the large amount of work laid on me here at the College. Hoping I can be with your people at some future time, I am,

Very respectfully,

W. A. HENRY,  
Director.

CHICAGO, NOV. 9, 1892.

GEO. W. FRANKLIN, Esq., *Atlantic Iowa*:

DEAR SIR—In regard to your application for reduction in fare in favor of persons attending the Annual Meeting, Iowa Improved Stock Breeders' Association,

to be held in Humboldt, Iowa, on December 7-9. We have the pleasure of advising you that the rate of a fare and one-third for the round trip, upon the certificate plan, from points in Iowa, has been agreed upon by the railways designated by check mark on the enclosed list. (The railways not designated by check mark do not deem their interest sufficient to warrant making any reduction for this occasion.)

Reduced rates on the certificate plan authorized by lines in this Association, become effective only when it has been demonstrated that one hundred persons have actually been in attendance, and hold certificates showing that they have paid full fare by rail from or through the territory of this Association on going trip to attend the meeting. The method adopted for the observance of this requirement for meetings, conventions, etc., held within the territory of this Association, is as follows:

When it has been agreed by the usual unanimous vote to grant reduced rates on the certificate plan for meetings, provided there are one hundred or more in attendance holding certificates covering lines in the territory of the Western Passenger Association, the Chairman shall appoint an agent of one of the terminal lines at the convention point, to act as joint agent of the lines leading from such point to or through the territory of this Association, and whose duty it will be to endorse by his office stamp, all certificates providing for sale of return tickets at reduced rates, first satisfying himself that one hundred persons or more have paid full fare on going trip to attend the meeting, as shown by certificates for tickets reading over the terminal lines into the meeting point. Certificates not to be honored by any line for sale of return tickets at reduced rates, unless so endorsed by the joint agent.

Upon presentation by the secretary or proper officer of the meeting to the joint agent, of all certificates reading not only over lines terminating at the convention place as shall be designated to him by the chairman, but certificates reading over the connecting lines in Association territory beyond, the joint agent shall stamp all such certificates with his office stamp, provided there are one hundred or more certificates reading over lines terminating at the convention place. If there are not presented to the joint agent one hundred of such certificates, he shall decline to stamp any certificates whatever, and shall so notify agents of other terminal lines.

When certificates bear the office stamp of the joint agent, they shall be honored if properly signed and within proper limits in the usual manner as at present. Certificates not bearing the office stamp of the joint agent shall not be honored.

Lines interested shall so instruct their local agents, not only at the convention point, but at the junction points authorized, to honor certificates when properly stamped.

In accordance with the provisions thereof, Mr. W. H. Bonn, Depot Ticket Agent of Minneapolis & St. Louis Railway, at Humboldt, has been appointed to act as joint agent in the stamping of certificates issued on account of your meeting, and the Secretary or other proper officer of your organization should be careful to observe the requirements of this rule in order to enable the joint agent to conform to the provisions thereof.

It is conditioned that in the event the attendance is such as to secure the reduction contemplated, the Secretary or Clerk of your meeting, who we understand is yourself, and whose duty it is to countersign certificates, shall, within one week after the close of the meeting, transmit to the undersigned a statement upon the accompanying blank of the number of persons who had been in attendance, holding certificates issued by each or any of the roads named thereon, and covering one-way tickets reading to destination point.

For exact information as to the manner in which the business will be transacted by each line designated by check mark, and particularly as to the junction points in which it will arrange to grant the reduction, please communicate with the General Ticket or Passenger Agent.

On the certificate plan, as in use on most of the railroads in the territory of this Association, the passenger pays full fare in going to the meeting, and secures a certificate (or receipt) therefor from the ticket agent, by request, at the time of purchase, and this certificate (or receipt), when countersigned by the proper official at the meeting, becomes authority for sale of a return ticket over the same road, between same points, at one-third fare, thus making one fare and a third for the round trip. Where the journey is made over more than one line, it is frequently necessary for the passenger to purchase separate local tickets, and procure certificate thereof of each of the lines in this territory over which he travels in going to the meeting as many of these lines do not honor the certificate of any other line. Passengers should therefore ascertain from the ticket agent what portion of their journey can be covered by the certificate procurable of him, and purchase tickets and secure certificates filled in accordingly.

Failure to procure or present certificate invalidates any claim for reduction in return fare.

The tickets purchased for going passage may be either unlimited or limited, according to rate paid or regulations in effect on the line over which it reads; but the return tickets sold at the reduced fare will, in all cases, be limited to continuous passage.

Certificates will not be honored for return tickets at reduced rates unless presented within three days after the date of adjournment of the meeting (Sunday not being accounted a day), nor will certificates be honored in cases where going tickets were purchased more than three days prior to the commencement of the meeting.

For your information a sample of the standard form of certificate, which is used by nearly all of the railways referred to, is also enclosed.

Respectfully,

B. D. CALDWELL,  
Chairman.

Lewis, November 18, 1892.

GEO. W. FRANKLIN, Esq., Secretary:

MY DEAR SIR—I am in receipt of program of Iowa Improved Stock Breeders' Association by your courtesy. Thanks. It would afford me very great pleasure to meet with the Association again I assure you, but it will depend upon my health and the weather. Can't you attend National Farmers' Congress at Lincoln, Neb., next week, commencing Tuesday. I shall try to go, leaving Atlantic at eleven o'clock, Monday A. M., full fare out and one-third return. Should be pleased to join you and go out together.

Very truly yours,

OLIVER MILLA.

November 25, 1892.

GEO. W. FRANKLIN, Secretary:

MY DEAR SIR—I seem doomed never again to meet my old and valued friends of the Improved Stock Breeders' in regular session. I had my mind and my heart set on being with you at Humboldt, loaded with good cheer. I had ordered my mail there and made other arrangements on that line. Graves and Harris, president and cashier of the Dubuque Commercial National Bank, have to appear for trial the 6th prox., and to-day I got a subpoena to be present at Dubuque on that day. No time would do but that which I had so much counted upon. Sorry I am. I have no doubt but you will have a good and profitable meeting. Please tell Barclay, Wallace, Sheehan, and other old timers, of good intentions and the cause of my failure. With kin' regards and sincere regrets,

Yours truly,

JOHN McHUGH.

NEVADA, December 5, 1892.

FRIEND FRANKLIN—I very much regret that I will be unable to attend the Stock Breeders' Convention. Am just recovering from a four weeks' siege of fever. Enclosed find draft for \$1.00 to continue membership.

Very truly,

C. F. CURTISS.

GRINNELL, Iowa, December 5, 1892.

HON. G. W. FRANKLIN, *Secretary*:

DEAR FRIEND—I received your program assigning me a place in the discussions at the meeting of Iowa Improved Stock Breeders' Association to be held at Humboldt this week.

I had hoped to be able to attend and listen to, and participate in the discussions but now find it will be quite impracticable for me to leave home. I much regret that on account of health of family I can not be with you this time, for I always enjoy very much these annual meetings of the Iowa Stock Breeders, and have found them very profitable.

Hoping the Humboldt meeting may be one of the best in the history of the Association,

I remain yours truly,

A. J. BLAKELY.

OSKALOOSA, IOWA, December 6, 1892.

GEORGE WASHINGTON FRANKLIN, *Secretary Iowa Improved Stock Breeders' Association, Humboldt, Iowa*:

DEAR SIR—It is with much reluctance and disappointment that I am compelled to be absent from the Humboldt meeting. Business is such that it cannot be neglected.

I am yours very truly,

GEO. S. PRINE,  
*Secretary Iowa Swine Breeders' Association.*

TOPEKA, KAN., December 6, 1892.

MR. GEO. W. FRANKLIN, *Secretary, Humboldt, Iowa*:

DEAR SIR—I very much regret to be compelled to notify you on account of sickness in my family that at the last moment I am unable to be with you. Although I very much desire to be present, I think now it is quite doubtful. So I shall send to you my paper and if you see fit to have it presented you may do so. If I find that I can come I will wire you.

Very respectfully,

H. A. HEATH.

TOPEKA, KAN., December 6, 1892.

GEO. W. FRANKLIN, *Secretary Iowa Stock Breeders' Association*:

Sickness in my family prevents my attendance. Have sent papers.

H. A. HEATH.

## NINETEENTH ANNUAL MEETING.

HUMBOLDT, IOWA, December 7, 1892.

The Nineteenth Annual Meeting of the Iowa Improved Stock Breeders' Association, called to order at 2 p. m., by President Barclay.

MR. BARCLAY: It is now time to commence our meeting and we will open our exercises by an invocation by Rev. Burns:

Our heavenly Father we call upon Thy name this afternoon and feel that we are in Thy presence. We have come here from different parts of our beautiful State and we feel that we are recognized as men coming together, engaged in the various pursuits we are following, and that in the carrying out of that business and the fulfilling of it, we are to obey Thee. That in deliberating and inquiring and investigating what is good and right in this business, we ought to feel that we are in Thy presence. That we are come to study one of the great departments of Thy eternal kingdom, the department of nature and nature's laws. And, in the study of these laws and in all of our deliberations here may we enjoy the friendships of this meeting; may we all live to be made stronger, better and wiser from these gatherings and these meetings, and in all of the future we will give Thee the glory now and forever, Amen.

After which the address of welcome was delivered by Mr. S. H. Taft.

## ADDRESS OF WELCOME.

BY S. H. TAFT.

Gentlemen of the Iowa Improved Stock Breeders' Association:

't has been made my pleasant duty to represent the citizens of Humboldt and vicinity in extending to you a cordial, and a hearty welcome to our town. While we cannot entertain you with any of the extraordinary exhibitions of nature, such

as towering mountains, thundering waterfalls, or belching volcanoes, we can present you with one of the most charming valleys of the world, where nature has laid in store her richest bounties for her children; bounties to procure and appropriate which mankind are not compelled to delve in dark mines, nor are they tempted to extravagance as are some of those who dig for gold, by attaining sudden wealth. But instead God has here placed food, raiment, comfort and competency within man's reach, where the thought and labor necessary to their attainment is itself a blessing. It may seem best that I fortify myself in the claim I make for the upper valley of the Des Moines by the testimony of a distinguished, yet disinterested witness. Many years ago Lord Morpeth, of England, when traveling in this country, spent several days with his Scotch friend, Col. Leighton, of Keokuk. From Keokuk he went up to St. Paul on a Mississippi steamer and returned by way of Algonka, Ft. Dodge and Des Moines. He told Col. Leighton that of all the places he had visited in his travels one of the most beautiful he had ever beheld was in the upper Des Moines valley, in the vicinity of the forks of the river. That place must have been the wild, beautiful prairie where Humboldt now stands.

But gentlemen, we invite you to something more than lands blessed with beauty and great fertility. We invite you to a portion of the State which is being developed by industrious, frugal and intelligent men and women who have, in a little more than a quarter of a century, laid deep and broad the foundations of a Christian civilization, and who are intent on protecting their homes from the inroads of those vices which have corrupted and overthrown so many societies and nations.

In early days mankind journeyed from barbarism to civilization by way of stock raising; but with the advance of civilization the herdsman largely disappeared, giving place to the cultivation of the soil. But the chief reason why stock raising was not equally with the tilling of the soil, conducive to a high order of civilization, was the manner of conducting the business, since it furnished employment to but a small part of the inhabitants, leaving a large portion of them exposed to the temptations attending idleness; besides which the people led a roaming life. But with the advent of printing, steam power and quick and cheap means of communication and transportation, stock raising began to revive and has now taken its place beside the cultivation of the soil, or more correctly speaking, it has become an inseparable partner with it in promoting a high order of civilization. The two kinds of employment have become so blended as to be practically one, so that the improvement of stock advances the best interest of the man who holds the plow and drives the harvester. The welcome we therefore extend to you is genuine, heartfelt, since we recognize you as helpers and benefactors of mankind, representing, as you do, interests common to all and involving harm to none. I could not thus welcome you did you represent a business which was known to be at war with the well being of society, a business that blighted more than it blessed, such as tobacco raising, beer brewing or raising horses for the public race course. The public races are always attended by many whose presence is a moral pestilence; they are nothing less than alluring gambling schools where deception and trickery are taught and practiced from the word go to the word whoa.

The lines of industry you represent instead of being thus harmful and objectionable are helpful and beneficent. Another reason why we gladly welcome you to our county is the fact that much practical attention has here been given to the subject of stock raising, so that I trust we shall be able to understand and appreciate the

discussions which shall be engaged in during your meeting. We shall take pleasure in showing you some of the finest strains of thoroughbreds in the State. Humboldt county has herds that have much more than a local reputation. Prominent among the proprietors of these herds I would name Johnston & Sons, Jones & Lowder, Woolcot & Sons, J. J. Smart, C. H. Brown, and last but not least, Taft & Co. You are not therefore among strangers, but among friends, and fellow workmen in the same field of labor with yourselves. We hope it will be your pleasure to visit some of these herds before you leave our county. It seems to me not inappropriate to say that it gives me great pleasure personally to meet and greet my fellow men who represent any helpful employment or innocent enjoyment, or who are seeking to obtain or impart truth. This pleasure springs chiefly from my thought of God and human relations, believing as I do in the Fatherhood of God and the brotherhood of man as taught by Jesus of Nazareth.

The religion taught by Jesus was not an exotic, brought from afar, to be enjoyed on special occasions, but it was and is an inheritance from God, a universal human sentiment, as truly a part of our being as our reasoning faculties, and by virtue of our religious nature we may attain to a consciousness of being children of God. While taking great pains to develop and perfect the dumb animals let us not neglect to cultivate those powers by which the human soul is allied to God, and by which we are related to each other in fraternal bonds. Let us also remember that this ever present religious and moral principle lays us under a sacred obligation to always treat with thoughtful kindness the brute creation which God has put into man's keeping.

Trusting that this cheerful thought of God and our relationship to each other may so pervade our deliberations as to make our meeting helpful to all participating in them, and thanking you for your indulgent attention, I again bid you well come.

**MR. BARCLAY:** Gentlemen, for this most cordial greeting and welcome to your beautiful city, I thank you for the Association. I now have the pleasure to introduce to you one of the most distinguished citizens of our State, ex-Governor C. C. Carpenter, who will respond to this welcome.

**C. C. CARPENTER:** Gentlemen, Fellow Breeders, and Citizens of Humboldt—I think there is a mistake somewhere. I think the President of this Association should have responded to this greeting, but as I am called upon I will make them. I regret that we could not have been here on a day that we could have seen these beauties that have been pictured to us by Brother Taft. I know that they exist, because, as it happens, I was here before there was any Humboldt, or before there was a house or farm between this point and the Minnesota line. I have seen this country grow up from the bottom. I have been here ever since and I expect to stay here, and it won't be very long until I am called away. I know the people of Humboldt county well; I know them thoroughly. I presume most of my fellow breeders, like myself, do not care anything about it, but then they have come to the conclusion, from the nature of Mr. Taft's remarks, that this is a prohibition town. (Laughter.) We can not get anything to keep awake on. (Laughter.) I thank personally, and in behalf of the breeders here assembled, the people in this town for inviting us here and receiving us so cordially. As I say, I know these men, these women and these families that occupy this valley. I know their hospitality

and I have enjoyed it. I know their intelligence, and I know their desire to advance on all the lines which mean advancement, not only as stock breeders, but as intelligent men and women. They have invited us here and we are here to illustrate to them what the breeders of the State of Iowa are, and I believe as I look into the faces and eyes of those present that the breeders of the State are well represented. They are a fair representation of what these men are; the kind of men they are. Now, before I close, I want to say a word in regard to what these associations mean. Mr. Taft has hinted at it but I wish to add a little. It means, in my judgment, better men and better women and better citizens of the State, and these men who came here and discuss their business on occasions of this kind are aiding in a great advancement. A few years ago in my town, at the graduation exercises of the high school, one of the directors in presenting diplomas to those who had graduated, told them of many things which they should learn. Among other things, there was at that time an Indian doctor in town, holding forth with his tents, etc., etc., and among other things, the director said, "I trust one of the things you have learned is not to expend money to cure diseases by Indian doctoring and methods." (Laughter.) These breeders, when they come together, and discuss their business, should, and do, talk business.

I remember some years ago of reading a story of old John Wentworth. He was a Short Horn and fine stock breeder. It is said that a young fellow had gone to California and struck a pretty good lead and made his "pile," and had come back to the States and was looking about for a place to spend his money, and he found a place. It was about the time of Angora goats; then they were being brought from South America to experiment with raising them. He bought a farm and he imported a load of Angora goats. Time passed on and for four or five years he did not make much money in the Angora goat business. He went to John Wentworth one day and said to the old fellow, "You have a large farm and you are raising fine stock, would you not like to go into another branch of stock raising?" Mr. Wentworth replied, "Well, yes, if there is anything in it." "Well," the young man continued, "I have been in the goat business out here, but I do not think I am qualified for the business. I know that if a man would take hold of it who knew how to manage it, it would be all right; but I am not qualified for the business, and I have found that out." Mr. Wentworth then replied: "Young man, I have been in business for over thirty years and I have been bitten a good many times, but I have never yet been bitten by a goat." (Laughter and applause.) So, coming as you do, you want to discuss your business so you will not be bitten by a goat. (Laughter.)

I want to return the sincere thanks of this Association to these people, the men and women of this county, who are engaged in their enterprises here, for this cordial welcome, for the building they have given us to hold our convention in, for the good things they have given us, and for the good things they propose to give us as we go along. (Applause.)

MR. BARCLAY: Gentlemen, the next part of these proceedings I am not calculated for. I am much better calculated to feed bulls, than to prepare an address for this Stock Breeders' Association.

# PRESIDENT C. S. BARCLAY'S ADDRESS—IOWA IMPROVED STOCK BREEDERS' ASSOCIATION.

## *Gentlemen of the Improved Stock Breeders' Association:*

I have been looking forward to this, the nineteenth annual meeting of the Improved Stock Breeders of this great State of Iowa, with a great degree of interest and a feeling of doubt as to my ability to provide over a body of such broad intelligence and varied and wide experience.

I therefore crave your indulgence and kind consideration and assistance. My work has been more with the practical duties connected with our vocation, than telling others how or studying the nice points of parliamentary usages.

I know of no other occupation or profession that demands a more liberal education and practical experience than the one in which you are engaged. There are no set rules or text-books that cover the ground. Conditions and circumstances are so varied that no two experiences are just alike. The year 1892 is a striking illustration of this fact. The spring, ushered in by cold and extreme wet and cloudy weather, followed by drouth, has kept you on a continuous strain to know what best to do, and how to do it. The period which is usually too short for seedling, tending to harvesting, cutting short the time at both ends, and doubling up the work in caring for the cattle, calves, pigs and lambs that usually put in an appearance in the spring and early summer. Your time and energies were taxed to the utmost. The wet weather of the spring, although shortening the corn crop, unquestionably saved and made our cheapest and best crop, the grass; and the drouth, while cutting short the pastures in the fall, saved and made the corn. Surely we can say: "He that reigneth doeth all things well." The calamity howls that we would raise nothing, or not enough to keep starvation away from our doors, have been defeated once more, and we are here to rejoice that our lines have been cast in a land that has never failed to raise enough and to spare, not so great an abundance as the year preceding, but what is lacking in quantity will be made up in value.

In regard to our interests as improved stock breeders, our sky is not all clear. The breeding of horses seems to be somewhat overdone. We hear the complaint from all quarters that only the best will sell at paying prices. We, as improved stock breeders, should countenance nothing but the use of our best mares for breeding purposes. There should be a thorough cleaning out of sires, keeping only the best. That there will be a paying margin for the best of the different breeds, I have not a doubt. Our fight should be against the scrub, no matter what blood.

Cattle have been so low in price that it is hardly popular to mention them. The determination of almost every farmer to quit the business caused the indiscriminate slaughter of cows and calves for the last four or five years, and most assuredly has greatly lessened the numbers; and the neglect to use pure bred bulls and want of proper food and care have depreciated the quality to as great an extent. In view of the vast amount of exported product of the various kinds derived from this source and the fact that we now have nearly seventy million of our own people to feed would indicate that we have gone about far enough on this line. We

should feel greatly rejoiced that our country is now free from the scourge of pleuropneumonia. The thanks of this Association are due to Secretary Rusk for his efforts along this line, and the attention he has shown for our interests generally.

The cold, wet spring was very destructive to our pig crop and greatly increased the labor to care for and save the little stragglers; what pulled through are paying liberally for their care and feed. I would strongly urge hog breeders to keep in mind the distance from the hog pen to the pork barrel. I mean by this, do not allow yourselves to be carried too far by pedigree. Keep constantly in mind the individual merit of the animal.

I note with pleasure the return of sheep to so many of our farms. I believe sheep of the different improved breeds should have a place on very many of our farms.

To me the outlook for the farmer in the production of our meat producing animals has not been so bright since 1867 as at the present time.

Secretary Rusk states in his last annual report that of the \$1,000,000,000, representing the value of our exports of domestic products for the year, nearly 80 per cent was contributed by the products of the farm and fields. The total number of animals subjected to anti and post-mortem examinations, for the fiscal year, exceeds 5,000,000, of which 1,267,829 were hogs, and of which only 2 per cent were affected with trichinae.

In regard to our live stock exhibit at the World's Fair, I have been able to obtain but little information. The very meagre appropriation by the legislature last winter, and the paltry sum in the hands of the State Commission for use is the live stock interests, puts a damper on any attempt to make an exhibit by any breeders who do not feel able to incur the entire expense. I would like to see Iowa well represented in all branches of live stock. I believe the stock is in the State to make a creditable exhibit if it can be brought out. It is time that the State Commission have the matter in hand and know where their exhibit is coming from. I would recommend that this Association take any steps it can to insure a good exhibit.

The election of members to the State Board of Agriculture is one that should claim the attention of every member of this Association. As fine stock breeders we are personally interested, as the success of our State Fair largely depends on the live stock exhibit. We should have representation on the board that would look carefully after our interests.

Again thanking you, gentlemen, for the honor you conferred upon me in electing me president of your Association, and asking your indulgence I now await your pleasure.

MR. BARCLAY: The next thing on the program is the appointment of committees and enrollment of members. On the Committee on Nomination of Officers and Location, I will appoint:

- A. C. TUPPER, Mitchell County, *Chairman*.
- C. L. GARRISON, Chickasaw county.
- B. J. JOHNSON, Humboldt county.
- C. W. NORTON, Muscatine county.
- W. O. MITCHELL, Adams county.
- J. R. CRAWFORD, Jasper county.
- A. A. BERRY, Page county.

Committee on Resolutions, I will appoint:

- A. V. STOUT, Grundy county, *Chairman*.
- E. C. BENNETT, Bremer county.
- J. J. SMART, Humboldt county.

On motion of Mr. McClung, the discussions of each person on different subjects were limited to five minutes.

Carried.

MR. BARCLAY: There have been two or three persons speaking to me about depriving them of the privilege of discussing, or "cussing" rather the address which I made. They are at liberty to do so, as it is the property of the Association.

MR. NORTON: I wish to say that I am in full sympathy with the President's address. He takes in all the lines of horses, cattle, sheep and swine, and passed through all which we have passed through during the past year. I do not like to look upon the past. It has never been my pleasure to look upon the past. I want to try and have a pleasant future. I said to myself last year when we elected him, "We have got Barclay up in the President's chair and we will warm him up when it comes to that President's address." But I want now to say I am in favor of the President's address.

MR. SHERMAN: There are two points in the address which I wish to speak of. I notice the President, in his address, made the remark that last spring it was wet, and cold, and spoke about the little pigs, they were delicate and weak when they came, and it was hard to save them. There is no one here who had any practical experience in that line last spring but who knows that is correct.

But what pleased me most, he said we ought to keep close watch from the time that pig started until we got it into the pork barrel. The time is about half spent, and more in some cases when that pig is going to the pork barrel or in a man's pocket in one way and another. And he made the remark that the wet and cold was one of the causes that gave us pretty good pay and made the pig smell like the rose in June (laughter) to the man that had him, when he came to put the dollars and cents in his pocket this fall. Another point—that there was a time when he thought it was time to stop selling those dear little innocents—the veal calves. The question with me is, whether we had better keep selling those dear little innocents, or, if we should sell only one-half of them or one-quarter of them, whatever the case may be, if we could put just as many dollars and cents in our pocket for what was left. Would

not it be just as well to keep on killing the little "cusses" that have not been paying their way for the last few years? The contrast was so great between the two points in one address that I happened to notice it, and I made up my mind when I got home I would say to every man in Mitchell county: "I know President Barclay; I know him long and well. He is practical, I believe every word he said about the pig." I heard one man say, since I have been here, they lost eighty pigs and saved sixty. That is about 120 per cent lost. As I said, I am going to say to every man in Mitchell county, when I get home, what Mr. Barclay has said about the little pig. Gentlemen, it is my candid opinion if you kill more of these calves and pigs, and keep on killing them for years, the time is coming when you can get more money for what few that are left. It is the business of the stock breeders of Iowa, if they can, by selling only half, thus put more dollars in their pockets to do it. That is the very way to advance their interests. These combinations and trusts, what do they do? They buy up these manufacturing plants and they lay them away (laughter). Don't do anything for a year or fifteen months or such a matter. There is but one way in the world to meet them, and that is to fight them with their own weapons. If I can make more money by raising one-half of my calves or pigs, or, instead of planting one hundred acres of corn, plant fifty, I claim I have a perfect right to do that.

MR. TAFT: The gentleman has referred to trusts. I think we are right in trying to get the legislature to protect ourselves from them. The gentleman is right in desiring to promote our interests, but we must not, as members of one family, seek after our own interests in total disregard of others who are not associated with us. That combination that buys up a representative of industry or a manufacturing establishment and lays it aside, so as to compel the consumer to pay a higher price than he ought to, is, whether he knows it or not, an enemy of the family as a whole. We must represent a higher thought than that. I am not complaining when the wheel of fortune brings around a good price for our products, but I protest in the name of the law of unity that binds man to man and man to God, against these trusts and combinations that are formed for the purpose of squeezing the dependent and helpless, to the advantage of these selfish persons. In so far as the remarks involve that principle I endorse them to the fullest extent in my thought and my moral sentiment. In so far as it refers to building each other up, I look to the time when this sentiment of

unity shall work out this grand result, when the combinations shall be formed, not for the purpose of increasing the price, not to take advantage of the helpless, but when we can bring all the comforts of life at the lowest possible price, within the reach of all.

C. C. CARPENTER: I think we are wandering away from the subject at issue to some extent. As I understand it, we are discussing or rather "cussing," the President's address. I propose to take issue in what Brother Taft has said in regard to the principle of this business. I am speaking now of Humboldt and Humboldt county. Suppose, on the principle spoken of by my friend Sheehan, every stock breeder in Humboldt county could double his gains through the coming year, would not it be for the advantage of everybody in Humboldt county, whether a stock breeder or consumer? I would wear better clothes than I have now. I would buy more goods of the merchants than I buy now. I will make other expenditures that I do not make now, and so it will redound to the advantage of everybody in the town. I will help the mechanics by making improvements on my farm if I increase my gain. I will make improvements on my house if I increase my gain. So, if I make more money as a stock breeder, it will redound to the advantage of everybody in the community. That is the principle.

Paper by A. A. Berry, Clarinda, Iowa, "Breeding and Fattening Cattle."

#### BREEDING AND FATTENING CATTLE.

BY A. A. BERRY, CLARINDA.

The most vital question that confronts the Iowa farmer to-day is that of converting his enormous crops of grain and luxuriant grasses into profitable beef and pork. The average farmer knows full well that continual cropping of grain is a ruinous practice, as taking one year with another grain is too low in price at this distance from eastern markets to be remunerative, and continual cropping is soil robbery and will bring disaster upon the one following such methods. Stock raising combined with farming has been found to be a better way for the Iowa agriculturist.

Rotation of crops is the only successful method of conducting a stock farm, but as yet we need not go into such an exact system of "shifting" as is practiced by our brethren across the sea or in some parts of the east, but we are coming to it

and it is only a question of time when the soil fails to produce as abundantly as it has in the past, the improved bred farmer will follow a thorough system of shifting.

The keynote of profitable stock raising and farming can be summed up in one word—CLOVER. Down in Page county we are rather an intelligent sort of farmers, and have been reading Brother Wallace's gospel in the *Homestead*, and advices in other agricultural journals, in regard to the importance of growing clover, and have been "catching" on greatly and have "gone to clover" in a manner that is commendable, and now all successful farmers raise more or less of that valuable crop. With clover land immense crops of corn can be raised and turned in profitable beef and pork; to turn into money to buy more land to sow to clover to raise more corn, etc.

And another thing that is attracting the minds of the farmers down with us, and that is the culture of fall wheat, and it is truly a God send for old and worn out corn cropped land.

It has only been a few years since we commenced to grow much fall wheat and it was found to be so profitable, both as to yield and benefiting the ground, clearing foul land and preparing it in the very best condition for clover, that its culture has increased most wonderfully and now thousands of bushels are raised annually and this year fully one-third more was seeded than last.

We attribute our great success to a hardy variety and manner of sowing. I have some very interesting figures in regard to fall wheat for Iowa, but as it does not come under this topic will refrain.

The greatest live stock industry in Iowa is that of breeding and feeding cattle, and is a subject that we need to study and employ all the knowledge we can to make the business more profitable. It is a well known fact that there are a great many cattle raised in Iowa—not more so in our State than others, probably not so many—that do not bring their owners a fair profit, and as a matter of course, many of these farmers are anxious to know the reason, while many know better than they do, but do not care to give themselves much bother about caring for them.

It is the little details that count in breeding and feeding cattle, such as feeding regular, feeding suitable feed, salting, keeping time of breeding so as to be prepared for the little fellows when they come, care at weaning time, providing plenty of good water and many small things that are required in caring for cattle. The item of watering alone is of the most vital importance and is neglected more than all others, especially during the winter months when the water supply is frozen over, and cattle are turned out into the corn stalks to hustle for themselves, often with only a wheat straw stack for protection and the surrounding scenery for subsistence.

Want of water when cattle are turned into stalk-fields has killed more than all other diseases in the corn growing belt. Cattle changing from a grass diet to that of a dry, and as all corn contains more or less smut, it requires more water to balance the effect of the dry feed, and they cannot want it for any length of time.

It is a well known fact that the course of action one man pursues in breeding and fattening cattle would not suit another. Each man has some peculiarity of his own in caring for cattle, and while some make it pay many do not. The main requirement, such as feeding, watering, and providing shelter, is followed by all, but is the kind of feed, manner of preparing and feeding it, time of feeding and kind of cattle handled that are the questions men differ on, and these questions often determine the amount of profit gained.

And not every one can make a success of handling cattle anymore than every one that goes into the mercantile business or professional vocation makes a success of these pursuits.

A man must be a natural born stock man, or acquire a thorough knowledge of it by study, just as a man is naturally inclined toward a trade, or profession, or business calling, or they must acquire a mastery of it by hard study and earnest application. And more so, for a stock man must be a good business man and throw brains and personal attention into the art—for it is an art—of handling stock, and unless he does this he will make a failure of it.

Who should raise cattle, what kind should he raise, and who should fatten them? There is much involved in these questions and no one answer would do for all, as different conditions require different treatments.

The statement that "no person can breed and feed cattle intelligently for twenty years and not make a success of it" strikes the keynote to the cattle business. It is the stayers that make it win, watching out for previous mistakes and profiting by them, and by study learn the business thoroughly. He catches the good markets as well as the depressed ones, while the man that is always jumping from one thing to another often jumps into the fire, and is most of the time in the "soup."

The forty to eighty acre farmer on a good farm can raise cattle with profit, but as a rule cannot fatten them for market without risk. The only eighty acre farmer that can fatten cattle for market without risk and make it pay is the one that thoroughly understands the business in every detail, buying and selling—buying grain, feeding and caring for them, and has sufficient capital to buy and store large quantities of corn and holding it to feed during a short crop, when feed is high.

But for the common eighty acre farmer, from eight to ten cows can be carried with profit together with some hogs or sheep and a few horses. His cows should be well bred and good milkers, as the income from the milk is an important factor on small farms, especially where one has a good market for dairy produce.

The product of the milk and dairy and poultry should keep the family in groceries, and often clothe them. An improved bred bull, of a beef variety, should be kept and the calves raised by hand.

The cows should be fresh in February or March, as a calf born at that time is worth much more than any other time of the year, especially so if fed by hand, as the little fellows get a good start before hot weather and flies come. In feeding calves by hand it is important that they get fresh milk for two or three months after birth; after that skim milk can be substituted with a handful of oat meal added to the milk. As soon as they will eat, commence giving them bran and shorts, later on a mixture of oats and corn chop. Feed liberally from the start, as a good breeder is a good feeder, and the two must go together to make a success of the cattle business.

Keep them in good clover pasture during the summer months, but keep up the feed, increasing it when they go into winter quarters, and supplying them with all the clover hay they will eat, and you will have fine yearlings to turn out on the grass in the spring.

It is essential to be provided with warm, comfortable shelter. Calves allowed to run with their dams should be taken in hand at weaning time and fed as above described—a balanced ration, and well cared for, as they are apt to "fall off" when first taken from their mother if not treated extra well.

What should yearling steers weigh, fed by hand, as we have described? This fall we bought from an neighbor, an eighty acre farmer, eight head of yearling steers to match out a load, which weighed, October 15th, 925 pounds. They were

fed as described, receiving good care and attention, and turned out in good clover pasture in fine condition. At three cents per pound they are worth about \$25.00 apiece. Surely there was profit in that for the breeder, as his cows more than paid their keep in the product from the milk.

And there is more profit in such steers for the feeder, as he can put them in the feed lot, as we did, with more chance of profit than steers a year older with no weight, as a great many two-year-olds will not excel that. They are in good condition to commence on, and one does not have to spend a month or two getting them in shape to put on fat, and they will keep on growing right along. They will make nice, smooth, blocky twelve to fourteen hundred cattle that will take the eye of the fancy butcher and command a better price than older steers that are heavier but lacking the quality.

But one can afford to take less, for such beef does not cost so much as older stuff. They would be what is termed "baby" beef and still they would not be so very baby in weight. Early maturity is what we must strive for if we would derive the greatest profit from our cattle.

In regard to the 160 to 300 acre farmer. He can raise enough feed to fatten and breed from one to two car loads of cattle per year. If he has plenty of cheap help, can milk the cows and derive a profit from the dairy. By cheap help we mean a farmer's own family, when he can set the boys to milking and feeding the calves, but in all cases should see that it is done right. When a man has to hire all his help he can not afford to feed much with the dairy and beef cattle too.

A great many farmers think they can make more money by breeding strictly a beef breed and allow the calves to run with their dams. This is true in a great many cases. The cows should be well bred. The calves should be well cared for from weaning time, never allowed to go hungry or loose their calf fat. It takes more care and attention to winter a bunch of calves than stocking a bunch of steers, as they must be kept warm and dry and fed such feed as will promote bone and muscle. It is not judicious to feed calves too heavy a diet of corn if intended to fatten for market the following winter.

The heifers should be sprayed the spring they are a year old and they will feed and sell almost, if not as much, as steers. By all means have your heifers sprayed not intended for breeding purposes, or your profit side will be much smaller, as there is a wide gulf in price between butcher stuff and dressed beef.

I would like to emphasize the fact that we must improve the grade of our cattle faster than we are. Too much poor stuff, too many scrubs that are crowded out at the markets, even by much of the range stuff. There is not a single excuse for a scrub in Iowa when pure-bred bulls can be had for from \$50 to \$100 each.

If we would compete with the range cattle we must raise the very best, and put them in the very best condition to sell at top prices. Too many partly fed cattle are placed on the market and are forced to sell for less than part of the range stuff that costs but little to raise. It is a well known fact that many of our partly fed cattle, shipped to the Chicago market, are bought by Illinois farmers and fed a higher-priced corn than ours, until fully ripe and command top prices. They make it pay; so, why should we ship partly fed stuff, when, often from the same station and at the same time ship several carloads of corn.

All folly. Feed them out, as it can be done cheaper right at home, in your own feed lots, without changing.

Another losing practice in the cattle business is that of over stocking, and having too many cattle for the capacity to feed and care for them properly. Better keep fewer and keep them better.

A good many farmers who grow from 1,000 bushels of corn and upwards, prefer to buy the steers and feed the crop and often they buy a great deal of corn and all meal and other feed.

It is somewhat risky to buy cattle and feed also, and much is lost that way. Of course, a great many make it pay, but they are generally practical cattle feeders.

No doubt there are times when cattle can be bought cheaper than they can be raised, and there are times when corn can be bought for less than it can be grown for, but take one year with another the farmer who breeds his own cattle and raises his own corn is the one that makes the most money.

But some men are adapted as feeders and not breeders. They don't like to care for cows and calves. Are not built that way. A man had better do that which he is best adapted for.

There is no question but what there is less care—less labor—in buying steers and feeding them, than raising and feeding, but a person has to adapt himself to the size of his farm, the surroundings, and his ability.

As to the kind of cattle, you will have to be your own judge and that be a kind you fancy, and one that is adapted to your farm. As a beef breed the Herefords have been going to the front of recent years. They have the advantage of being bred strictly for beef since the breed originated, of early maturity, are low down, blocky, meaty, smooth fellows that take the eye of the fancy butcher who is willing to pay a higher price for them. They are good rustlers and easy feeders.

While looking over the immense stock farm of Mr. A. Ingram of Mt. Airy, Iowa, last summer, he told us of a bunch of Hereford calves he had fed that pleased him greatly and produced wonderful results. Forgetting the exact figures and dates I wrote him in regard to it and received the following testimony:

"I commenced feeding two loads of Hereford calves as soon as weaned. I think about the first of October, and kept them on full feed until the first of August, when they were fifteen to eighteen months old.

They weighed something over 1,200 pounds in Chicago and sold for \$4.75 per hundred. I had several loads of heavy cattle on the market that same day and they were good and fat and sold for \$4.35 per hundred.

The calves were all grade Herefords and very fat and nice. I could not now estimate what they ate, but had all the corn and clover hay they could eat and I was pleased with the results and they made me good money.

At those figures they brought him over \$50.00 each—a pretty good price for eighteen-months old steers. This was genuine baby beef, with good weights, and showed what could be attained in the way of early maturity.

The Short-Horns are a grand cattle and take in both beef and dairy—more of a combination than the Herefords and Angus. When a person milks the most of his cows, a good combination would be Short-Horn cows, of a milk family, with a pure bred bull of the Hereford or Angus stock, as such a cross would not be excelled for early maturity and fancy beef, such as Mr. Ingram fed with such good results.

We are of the opinion that it will pay to stall feed in winter. Just tie them up in comfortable stalls and keep them tied until fat. The cost is considerable to feed in that manner, but there is no doubt but what it will pay in the end, and the day is coming and is nigh at hand, when farmers, who feed cattle in winter, will stall them in good warm stables and feed crushed corn, cut clover hay, cut corn fodder, ensilage, oil meal and mill stuff.

It will be much more satisfactory, especially during a winter and spring like we had last, when the cattle were wading to the knees in mud, or shivering around with

frozen mud clinging to them. But good, close sheds and warm water and plenty of straw for bedding will do much towards making them comfortable and profitable. Shelled corn and clover hay is one of the best of the cheaper feeds and one that requires less labor to feed, as one can have self-feeders and hay-stack rack. Corn fodder is an excellent food when one is prepared to feed it, and I think it will pay to fix to feed it, as it can be had for the labor it takes to save it, and new machines have greatly lessened the cost of cutting in the field.

It always pays to break or slice ear corn unless one has large cattle, and a corn crusher that takes snapped corn is a good thing and some successful feeders would not feed without one.

The experiment stations tell us that it pays to feed a balanced ration. Perhaps better gains and more profit is derived by using a well balanced ration than by simply corn and forage alone, but it is an open question whether it pays to buy much oil meal and mill stuff when corn is cheap. It is well to feed a certain quantity of oil meal, not for the gain it of itself would make, but it acts as a tonic for the system and puts the animal in a good condition to derive all the benefit of the cheaper feed.

A good deal of this balanced ration theory will not work in every-day practice is the experience of our best feeders. But I see by the program that Prof. Georgeson will tell us to-night when to the use balanced ration; so, will await his advice on the subject.

Millet hay for fattening cattle is not considered good; clover and timothy is the best hay. Millet is good for only two kinds of stock, calves and stock steers. It is losing all caste in our part of the country, and clover is taking the place of all other kinds of hay.

For the past few years there has been more profit in summer feeding than winter, consequently many have changed from the latter to the former. It is less labor to feed on the grass, and a better price has been realized for fat cattle during the summer months. But they eat as much corn and consume considerable grass besides.

Many feeders think that the best gains can be made by keeping them on heavy pasture. One of the largest feeders in our country prefers to have them on short pasture—not too short, but medium, as they will eat more corn and make better gains and a better quality of beef.

A better plan than either summer or winter fattening, and one that is fast gaining friends with us, is as follows: Winter your yearlings or two-year olds well, feed them corn in the spring until the grass is good, and put them out on pasture in good condition, and in the fall, August or September, commence feeding them corn and finish up in dry lot until they are fully ripe. By this plan you get two or three hundred pounds of grass weight, which is much cheaper than grain, and you have the advantage of the best season of the year for lot feeding. The gain that a steer will make on full feed and pasture is from ninety to one hundred pounds per month on an average, while the same animal on good pasture will make a gain of from sixty to ninety pounds per month. There is not enough difference between grain fed cattle and on grass and those on grass alone, to justify feeding grain in summer, unless in finishing or commencing a bunch of steers.

If a person would take half the grain and feed in the spring before the grass came, and take the other half and feed in the fall when pastures became short, that he would in feeding in winter or in summer on grass, there would be more profit.

There is no better way to convert our luxurious grasses and crops of grain into profitable beef, than take the best of care of your cattle from calfhood up, never allowing them to go back or standstill, but keep them moving right along until ready to fatten. Feed twenty-five bushels of grain in the spring and turn out on good pasture and finish in the fall with grain until well ripened, and you should have from 1,300 to 1,600 pound cattle that will command top prices.

The cattle business has been on the "ragged edge" for the last two or three years, just as the great depression in the hog market was for some time back, but a few months ago the tide turned and now that animal is looked upon with favor.

It is estimated by some of our practical feeders that in Page county alone there was not less than \$20,000 lost in feeding cattle last winter, while the breeder only received a fair profit for raising them.

But we think the dawn of a brighter day is at hand and the tide has already turned in favor of the cattle owner, and especially for the one that has good stuff. Although many have gone out of the business and disposed of their stock at a sacrifice, keeping the price low for so long, it will be the slayers that will win in the end.

#### DISCUSSION.

MR. GABRIELSON: The gentleman in his paper referred to the eighty acre farmer, having a few cows, raising calves with new milk for three months and then putting them on skim-milk. I believe every man present who lives on a farm and makes use of his cows in the way of the dairy, can not afford to leave the calf with the cow for any length of time. In fact, almost no time at all. I speak from the standard of the farmer in Northern Iowa. I believe it is conceded that the cow that is let to suckle her calf, is inclined to dry up when the calf is taken away, and dry up very soon. And to allow the calf to run with the cow or even to take the whole milk and feed it to the calf, takes away from the sale of dairy produce the best part of the cow's milk. I believe that it is almost true that the cow gives one-half of her milk during the first three months of her milking period. If we feed the calf on all the milk at once, we feed the calf the best part of the milk. It must be indeed good management on the part of the feeder, to get pay for the milk which has thus been used.

MEMBER: Do you make any distinction which part of the milk, first or last?

MR. GABRIELSON: It would be too much trouble for the ordinary man to take part of the milk from the cow and give it to the calf warm, and then go back to the cow and finish her milking. That, I claim would be almost impossible.

MEMBER: No, I thought you would have two pails.

MR. GABRIELSON: That would require a servant to bring two pails. However, I don't think that the difference would be

enough. I think after the first quart of milk is taken from the cow then you strike into the normal and best condition of the milk. Give the calf the entire milk and at that time it represents from three quarters to a pound of butter, or the equivalent of that and the calf's growth, with the ordinary price of butter throughout the whole year, winter and summer, would hardly equal that. You do not get two-thirds of the value of milk in the return of veal. We knock most of the calves in the head.

MR. COWNIE: The gentleman in his paper predicts of the future method of feeding cattle, viz., that it will be in the stall. That sounds strange to me. Twenty-five years ago we did our feeding entirely in the stall. We tried it. We demonstrated beyond the possibility of a doubt that it is the poorest system to fatten cattle for the market. When we see a man come up here to-day and say that is the future before us, I would like to know if he has tried it? If he has had practical experience or if he is giving us theory? We get any amount of theory, Mr. President, and our agricultural papers are full of it. We want the practical experience of a man who has tried it and who can give us facts and figures we can depend upon. I thought that stall feeding was the only way that cattle could be fattened. I tied up as good steers as could be purchased and some of my own, and gave them the best of feed; carried water from the well with my own hands to water them. Cleaned and bedded them twice a day, and I can make and did make, with the very same cattle, after I abandoned that in open yards, far superior cattle. In the locality in which I live there are many Germans. One of the first buildings they had was the bank barn. They have fattened cattle in those barns for years, and to-day, there is not a man in Iowa county who thinks of fattening cattle tied up in barns. They saw their neighbors who had open yards, with good shelter, making better cattle, and they have abandoned stall feeding entirely. This is not theory, it is practice. One more question. The gentleman says that the cattle will increase from 90 to 110 pounds a month on grain fed. I venture the assertion, that, take the State of Iowa to-day, on grain fed, the average is not 50 pounds a month, and I challenge any man here to deny it. You can not put on from 90 to 110 pounds a month. You can do it in exceptional cases. You can not do it in cold weather. You can not do it in wet weather, you can not do it by stall feeding, except maybe a few, fine, thoroughbred cattle, the tops of your herds, the choice selections, I have no doubt may do it, but taking the great bulk of the cattle, 50 pounds a month will

be nearer the truth. They do not average that. On an average a 1200 pound steer will consume half a bushel of corn a day. It is a good feeder that will gain two pounds a day, or 60 pounds a month.

MR. BERRY: We can do it in Page county and better.

MR. BAKER: He speaks of taking land that is worn out with corn and growing wheat on it. The idea of raising wheat on worn out corn land is absurd.

MR. FRANKLIN: You do not get the idea, Mr. Baker. He means corn-worn land; land that has been corned enough or so much that the worms take it, and it is poor corn land. They call it corn-worn land.

MR. NORTON: We have no poor land in Iowa.

MR. BAKER: There is one feature in my history that does me a great deal of good. It shows me the forcefulness of words and they also show me the nature of wrong ones in constructing sentences.

MR. BERRY: In my sentence I said corn-worn land.

MR. BAKER: Worn out.

MR. BERRY: No, sir, corn-worn land. It is right there in the paper.

MR. SHEEHAN: I am sorry of the remarks made here and that they are public, not only to the people of Iowa, but to the world. The proceedings of the Stock Breeders of Iowa, are eagerly looked for, not only in Iowa, but in foreign countries, and I don't want it to get out from this meeting that we cannot, with all of our corn and all of our grass, raise cattle and only put on fifty pounds a month. I am ashamed. (Applause.)

There is no state or country in the world, I believe, where the ingredients are more plentiful to make beef, than in Iowa. I do not want that impression to go out without contradiction. I know what I am talking about. I have fed cattle for the last twenty years, and I have fed them in Iowa. There is where I have been and I have not been out of the State. (Laughter.) They accuse me of being from Minnesota, but you know better. (Laughter.) If the time ever comes in the State of Iowa when I cannot put more than fifty pounds of beef on a steer, with all our corn and all our grain and grass, I will pledge you my word that I will surely leave the State. (Laughter.) Because I know there are other places we can do better.

Three years ago I had some steers, which I believe I showed to Mr. Lambing, being on my farm at that time. I put them on clover pasture, and from the time that I put those steers on clover

pasture until the time when I put them in the feed lot, they made a gain of three hundred pounds alone on grass. They were yearling steers, and I fed them that year without any grain. They gained three hundred pounds, lacking three pounds on the whole lot. They were weighed in the morning, they had nothing but hay, and we took them out of the pasture and let them stand over night, and we weighed them before we put them in the feed lot. That is what you can do in Iowa. They might say it was done in Minnesota; but it was not. I tell you it was done in Iowa. (Laughter.) There were thirty-seven head of them.

MR. LEONARD: How long were they in the pasture?

MR. SHEEHAN: I think they were put in about the time we planted corn. Where I live we plant corn from the 5th to the 15th of May. I remember well we were planting corn when we put them in the pasture.

MR. LEONARD: About four months?

MR. SHEEHAN: I will say further that last winter we weighed a lot of steers. There were 27 two-year-olds, 7 three-year-olds and 3 cows, and in thirty-one days they made a gain, actual weight both times, and weighed on full feed, 11 a. m., and they made a gain of 3,800 pounds. That is what you can do in Iowa if you know how to feed cattle. They had pretty good feed. That would be a gain of one hundred and three pounds on the average. I did not get up to criticise the paper. It was a good one and a great deal of thought in it if we look at it carefully.

C. C. CARPENTER: I rise for the purpose of asking for information. I agree with the gentleman who has just taken his seat, that the paper was a very good one. A large portion of it was devoted to securing early maturity in steers. I want to ask some one who has had more steers than I have had, if you can feed a yearling steer a corn ration successfully without chopping or grinding it?

MR. BERRY: Yes, sir, I have done that. Break the corn up.

MR. BAKER: The point is, that is secured by having the mastication at the easiest stage. What they can grind easily, they masticate thoroughly and digest readily, so as to have no waste whatever.

MR. COWNIE: Mr. Sheehan wishes to make himself believe what a great corn State Iowa is. That is very well. Gentlemen, why deceive ourselves? Why give as criterion to judge by, the increase in weight for one month? I know I have put one hundred and thirty pounds a month on steers, for one month. I did not do it for six months. When you come to average it up, Mr. Sheehan!

own figures that he gives, on good clover pasture with everything favorable, only figures at sixty pounds a month. Where was the mis-statement that I made? There is not one but know the facts as I do, who has fattened cattle, take it in Iowa, all over.

MR. NORTON: If sixty pounds on grass alone, what would it have been if put on a grain ration at the same time?

MR. COWNIE: It would increase it some, but I have my doubts.

MR. NORTON: Fifteen pounds more and make it seventy-five; would that be true?

MR. COWNIE: Under ordinary circumstances it would make that much, but this is in summer. The great bulk of our cattle are fed in winter. When I speak of fifty pounds a month I don't speak of thoroughbred cattle. What I wished to call attention to was the gain in the State of Iowa. Mr. Sheehan has better cattle than the average farmer. He may attend to them better, but we deceive ourselves when we try to believe that from ninety to one hundred and ten pounds will be gained per month under the present conditions existing in Iowa.

MR. SHEEHAN: My time was up or I intended to tell you what the gain was after the first month. The next twenty-nine days they made a gain of ninety-one pounds.

MR. BROWS: I have had seven years experience in feeding cattle. I believe this to be true, that it takes six months to make good, ripe cattle, and I will guarantee you that people who feed cattle for six months, more of them, ten to one, will make a less gain than two pounds a day. It is almost impossible to do it with a large amount of steers. You take a few choice steers where you can give them an extra chance and they may do better, but put your fifty steers in the feed lot and put two pounds a day on for six months, you do well.

MR. STOUT: On the criticism offered by the different friends here, I understand the conditions differ, and they do differ all over the State of Iowa. My friend from Iowa county strikes the general average of experience of feeders in our State, and I believe that weighed up every fifteen or thirty days the average of the Iowa feeders will come under fifty pounds rather than over it.

MR. BROWS: I do not think there is anything to be gained here by a long dispute over whether cattle gain 100 or 50 pounds per month. Let the breeders give reasons why they do or do not. I want to give this experience. Two years ago last spring I had a bunch of two-year-old steers—two in the spring. I put ten yearling steers in the same bunch. They ran in the feed yard, with shelter,

with grain, grass and hay. I always feed hay to cattle in the summer when feeding. I weighed those cattle, and those yearling cattle for four months gained just as many pounds as the two year olds. They were all good cattle.

MR. BARCLAY: Made just as many. That is, made just as many pounds for the time of feeding?

MR. BROWN: Yes, sir, the yearling steers made just as many pounds as the two-year-olds.

MR. PACKARD: I would like to ask the gentleman who read the paper, Mr. Berry, of Page, what breed of cattle he raises?

MR. BERRY: Herefords.

MR. PACKARD: These other gentlemen raise Short-Horns. (Laughter and applause.)

MR. GROVE: I wish to give an experience that took place in my neighborhood some fifteen years ago. An Englishman was feeding cattle in Clinton county and leased a farm of 400 acres. He fitted up some sheds on the west and north side of his feed yard and fed 75 to 150 cattle a year and was considered the best feeder we had in that part of the country. During the time he was on that place he traded for an adjoining farm of 160 acres, which was perhaps one-fourth of it in brush and timber, consisting of elm, bass wood and some hickory, etc. He fed in the limits of that timber and he told me he picked out the cows of that 150 head, put the best ones in his feed yard at home and left the cows in the timber where there was no shelter but the trees, and he said that the cows which fed in the timber beat those that were in the shed. This is to apply on the idea whether they will do better in the stalls. In the spring when I went down where I could see the cattle moving around in there and I could see that every bush and every leaning tree and every log and stump was covered with hair. Every feeder knows after cattle have been fed for a time they become itchy and rub on everything they can find, and every stump and tree was covered with hair. I attribute the thrift of the cattle to the fact that they had a chance for something to rub against. They cured themselves. (Laughter.)

MR. NORTON: I was very much pleased with the young man's paper and I am very much pleased to know that there are a younger class of men coming up to take our places to do better work than we have done. I have learned a number of lessons from this paper; one of them is we are breeding a better class of cattle than we were a few years ago. The class you talk about averages fifty pounds a month, and is not the class of cattle we should feed.

The kind of cattle we fed fifteen years ago were of that kind. There is no trouble in having cattle around us that improve from seventy-five to eighty pounds. I have learned another lesson, and that is I learn from experience, after feeding fifteen years in the winter time, that it is not the time for me to feed. In the last eight years I have not fed any cattle in the winter, except last winter. I wanted four cents for cattle in the fall and did not find a man to buy them. So I have learned for me that is not the time to feed cattle. If we buy cattle in the fall for four cents and sell them in the spring for four cents there is not any money in it. If you but them for four cents in the fall and feed them in the winter and sell them for six cents, there is money in it. We depend on the raise in price as well as feed. I feed my cattle in the summer time on grass. That is the only time I can make any money feeding cattle. I would like to ask Mr. Berry what kind of cattle his were.

MR. BERRY: I had thoroughbred Short-Horn cows, some of them, and high grades bred to a pure bred Hereford bull. (Applause.)

MR. SHEEHAN: There comes your Short-Horn. (Laughter.)

MR. WILSON: I want to speak a minute on an experiment we had at the college, in regard to fattening cattle. I think we are most interested in how to feed cattle for good gains, not what our recollection may be with regard to the systems we have been following in the past. We started to feed twenty head of cattle from ten different breeds. We have the Galloway, Angus, the Brown Swiss, the Short-Horn, the Holsteins, and the Red Polls, etc. The mothers were all high grade Short-Horns of the country, and the steers were of these different breeds. Several things we wanted to find out. Something with regard to individuality of the steers and really we have some interesting developments in regard to that as far as we have gone.

Some steers went to work and promptly gave us results of one hundred pounds and more in a month, and others would not do that for four or five months. I think in the ninth month the Jersey came up and gave us 139 pounds. He would not do anything like that until we had fed him a long time. Others gave us a good average gain as we went along, but we do not seek quite so much the individual gains of the cattle as their gains under different treatment.

After they had been feeding in stalls, we put them on clover pasture, and run a fence through the pasture and put a steer of each kind on each side, thus giving us ten steers on each side, and we

had them very near alike too. We wanted to ascertain through their grazing whether they would improve most with corn meal or oil meal.

The steers that had the clover and the corn meal beat the steers that had the clover and oil meal. We reached a conclusion on that. Then we brought them into the yard when pasture was gone—some time in September, and still kept the two bunches separate. Fed one side heavily with oil meal and a little corn meal and fed the other side heavily with corn meal and almost altogether with corn meal, and the oil meal steers then decidedly beat the others.

During October, as to how much cattle will gain through a month, every one of these steers made a gain of four pounds a day after having been fed all of this time through the spring and through the summer, the oil meal steers during October, were doing better than the steers that had the corn meal. During the last month—we have just weighed them, we find that the steers, eating all of the oil meal they would eat, with a little corn meal, gained three pounds a day through the month. The steers that had all the corn meal they would eat with a little oil meal gained two pounds a day, so we have got decided indications in that regard. We will feed them another month and feed all of them all the oil meal they will eat. We are pretty well satisfied that protein towards the end of this fattening period, controls to a great extent, the rate that he will gain. There is a dispute by some of our station people towards the water ration, the starch ration, or to the protein ration. In other words, whether the oil meal or the corn meal. As far as the indications of this experiment show, we think in case the more protein or oil meal in the feed toward the concluding period, the more gain you will get. The young man's paper was a good one and raised many points in my mind and one is quite valuable. That is, the balance of the ration depends entirely on whether you can afford to buy the stuff to balance it with. *The finest feed on God's earth is our corn.* Our corn will balance with *anything else*, and it can be done in Page county. Let me tell you; for me, that is the finest corn growing part of Iowa. If I do say it, Tama county comes next.

A VOICE: What is the matter with Humboldt?

MR. WILSON: Humboldt is no better than Page. Page beats them all.

For corn, Page county *beats the world.*

I think it will pay to mix oil meal, oats or pea meal or any of those albuminous feeds, provided we can get them cheap enough.

If we cannot get them cheap enough we will have to feed corn just as we used to, so that the young man was entirely right in regard to that point, and that is a thing that every farmer must settle for himself, and no experiment station or any farmer can settle it for you, whether you can afford to buy these protein foods and mix it with your corn.

MR. GOVE: What will be cheap enough for oil meal at the present price of corn?

MR. WILSON: Well, that is the next question. Corn is twenty cents in some parts of Iowa and forty cents in others. My father was a feeder all the days of his life and I got ideas from him before these experiment stations were started, and he always said: "I cannot afford to feed cattle at all without a little flax meal among their food, or a little oil meal, so as to take care of their digestion." My friend Gove spoke of the scratching process. That is true. You feed corn a while and the hair will come off of the cattle. You have oil meal and you don't need those trees because the animals' blood is left in such a condition as to be healthy.

Next is a paper, "Notes on Winter Care of Stock," by Mr. T. J. Brooks, Hedrick, Iowa.

#### NOTES ON WINTER CARE OF STOCK.

BY T. J. BROOKS, HEDRICK, IOWA.

The care of the live stock on an Iowa farm during the winter months is a subject far too large for the limits of one small paper. Only a few points can be discussed, and these not as thoroughly as one might wish. Let me, therefore, at the outset, indicate certain parts of this interesting and complex question that I shall pass by and leave untouched. The breeder who engages in the work as a pleasing diversion, and is not over particular as to the size of the cash balance, has his place, and usually, I believe, fills it to the advantage of the rest of the world. And a second class of breeders strive, through extraordinary care and outlay, to land their animals in that limited market of fancy prices built on sentiment and human credulity. These men also have a place to fill, and do much to improve the various breeds and to lead others into the way of better stock and better keep. But what is said in this paper is not supposed to have any, or, at most, but little application to these or other special lines. I speak only for those breeders and stockmen who find it necessary or congenial to aim at the open markets of the country; and who, from necessity or inclination, require the business to show a balance on the right side of the ledger from year to year, as far as possible.

Farm work, to a greater extent than almost any other, refuses to be reduced to fixed rules. Each separate farm, owing to variations in acreage, soil, surface, contour, etc., calls for a system peculiarly its own.

Especially is this true of the stock farm. And any method of handling and caring for stock through the long and cold winters of our latitude must be fitted to these varying conditions. Yet the outlines of a general system more or less applicable to all cases may be mapped with advantage. The experiment stations are giving us much valuable light on the food question; and after this, in point of importance, comes the matter of shelter. This should be complete and well located, but not expensive. Sheddling can be constructed of light and, for the most part, inexpensive materials that is much better adapted to the use of the average farmer and costs but a little part of the outlay required for the elaborate and heavy timbered barn occasionally erected by some one of us who has been fortunate enough to accumulate sufficient means for that purpose, or foolish enough to discount the future therefor. And the question of location is of prime importance. The practice, so uniformly followed in most parts of the State, of grouping the entire complement of stock pens, lots, sheds, stables, and all forms, sizes and makes of shelter immediately about the family residence is, I believe, most unwise and often most deplorable. I know that this plan is adopted in the belief that such arrangement is most convenient and economical. But I think it is a serious mistake, both on the score of economy and comfort. What a disheartening sight it is to one who comes unexpectedly and for the first time on what might be a beautiful home, full of comfort and cheer, in the midst of handsome grass plats and inviting groves, flanked by sweet smelling and delightful fields, and finds the whole situation rendered abhorrent by the close proximity of unsightly sheds, reeking, stench-breathing cattle yards, odoriferous pig pens, and steaming dung piles. It has always seemed to me that the grounds immediately about the house and yard should be the cleanest, neatest and most attractive part of the whole farm. The home surroundings should not be merely an adjunct to a barn yard. But the barn yard should exist only as a means of enabling, as far as it may, the family to possess and enjoy a home comfortable and attractive in all its appointments. But this cannot be where all the farm animals are gathered in from their summer pastures with the first snow of November, and colonized on these grounds through a long and cold winter and a wet and muddy spring.

The breeder whose reputation and stock will enable him to sell his young stock at from three to ten times meat prices, and the Agricultural College, with its fifty or one hundred thousand annual income derived from governmental aid can construct expensive and handsome barns, pave the yards, and man the premises with sufficient force to keep things in ship-shape. But even with the best class of our everyday farmers such a course is simply out of the question. And the unsightly and disgusting home surrounding is a too common sight where the stock and a winter's supply of feed are so collected. And I am of the opinion that that bad smelling, knee-deep in mud and filth in a lot just across the yard fence is the most disgusting and degrading feature of farm life in the West to-day. And then, on the score of economy alone, why should one be at the trouble and expense of moving his forage and grain from the farthest corners of the farm, subjecting his stock to close confinement in uncomfortable and often unhealthy quarters, and then wagoning the droppings and waste materials back to the fields from whence the crops came? I have tried this plan, and I don't like it. Instead of grouping my stock in some central place as formerly, I now scatter it as much as possible. As far as water and the nature of surface and soils will permit, I have a small bluegrass pasture adjoining each tillable field. And on the line between the two a shed is built of about sufficient capacity to hold an average forage crop from the field. No matter, whether in the rotation of crops, a particular field yields hay, sheaf oats, straw or

cornstalks, the output goes into the shed. The stock that is to winter here has some sort of comfortable shelter, either in connection with the forage shed, or back in the bluegrass lot. But the best way, in my opinion, is to have the stock shed attached to the feed shed. This shelter should be complete; that is, it should exclude rain and snow and admit of no wind currents. But it should not be completely closed. The stock shows the most contentment, is the least bother, and thrives best when permitted to go in and out at pleasure. The gates should be so arranged that either field can be closed against the stock as may be required.

The bluegrass lot, which, of course, will vary in size according to the total acreage of the farm, and the number of animals of a particular age usually carried, has not been used during the season, or at most, not since June 15th, until the inclement weather of the late fall sends the animals in for shelter and extra rations. The various animals should be carefully sorted as to age and size, making each lot of as equal strength and vigor as possible. Each lot is then sent to those quarters which the varying crops have supplied with that sort of feed best suited to its needs. And here the young things will spend the winter with a minimum of care and bother, and a maximum of comfort and growth. By far the greatest part of the time is spent in the open field where they gather the best, if not the greatest, part of the daily ration. The best, because of itself bluegrass has few superiors as a winter food for young stock. And when used as a part of a ration either with dry forage or grain, besides its own merit, it adds vastly to that of the more costly food. And lastly, the colts and calves, and lamb perform the entire work of harvesting and feeding out the crop. Only an occasional day will develop such severity of weather as to send the colts to shelter. And the calves will spend the greater part of the time out of the shed and busily at work gathering from the fields material that will afford the most easily acquired part of the owner's profit. I do not find that sheep are quite so willing to leave warm quarters for the purpose of winter grazing. But my experience with this animal is quite limited as to time, and I have thought that, perhaps, other breeds than that with which I have had to deal may have better habits on this point. When handled in this manner young stock seem more thrifty and generally better conditioned than under the old bunching and lotting system. The change from the freedom and fullness of the summer range is less marked, and hence less irritating to the animal.

There is no sudden change from a summer to a winter ration, nor contrawise, with the usual attendant breaks in the line of growth. The natural habit of using its own good taste in selecting a clean, dry and comfortable sleeping place is here kept up by the animal through the winter, as it always is in the summer. In time of storms and severe cold the shed will be used. But at all other times the open air is preferred for sleeping quarters. And in these grazing and bedding arrangements, and the close proximity of the shed to the field, the manure problem is largely disposed of. With slight exceptions, the droppings from the stock is evenly spread over the fields, with no expenditure of human muscle. I find that I can now handle this branch of the work at about one-fifth of the former expense.

In some sheltered spot within each pasture must be found a constant supply of pure water. And it ought not to be necessary to emphasize this point. It doubtless is not before this audience. Yet it is only too true that very many stockmen persistently refuse to appreciate the importance of the water question during the winter season. And it has always been a mystery to me why some men who are scrupulously careful in seeing that their stock are well watered during the summer are lamentably careless about their drinking privileges in winter time.

A neighbor of mine, a veteran stockman, who has been extensively if not successfully, in the business for more than forty years, said to me one day last spring, in a spirit of boastful pride, that his cattle had not gone without water for a longer period than one day at a time during the whole winter; and that even this slight omission had not occurred to exceed five or six times. And yet, during the summer season, this man would be shocked to learn that by reason of some mishap his stock were having a rest of twenty-four hours between drinks. It may be true that a cooler and more humid atmosphere calls for a smaller quantity of water in winter than that required for summer, but may it not also be true that the necessity for this smaller quantity in water is equally as great as it is for the larger consumption of the summer? However this may be, the article is too cheap and too easily attainable to admit of any experiment for the purpose of ascertaining just how small an amount can be gotten along with. Give me an abundant supply of pure water, comfortable and inexpensive shedding and an abundance of bluegrass conveniently located with reference to water and shelter. And if circumstances really require that some desirable article be dispensed with, let the cut fall on a portion of the costly grain ration where the saving in expense will stand some chance of measurably balancing the shrinkage in the product.

(Some of the readers of papers seem to be unfortunate at times in reading their papers, in that they are called on to read just before adjournment, or for some other unforeseen reason are forced to go by without the proper discussion. The association owes Mr. Brooks an apology, for this is the second time he has been forced to read his paper just at the beginning of the session when but few had gathered in, or about the time of adjournment, when there was little time for discussion.—EDITOR.)

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Session called to order at 7:30 by Mr. Barclay, President.

MR. BARCLAY: We will now have an opportunity to discuss for a short time the paper of Mr. Brooks, "Notes on Winter Care of Stock."

PROF. KENT: Mr. Cownie says if I will talk for five minutes he will pitch into me for five minutes and that will insure ten minutes of discussion on the paper read before supper (Mr. Brooks' paper). The question of wintering stock might resolve itself into two problems, one whether they should run at large, or, whether they should be kept in sheds. I have heard some talk to-day that would indicate that some men perhaps are not in favor of wintering stock in sheds. Let me state the experience of L. W. Miller, of New York State. He gave it out that he was able to winter his dairy cows through the winter, at a daily expense of about four pounds

of digestible matter, and that was entirely corn meal,—not any hay—absolutely nothing but corn meal. It is said that he put the cattle in a stable, made the temperature normal, so that they drank but little water, thus consuming but little of their food to sustain a normal temperature or heat, but to sustain internal workings, to sustain all of the elements of the animal economy that absorb food as a working force, and he was able thereby to winter those cattle on four pounds of digestible matter in the form of corn meal. Now, there are a great many men who would say, "absolutely impossible." Now, the most economical animal we know anything about is the hibernating animal. When the bear sees his source of sustenance disappearing he hunts a hole in a tree and crawls down there tail foremost, and lies there in a dormant state without anything to eat at all, all from the fact that there is no working force going on in his body. He is able to live without sustenance. Of course he loses his store of fat, and he comes out pretty thin in the spring, but he is able to live without anything. We can direct the illustration of the hibernating animal in our care of stock. It goes to show if our animals are put in such a place there is absolutely no waste; there necessarily need not be much consumption of food. So, the question arises whether or not it be best to build sheds and actually keep the cattle in their normal condition and sustain the working forces of their bodies. Mr. Miller found that the animals drank almost no water. Another experiment shows that animals running at large on a farm drank seventy pounds of water daily. Now, the potential energy of the feed necessary to warm that water, necessary in evaporating that water, using it up in the system, for it has to be used up in order to be gotten rid of, necessary to warm the food in the body and do the internal work, consumes as much as the four pounds of digestible matter. That is to say, by putting the animal in a temperature of 60°, so there is no waste by reason of animal heat, with another animal placed outside and allowed to run, will require as much feed as that animal on the inside eats, in order to have a sustaining ration. In other words, it takes four pounds of digestible matter per day to sustain the working force of the animal, and eight pounds of digestible matter for a sustaining ration. You must feed eight pounds before you can expect any gain. When you raise your amount of feed you may expect a little gain. If you put him in such a normal condition that he needs nothing to sustain the working forces of the body you can split that ration in two. So far, as a method of wintering cattle, I would suggest one of those sheds that some of you, perhaps, are familiar

with, with the hay on the inside, with the animals dehorned, if they are not such animals as would forbid dehorning them. The animals turned in loose, so they can range clear around the hay rack on the inside, free at both ends and both sides, and wide enough to give them ventilation, keep up the sanitary conditions, shut the walls tight enough to keep out the cold, with water on the inside, so that with anything like such weather as this, or any days where the thermometer is ranging below 60° the animals could be kept inside, and below 50° at any rate.

I believe you can reduce the expense of keeping cattle to a minimum, and I believe that it is cheaper than to let them run at large on the farm. I know I wintered seventy head of cattle at straw stacks and corn stalks and bluegrass pastures at no cost at all, but there was no snow from fall till spring. If we could always have such conditions as that I would say, let cattle run at large. If you can get plenty of corn stalks, clover and bluegrass pasture, they can stand a little snow and still winter all right, but take such weather we have outside to-day (snowy and blowing), and some time before this, with perhaps the snowing and blowing, I believe the cattle can be kept cheaper under a shed with less labor and attention than they can run at large on the farm.

MR. GOVE: Please tell us, if you can, what the subsequent condition of these cattle were, that were wintered on four pounds of corn meal a day.

PROF. KENT: He says they wintered without losing flesh.

MR. GOVE: If they were cows, what was their usefulness afterward.

PROF. KENT: They were well prepared to go into the dairy at the proper time. The gentleman is L. W. Miller. He is quoted as a man whose opinion is worth something. I have forgotten his address.

MR. GOVE: I know the country was a good deal surprised at the result of his experiment.

PROF. KENT: There have been a great many figures made on that experiment, and it is capable of being reckoned. He made a remarkable saving on the part of expense, by the normal condition that I spoke of.

MR. GABRIELSON: I wish to be heard on this one question of keeping animals at a normal condition. Now, there was a very cold week, a week or so ago, and our cows we keep in a central dairy. They were not allowed to go out at all during that week. We watered them in a barn, and there came along a fine day and

they were all turned out. There was a ten per cent loss of milk. I took it, simply from the exercise that they had during the day. It was not a matter that was recovered in the fat of the milk or anything. There was no more butter in the cream or milk. That resulted, I took it, simply from the exercise they had—a loss of ten per cent in our butter output.

MR. WILSON: The department at Washington sent a man to Ames to investigate diseases of cattle in Iowa, supposed to be brought about by corn stalks. Any gentleman in this audience knowing of anything of that kind, if they will communicate with this gentleman at Ames, send the letter to me and I will forward it. This matter will be attended to.

Paper by Professor Georgeson, of the Kansas State Agricultural College, located at Manhattan, Kansas. Subject "The Balanced Ration":

#### THE BALANCE RATION—WHEN TO USE IT.

BY PROF. G. C. GEORGESEN.

The animal body is built up by means of digestion and assimilation of food. It contains nothing that the food does not furnish. By the wonderful processes, the result of which we call growth, or fattening, as the case may be, the elements in the food undergo transmutation and are stored up in the body in the form of bone and muscle and fat, but they are not changed in their essential characteristics. The animal body can be separated into four groups of constituents, water, ashes, proteins (lean flesh) and fat, and these are the materials which the food must supply. Each has a certain definite composition, which, in the case of water and ash, we will not look into here, and in the case of protein and fat only note that the substance which is technically called "protein" or "albumen" and from which alone lean meat can be built up, consists of nitrogen, carbon, hydrogen and oxygen, while fat has no nitrogen, and is made up of carbon, hydrogen and oxygen.

These same substances are the nourishing elements in all food materials. The Creator provided them in the grass and grain and herbs of animal life. But though composed of the same elements, feeds differ from each other in three important points. First, as to the quality of the nutrients, second as to the quantity of the nutrients, and third as to the digestibility of the nutrients.

First—The quality depends upon the character of the nutrients. The richest feed is that which contains the greatest amount of digestible protein, and it decreases in value as the amount of protein is diminished.

Second—In daily practice we classify the feeds on the basis of the quantity of their nutrients, when we speak of coarse fodders and concentrated fodders. Hay and straw have a relatively small amount of nutrients, while grain and millstuffs have a comparatively large amount of nutrients.

*Third*—The digestibility of a feed is a somewhat important point. When we speak of a food as being more or less digestible, we simply mean that the animal has the power of appropriating more or less of the nourishment which it contains. Chemical analysis will reveal the exact amount of nourishing elements which a food contains, but it is only in a few cases that they are all digestible, and of two foods of the same composition one may be more digestible than the other. The grains, hay and straw, contain a certain amount of nourishment which cannot be appropriated by the digestive apparatus. The digestibility is of importance because it is manifestly only the portion which is digested that is of any value to the animal, and hence, in mixing and apportioning feed, we should count only on the digestible portion.

We will briefly notice the function of the several nutrients which are extracted from the feeds by the process of digestion. Protein is by far the most important of the food elements. It is the only substance from which flesh (lean meat) and it enters largely into the composition of the cartilaginous organs of the body, and of hoof and hair. It is of the utmost importance that this material should be supplied liberally to all growing animals, as muscle cannot be built up and growth cannot take place unless the demands for that substance are met. Some farmers wonder why their young stock should get stunted when they are given unlimited amounts of straw and have the privilege of staying on the lee side of the straw stack during the blizzards. They fail to grow simply because their food lacks protein. In their efforts to get it, they stuff themselves with straw until they become unduly heavy in the middle and too light at both ends. But protein is also of importance in that it can take the place of the non-nitrogenous substances, in the formation of fat and the production of energy. The other food elements are what the chemists call nitrogen free extract and fat. The nitrogen free extract consists chiefly of starch, sugar and gum. These are also carbohydrates, because they are made up entirely of the elements carbon, oxygen and hydrogen. These elements are more abundant in all ordinary feeds than nitrogen. Good corn fodder, for instance, contains only 2½ per cent of digestible protein, while it has 35 per cent of digestible carbohydrates. Clover has about 7 per cent of protein to 37 per cent of carbohydrates. And it is exactly this excess of protein in its composition that makes good clover hay of more value than corn fodder. Oat straw contains 14-10 per cent protein to 42 per cent of carbohydrates. It is because of the small amount of protein that it is of so little value, for it is rich in carbohydrates. Our western corn contains 6½ per cent of digestible protein and 60 per cent of carbohydrates. It is better than hay, but it cannot be called a rich feed. Beans are nutritious because they contain 23 per cent of protein, and oil cake is still more nutritious because it contains 27 per cent of protein, but oil cake has only 34 per cent of carbohydrates, which is a good deal less than is contained in oat straw. Theoretically the carbohydrates furnish the fuel which keeps up the animal heat. It is yet a disputed point if they aid to any extent in building up the tissues, at least in cattle.

The fat in foods can be stored directly in the body as fat, and it also aids in keeping up the animal heat, and can hence take the place of carbohydrates, but it cannot take the place of protein in the production of muscle. It is present in but small amounts in ordinary feed stuffs. The ash elements are present in sufficient quantity in most feeds to supply the needs of the body. Hence we need not concern ourselves with mixing them in rations.

Now the term "balanced ration" simply means a mixture of feeds in which the above named nutrients are present in proper proportion. Let us for a moment see what

the proper proportion is. As yet we have no better guide upon the subject than the German "Feeding Standards." They prescribe the amount of each nutrient which should be given the animal daily, for the production, growth, work, fattening, milk, etc. They thus prescribe, for instance, that if a steer weighing 1,000 pounds is to be fattened, he should receive in his daily food two and one-half pounds of digestible carbohydrates, and one-half pound of digestible fat, making altogether eighteen pounds of nutrients, which should be contained in a total weight of twenty-seven pounds of dry substance in the feed. Whether this is absolutely correct, no one is at present prepared to say, but we know this much, that it brings excellent results. The calculation of rations according to the Feeding Standard requires the use of tables giving the analysis of the feed stuffs, and from these analysis we are enabled to make up rations which shall have the required composition. I append the Feeding Standard and a short list of the most common feeds, which will furnish sufficient material for practice, if any are inclined to try them. (The German feeding tables, together with the tables showing the analysis of a large number of feed stuffs, were here introduced, but are omitted on account of their great length.)

To show you the result of the balanced rations, in comparison with the straight corn diet, under conditions which were exactly alike as regards shelter, care and length of time they were fed, I will briefly describe the experiments carried out last winter at the Kansas Experiment Station and their results. We fed twenty grade Short-Horn steers, from November 30th to May 30th. They were divided into four lots, of five steers in each lot, as nearly alike in weight and quality as it was possible to divide them. One lot was fed in a yard out doors, where they were provided, however, with an open shed, under which they could seek shelter at pleasure. Their feed consisted of whole ear corn, corn fodder and prairie hay, and they were provided with all they would eat. The other three lots were tied up in the barn. One of these lots was fed exactly like the lot out of doors, the object being to ascertain, if possible, the value of shelter. Of the two remaining lots, one was fed on corn meal, corn fodder and prairie hay, and the other lot was fed on the balanced ration. This ration consisted of a mixture made up in the proportion of ten pounds of corn meal, five pounds of shorts, two pounds of bran, and two of oil meal, with corn fodder and tame hay *ad libitum*. After the first twelve weeks, this ration was enriched by the addition of two pounds more of oil meal. In all cases the feed was weighed out and each steer received as much as he would eat up moderately clean. Now, for the results. During the twenty-six weeks, or one hundred and eighty-two days they were fed, the outdoor lot gained 1,564 pounds, and ate 15½ pounds of ear corn and 5 pounds of fodder for each pound of gain. The lot fed on ear corn indoors gained in the same time 1,421 pounds, and ate 14.1 pounds of ear corn and 4.7 pounds of fodder for each pound of gain. We see, then, that it required more feed to make a pound of gain when fed out doors. The lot which was fed on corn meal in the barn gained 1,340 pounds and ate 13.3 pounds corn meal and 3.5 pounds of fodder for each pound of gain. The lot which received the balanced ration gained in the same time 2,173 pounds, and ate 10 pounds of mixed grain feed and 3.2 pounds of fodder for each pound of gain. This lot, then, made a gain of 808 pounds more than the lot fed on corn meal tied along side of it, and 737 pounds more than the lot fed on ear corn in the barn. And what is more, it made this gain at a less cost per pound than the others. Moreover, the gain was made at a much more rapid rate, so that these steers were really ready for market in but little more than half the time that it took the others

to get ready. The following table shows the comparative gain and cost per pound of gain of the four lots. The feeding began November 30th and closed May 30th, covering altogether twenty-six weeks. These twenty-six weeks are divided into seven periods. Periods one to six, inclusive, cover twenty-eight days each, or four weeks, but the seventh and last period covers only fourteen days. Lot four was fed out of doors; the other three lots were tied up in the barn:

LOT I.—FEED, "BALANCED RATION."

PERIOD.	Gain from beginning of experiment to date—pounds.	Cost of feed per pound of gain of period to date—cents.
1. November 30 to December 28.....	288	5.26
2. December 28 to January 25.....	1,878	4.94
3. January 25 to February 22.....	1,215	5.81
4. February 22 to March 21.....	1,519	5.61
5. March 21 to April 18.....	1,804	6.56
6. April 18 to May 16.....	2,135	6.72
7. May 16 to May 30.....	5,176	7.11

LOT II.—FEED, CORN MEAL.

1. November 30 to December 28.....	69	26.66
2. December 28 to January 25.....	471	6.74
3. January 25 to February 22.....	714	6.26
4. February 22 to March 21.....	924	7.01
5. March 21 to April 18.....	1,061	7.03
6. April 18 to May 16.....	1,266	7.50
7. May 16 to May 30.....	1,048	7.76

LOT III.—FEED, EAR CORN.

1. November 30 to December 28.....	295	6.67
2. December 28 to January 25.....	697	6.58
3. January 25 to February 22.....	779	6.58
4. February 22 to March 21.....	959	6.84
5. March 21 to April 18.....	1,126	7.12
6. April 18 to May 16.....	1,403	6.58
7. May 16 to May 30.....	1,421	7.34

LOT IV.—FEED, EAR CORN IN YARD.

1. November 30 to December 28.....	346	5.71
2. December 28 to January 25.....	899	6.43
3. January 25 to February 22.....	849	7.12
4. February 22 to March 21.....	1,149	6.87
5. March 21 to April 18.....	1,156	6.26
6. April 18 to May 16.....	1,252	6.25
7. May 16 to May 30.....	1,504	6.86

Lot one dressed 69.83 per cent, and had 122 pounds intestinal fat per head. Lot two dressed 62.27 per cent per head, with an average of 97 pounds intestinal fat per head. Lot three dressed 60.95 per cent per head, with an average of 55 pounds of intestinal fat per head. Lot four dressed 60.59 per cent per head, with an average of 82 pounds of intestinal fat per head.

I would call attention to the fact that the profit in feeding is not made on the gain put on in the feed lot. It is but in rare cases that the price realized equals the cost per pound of that gain. But it is evident that the cheaper the gain the greater the likelihood that it will result in profit.

When to use a balanced ration is an economic question, the answer to which must vary with the circumstances which govern the case. It will depend primarily on the prices of corn. If the amount of digestible protein contained in a feed

is a measure of the value of that feed, as the following results of our experiments seem to indicate, then the question is reduced to a simple problem in arithmetic which anyone can solve.

I found that the gain made by the four lots of steers we fed, stood in the following relation to the protein and carbohydrates of the feed:

LOT.	PERIOD.	Gain—pounds.	CONSUMED PER POUND OF GAIN.	
			Protein.	Carbohydrates.
1. Balanced ration.....	November 30 to February 22.....	1,215	966	8.40
II. Balanced ration.....	February 22 to May 30.....	965	1,520	9.33
III. Corn meal.....	November 30 to May 30.....	1,245	941	10.51
IV. Ear corn.....	November 30 to May 30.....	1,431	892	10.37
IV. Ear corn in yard.....	November 30 to May 30.....	1,504	834	11.02

With the exception of the last half of the time lot one was fed, the amount of protein to each pound of gain is nearly the same, although the carbohydrates vary much. If this should prove to be correct in other cases, then all we have to do is to refer to the tables of analyses and ascertain how much digestible protein is found in each of the several feeds and compare this with the prices at which they can be bought. My own opinion is that it will pay to use mill-stuff and oil cake in moderate quantities when corn is worth more than twenty cents per bushel.

The "balanced ration" can be used to advantage in all cases where rapid fattening is desired. It will doubtless often pay best to feed what the farm affords, even though it may not accord with the teachings of science. So many factors must be considered that no rule can be laid down to govern all cases. But it will pay the farmer to study these questions carefully. We have yet much to learn on the subject, and good practical judgment born of experience will in most cases be a safe guide.

The following is an appended table of the gain and cost of feeding the steers for the term.

The feeding began November 30th and closed May 30th, covering altogether exactly 26 weeks. These 26 weeks are divided into seven periods. Periods one to six inclusive cover 28 days each, or four weeks, but the seventh and last period, covers only 14 days. Each lot contained five steers, which were fed as follows: Lot 1, "Balanced Ration," (corn meal, oil meal, shorts and bran); lot 2, corn meal; lot 3, ear corn; lot 4, ear corn. Lot 4 was fed out doors; the other three lots were tied up in the barn.

Here are the comparative results:

LOT 1—FEED, "BALANCED RATION."

NUMBER OF PERIOD.		Gain during the period—pounds.	Cost of feed per pound of gain—cents.	Gain from beginning of experiment, Nov. 20th, to date—pounds.	Cost of feed per pound of gain to date—cents.
1—November 20th.....	to December 28th.....	288	5.29		
2—December 28th.....	to January 25th.....	490	4.66	878	4.94
3—January 25th.....	to February 22d.....	335	7.89	1,212	5.70
4—February 22d.....	to March 21st.....	305	8.94	1,518	6.01
5—March 21st.....	to April 18th.....	285	5.06	1,803	6.50
6—April 18th.....	to May 16th.....	302	7.90	2,105	7.11
7—May 16th.....	to May 30th.....	43	26.18	2,148	7.11

LOT 2—FEED, CORN MEAL.

1—November 20th.....	to December 28th.....	58	21.00		
2—December 28th.....	to January 25th.....	403	4.60	461	6.74
3—January 25th.....	to February 22d.....	243	5.22	704	6.90
4—February 22d.....	to March 21st.....	197	11.41	901	7.00
5—March 21st.....	to April 18th.....	197	11.62	1,098	7.61
6—April 18th.....	to May 16th.....	225	7.90	1,323	7.50
7—May 16th.....	to May 30th.....	54	25.30	1,377	7.80

LOT 3—FEED, EAR CORN.

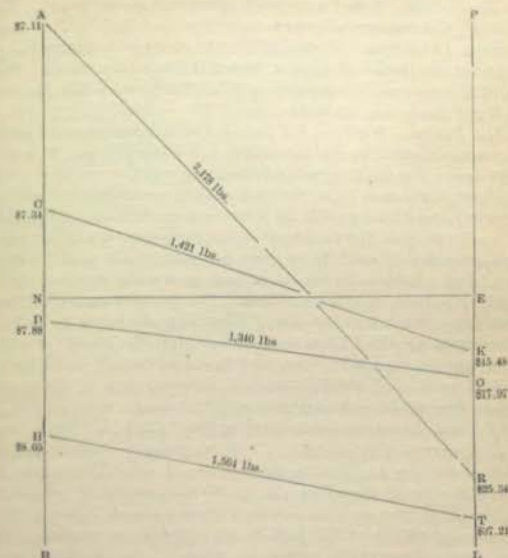
1—November 20th.....	to December 28th.....	287	6.07		
2—December 28th.....	to January 25th.....	320	4.90	607	6.40
3—January 25th.....	to February 22d.....	164	10.62	771	6.56
4—February 22d.....	to March 21st.....	186	7.50	957	6.84
5—March 21st.....	to April 18th.....	177	8.56	1,134	7.12
6—April 18th.....	to May 16th.....	207	5.80	1,341	6.80
7—May 16th.....	to May 30th.....	18	41.50	1,359	7.10

LOT 4—FEED, EAR CORN IN YARD.

1—November 20th.....	to December 28th.....	346	5.71		
2—December 28th.....	to January 25th.....	337	7.61	683	6.31
3—January 25th.....	to February 22d.....	346	8.68	1,029	6.97
4—February 22d.....	to March 21st.....	300	6.13	1,329	6.97
5—March 21st.....	to April 18th.....	7	250.00	1,336	6.20
6—April 18th.....	to May 16th.....	167	11.48	1,503	6.70
7—May 16th.....	to May 30th.....	241	4.37	1,744	6.30

I would call attention especially to the two last columns, one of which gives the gain from the beginning of the experiment to the end of each period, and the other the cost of that gain per pound in cents and mills. It will be noticed that lot 1 gained more rapidly than any of the others, and that the relative cost of that gain is less than in any of the other cases. In every single instance the gain of lot 1 has been made at a cheaper rate than has the gain of any of the other three lots for the corresponding periods. It would then be reasonable to suppose that that lot would bring the best returns; but the account given on page 90 of the bulletin shows that such is not the case. The explanation is that all the steers were fed at a loss, and that lot 1, having made a greater gain than either of the others, it represented also a greater loss. This is true, moreover, only in comparison with lots 2 and 3. Lot 4, which was fed in the open yard, consumed more food for the gain made than did the others, and the cost per pound of gain was correspondingly higher, this lot, therefore, represents the heaviest loss.

[The following is a diagram made by Prof. Georgeson on the black-board.]



NE—Neutral line.

PL—Profit and loss.

AB—Cost per cwt. of gain.

Lines AR, GK, DO, HT, represent the number of pounds of gain of lots 1, 2, 3 and 4 respectively.

It will be noticed that lot 1 made a cheaper gain per cwt. than the others, but the total loss was greater than that of lot 2 or 3. All four lots were fed at a loss, as indicated on the diagram.

#### DISCUSSION.

MR. GOVE: You speak about there being a difference in corn, a per cent, in feeding value. Can you tell us how we can tell the corn that is better, or tell us under what conditions it was raised, whether on clover sod or what character of soil.

PROF. GEORGESEN: The best test is a chemical analysis. That is the only reliable manner to give the points of discrimination.

MR. BAKER: I was very much interested in the paper. Can you tell how the corn was masticated?

PROF. GEORGESEN: It was masticated about as it usually is. A considerable portion of the corn passed through them whole. That is, of the ear corn. There was no difference between this case and ordinary cases, that we could detect.

MR. BAKER: With me, the point is the mastication and I sweat the corn, or soften it, if it is too hard. If I can get them to masticate everything the progress in fattening is rapid.

PROF. GEORGESEN: In the case of the steers in the barn we weighed every feed, so that we knew how much a steer consumed. We even weighed the amount of water each steer drank. It gave us a great deal of work, but it gave us some accurate data. I have published a bulletin on the subject and have a few with me, which I will give to those who want them. The point in our experiment was this. We wanted to see if there was any value in shelter. Five steers were tied up in the barn and given the benefit of whatever warmth there was there; and five steers were in an open lot with a good shed building for that purpose, open to the south, where they would seek shelter at every rain storm and every snow storm, and they could go in there at their pleasure. That is the best protection that our feeders in Kansas usually furnish, and we wanted to give the experiment a fair test; I can say now that the result was practically alike. When the two loads were brought to Kansas City, they weighed exactly alike to a pound. Each load of five steers weighed 7,330 pounds, very much to my surprise. In the yard, the evening before we shipped, the out-door steers weighed a little more and weighed a good deal more on the journey. They had eaten just about twelve bushels of corn more apiece, than those in the barn. Our corn cost us thirty-three cents a bushel, which equals four dollars a head, which sum it cost us to feed out doors. It is attributed to cold weather. Last winter was a favorable winter to us to feed, except in a portion of the spring; we had a clear, bright, open winter, with few severe storms; we had a storm in January of short duration, and again in March and April we had some rain which told more heavily on the out-door steers, and further I will say that the steers had never been handled before we got them. It was a very considerable hardship to them to be tied up. We had to lasso each animal and haul it up and tie it down to its stall, and it took several weeks before they began to

eat well. Now, then, that was, of course, against them—the bulletin will show all that; but the out-door steers gained rapidly on the start and the in-door steers did not. That was because of the restraint that they were kept under. They did not feed well and felt strange. After a time they became entirely accustomed to the place and ate as well as they had ever done anywhere. I will say further, that these steers were weighed every Monday morning, individually. We had given them their feed, but they had not been watered.

MR. STOUT: I would like to ask a question in relation to the lot fed out doors; whether fed under shelter?

PROF. GEORGESEN: It was put in a trough some three feet from the ground but not under shelter. I tried to imitate the system adopted by our farmers as near as possible.

MR. STOUT: Was there anything in the lot that used the after-product of this feed—hogs running behind those cattle?

PROF. GEORGESEN: I had a few hogs running behind them and these hogs were not supported all along by what they were getting from the steers. That, of course, does not count in the experiment. The pickings from the outdoor lot would not be greater than from the indoor lot and the two would balance each other.

MR. COWNIE: How were the cattle that were tied up and fed ear corn—were they fed in troughs in the barn—in the manger?

PROF. GEORGESEN: They were fed in an ordinary manger and we had a little square box made for each steer. I found it the best method of feeding them. We had little square boxes made that were put right in the manger. We put the grain feed, the mixed feed, in those boxes. The fodder was put in the manger by the side of it. If there was anything left when we came to feed again that was weighed back from the boxes and deducted from each steer.

MR. COWNIE: I am referring to lots three and four on the black-board. Those fed on ear corn, one lot fed in the barn and the other fed outside. Lot four fed outside, consumed some more corn than lot three fed inside?

PROF. GEORGESEN: Yes, sir.

MR. COWNIE: But isn't it a fact that those cattle confined in the barn had the benefit of all their feed, while it is also just as certain that those cattle fed outside had an open trough, would take up his ear as we all know they will do, chew it a little and drop it out to the ground and the ear to be consumed by the hogs, and consequently lost to the cattle?

PROF. GEORGESEN: We made a point of picking up the ears that way. Not many were dropped.

MR. COWNIE: Were the hogs there while feeding?

PROF. GEORGESEN: There were a few there part of the time. Not all of the time. We guarded from error from every source as much as possible. What we were after was the truth; we had nothing to demonstrate at all, and no theory we wanted to vindicate.

MR. BAKER: Those fed on ear corn out of doors had a shed. Was it an air tight at the back?

PROF. GEORGESEN: No, not air tight. It was the ordinary sheet batten.

MR. BAKER: What was the bedding, if you please?

PROF. GEORGESEN: We didn't have any bedding.

MR. BAKER: Was it mired in the shed at times? They had no mire to lay in?

PROF. GEORGESEN: No, sir.

MR. BAKER: One great feature in the premises is to have air tight sheds at the back to prevent draft absolutely. They do better in that case because the animals are free from any draft.

PROF. GEORGESEN: I never heard of an air tight shed.

MR. BAKER: I did not say an air tight shed. I said an air tight back to the shed.

PROF. GEORGESEN: I never heard of an air tight back, either. (Laughter.)

MR. BAKER: Well, we have them.

MR. GABRIELSON: May I ask whether labor is included in that amount of cost?

PROF. GEORGESEN: Labor is not included in any of the cost. This is the feeding only.

MRS. BARCLAY: You mentioned the fact of using shorts in your feed. What kind of shorts was it, fine shorts?

PROF. GEORGESEN: Roller mill shorts. It was not very fine. Ordinary grade such as you get from mills.

MRS. BARCLAY: What we call bran shorts?

PROF. GEORGESEN: We call it simply shorts. We had no other name for it. It was not the finest. It didn't approximate flour.

MRS. BARCLAY: It was the coarse shorts?

PROF. GEORGESEN: Yes sir.

PROF. KENT: You spoke about the shipment of the cattle; those on the outside not shipping so well as those on the inside. Was the difference great enough to indicate that it could be accounted for in any other way than the quietude of the cattle?

PROF. GEORGESEN: No, sir; the outdoor cattle had never been handled, whereas the indoor cattle had. When the out door steers were put on the cars they were excited very much. They were not accustomed to it. Whereas, the others had been pushed about and driven about, and driven together, so it didn't affect them to the same extent as it did the others. That is the only way I can account for it. It may not be correct.

MR. BROOKS: Do you attribute to anything, the small gain of lot two and the high cost of the product?

PROF. GEORGESEN: I attribute it to the fact that they would not eat corn meal. They had not been accustomed to corn meal. They had been fed on ear corn primarily to start in on the experiment. They took to it very gingerly at first, but after while, when they did not get anything else they went to eating it.

PROF. KENT: How long was your preliminary period?

PROF. GEORGESEN: We made it short. There was no necessity for a long period in this case. It was merely long enough to accustom them to the place, after they had gotten quiet in the barn. I think nearly two weeks.

MR. BROOKS: Was there not some more expense attached to handling animals in the barn, than those in the lot?

PROF. GEORGESEN: A great deal more.

MR. BROOKS: Did you make any estimate as to the difference in the expense?

PROF. GEORGESEN: No, sir, we did not. That was not the point we were after in feeding so small a lot; we couldn't reach a conclusion that would be at all reliable as the conclusion a farmer would get if he fed on a large scale.

MR. BROOKS: You do not attempt to approximate that?

PROF. GEORGESEN: No, sir. It could not be done with any degree of satisfaction.

MR. BROOKS: Do you think from what you did notice would that amount to the difference in the gain or the difference in the expense of the food consumed by the two lots?

PROF. GEORGESEN: No, sir, not near. I am satisfied of that.

MR. NORTON: I wish to inquire if lot two were confined fully, confined the whole length of time, or turned out for water?

PROF. GEORGESEN: They were watered in the stable. As I said, we weighed the water. We had the scales standing on the barn floor. We put the bucket on that and filled it and weighed the amount. We let the steer drink and weighed back what he left

and filled it again and so on; but every pleasant day all of these steers tied up in the barn were led out for exercise half an hour or an hour in the middle of the day, but got no food or water outside.

MR. GOVE: Can you give us the relative value for feeding purposes of flax seed and the same amount, for instance, of oil meal. In Commerce oil meal costs from \$22 to \$25 a ton. Flax seed is worth a dollar a bushel. What would be the relative feeding value of the same number of bushels of flax seed, supposing it to be as much, \$20 or \$25, according to the price of the meal?

PROF. GEORGESON: I have not made a careful experiment on that. Mr. Wilson, the old professor, made a careful experiment on that and he will be more able to answer that than I can. I think, however, I would deduct the oil; and the basis of valuation on the flax seed being only on the amount of oil cake you can get out of it, or nearly so.

MR. COWNIE: In our discussion this afternoon in regard to our feeding cattle, there was some difference of opinion expressed about the amount of gain. I am glad that down in Kansas that cattle correspond with a good many that I have seen in Iowa. I see by the table given by Prof. Georgeson, that there has not been a gain of 110 pounds a month even when they were tied up in the barn. I think it ran about forty seven pounds a month. Lots three and four I have reference to.

PROF. GEORGESON: Lot one gained 2.4 pounds a day during the entire period of 182 days. Lot two gained 1.4 pounds a day.

MR. COWNIE: That is less than a pound and a half a day.

PROF. GEORGESON: Yes, sir. Lot three gained 1.52 pounds a day.

MR. COWNIE: That is a little over a pound and a half a day.

PROF. GEORGESON: Lot four, basing the calculation on the live weight at the barn, gained 1.71 for the six weeks.

MR. COWNIE: So, it comes far short of what some people can do in Iowa, where they can put on 110 pounds a month.

PROF. GEORGESON: I will say our bulletin shows some months individual steers ran up 100 pounds and more, but again they would drop down in gain and sometimes lose.

MR. COWNIE: Those figures substantiate experiments that I have made for years in regard to feeding cattle. There can be some slight gain, I found, by tying up at times, but, if you have everything favorable, they will certainly do as well outside, and when you take your labor into consideration all of the advantage is for outside feeding. That is my experience and I think that

from the tables that have been presented to us there is nothing to show for inside feeding in preference to outside feeding under favorable circumstances.

PROF. GEORGESON: Those were under as favorable circumstances as you are likely to find anywhere, I believe, and as, I mentioned before, the steers out doors ate twelve bushels of corn, each, more than the indoor steers. If that is not worth anything, of course, there is no advantage in indoor feeding. It was worth four dollars per head to us.

MR. COWNIE: There is one month you have scarcely any gain, during that inclement weather, and, of course, that may happen again, but when you take into consideration the additional labor—and I think that during that inclement weather you must have lost some corn outside, to help to counterbalance that.

MR. GABRIELSON: What were those cattle on which this experiment was tried?

PROF. GEORGESON: Grade Short-Horns, three-year-olds, dehorned. They were not high grades by any means, but they were somewhat better than scrubs. They were called Kansas natives. They had been bred in the western part of the State, and I bought them there because they were representatives of the Kansas natives.

MR. STOUT: In regard to shipping. The test you speak of in the shipping, the shrink that took place in lot number four was greater than upon any other lot of cattle. Were they shipped under your supervision to their destination or market?

PROF. GEORGESON: Yes, sir, to Kansas City, 118 miles.

MR. STOUT: They were all shipped together?

PROF. GEORGESON: Yes, sir, in one car.

MR. NORTON: I think you commenced with the month of January and run through these winter months, largely all upon dry feed. Wholly upon dry feed?

PROF. GEORGESON: Yes, sir, it begins though, on the 30th of November. The gain is less than two pounds a month.

MR. NORTON: Had the cattle been fed the same quantity of corn upon grass before you made that experiment?

PROF. GEORGESON: No sir.

MR. NORTON: To know whether they will gain more than that?

PROF. GEORGESON: No, sir, we never made that test.

MR. COWNIE: What was your shrinkage on lot number four from the yard to Kansas City? That is a distance of 118 miles, you said, I believe.

PROF. GEORGESON: Dressed weight!

MR. COWNIE: No, gross weight.

PROF. GEORGESEN: I can not give you the figures exactly. The shrinkage on lot number one was 30.04 pounds average on the head. On lot number two it was 19.05 pounds; on lot number three it was 33.06 pounds and on lot number four it was 71.02 pounds.

MR. COWNIE: *What! 71 pounds shrinkage on 118 miles of shipment?*

PROF. GEORGESEN: Yes, sir, that is a fact.

MR. COWNIE: You did not get a good fill on them when you got to Kansas City. (Laughter.)

PROF. GEORGESEN: They could eat all they wanted to. We did not force them any.

MR. GABRIELSON: Might not that shrink be due to the same that resulted in a loss in the first stabling, viz: these cattle being worried during the shipment. Might that cut any figure?

PROF. GEORGESEN: I don't know that I could account for it on that theory.

MR. BROOKS: Was the water for lot number four weighed as in other cases?

PROF. GEORGESEN: No, sir, it wasn't weighed. They had access to water at their pleasure.

PROF. KENT: May I ask if you weighed feed and water they drank at Kansas City before you weighed the water?

PROF. GEORGESEN: Well, they did get a little hay. They didn't get hardly anything. The different lots were kept separate. We drove them in the pens and when the buyers were ready, they were driven to the scales. They did not get much, however; I know that.

MR. COWNIE: It is a surprise to me, the shrinkage of 70 pounds in 118 miles.

PROF. GEORGESEN: So it was to me.

MR. COWNIE: Another surprise is that the stall fed cattle should shrink less than the yard fed. Our experience has been that stall fed cattle shrink about double in shipment to Chicago from our point, 267 miles. We can ship cattle of about that weight by careful handling from the yards at home, drive them two miles and have a shrinkage of from 15 to 40 pounds.

MR. WILSON: Without being watered in Chicago?

MR. COWNIE: No, sir, watered.

MR. NORTON: And pretty well salted before you left home? (Laughter.)

MR. COWNIE: Mr. Norton, if you have shipped many cattle and salted them before you left home and made anything by it you are an exception to any man that ever I found. If a man wants to scour his cattle, salt them before he ships. (Laughter.)

A VOICE: Me too. (Laughter.)

PROF. GEORGESEN: We don't make our profit upon the grain that is put on in the feed yard because the instances are very few when you feed in winter on dry feed, that you will realize per pound as it costs you per pound to put it on. If you feed in summer on grass with the addition of corn it is a different thing. Then you can do it and you do not really know what the grass costs you.

MR. BAKER: The added value in price, if it is 1,000 pounds, or one dollar per hundred, that ten dollars should be added to the profit, the gain in the feeding.

PROF. GEORGESEN: Yes, sir, that is exactly where you make your profit. We added more oil meal after we had fed twelve weeks. The point I want to make is this, that the amount of protein consumed is very nearly the same, no matter what the feed was for each pound of gain except from the end of the third period in the first lot, when they had already gained nearly as much as these others gained through the rest of their feeding. Then it required more protein for each pound of gain. You can also judge of that from the relative cost of the feeds. In many cases it will pay best to feed corn alone. It will depend on circumstances.

MR. BAKER: I would like to know how the different lots of cattle sold in Kansas City?

PROF. GEORGESEN: The best lot did not at all bring the price that I expected it would. We arrived there on a very dull market. They brought only \$4.20 a hundred, although they were extra fine cattle. All the other lots were classed the same. They sold for \$4.10 a hundred. We only got ten cents more per hundred pounds for the best cattle than for the poor ones, on the market.

MR. BAKER: Tell us, please, the purchase price of those cattle?

PROF. GEORGESEN: \$39.50 a head.

MR. BAKER: What weights?

PROF. GEORGESEN: One thousand two hundred on the average. It is a little more than three cents. The freight costs a dollar and a half to Manhattan, per head. They cost us exactly forty-one dollars a head, laid down at the Experiment station. We lost money on all the lots.

MR. BAKER: There was a fraction over four cents that they realized?

PROF. GEORGESON: Yes, sir, the best \$4.20, the other \$4.10

MR. BAKER: Did the surplus over four cents of the selling price, equal the expense over three cents of purchase price?

PROF. GEORGESON: I shall have to work the example out.

MR. SHEEHAN: I want to emphasize a remark and I hope every breeder in the State and feeder in the State will remember it, and it is a point that I have claimed for the last three years, that where money is lost in feeding cattle is in feeding them too long. As I understand that table, Prof. Georgeson, would not those cattle in number one have brought you more money, according to the feeding, at the end of three or four months, than at the end of six?

PROF. GEORGESON: Yes, sir, lot one ought to have been sold not later than February. I counted 150 pounds of shrinkage for the lot of five steers. They then would have netted us 7,167 pounds, which would be worth \$293.74. The cost of feed was \$67.13. We would then have made a profit of \$15.61 on the lot. On March 21st, at the end of the fourth period there, we should have made a profit of \$3.93 on that lot. From this date on the balance appears on the wrong side—it points out two lessons: First, as a rule, it is not profitable to feed cattle after they are in fair marketable condition. Second, that the feeder ought to be able to tell any day, how much his cattle have eaten and the cost of the feed. Knowing this he can tell when his stock reached a turning point in profit. When this point is reached it is time to sell. Then another is, that the packers do not pay sufficient for fine cattle in Kansas City. There is practically no competition. They buy everything that is suitable for slaughter and whatever they agree to pay the shipper is obliged to accept. The packer as yet does not pay enough so that the farmer can get any profit by putting his cattle in fine condition. Perhaps if the farmers learn this and do not put their cattle in such a fine condition, they will, by and by, pay better for good cattle. I do not know that. This is my surmise.

PROF. WILSON: On one point now, we would like to weigh our animals and know what the head and the blood and the loose fat and the quarters and everything about it, would weigh. Did you ever try to get that done by the packers? Did you try that?

PROF. GEORGESON: I made arrangements with the Armour Packing Company that they should slaughter them, and they gave us facilities but I did not get all of the facts I would liked to have had.

PROF. WILSON: Did they refuse to give you any facts they had?

PROF. GEORGESON: No, but it was a difficult matter to get at. The cattle were slaughtered in regular turn as they came in with all of the rest, and it was a difficult matter to get all the details. The next time I have cattle slaughtered, I shall go to a butcher. He has nothing else on his hands at the time and then we shall get all the facts.

PROF. WILSON: We shall go to the butcher I think. We shall lose a couple of hundred dollars in the operation but it is not a question of loss; it is a question of getting the facts.

PROF. GEORGESON: On lot one we lost \$25.34; on lot two we lost \$17.97; on lot three, \$15.48; on lot four, \$31.27. We lost the most on lot four. (Mr. Georgeson then, on the blackboard, makes an illustration of gain and loss at certain points in feeding, which is shown by bulletin heretofore mentioned by him).

PROF. WILSON: This, to my mind, is the most valuable experiment that has yet been printed in the United States by any institution. We have a good many institutions in the United States. Many of them are not at all interested in cattle feeding. Some of them feed cattle to make experiment come out the way they want it to. Our Kansas friend has gone to work here on a determined plan to see what he could find, and to print honestly what he could find, and that is the value of it to us. There are a great many questions raised here. The question of profit and loss has nothing under the sun to do with the feeding here. For example, the amount of labor in feeding five steers, would not be so much a day if you are going into a commercial operation. You will perhaps feed just as many as you can feed; you have a team to haul your stuff and the labor's cost will be less, so that I pay no attention to whether the Kansas station lost money or not. He has given facts that are valuable to the whole world, and peculiarly valuable to the people of Iowa. For example, his conclusion changed the notions of a great many of us who had the idea that cattle will ship better when they are fed out doors winters, running around. That depends a good deal on the circumstances connected with it, on the kind of cattle you ship, their disposition, etc. You go to representative counties where the cattle are all handled; these cattle are all quiet, and when they are shipped, if they get tired they will lie down. There is no trouble about this. They will ship with the least loss. You go into a bunch of wild Texans, and you can not handle them at all. You can not tie them up. Mr. Georgeson has found something valuable. You have to place

a rope around their necks and pull them up by main force. They don't know whether meal is meal or sand. (Laughter.)

We are coming to a new kind of agriculture in Iowa. The conditions by which men can feed cattle in large amounts, in the open yard, have gone west of the Missouri river, and the only profit made nowadays by the feeder is when he half steals the cattle from the man that raises them. (Laughter.) If a man raises many young steers and young heifers, he will get the best results if he raises good ones when he is at it. We are coming to a civilized condition in regard to cattle. I most cordially endorse everything our friend has said, as valuable. The shrinkage of the lot inside and the lot outside is interesting to us. On my farm in Tama county I live two miles from market, and I never could take my steers two miles without a loss of 25 pounds to each steer. I have repeatedly got within 20 pounds of their weight at home by letting them drink in Chicago. Now, this gentleman has weighed carefully everything done, and given us valuable figures. Now, we will have to travel in a new route, in an *improved* route, in the State of Iowa, to make our fifty dollar land pay for itself. Now, with regard to taking care of animals and keeping them comfortable and all of that, a great deal depends on the kind of animals you have to handle. If they are semi-wild animals the lot is the best thing you can do with them. If they are tame animals and are gentle and well bred, you can afford to tie them up like milch cows.

Mr. President, I move that a vote of thanks be given to our friend Georgeson. He has done a nice thing in coming up here. It is one of the most interesting things that has ever been done, and certain it is, that the Stock Breeders' Association has never had anything so interesting. I move a vote of thanks, Mr. Chairman, to Mr. Georgeson, of Kansas.

Mr. Norton: I second the motion. (Carried unanimously.)

Mr. Norton: I now refer to lots number four and two. One slaughtered at sixty per cent, number four, while number two at sixty-three and a fraction. How do you account for the difference of three and a half per cent between lot number one and lot number four? That had a heavy shrinkage before and there was a difference also of three and a fraction per cent!

Prof. Wilson: I think I can answer that. I account for that by the feeding. We had something similar to that. We fed shipping stock as he is fed there. We fed some on a narrow ration of protein food and another on a balanced ration and still another on a corn ration. The corn fattened, but it did not finish the animals

all around as the balanced ration did and I account for the better killing of lot number one from the fact that they were better fed animals. They got what the system wanted all around, more than the others did.

PRES. BARCLAY: I wish to ask one question and that is this. It is hardly in touch with this paper, but I will ask it nevertheless. Do you think if you had had Ozark Mountain steers to have fed, in that experiment, you would have had a better gain than with Short-Horns?

PROF. GEORGESEN: No, sir.

PRES. BARCLAY: The conditions are not the same in Kansas that they are in Missouri?

PROF. GEORGESEN: I have had no experience with Ozarks, I am glad to say. I will say that I am in favor of the thoroughbred stock every time. (Applause.) The higher the grade, the better. (Applause.) I have in mind an experiment to be tried next year. I will give the thoroughbreds and Ozarks a fair test next time along side each other. I will get ten thoroughbred steers of the beef breeds and I will get ten Ozarks of the same age. I will put them on pasture together and I will treat them exactly alike during the summer and the next winter I shall feed them exactly alike and will compare results. I think that will be a fair test as to the thoroughbred and the Ozarks.

The next paper was "Pastures and Substitutes," by Prof. James Wilson, Ames, Iowa.

#### PASTURES AND SUBSTITUTES.

PROF. JAMES WILSON, AMES, IOWA.

Every country will not grow grass as Iowa does; permanent pastures of value cannot be had everywhere. The prairies of our State excel in this regard. We can have good permanent pastures without periodical cropping and manuring if we seed properly and graze judiciously. Bluegrass, and the clovers, timothy and orchard grass, red top and other grasses, grow in harmony together in systems of rotation that are not too long extended; and when blue-grass monopolizes the sod in permanent pastures, it is practical to reintroduce the clovers by early sowing. We can graze one year with another 265 days in the year, if we stock the pasture wisely. Our farmers who established departmental farming, where they rake up the prairies, seed down pastures, and graze there, have demonstrated that this method gives the finest crops of all kinds, that the heaviest corn crops are had from the old pastures, and that the fertility of the soil can be maintained in all its strength

through pasturing. The cheapest growth, meats and dairy products are made on the pasture. No country under the sun, taking hill and valley into consideration, will graze as much in a year as our prairie soils will. It has been ascertained that early seeding, deep seeding, and frequent seeding is in many cases necessary. Early seeding is best, because summer droughts sometimes dry out the surface of the ground and wither the young plant before it has made root enough; deep seeding insures against later droughts; an inch deep is better for clover than surface sowing and two inches is better than one, and three inches the past season, gave better results than sowing at less depth. Frequent seeding is necessary, where for any one of many reasons grass becomes weak, or thin or has been killed altogether. The pasture requires attention, just as the corn field does. It needs less attention and less expense than any other crop, but it pays to thicken it sometimes, reseed sometimes; keep stock off entirely when there is nothing for them to eat but the grass roots. It does not pay to have stock dig up the grass roots any more than it pays to feed the seed corn to the teams. Grass makes grass, heat and moisture will make grass grow, but when the heat is great and the grass roots are bare, heat will injure the roots. Where there is a good cover of grass on the pasture in summer, growth goes on during the hottest weather; but where the grass is eaten bare at that season growth stops.

To provide succulent food for July and August many expedients have been resorted to in different countries—clover, oats, vetches, peas and oats, and early corn have had most attention in the United States. Nothing excels clover for several reasons, among which are its value as a well balanced plant, and the ease with which it can be cut. Peas and oats grown together are valuable, because they yield heavily and furnish a well balanced ration. The peas should be plowed in four inches deep and the oats should be sown afterward, before the peas come up. Late varieties of both should be selected, so that they will not become too ripe for use too early in the season. Clovers can be used during most of July; early in August is the scarce season. We should endeavor to have something to break joints with early corn. The second cut of clover will often do it, but in severe droughts at that season this crop is often light.

It will pay every farmer to introduce something of this kind into his system of farm management, to tide him over those two months. Milk cows, horses, male animals kept in the stable, and hogs kept on a bare pasture all need succulent feed in these months, and will not respond without it.

This year we had droughts in September and October, something unusual in Iowa. We generally have rains in September that cover parched fields with grass in ten days, but most sections of Iowa did not have fall rains until late in October; this requires a different class of plants. Green corn can be used, but frosts often come by the middle of September and dry it up. The dairy cow often dries up at this season unless she is fed well, even if she "came in" but a few months before. Iowa creamery men can testify to this. Dearer lands compel us to keep the cow milking, young stock growing, and mature cattle fattening; we must consider the necessity and meet it.

Rape may be used with profit at this season. It can be sown in June and be ready in October.

The soft turnip can be planted on the ground that grew oats, or barley, or early corn, or potatoes; it is excellent late fall feed. The mangel grows better in our climate than any other root. It can be planted in April or May and if grown on well prepared land it grows a heavy crop, while the harder turnips are more

capricious, and liable to fail in droughts, and be eaten by insects that do not affect the mangel. It has come to the time in our State when the animal must be fed all the year, out of doors, or in doors, if it pays. The pasture is the cheapest feed we have and the best when we have enough of it; it fails, often for the want of our consideration, and it fails often when we could not anticipate it. All of the substitutes I have suggested can be cured and saved for winter use, if they are not needed. It would seem wise to set apart some acres to grow feed for both periods. It would be an assurance for the year, that there would be no interruption in profits from farm animals.

#### DISCUSSION.

PRES. BARCLAY: I understand it does not pay to have pigs root up the pastures, etc. Does it pay to cut them up with a disk or other farm implements?

MR. WILSON: Cut the roots up.

MR. BARCLAY: Cut the grass up? I cut it up thoroughly where the grass is thin and where the pasture is old and rather worn out.

MR. WILSON: Yes, sir, in the spring, if you want to reseed and put in some clover or something of that kind, I think it would pay. We have done that at the college with some old bluegrass pastures where the clover had been entirely eaten out in some lots close to the barns and reintroduced clover by that means.

MR. BAKER: In the matter of detail, it does seem to me you ought to have given the quantity and value of the seeds to fit out these pastures that were scant.

MR. WILSON: I only wanted to fairly introduce the subject. I knew this convention would take up the seed issue very nicely, Mr. Baker. I never like to exhaust a subject.

PRES. BARCLAY: I have had two or three little experiences in that line which have been very interesting to me on that subject. Five years ago, I rented a farm, which was an old one in our section, and one of the farms where grain had been sown, with no manure or clover or anything of that kind. The house was nearly eighty rods from the road and between the house and the road was a strip of ground five or six rods wide, ran clear out to the road and had been allowed to lie in old bluegrass. To my knowledge, the grass on that ground had not grown in ten years. There had been no growth to exceed three or four inches high, without any pasturage.

It had just lain there and worn out. It was what we call "hide-bound." I do not know what you would call it. It was kind of fuzzy, dried up blue grass. That was about all there was to it. When I got the farm I cared about the view from the house to the road and I ran a disk over that, cut it up thoroughly with the disk

in the spring of the year and sowed it to oats. I did not sow my oats very early and when it came up there was more bluegrass on the ground than there had been any year in the ten. That fall I put that ground in rye. I took my disk and cut it up again thoroughly and cut the grass until you could not see any grass there. The next summer, when I cut that rye, there was as much good bluegrass on the ground as there was the preceding season. I thought that was rather strange and the next season I seeded that ground. I got one-half a stand of clover. The next spring I reseeded the ground to oats and sowed clover seed along with it. I then used my disk again, and cut the ground up thoroughly as I had before and did not put any seed on it, except the last spring I put some clover on it, and when I cut the oats the third season the bluegrass was so strong in the little swales—there were a couple of them—that I could not run my reaper through it. It was from fifteen to eighteen inches high and a good swath of bluegrass from the house to the road, and in regard to the clover on the ground that had been sown there the year before, I cut that up thoroughly with my disk and the clover came in as thick again as it had been before. I got a good stand of clover on that grass. The first time my attention was attracted to that fact was the first season of our drouth which was probably 1886 or 1887. Our pastures dried up. It didn't look as if I had any hay or anything of the kind and in June I broke up ten acres of old pasture and seeded it to millet and sowed it along with clover seed. It was so dry I did not get any millet, but the next spring I had probably one-half a stand of clover. I took a disk and cut that ground up, and when I cut my oats off on that ground the patches of clover on it had grown so strong that it was as high as the oats. I had sown three or four quarts of clover seed to the acre. For three or four years I have had the same results every time.

PROF. WILSON: The only point I wanted to bring before the breeders was in regard to old pastures that become dried out and become eaten out, and where it is not practicable to plow them up so as to rotate with crops, we must resort to something of that kind. I would advise, when you have a pasture that cannot be rotated, when it lies in such a position that you can not plow it for cropping—too heavy or too low—you may have a permanent pasture that you do not desire to rotate, reintroduce it with clover. That is entirely practicable. You can do it by disking early in the spring and putting in clover seed. Then again, there are Iowa pastures that are not so rich as other Iowa lands, and it has been demonstrated in late

years that the clover plant feeds these other plants. They are in a pasture where the grass roots have been weakened, then we can reintroduce clover in the bluegrass. Red clover sometimes lives 20 years, to my knowledge, in a bluegrass pasture. We have perennial red clover that lives right along. As long as clover will reseed itself or grow from the old stands, we have the means by which we can feed it, with bluegrass and other plants that cannot feed themselves, and we have the means also to perpetuate the value of permanent pastures that way. There is no difficulty where lands are in rotation. There they can be seeded down without difficulty. On that point I want to call attention that permanent pastures when they become weak and yield but little and are let go and people take what they can get for them. That is the point I want you to think about. Do something for the permanent pasture that is not used in rotation.

MR. GABRIELSON: I am glad that Prof. Wilson tells us that permanent pastures are not entirely always reliable. I think he intimates they are not. I want to call attention to what President Barclay says in regard to disking land. I tried it this spring, hoping by that means to renew some permanent pasture, but I am firmly convinced that it cannot be done without the introduction of seed. I set the disk at work with four horses abreast and told my workmen to cross it and recross it, but there was absolutely no gain from the work which was expended in that way. I am satisfied that the land must either be broken up entirely or reseed it as Prof. Wilson suggests. There is another point in regard to our permanent pastures on which the land had been over grazed. It is a fact that most of our pastures contain some low and some high land. I find on the knolls, that by manuring, the grass can not be kept up there, by reason of that fact that it is sweeter grass and the cattle will graze that much more closely than they will the grass that grows in the swale. I have some pasture that has been in permanent pasture for twenty-five years. I was this year obliged to break it up for the reason that it become run out, just as Prof. Wilson said, and without re-seeding, I do not think they will become perpetual.

MR. BROOKS: I understand you mean to name among the desirable pasture grasses, red top.

PROF. WILSON: No, I named it among the grasses that would grow regularly in Iowa.

MR. BROOKS: You do not approve red top as a pasture grass!

PROF. WILSON: Except on very low ground. It will grow on quite low lands where some other grasses will not.

MR. BROOKS: Have you had experience on your low lands yourself?

PROF. WILSON: Yes, sir. I do not like it unless it is cut in good season for hay.

MR. BROOKS: Use it for pasture grass; to cut for hay?

PROF. WILSON: Not altogether. You can go in the pasture and cut it for hay or let it alone.

MR. BROOKS: That is why I asked you the question. I find that my stock let it alone. I have some of it. I wish I could let go of it, but I am like the man who caught the bear, "I want assistance to let go of it." I find my stock let it very severely alone and leave it with me. I did not know but what there was some method of handling it whereby I could change.

PROF. WILSON: There is, if you will cut that grass before it heads out. In an early time you can fatten cattle with it. It is one of the most nutritious grasses in its early stages but in the latter stage it becomes woody and cattle *do not like it*.

MR. McCLUNG: I have heard people say that their pastures were root bound, and their speaking about running a disk over it. I want to state a case and ask you what you think of it. One of my neighbors is a cattle feeder, joins farms with me, had a bluegrass pasture which has been to grass for years. One summer his hogs run in there and rooted it up most thoroughly. I never saw a field rooted over more thoroughly than the hogs rooted that. The next winter he fed corn in his fodder to his cattle, hauled it out and scattered it over that field. The field was one mass of corn stalks. I supposed the next year he would plow that up and put it in corn. I did not suppose any grass would grow there. He never touched it and he had the best pasture I know of. Did it make it by stirring that up?

PROF. WILSON: We all have stories of that kind, those of us that do not ring our hogs. They will root up a piece of ground and you do not use it that season and it will be all right the next season. In regard to the hide-bound condition, that depends on the land. I know pastures in Iowa that have been seeded down to bluegrass seed brought from Kentucky twenty years ago that have grazed since without difficulty. I am not familiar with the conditions of soil in Iowa that will not grow bluegrass liberally, unless the roots have been weakened by too close picking. I think that is a feature of our pastures. We must study closer, gentlemen. There are too many animals put on pasture, that, when the dry time comes, must make a living. They must pick at the roots and they

injure those roots. Then let the hot suns of July burn down upon them and they are badly injured. There may be sods in Iowa where bluegrass grows, that will become hide-bound and not grow a good crop, but I must say that I am not familiar with it. I think too close grazing is what injures the bluegrass pastures of Iowa. We turn out animals into the pasture after everything has been eaten up that should be eaten. That is the time we ought to keep the cattle off pasture until something grows again.

PRES. BARCLAY: Have you had any experience with Alsike clover?

PROF. WILSON: Yes, sir, it grows beautifully on the lower lands. It never amounts to anything on the upper lands; at least it has not with me. It grows well on the lower lands and on the creek bottoms. It is valuable placed there.

PROF. GEORGESON: I would like to ask Prof. Wilson if he has had any experience with Alfalfa?

PROF. WILSON: Yes, sir, we did. It does not amount to anything on the grass lands at Ames. It was grown there for years and became thinner and thinner. It was let make the most of itself there. It was not cut until it fully matured and it became so thin we plowed it up. I understand Prof. Georgeson is experimenting with the Japan *pea* or *bean*. I would like to ask if he would be good enough to give us something of that bean?

PROF. GEORGESON: To be brief I would say that I was in Japan for several years, and while there I studied their economic plants. I found among them the most important one to us was the Soy bean. It is a bean that is not known, except in an experimental way, in this country. I sent to my old station there and they sent me some seed—several varieties. I found among these four varieties that are early enough to mature seed in our climate. Most of them are later than that and would be caught by the frost. I have raised these beans three years. I have come to the conclusion that for us—and I do not see why they would not be of value to you also—they will be of considerable importance. They have the property of withstanding the drouth better than most things we raise out there. We are liable to have a severe drouth sometime during the Summer in Kansas. The corn will curl up its leaves and stop growing; pastures will turn brown, and everything will stop its growth. The Soy bean does not stop. They retain their fresh, green color without turning the leaf and continue to flourish until the time for harvest. I will say you can raise a crop of those beans in three and a-half months' time. You can raise about three

tons of hay to the acre on very ordinary soil. I have grown something over five tons—five and one-third or five and one-half tons. It is a very nutritious plant. We cultivate it in rows, three and a half feet apart. I have been trying to broadcast them. I will try this next year. It is possible they may not yield more when broadcast. What I have been after was to get a sufficient stock of seed. The beans are very nutritious. They are very much more nutritious than our field bean. We have raised eighteen bushels of beans to the acre, but others elsewhere who have tried them have raised as much as thirty bushels. If it is possible to raise thirty bushels of those beans to the acre it is a very profitable crop. I will say further that the steers and stock are very fond of them, and they will eat the plant green—roots, top and all. I have seen them do it. I have given them handfuls now and then to try it. After the ripe beans have been threshed, and we have a lot of stiff, broken straw left, and throw out in the yard the cattle will lick up every bit of it. I have seen them do it. That indicates that it is a good fodder plant. It has some drawbacks. It is difficult to cure it as hay. The leaves will break off and crumble up, and waste more or less—very much more so than clover hay. The time when it will be most valuable for hay will be when the beans are nearly full grown. You will then get the greatest amount of nutrition in a given bulk, then the pods will dry up, then they will pop open and the beans will scatter and be lost. I have an experiment in mind that I do not know the termination of, but I will try it. We saved a portion of this crop last summer and cured it as hay. If we feed it as hay I am afraid there will be too much waste. I will run this through the cutter and chop it up into inch lengths. I will then run it through a duplex mill and make a coarse-ground feed, which will be worth as much as bran in feeding value. I do not know how this will come out. I will grind it sufficiently fine and I shall see, after trial, how it will come out as a concentrated feed.

PRESIDENT BARCLAY: I very much regret that we are compelled, owing to the lateness of the hour, to lay the next paper over till morning, for I am aware that it is full of interesting thoughts and I fear we will not have as full house as the paper deserves. I have reference to the paper, "The Breeder of Improved Stock Must be an Improved Man," by Ex-Gov. C. C. Carpenter, Fort Dodge. We will listen to this paper the first thing on the morning program.

Adjourned to 9 A. M.

## SECOND DAY—THURSDAY—DECEMBER 8, 1892.

The meeting was called to order at 9 A. M. with a very few members in the Opera House.

PRESIDENT BARCLAY: The first thing on the program will be the report of the Treasurer.

### TREASURER'S REPORT.

Iowa Improved Stock-Breeders' Association in account with the treasurer for the year ending November 30, 1892:

1891.			
Dec.	4.	To paid C. L. Dahlberg, stenographer.....	\$ 51.40
	16.	To paid Secretary's expenses to and from Waterloo	19.76
1892.			
Jan.	3.	To paid printing programs, envelopes, etc.....	15.75
		To paid postage on 200 notices to old members...	4.00
		To paid postage for December.....	.62
	15.	To paid Secretary's expenses editing annual report	14.58
	28.	To paid balance due stenographer.....	11.25
	31.	To paid postage for January.....	3.22
Feb.	29.	To paid postage for February.....	1.06
March	31.	To paid postage for March.....	.29
April	30.	To paid postage for April.....	.28
May	31.	To paid freight on box books from Des Moines...	2.70
		To paid postage on 150 reports to members.....	10.50
		To paid postage for May.....	.87
June	30.	To paid postage for June.....	1.01
July	31.	To paid postage for July.....	.34
Aug.	31.	To paid postage for August.....	.76
Sept.	30.	To paid manilla paper for wrapping books.....	2.25
	30.	To paid postage for September.....	1.18
Oct.	31.	To paid postage for October.....	2.30
Nov.	1.	To paid postage on 50 programs to press (1st class)	1.00
		To paid postage on 50 programs to writers of papers.....	.50
		To paid postage on 150 programs to members...	1.50
		To paid postage on 100 programs to stock men...	1.00
	15.	To paid telegram to stenographer and answer....	.50
	30.	To paid postage for November.....	.86
		To paid Secretary's salary for year.....	25.00
		Balance.....	17.13
			\$ 191.80

## PER CONTRA.

1891.		
Dec.	1. By balance on hand per annual report.....	\$ 41.80
	4. By received membership fees Waterloo.....	105.00
1892.		
Mar.	1. By received enrolled since meeting (44).....	44.00
June	1. By received enrolled, A. A. Perry.....	1.00
		<b>\$ 191.80</b>

Signed, GEO. W. FRANKLIN, Treasurer.

PRESIDENT BARCLAY: I will appoint as committee to examine the books and vouchers of the Treasurer, Messrs. Cownie, Brown and Brooks.

PRES. BARCLAY: As I intimated last night, when Ex-Governor Carpenter's paper was left over till this morning, that there would not be as large hearing as we would like. We will now listen to a paper by Ex-Governor C. C. Carpenter, "The Breeder of Improved Stock Must be an Improved Man."

## THE BREEDER OF IMPROVED STOCK MUST BE AN IMPROVED MAN.

BY EX-GOV. C. C. CARPENTER.

Mr. President—The author of the life of Daniel Webster describes the following scene as occurring a few days before his death. He says: "Mr. Webster, as we have seen, had an extraordinary fondness for great oxen, and he took much pains to possess the choicest breeds. He liked a good horse, and appreciated the fine points of that animal; but he was not a lover of the horse. I am not aware that he cared anything for dogs, although, in his most active days of shooting, he may have kept a spaniel or a pointer. But of all the brute creation, he loved the ox. Oxen were the pets of his large agricultural tastes; and, when he could not see and feed them, he missed one of his greatest pleasures. He had come down one fine morning, after a night of pain, and was seated in one of the parlors that looked out upon the lawn. There he had a herd of his best oxen driven in front of the windows, that he might look once more into their great, gentle eyes, and see them crop the grass." "It was," said Porter Wright, "his last enjoyment."

No man ever yet succeeded in a business which was not pleasing to his tastes. To be fully successful he must not only like the business for the profit which it will bring him, but apart from any question of gain, he must love the business for its itself. Thus it has become a proverb, that the breath of some men is poison to a horse. It is a well understood principle, that unless a man really loves a horse he can neither feed him so as to make him thrive, nor drive him so as to secure the full measure of his speed, or of his strength. The same principle applies to any other domestic animal. He who does not watch with care and pleasure the development of a calf from the hour it comes into existence, until it passes from his

hands to the shambles, or until he brings it into the ring for sale as a breeder, will never bring out of that animal all its possibilities. Again, a successful breeder must feel that he belongs to an honorable profession, and his ambition and his pride must find their only limitations in becoming the peer of his fellow breeders. I shall never forget the interesting history of Judge Jones, of Delaware, Ohio—recently deceased. He was a man of high intelligence and the highest principle. Had been a lawyer and a judge. Was always an active participant in public affairs. During the great rebellion he rendered active and patriotic service in behalf of the country. And yet most of the years of his long and useful life were spent in farming, and especially in the establishment of a fine herd of pedigreed cattle. The later years of his life were years of severe trial. His eyesight became so impaired that he could neither read nor write; whilst prior to this impairment he had been a voracious reader and a prolific writer—especially upon questions connected with the breeding of improved stock. It is said that during the closing months of his life his interest in the farm and herd was unabated. He would ask to be taken out to the pasture and the barn, and he carried in his mind to the last the names and history of his pets. That he was a successful breeder goes without saying. His life is a sharp contrast to that of the man whose natural propensity is for a scrub. Such a man is a scrub himself, and it would be a reflection upon his own breeding to come in too close proximity to a well-bred animal. His life has been a haphazard affair, and everything around him struggles to maturity in a haphazard way. If it storm, and his cattle are browsing the corn-stalks, he toasts his shins at the fire with the sage remark, "that there will be cattle when he is gone." His stock will shelter themselves from the north wind by hovering on the south side of a barbed-wire fence. And when he looks at other people's stock, he turns away with the remark, "that they are not hardy, that they have been pampered until they are worthless for the common farmer." By the common farmer, evidently meaning, the farmer who thinks an improved breed should be a breed that needs little food and less care.

The improved man is a progressive man. It is the philosophy of human life that men cannot stand still. They either advance or they retrograde. It is preposterous to suppose that a man can be interested in an effort to enrich the blood of a herd of dumb animals, whilst he is indifferent to his own advancement, and to the development of his sons and daughters.

The history of Amos Cruickshank, whose name, like the names of the Collings and Bates and Booth, will live whilst the great family of Short-Horns which he founded shall survive, is an interesting study for any young man. He began life in the bleak and unpromising region of Scotland where but little progress had been made in agriculture. The reluctant soil and cheerless climate yielded but scant returns from the cultivated patches, to the cultivators, whose only ambition was to obtain a subsistence. But when Amos Cruickshank, as a young farmer, without the adventitious advantages of wealth or wealthy friends, came to consider the question of making a farm; with the thoughtfulness of a reflecting mind, he arrived at the conclusion that to raise stock profitably, a larger breed, and one which would come to earlier maturity than the native breeds of Scotland, was required. With the purpose of laying the foundation of such a herd in view, he visited the various breeders in England, and brought to his bleak, northern home a few cows, which from a system of breeding by selections, made with a view to secure certain results, has produced the distinct type of Short-Horn, known as the Cruickshank. The marvel of this history is, that while he was making these experiments in

breeding animals so as to develop certain points which he believed to be lacking in some of the established herds, he at the same time was experimenting in new methods of farming the penurious soil at Sittytton, in order to discover the products, and the methods of cultivation, by which he could profitably rear his herds. He not only revolutionized the country in which he lived in relation to the breeds which could be raised, but he also revolutionized its methods of farming. And the root crops and the artificial grasses which he found to be suited to the soils of those cold, Scottish ridges, are to-day the staples of production among the Scottish cattle growers. Here was an improved man creating an improved herd.

This organization, known as the Improved Stock-Breeders' Association, is but an outgrowth of the ambitions inspired by the business in which its members are engaged. No such thing as an organization to improve the scrub, as a scrub, was ever yet heard of, or suggested. And by the way, it seems but as a day since an association of improved stock breeders would have been regarded by the great majority of farmers as composed of the heretics in the farming profession—men who were really not fitted for the good fellowship of their neighbors. In these old days it was admitted that in many things we might advance beyond the well-worn footsteps of our fathers and grandfathers. We could have better schools. We could believe a more cheerful theology. We could live in more comfortable houses. We could adorn them with more beautiful pictures; but when we came to talk about improving the methods of farming—about applying the principles of an exact science in the rotation of crops—to the breeding and rearing of domestic animals, we were thought to be embarking in an enterprise which was outside the realm of human wisdom. In my own early life such a thing as an agricultural newspaper was as rare a product as was the man who, according to the thought of the period, would waste his time in reading such trash. And such a thing as a book upon the science and methods of farming was a still rarer production of the times. You could not satirize a farmer more effectively than to fix upon him the stigma of being a "book farmer"—a crank who would even read agricultural literature. Think of such a thing in that generation as a professional veterinary with any of the scholarship acquired at the schools? Just think of such a thing as a department in veterinary science, teaching methods of practice in dentistry as specially applied to domestic animals. If a cow was sick, the largest gimlet in the house was brought into requisition to bore a hole in her horn for the hollow-horn; or her tail was cut off on the supposition that she had the "wolf-tail." And one evidence that the improved stock breeder is an improved man, is the fact that these beautiful appendages, long and pendant, with white, bushy tips—sometimes even shaved so as to show their shapely tapes—indicates that the "wolf-tail" is a disease which has gone out in this generation of high cow civilization; and that even the "dog-tail" has so far become obsolete as to prove that a common farmer no longer regards a dog as the cheapest fence in the market.

Another incident which naturally accompanies the rearing of improved stock is the improved morals of the breeder. Any business which a citizen of this world may find it necessary to follow will have its perplexities and disappointments. The breeder of improved stock is not exempt from these incidents of human enterprise. Sometimes an animal which he has fondly regarded as likely to bring him good returns sickens, and in spite of human care and skill, dies. Sometimes his most valuable and highly bred cow will cease to breed. Sometimes prices are low when his pastures and stables are overflowing. Again they are high when he has nothing to sell. But I think if there is any business which will teach a man

to be a philosopher it is that of rearing improved stock. He can walk out into the pasture even when the markets are dull and console himself with the reflection that the goods which he has to sell will not go out of style; and with the further thought that, however much he may sell there will remain no unsalable remnants. His surroundings inspire him to a temperate, steady-going life. His business brings him into correspondence and connection with intelligent, enterprising and honorable men. The trend of his reflections constantly converge towards the purpose to improve and strengthen the character of his herd. Thus the aim for something better becomes an ingrained ambition of his nature. As it inspires his ambition in one direction, it widens and develops his character on all sides. He becomes a truer and better man just as his cattle by his intelligent and careful breeding become more perfect and highly developed types of animal life. It is the very philosophy of human progress that the man who does not improve himself will neither have the purpose or the intelligence to improve the business material of whatever nature with which he is connected.

Finally, the history of all time shows that the tendency of rural life is to strengthen the fiber of the human character, and develop the honorable and manly impulses of the mind. The landscape around him, the prolific earth beneath his feet, the life-giving sun above him, the herd over whom the Supreme Ruler has given him dominion, all inspire a man to noble endeavor, to generous purpose, and to unflinching integrity. And so it comes to pass that the best product derived from cultivating the soil and from caring for and improving the flocks and herds which it sustains, is the improved man.

We have Divine authority for this conclusion. When the Ruler of the Universe would choose a man to lead the children of Israel out of slavery, he selected a modest but manly herder. And, by the way, Moses is the only man in all the generations of men to whom the Lord made a solemn promise that "he would be with his mouth." It was also a high tribute to the agricultural calling that when Satan presented himself with the sons of God, and challenged the Sovereign Ruler to show him a man who under the strain of adversity would maintain his integrity. That in response to this challenge the typical man was not found in the high courts of the nation, he was not found in the learned professions, nor among the pool-sellers or the stock gamblers, nor in the commercial ranks, nor among the traders in cheap clothing. He was not even found among the priesthood—the professed teachers and exemplars of the highest morals—but this best type of human character was found in a plain, well-to-do farmer and stock raiser, of which the historian says: "That man was perfect and upright, and one that feared God and eschewed evil. And there was born unto him seven sons and three daughters. His substance also was seven thousand sheep, and three thousand camels, and five hundred yoke of oxen and a very great household." But after his fields had been laid waste, his herds and flocks had been swept away, his sons and daughters had died and his home had become a desolation, and even his health was so impaired that he could neither accept a position as an insurance agent or a tree peddler, still the historian says of him: "And the Lord said unto Satan, 'Hast thou considered my servant Job, a perfect and upright man, one that feareth God and escheweth evil?' And still he holdeth fast his integrity."

#### DISCUSSION.

MR. STOUT: It has occurred to me, with reference to the ideas advanced in this paper, that with the improved stock breeders' in-

terest and intelligence, what his labor has done for himself and others engaged in the high calling of agriculture; and that feeling met with a hearty response in my heart. I feel, for one, that the improved stock breeders of Iowa have been doing a grand work in the elevation of mankind to a true standard of manhood, but there is one thought that has been brought to my mind during the meetings of this Association of former years—that is, that man is not alone in this work. While he is recognized as the head, yet womankind has been a co-worker. An elevation has come to manhood by the co-operation of the labor and work of the domestic life and the domestic home, and the farmer's home; and had they to-day a representation on the floor of this convention, we would be surprised to find some of the best posted stock breeders of the nation come from the ranks of womanhood.

I call to mind a lady, a neighbor of mine, who probably never was in attendance upon an association of this kind, but who is a co-laborer and co-helper on the farm and in the home, and would give to the best posted of you gentlemen, ideas with regard to lineage and pedigree and the character of your stock.

I was reminded again, by a conversation I had with one of our swine breeders last year, Mr. Van Orman, who is not present, but who related to me a circumstance of a refined lady from the east who never had any experience other than that of the education of an Eastern home, coming to one of the western states and building up in some directions the farm and home, and entering with her husband the stock-breeding business, and failing in that direction, turning her attention to the swine herd. She visited the Swine-Breeders' Association of this State and surprised everybody who listened to her with her ideas on that business. The point I desire to make is, that the farm house and the stock-breeder's home can be enlightened and refined and that all the members can take a part in that refinement, husband, wife, sons and daughters. I have been in some of those homes myself, where these matters are talked over, where they are discussed and where they have their influence, without detracting from that home and manly and womanly strength. (Laughter.)

MR. FRANKLIN: I have in my hand a letter received from Jerry Rusk, in response to an invitation to be present at the Association.

MR. C. S. BARCLAY, President, MR. GEO. W. FRANKLIN, Secretary, and the Officers of the Iowa Improved Stock-Breeders' Association.

GENTLEMEN: I received, with a great deal of pleasure, the kind invitation forwarded to me by your secretary, to attend, in person, the nineteenth annual meeting of the Improved Stock Breeders' Association of the State of Iowa. You must attribute my delay in replying thereto solely to one cause—my desire to be with you in person, or at least to be able to convey to you an expression of my interest and good will through some representative of this department who would do his share in adding to the interest of your meeting. I regret to say that I find I can do neither, and I must ask you to accept both my regrets at being unable to meet you, and my greeting in writing. There are many things I should have liked to have discussed with you, representing as you do, the live stock interests of one of the greatest live stock states in the Union, for the live stock industry has always been a subject of great interest to me, and since I have occupied my present position, it has never failed, I assure you, to receive my special and earnest consideration.

I believe that no man appreciates the value of this great industry to our country more than I do, and it has been a source of great gratification to me that I have been placed in a position where I could strike some good blows in its behalf.

To preserve our live stock from disease, to encourage all that tends to an improvement in the breeds and varieties of live stock in our own country, to combat competition and prejudice in foreign lands, and to further in every way possible the extension of that foreign trade which, by enabling us to dispose of our surplus product, protects our cattle and stock-raisers from serious depreciation of prices in our home markets—to accomplish these objects has been my earnest endeavor, and I think I may say with some pardonable pride, that my efforts have been measurably successful.

A few years ago I was told that, though I should spend millions in seeking to accomplish the eradication of pleuro-pneumonia from this country, I could not possibly succeed; and the experience of other countries seemed to bear out the assertion, and as you yourselves will well remember, not a meeting of cattle-raisers took place, but the existence of this disease on our soil was deplored and the gravest apprehension expressed lest it should get beyond our control. To-day pleuro-pneumonia in the United States is a thing of the past; the most vigilant inspection has failed to reveal a single case of the disease since that which occurred in New Jersey last March, and with the inspection still maintained in those sections where the disease had a footing within the past few years, and with the vast inspection now carried on by officers of this department under the general inspection laws of August 30, 1890, and March 3, 1891, I do not hesitate to affirm, first, that it is almost absolutely impossible that a case of this disease could occur without being known to us; and second, that it depends solely upon our vigilance in the future, to prevent forever the introduction of this disease into this country.

The dangers and annoyances from Texas fever have been greatly minimized, and I believe, with the energetic carrying out of our present regulations, and a little more supervision and control of the transportation companies carrying cattle from the south, together with the great knowledge we now have, thanks to our efforts in the past two or three years, of the nature of this disease, this source of danger to northern cattle can be entirely avoided. The inspection of cattle-carrying vessels has greatly mitigated the sufferings to which our cattle shipped for export were

exposed by the capacity or indifference of vessel owners, and the transatlantic inspection of all American cattle landed in British ports, which I have found it desirable to maintain, has been amply justified by the results. Accusations of disease among our cattle have been much fewer in number, put forth more timidly, and, I am happy to say, so far as contagious pneumonia is concerned, in every case triumphantly refuted.

Two years ago our pork products were interdicted in practically every country of continental Europe. To-day the gates are open to the American hog, and he may march triumphantly and without hindrance, from one end of Europe to the other. Such are a few of the results obtained during this administration on behalf of the American live stock industry, and so far as our live stock interests abroad are concerned, I cannot emphasize too strongly the necessity for such an extension of our inspection system as will maintain forever our American meat products as the standard of healthfulness throughout all foreign markets.

In conclusion, let me express to you my warm appreciation of the efforts of your organization and other organizations such as yours, in the work of developing our live stock interests and improving the character of our live stock throughout the country; and furthermore, let me express to you my obligations for the very general and cordial support I have received from you in all my efforts on behalf of the live stock industry. No Secretary of Agriculture, however wise or however energetic, can accomplish the best results without the cordial sympathy and support of associations like yours, which represent, in the fullest sense, the combined energy and intelligence of agriculture.

Gentlemen, I beg you to accept my most cordial greeting on this, the occasion of your nineteenth annual meeting, a greeting which I trust you will extend to all my fellow citizens who may attend it.

I have the honor to remain, gentlemen, yours very respectfully,

J. M. RUSK.

#### DISCUSSION.

PROF. WILSON: You all remember the time we began here in the west, the agitation for the wiping out of the lung plague that was coming from the old country and working its way west to the ranches, where, if it once gained lodgment, its eradication could, perhaps, never be accomplished. Mr. Rusk evidently knew where the influence came from that enabled him, finally, to wipe out the plague.

It brings to my mind, this morning very prominently, in considering the work that Mr. Rusk has done, for the first time coming to the assistance of the American farmer, the State department demanding terms from the most powerful nations of the Old World for the products of the western farmer, so that they could go, without let or hindrance, anywhere, through our accredited ministers and plenipotentiaries abroad. (Applause.) It also brings to our recollection the work done by Mr. Rusk through the Treasury department in having our pork products inspected and

labeled, so that they can go, with a clean bill of health, through the world, and gives us one cent more per pound for our pork than we received before the arrangement was brought about. It is a cause of great congratulation to get a thorough representative in the American cabinet, and the farmers of the United States can speak through the whole world and get a hearing. It is an anxious question with me, and I have no doubt with all of you, who is to succeed that man in that position. I don't suppose we have any business, here, to discuss the incoming President. Though I have not been with his party, yet I have hopes that the farmers and farmers' interests of this country will receive careful consideration from President Cleveland. I recall that when sent, by you, with four other gentlemen to get better legislation than what was received in the Forty-eighth congress for the eradicating of pleuro-pneumonia, President Cleveland said at that time he "would do all in his power." He had "learned the mischief the disease was doing in New York" and he "was doing all in his power to eradicate it, and further than that, to do anything else he could for us." I believe it is due to that man to tell the truth about him. (Laughter.) I did not mean to make you laugh, and I withdraw those words and will state those simple facts.

Now I remember when I was representing an Iowa District in congress we got the pleuro-pneumonia legislation passed. Mr. Hatch was Chairman of the Committee on Agriculture and promised to bring up all of the Democrats, if I would see that all the Republicans would come. I brought up all the Republicans except a fellow that represented the Gilden Barb Wire Company. He had a crow to pick with us western farmers on that subject and would not vote with us, and there was a colored man that would not vote with us. The reason that he gave was we had not asked him. (Laughter.) The Democrats never carried the project through. The Democratic party is a conservative party. They had their doubts whether or not that was not giving a good deal of power to the Federal Government, but that party did arrange that that bill should pass, and it *did* pass. Now, there is Mr. Hatch. (We can speak of our friends here, gentlemen.) I say without fear of successful contradiction that no man has ever had a seat in the American congress, since its first foundation, who has done as much for the American farmer as Mr. Hatch has done. Mr. Tupper, can not you do something for us? (Laughter.) Can you not do something for the breeders, and have Grover Cleveland appoint Mr. Hatch Secretary of Agriculture? (Laughter.)

Mr. TUPPER: Let me tell you something, gentlemen. I was down to Washington myself on the oleomargarine business. Fifty congressmen said, "You cannot do anything, for we are against it." Mr. Hatch said, "We can, and we will." "I am going to carry it through here in earnest,"—and he did. I will tell you what kind of a man Hatch is. There was a bill before congress at that time to make a department for agriculture and give it a cabinet position. That was carried out later. Mr. Hatch was to have been that cabinet officer. Mr. Hatch wanted to carry that bill through and the oleomargarine fellows fought the bill, not because they had anything against it, but to consume the time of the committee, so they would have no time for the oleomargarine bill. Col. Hatch *saw the game*. He fought the oleomargarine bill through and gave up preferment for himself to a cabinet position, for the sake of you farmers. I have lots of faith to believe you will see him in the cabinet, too.

Paper by Prof. Kent, "Development of Farm Animals."

#### DEVELOPMENT OF FARM ANIMALS.

The terms growth and development, in the animal economy, are not synonymous. Growth is cell multiplication, according to the laws of correlations, into some specific type; development is the modification of the type. A species may grow and produce itself unmodified for many generations; and is therefore without development. Growth is the organization of nutritive matter by vital force; development is the symmetrical building of the organized matter. Growth is dependent upon the presence of nutritive matter; development depends on the quantity and quality of the nutritive matter. Growth can only be stopped by starvation; development may be stopped by improper feed and care. Growth is the production of some pre-existing organism; development is its reproduction in some higher or improved form. Growth is therefore an easy process. Anybody can produce it. Nature herself, without the touch of art or the force of science, can produce it. Development follows only improved and superior conditions. The careless and indifferent feeder grows scrubs and profitless animals. The attentive and judicious feeder develops the highest order of beef and pork and mutton and milk and wool. The ill-natured herdsman develops kicking cows and runaway horses. His illness dries up the butter fat in the milk. He is the occasion of more loss than profit on the farm. The barbarous Arab was kinder to his horse than many of our Christian Americans. Kind treatment of domestic animals develops intelligence whilst abuse destroys all tendency to tractability.

The stockman problem is therefore one of development, and it is solved by the selection of the best parent stock, the highest possible order of feeds and constant care. Our knowledge in the development of plants subserves us in the development of animals. To improve the growth of plants we must select seed of

perfect form and unimpaired quality; plant it in timely season and fertile soil; cultivate the growing plant in such a manner as to secure the highest order of nutrition from the time the radical puts forth its tender roots until the plumage finishes its work in the ripened fruit. Any stunted growth by reason of imperfect seed, inadequate or injurious cultivation can never be overcome in the life of the injured plant. To improve the growth of animals we must observe the same general laws of selection and nutrition.

To produce an animal that will take the premium or command the highest market price, we must begin by selecting a dam possessing high maternal qualities, and the selection of a sire eminently prepotent, and possessing the desired form. Place these animals in the highest possible degree of health or functional activity. A sire that is not prepotent is not worth keeping on the farm. A dam that does not yield a fine flow of good milk will fail in the development of her offspring. Neither prepotency nor maternal qualities can reach their climax if there is any defect in the functional activity of either sire or dam.

It must be admitted as a fundamental fact in physiological science that every living organism had its origin in some pre-existing organism. In all the higher animals that pre-existing organism is evolved out of inert nutritive matter, vital force, segmentation or the movements of conscious protoplasm or you may quote the Israelitish sage and say that God breathes life into every new form and it "becomes a living soul"—still we come back to the conclusion that life is of paternal origin. The movements of the ciliated spermatozoon differs only in degree from the gambols of the young colt or young lamb upon the meadow green.

We understand the relation of sire and dam in the reproduction of their kind to be as follows: Life originates in the male cell. That is, the male organs of generation possess the inherent function of evolving life and form from inert nutritive matter, and the evolution is the miniature animal in the form of a sperm cell, wherein it maintains a microscopic existence until it has opportunity to migrate to a maternal ovum whence absorption and excretion at once sets up, and growth follows. The yolk of the ovum nourishes the spermatozoon until it becomes attached to the uterine membrane and old enough to draw nourishment from the uterine circulation. The maternal influence is nutritive in character, and hence of secondary importance to the paternal influence. The selection of the sire, therefore, takes precedence over the selection of the dam. And the successful development of any animal or family of animals depends upon the judgment of the breeder in the selection, first of the sire, second of the dam, and third in the management of the offspring.

The extraordinary births like Black Hawk, Eclipse, Messenger, and Hubback must have been due to the superb health and vigor of their sires at the time of copulation and to the superior nutritive function of the dams during pregnancy. The evidence of perfect condition of breeding and feeding animals, is manifest in external appearances. When the skin becomes dry and scaly, the hair, dead the eyes dull, the solid excrement hard and dry, the liquid excrement viscid, the limbs lame, the appetite weak and the action stupid—look out, there is danger ahead. These symptoms are the incipient stages of disease.

Animals showing any of these symptoms are unfit for breeding and unprofitable for feeding. All animals intended for breeding should be taken through a preparatory period of feeding and care before the breeding season. Neither sire nor dam should be very fat because fat formation is the lowest order of vital activity. Its presence in excess obstructs respiration, circulation and generation, and therefore

weakens the constitution. The dam should be somewhat lean at copulation and comfortably fat at parturition. A failure to observe these conditions keeps the development of the various breeds of domestic animals in the back-ground and entails heavy losses to breeders. The greatest mortality of all animal life falls upon the young. The profits of an entire year on the farm are often reduced to zero by the heavy loss of pigs and calves and colts and lambs at birth or shortly afterward. Many a farmer keeps twice the number of cows and mares and sows and ewes necessary to produce the required number of young animals. The faded hopes and blighted ambitions of farmers often trace to these failures.

After the necessary attention, so far as sire and dam is concerned, comes the care of offspring. It is high art and science to know how to feed a pig, calf, colt or lamb so as to reach the best possible development; and it is an exceedingly high compliment to have it said of the feeder that he does as well as he knows. To provide the proper temperature and ventilation of the barn, quality and quantity of feed, purity of water, comfort of the stall, relation of nutrient factors and regularity in feed, requires a degree of skill rarely found and seldom practiced in the feed yard.

To perform the feeding act properly, the feeder should have enough stock to employ his full time, so that his attention shall not be distracted by other cares.

In determining the feed for the young animal, there is no better way than to study the dam's milk. Study the effect of colostrum, learn the composition and remember the quantity necessary for a full feed.

A pint of average milk contains 450 grains of albumen, 340 grains of fat, 454 grains of sugar, 80 grains of salts, and 5,686 grains of water.

A young calf weighing 100 pounds needs 16 pints per day. It should be fed 5 pints in the morning, 5 pints at noon, and 6 pints at night. The milk should be fed while fresh and warm.

Calculating from the above table, 16 pints of milk would contain albumen, 1.02 pounds; fat, .77 pounds; sugar, 1.03 pounds; salts, .13 pounds.

This gives 2.95 pounds of albumen, fat, sugar and mineral salts so formulated that the nutritive ratio is about 3.

The establishment of a feed formula for the 100 pound calf is easy, because nature has done it for us; but how to expand that formula in conformity to the demands of the animal economy, is the question. It is safe to presume, that if we want to reach the highest degree of skeletal development, the nutritive ratio should not be widened but only gradually increased. On the other hand, if we want to produce baby beef or strengthen fat formation, then not only increase the ratio, but widen it to a certain limit, as rapidly as consistent with healthful digestion and excretion. The rate of increase for food should be three hundredths of a pound per day or three tenths of a pound every ten days. Such an increase will bring the daily quantity up to 13.9 pounds at the end of the year and at the end of three years, when the skeletal development is about complete, the amount of 35.9 pounds will be reached, which is about the maximum of food consumption.

We mean by skeletal development, bones, skin, hair, hoofs, muscles, ligaments, tendons and connective tissue; or all those tissues of the body requiring nitrogen in their organization.

This paper is already long enough in the discussion of principles. The question is how far have we advanced in the development of the animal and his feed. Have we reached the maximum of speed in the horse, of butter fat in the milk, of protein in feed and of digestion coefficients in the various nutrient factors? We

boast of living in the greatest State in the greatest union of states that has ever been organized in the growth of civilization, and yet we cannot point to a single animal or plant and say that it is distinctly Iowa. Less than forty years have elapsed since the idea of a balanced ration has been promulgated. The experiment station was established but yesterday. Our State produces 950,000,000 bushels of the sweet fat-forming food in the world, but we have but recently learned that its highest nutritive effect can only be reached with supplementary feeds. The State is capable of producing a thousand million bushels of corn and a corresponding increase in the speed and power of her horses, the yield of the dairy and the richness of the feeds. The breeder's art and science has not culminated. His work must be pushed until the horse of the prairies is as distinctly Iowan as the desert horse is Arabian; until the dairy cow has adapted herself to our rich pastures and bountiful crops as the little Jersey has to the environment of the Channel Islands; until king corn analyzes 20 per cent protein instead of 10 per cent, and thus give us the balanced ration.

#### DISCUSSION.

MR. GOVE: I wish to mention one point. If I do not misunderstand the gentleman he said that the work of the dam was to hold and nourish the seed of the off-spring, and if we take it literally as he gave it we would have no mules. You take the jack crossed on the mare and it produces the jack pure and simple. We believe that the dam has as much to do, or more, than the sire. Years ago I read, in a discussion of the question of the future progress and betterment of the human race, being discussed by women and others, and some woman had listened a while, and finally said: "If you want to have improvement in the human race it is necessary to have a good grand-mother." (Laughter.)

PROF. KENT: I believe that I said "if you wanted to have a good animal you have to have a good dam." As far as the mule is concerned, I challenge the gentleman to prove anything but the jackass in the mule. (Laughter.) There is another side to that. Take the horse, you never saw a horse's tail, foot, behavior and constitution in a mule. I never did, and I have handled a great many, some of them to my utter discontent.

MR. GOVE: I am not anxious to have their immediate acquaintance, but there was my illustration.

PROF. KENT: That illustration was well taken, well brought up. I refer to it as a matter of fact. If you examine the off-spring of the horse and female ass, you will find that the characteristics run back to the horse. On the other hand, a cross between the jack and the mare trace back to the mare. He is the animal that "scorneth the multitude and fleeth to the mountains," in the form of a mule, as well as a jackass. (Laughter.)

MR. SHEEHAN: I have attended a great many of these meetings, probably more than I ever shall again. I think the papers of Prof. Georgeson and Prof. Kent are the two best I ever heard read at our meetings. I am proud to say that one of them came from a resident of the State—a professor in our State institution, and I move, Mr. President, that a vote of thanks be given to Mr. Kent for the able and instructive paper he has given us.

Seconded and carried unanimously.

MR. COWNIE: There is one point in Mr. Kent's paper that deserves some notice, in the proper development of animals. We have altogether too much fat on our breeding animals, produced by corn. I believe if that fat had been placed there by grass or some other food of less heating capacity than corn, it would not be as injurious as it is to breeding stock, but while our breeding cattle and hogs are altogether too fat, how many of our stock, when they are being shipped, are in an opposite condition—extremely so. We make the mistake of feeding our breeding animals too much, and our fattening animals too little. I have always been an investigator, and always had a liking for it, and the fact came to my mind when Prof. Kent spoke about his illustration, how will we know, even about our grass product in Iowa, and our corn—its feeding value, etc.? A great deal depends on the values of these foods and the manner in which they are kept. Prof. Georgeson last night, in referring to this matter, spoke of the different qualities of the western corn. Now I do not want to look at it from a chemical standpoint, which can be demonstrated by analysis, but to results obtained in feeding. I have found in careful experiment, conducted not once or twice, but half a dozen times, that I could neither produce beef or pork from corn that was two or three years old as well as I could from new corn; even by soaking it I could not get that result.

PROF. KENT: How about ground corn?

MR. COWNIE: Even when it was ground, I couldn't get that result. I have never yet received as much beef or pork from corn in any stage as when it was good, hard roasting ears.

PROF. KENT: For the same number of bushels fed?

MR. COWNIE: Yes sir, for the same number of bushels fed.

PROF. KENT: There is one point I have never seen mentioned. I was led to conduct an experiment one year in regard to feeding seed corn, with two pigs in a pen, same being picked indiscriminately from a herd and some of them fed seed corn and others fed corn from the crib absolutely dry and well kept, but its germinat-

ing qualities dead. We found those pigs fed with corn that would germinate, thoroughly dried, gained four pounds more than the pigs that were fed with sound, dry corn that would not germinate. I believe that corn loses its adaptability for a food when its germinating properties are destroyed. What a loss in the State of Iowa from this cause alone. We well know that many times corn will not grow when taken from the crib. We find our farmers say, "Stock do not do as well on corn this year," or "My stock fattens well on corn this year." Would it not be well to look into this matter and see if we cannot prevent the loss occasioned by the damage or injury to corn from these means. It is a fact, and I believe it, that corn kept as seed corn should be kept fire dried—kept dry. Its germinating qualities preserved. If this corn will produce as much as it has done with me, not one experiment, but time and again, what a saving to the farmers of Iowa, if we could save our corn in that manner for feeding.

MR. BICKNELL: When and how did you save your corn?

PROF. KENT: Pick it before frost, placed in the kitchen over the stove or in the attic over the stove, have it fire dried and keep there over winter.

MR. STOUT: It is a very common habit with regard to the saving of our animals, and a saving of a larger number of animals than is necessary to give the results and give the numbers we desire to produce on our farms and which we desire to place in the market. That is largely true with cattle and hogs and horses and poultry, possibly of sheep, but I know it to be more largely true of hogs than any other department. I believe as a fact that there are more animals kept for breeding in Iowa, of hogs, and enough pigs brought forth to produce at least twice the number that is developed for market, and possibly I might be safe in saying three times that number, and when I speak upon that subject I will include myself with others. I have felt something with reference to the responsibility and accountability that must fall upon myself for that wasteful and prodigal habit, and the western farmer largely has it and the Iowa farmer largely has it. We desire as many pounds of hog, beef, etc., as it is possible to make and get the result in our pockets, and the Iowa farmer has to look this question squarely in the face, understand his business and look to results and not to abuse; avoid abuse in this direction, if possible, and I bring this point up so that we may learn by education and discussions, and learn such lessons as will profit us.

Paper, "Corn Culture," by J. G. Brown, Marshalltown, Iowa.

## CORN CULTURE.

BY J. G. BROWN, MARSHALLTOWN.

In presenting something new or that which is little practiced in the cultivation of corn, we expect sharp controversy from many who believe that there can be no improvement, or who will emphatically disapprove what we will advance. There has been great advancement in the cultivation of the cereals by improved machinery and skilful methods, but perfection is a long way in the future. As corn is the leading crop of Iowa it should receive the closest attention and best efforts of every farmer. When we present anything on agriculture it is the result of experience, and for that reason we are impregnably fortified, and we invite bombardment.

There are few essentials in successful corn growing, namely: Proper preparation of the seed bed, good seed and uniform distribution of it, and thorough cultivation. The first is easily done by good plowing and pulverizing by harrow or other implements. By good plowing we do not mean deep plowing, for five inches is deep enough if the condition of the ground will admit of a good job. If the first few inches of the soil is properly cared for nature will take care of the subsoil. The less the soil is disturbed, excepting to prepare a good mulch of well pulverized earth on the surface, the better. This applies to the black loam that is prevalent all over Iowa. As corn stalks interfere with shallow cultivation they should be burned or turned under well. It is a question whether spring plowing is not better than summer or fall work, which leaves the field exposed to the damaging hot sun and winds and too much freezing and thawing during winter and spring. Summer plowing should not be done, excepting when necessary to kill obnoxious weeds. Spring plowing should be pulverized the same day it is done, to prepare the ground to retain moisture. If time elapses before planting, it should be gone over again. In selecting seed we choose the ears having the most rows of deep grains, regardless of the length. The kernel and number of rows indicate the variety and size, while the length of ear is governed largely by richness of soil, superior cultivation or propitious season. For the best results we favor the large varieties where the land is sufficiently strong to mature them, and all corn ground should and must be rich if a profitable crop is secured. To secure the strongest seed it should be picked before frost, but to find the best corn it must be selected during husking time. By this means the quality of corn can be kept up, and even improved. Perfect seed and good variety of corn contribute greatly to the size of the corn-crib. The more general and even the seed is distributed the more uniform and larger the crop. This is true of all vegetation. To do this, a drill, putting one kernel in a place, must be used. The distance between the stalks is regulated to conform to the variety of corn and richness of soil. One foot to sixteen inches is the proper distance. There is no disputing the fact that corn planted in this way will produce more than where it is crowded in hills, and it needs no defense. Drilled corn will mature from a week to ten days sooner than when check-rowed. Each stalk has full advantage of plant food, sun, and every influence of the soil and atmosphere. It is more accessible to husk, as the ears are separate and all in plain view, so the picker can better plan the most speedy way of securing them.

By cultivating one way the field is gone over at regular intervals, while by cross-plowing some corn is cultivated twice within a day or two, and some will not be reached for nearly two weeks.

Some one may reply: Drilled corn is all right if it is kept clean, which can't be done, as we have frequently heard. That word "can't" should be stricken from the farmer's vocabulary. If drilled corn will yield more, which it certainly will, and less acres cultivated for the same amount, any additional work that may be necessary to keep it clean will be a good investment. There is more profit in thirty acres yielding fifty bushels per acre, than forty acres producing forty bushels. Our advancing land admonishes us to do something to improve our crops, and the farmer who does not devise or practice better methods will fall in the rear of progressive agriculture.

The planted field should be gone over with harrow or pulverizer every four or five days till the corn is up, and harrowing afterwards is often expedient. We use a pulverizing cultivator that will kill up very small corn sufficiently to smother any young weeds that may come up after the corn does. Not more than one week should elapse between plowings, which will prevent the weeds from getting a start. Eternal vigilance is the price of a clean field and a good crop. Cultivation should continue till the corn is too large.

We will classify the advantages of shallow cultivation as follows: First, the soil on top is kept thoroughly pulverized and smooth, which assists the capillary process in supplying moisture and the elements that feed the plant. Second, the roots of the corn are undisturbed. Every root of corn that is cut off is at the expense of the stalk's growth. As well might the horticulturist prune the roots of growing young trees as the farmer to be tearing out his corn roots, as is done by the system of cultivation that is generally practiced. The days of the long, pointed shovel are numbered. Their continual use in the face of condemning evidence is a discredit to the intelligence of our farmers and advanced agriculturists. Third, by shallow cultivation all weed seeds that are near the surface will grow and be destroyed by the time the corn is laid by, and the deeper ones will come up later and slower, and consequently do less damage. The long shovel throws the seed to the surface to grow luxuriantly as soon as cultivation ceases. Lastly, the soil does not wash so badly, a very damaging condition on rolling land which abounds in Iowa.

For some unaccountable reason the yield of corn is held up better by shallow cultivation in fields continuously planted in that crop. While, we claim the yield in rich soil is usually increased twenty to twenty-five per cent by this method, in impoverished land the increase is proportionately greater. We have but little decrease from first to third crop on sod, second planting on stubble land, and have seen it continued to the seventh crop with a fair yield.

The benefits of shallow cultivation are more marked in dry than showery seasons. Some experimental station, the location of which we have forgotten, made a test during a dry season, and the result showed that the shallow cultivated soil averaged eleven per cent more of moisture than the deep. This should indisputably prove beneficial results and give an increased yield.

We realize how slow the average farmer is in adopting new methods unless they are some visionary schemes presented by the slick-tongued peddler. We ridiculed shallow cultivation for three or four years, but its benefits were grounded into us, and we honestly acknowledged our false theory when facts were incontrovertible. Brother farmers, go and do likewise, leaving out the ridicule.

## DISCUSSION.

PROF. KENT: I will ask Mr. Brown how he would plow clover sod or blue grass sod? Would he plow them five inches deep?

MR. BROWN: I would plow it about two and a half.

PROF. KENT: When would you plow the stubble field or corn field deeply?

MR. BROWN: I think I never would.

PROF. KENT: Very good. I am pleased to find one man who knows better than to bury the accumulated fertility of a meadow or pasture field clear out of the reach of the working roots of plants by deep plowing. A man who establishes a field in meadow or pasture three or four years and then plows it under seven or eight inches deep is like the "servant who digged in the earth and hid his Lord's money." The first two and one-half inches of the sod is the laboratory of the field. It is here where humates are formed from decaying roots, stems and leaves; where the filtrate of water is lodged, where earthworms dwell and there eat and digest the humus of plants; where the decayed product of the bodies of insects, their eggs and larvae are left, and a sod should not be plowed only about two and one-half inches deep so that these elements of fertility can combine their chemical activities, aided by free circulation of the air. These elements are highly soluble and the heavy rains wash them down deeply in the ground soon enough without being aided by deep plowing. There is a time for deep plowing but not when turning over a sod.

A MEMBER: Does not a chemical analysis show a higher fertility at a greater depth of the soil?

PROF. KENT: Yes, but the elements of fertility are in a fixed state and largely unavailable as plant food. In this fact lies the safety of the soil. If it were not so the last vestige of fertility would be drenched from the soil in a single year. The thunderbolt and the nodules of the clover plant supply the soil with nitrogen and the soil stores it by the formation of slightly soluble compounds.

MR. GOVE: I had a little experience. I used to take Horace Greeley's paper, and he told us what he knew about farming—you older members remember that. I was led to try, in 1868, on a part of my year's crop, deep plowing. I got a good new plow and I put three horses abreast and started the team, and I plowed ten inches deep. (A voice—Louder.) The land was good and the result was I had almost a total failure of corn. *Do you hear that, do you understand it?* (Laughter.)

PROF. KENT: Yes, sir, and I believe it, too.

MR. GOVE: I had a magnificent crop of weeds. (Laughter.) That opened my eyes on deep plowing. In the last few years I have learned, as other gentlemen have, that it is worse than folly to plow deep after the first two times of plowing. In plowing corn you will notice these little fibrous roots reaching from one row to the other when the corn is fifteen inches high. If you go tearing through with these long pointed shovels at that stage of the game, you will tear a terrible lot of those little roots away. There are no more of those roots than you need.

MR. BAKER: In shallow versus deep plowing depends very much on the nature of the soil stirred. In clover soil with deep sod it may be turned eight inches deep. The roots inverted will conduct the moisture falling on them to the sub-soil so as to ferment and rot the vegetation turned down. In the August and September drouths it will furnish the needed moisture to mature fully the growing corn of the larger varieties on elevated land, above the early frost line. Shallow plowing needs deep pulverizing with another process, to obtain the same results, thus adding cost to the same crop of corn, in the same field, grown at the same time. In thin soils shallow plowing is best to plant in because clay is lacking in humus for the plants to feed on the first season. The second year this may be plowed deeper so as to cover up the humus now on the surface. Plant growths growing up through it, will die and supply the clay with plant foods for its coming crop on the next season and thus furnish the needed material for a profitable corn crop.

MR. COWNIE: There is much in Mr. Brown's paper that I heartily coincide with. I have usually found the results precisely as he has stated, but when it comes to spring plowing in preference to fall plowing I cannot agree with him.

In Iowa county this year he will find that fall-plowed corn is far the best crop. One can tell a fall-plowed field as you ride by along the road, simply by the quality of the corn in comparison with the spring corn. Mr. Brown refers to deep cultivating that injures the roots of the corn. Last night we were told if we were to cut clover roots with a disk harrow it would produce a good crop. It must be indeed strange if we should be so careful about the roots of corn and we have to be careful about cutting those roots. The fact is, the more you cut the roots of corn the better. I have cultivated corn through the dry weather of June and July when the

roots of the corn would gather on the plow shanks until you could get them off by handfuls, when I really believed that the corn would be killed. I put that cultivator down as deep as I could get the horses to plow it, and found handfuls of roots at the top of every shovel, and I have left rows alternately, cultivating shallow as Mr. Brown urged. In August, during the most severe drouth, the deeply cultivated corn could be seen from the road by being a dark green color, where the other was a pale color. When hunking time comes I had fifteen bushels to the acre more on the rows that were deeply cultivated, where the roots were torn, than in that which had been shallow cultivated and had received as many cultivations as the other, but substituted one of those Eagle-claw cultivators for the long pointed shovels.

It is all well enough to talk about cultivating and plowing shallow. That is all going easy on the teams and you get over two or three more acres of ground. Americans think the more they turn over the better, but that part of the work has passed in Iowa. With land worth from \$50 to \$75 an acre, it is not length; is breadth we want. We own the soil half way through. (Laughter.) I see no reason why we can not utilize it. We should bring up that soil and make it mix with the oxygen, the vital part of the air, and let us use it. We have one plant or grass in Iowa that don't wish for its nourishment within two or three inches of the surface. It goes way down deep. That is clover. I have found clover roots myself in digging a well. I took the roots and laid them along side a sixteen foot fence-board and the roots were longer than the sixteen foot fence-board, when stretched out. (Applause and laughter.) Why doesn't it stay on the surface within two or three inches of the ground as Mr. Brown would have it? What did it go down there for?

MR. GOVE: Had you been drinking much that day? (Laughter.)

MR. COWNIE: Clover roots have been found twenty-one feet in length in Canada. A clover root found by the side of the Grand Trunk Railway near Toronto, twenty-one feet in length. Iowa can raise as good clover as Canada, any day. (Laughter.) When the time comes that an empty pocketbook is just as good as a full one, then the time comes that shallow cultivation is better than deep. (Applause.)

MR. BROWN: Allow me a word of explanation. I meant plowing immediately after harvest when the conditions were such that that soil was exposed without any vegetation through the long, dry, hot summer and fall, I say you had better plow late in the fall if

you are going to have those conditions clear through and what snow we have in the winter, drift off the fall plowing, I say the spring plowing is the best.

MR. FRANKLIN: There is one remark I want to make about this root pruning. Mr. Cownie says, "the more you prune the roots the better." I wish to explain a little experience we had in Cass, Montgomery, Page, Fremont and those southwestern counties where we have not learned to grow clover as quickly as we ought to have done and where we grew crop after crop of corn. There is a kind of a worm which gets into, and does the root pruning for us. The year that that happened we got no corn where the worm got in his work. So I can not agree with Mr. Cownie, that the more you eat the roots of the corn, the better.

PROF. KENT: So far as the physical condition of the fall plowing is concerned, that depends largely on climatic changes, and conditions. If you plow your ground early and deeply in August and happen to have a wet fall that would happen to make the surface of the ground so hard that it would be like it was, before it was plowed. Then your plowing would all have to be done over again in the spring.

MR. BENNET: You could do it with a disk.

PROF. KENT: Yes, but if the ground is extremely dry so that it breaks up in chunks, it is valuable to put on three or four horses.

MR. BENNET: That is what I did.

PROF. KENT: There is a great deal of action in the freezing and thawing of winter breaking up those clods and reducing the soil to its primitive state and condition, its virgin state before cultivation. The tramping of stock serves the same purpose. The soil varies a little in composition and it varies in quality. There are two points with reference to the nutritive matter stored up in the soil. One as its fixed state and its unfixed state. It is available and unavailable. You may have soil as rich as soil was ever known to be and yet be absolutely unavailable to plant life. Nature has fixed it, and it is a great precaution that nature has taken. If nature had not taken a precaution, these soluble matters in an unsoluble state left that they could be held in such a way that farmers could draw them out little by little, by the clover plant, by the rotation of crops, by cultivation and use of them as I need them, for the development of crops, nature would wash the last vestige of fertility out of existence in a single year.

MR. BARCLAY: We will now hear the Committee on Nominations of Officers and Location.

Mr. Norton made the following report :

For President, Daniel Sheehan, Osage; for Secretary and Treasurer, Geo. W. Franklin, Atlantic, Iowa; Vice Presidents, B. B. Vale, Bonaparte; C. W. Norton, Wilton Junction; C. Murdock, Waterloo; Jno. D. Herrick, Fredericksburg; J. N. Dunn, Waubeek; J. R. Crawford, Newton; N. J. Harris, Des Moines; Hon. W. O. Mitchell, Corning; Prof. D. A. Kent, Ames; Ex-Gov. C. C. Carpenter, Fort Dodge; Hon. J. D. Yeomans, Sioux City.

Place of next meeting, Corning, Adams county.

(Signed)

A. C. TUPPER, *Chairman*.

C. W. NORTON, *Secretary*.

PROF. WILSON: We very much desire this Association to hold its next meeting at Ames, at the College, and we come up here to extend the invitation. But, since it has been invited into the southern part of the State, I will not antagonize the people of Corning and my friend Mitchell, by insisting on its coming to the College. But, gentlemen, we will wait till another year when we hope to have the meeting held at the College. The institution is yours and we want you to come and see what we are doing up there. We have ample room to entertain all who may come, and we think, upon the whole, a good time could be had. Remember that we want you to come to Ames in 1894.

I move you, Mr. President, that we have a speech from our new President, Mr. Sheehan.

PRES. BARCLAY: Our new president is called for; Mr. Sheehan, gentlemen, our new president, who will now address you.

*Mr. Chairman and Gentlemen of the Fine Stock Breeders' Association:*

You might know that when a professor from the State Agricultural College at Ames was here that he would put up a job on a poor Irishman. (Laughter.) Gentlemen, I have not words to thank you for the honor you have conferred on me to-day, for I consider that the stock breeders of Iowa are one of the finest bodies of men which convene within the State. To my knowledge they have no equal as stock breeders or as an organization, not only in the State of Iowa but within our sister States. It is an honor to be selected to preside over a body composed of gentlemen, the bone and the sinew of this great State of ours; a State that ranks first in corn, first in cattle, first in hogs, second in milch cows, second in numbers of live animals, and when it comes to dollars and cents she stands first of any State in the Union. It is an honor to preside over a body of men who meet year after year to further the interests they represent, and with a view to their own advancement. According to the report from the Secretary of Agriculture, that is the interest that has helped put the balance of trade with the old country in our favor, which is something we should be proud of. It is something we are proud of, and it is something of which every man in Iowa should be proud. Gentlemen, I am not going to make a speech. This has come unbeknown to me and unsolicited, and I thank you from the bottom of my heart, and I pledge you my word if I make a mistake

during the deliberations of your meeting it will be a mistake of the head and not of the heart.

(Applause.)

Adjourned to meet at 2 P. M.

## AFTERNOON SESSION.

The fourth session of the Improved Stock-Breeders' Meeting commenced at 2:00 o'clock Thursday afternoon, December 8th, 1892. Meeting being called to order by President Barclay.

MR. BARCLAY: There was a question left over from last evening, asked by Mr. Brodsky, in regard to the experience of members in sowing grass seed on prairie land. If any one has had any experience we will now give you time to state it.

MR. STARK: I have had some experience in sowing grass seed on wild prairie. My place lies eight miles north of Humboldt on the east bank of the east fork of the Des Moines river. I set this grass, some of it, near the river. I had a part of a catch of timothy and clover and it has entirely run the wild grass out and it is a perfect sod as ever was in the world. It has been seeded eight years. I sowed it broadcast on the ground. In the first place, along about July 1st, burned it off and it came up thin and tender and that fall I pastured it very close and it was sowed over in the spring as the frost was coming out. It was as good a catch as ever was on any land.

A MEMBER: I would like to inquire of the gentleman whether he mowed the land or continued pasturing it?

MR. STARK: I have been pasturing it every year. A portion of it has been mowed every year. I feed it off closely after seeding. The closer the better; that is, the first season.

A MEMBER: I tried it a year ago last spring. I live in Humboldt county. I sowed my seed as quick as the frost had gone out and put it in with a disk harrow. I did not see but what it was just as good a catch as I ever had on plowed ground. The clover is thick and heavy. The clover is the heaviest. I pastured it that same summer, and it is good yet.

MR. GABRIELSON: I have had some experience in that line myself. Prof. Wilson brought up the idea of alsike clover.

Mine was in a slough where coarse grass and willows grew and you can imagine the character of the land. The alsike will not readily take hold. The seed will lay there until the conditions are favorable for it to grow. If it does not grow this year, it will next. Sometimes the seed will grow, if good quality, right on the ground. It does not need any preparation or anything else. One point I will call attention to, though, the more tramping it receives from the cattle the better for the grass.

PROF. WILSON: I have had some experience in growing grasses in Iowa—in fact thirty-eight years. I have never known of but one case where tame grass would take hold and grow where there was a thick, close, heavy sod of wild grass and that was where teams hauled clover across such places, and the seed dropped out. Mammoth clover will take hold most anywhere, and I have noticed other clovers will take hold measurably well even where the grass was not eaten out or tramped out, but it is a well settled conclusion that most Iowa farmers should have been at work on this line. If you take a piece of wild prairie and cut it down close or burn it, and get all the stuff off of it, especially eat it closely, and the next spring, hardly before the grass comes out, sow your grass seed, sow either clover or timothy, and you will have no difficulty in having a good stand of tame grass. Newly broken up prairie is difficult for some years to seed down. The soil is light and the winds blow the seed away, the ground is not in as good condition, heaves worse and all of that. If I were to go into a new country where I would have to deal with wild grasses, and wanted to get a tame pasture, I would much prefer to get it that way. Confine the stock on wild grass and eat it down close. There is one point that ought to be made here on this. Stock do not fatten very much while they are doing it. (Laughter.) You lose a little bit on the stock. Eat it down close though, and the next spring early, sow the grass seed and sow a great deal of it. There is nothing that tames wild grass down so quickly as clover put in that way. The white clover, the red clover or mammoth clover, are all pretty well known.

PRES. BARCLAY: Include alsike clover along with that list.

MR. WILSON: Yes, sir, but sow it in the low lands. I have an impression that it succeeds better on low lands. My impression as to it on high lands is not favorable. I cannot speak with assurance on the high lands, because I have not tried the uplands. I have tried it extensively on low lands. I want Henry Wallace to get on his feet and tell us about the book he is going to publish on the clovers. If he does not, we will not buy his book. (Laughter.)

MR. WALLACE: I do not want to be placed in the position of advertising my own book.

PRES. BARCLAY: That ought to be a good advertisement.

MR. WALLACE: That would not be right, but I will say this that the discussion going on from year to year on the grass question, in this Association, shows that it is one that has a large hold on the minds of the farmers of Iowa. Scientific knowledge of the clover question is largely locked up in the books of science, and the actual experience is likewise locked up in the minds of thousands of farmers in the west. It occurred to me, after corresponding with hundreds of them on this question, that it would be an excellent thing to take the facts that are certainly known, and all of the scientific theories which have been established certainly and combine them in one book, with as much of the practical experience of farmers as could be obtained, and I have endeavored to do that and the book will be issued next week, and given as a premium for one renewal and two new subscribers, or for three new subscribers, or sold directly for seventy-five cents. Now on this question you are discussing: There is no difficulty, in the State of Iowa, in securing a stand of the clovers and blue grass on prairie land, providing you will sow enough seed and eat the native grass down closely. This can be done best with hogs or sheep, and a man that is a sheep farmer and is allowing land to waste itself and its substance in producing prairie grass, has much to learn. All he has to do is to sow his seed in March, having burned the loose stuff off in the fall and put on all the cattle he can get to live on it and eat it down to the very ground. The tramping of the hogs and cattle and sheep will cover the seed, and the keeping down of the prairie grass will give it light, heat and air. I want to say further that alsike is a very much undervalued grass in this and almost every other part of the State. It is the grass for wet land. Probably eight or ten years ago I sent off and got some fowl meadow grass and alsike clover. I told my tenant to sow the fowl meadow grass on a piece of wet, sloughy land that had been plowed the fall before, the first time in five years that it had been dry enough to plow, and sow the alsike on good ground, good corn land. He mixed them together and sowed them on the swamp and reported to me that not a grain of the fowl meadow grass grew. During the next summer I was driving through the slough, I heard some bees and I supposed a swarm had settled in the slough grass. I got out of the buggy and found, instead of a swarm of bees, a good deal of alsike clover and bees working on it. It was in the

mud and water and I took my hand and scooped out a bunch of it, made a ball of it and threw it in the buggy. It amazes me why farmers do not grow alsike for seed. I had a letter the other day from a gentleman, who tells me he sowed alsike clover, red clover and timothy, two years ago. He had two-thirds of a stand of alsike, had threshed it and sold it for \$10 a bushel, and it netted him \$38 an acre. Thousands of acres of land in Northern Iowa should be sown to alsike, and where you cannot pasture them mow them off early in June and then again in July in order to let the alsike get a start. Next year let the slough grass grow. Cut the entire crop and thresh it for seed.

MR. BROWN: I want to ask Prof. Wilson or Mr. Wallace a question:

PROF. WILSON: Put it the other way.

MR. BROWN: Reverend Wallace, then. Is it a fact that a permanent pasture made in this way on wild grass will not yield more feed than a permanent pasture made from cultivated soil or sowed afterwards with the same kind of grass?

MR. WALLACE: I know pastures in Madison county which have been sown part on the tame grass and part on the plowed land. There is not a man in this audience that cannot pick out to the very line where the plowing was done, by the superiority of the pasture that has been seeded without breaking. Another thing; there is not a stony or gravelly point in southern Iowa that cannot be seeded to clover in one year if you will simply cover it with manure from horses that have been fed on clover hay, and then pasture the following spring.

MR. BOFF: Feed tame hay out on it.

MR. WALLACE: That will do; I do not mean to say that this will work west of Iowa, but it will in Iowa and in every part of it.

MR. BOFF: I would like to ask if alsike sown on slough will be good for hay?

MR. WALLACE: First class, but mind, in order to get your stand you must mow down or pasture it down the first year. Then the second year you can let it grow and cut for hay. I am doing that every year but you must mow down the first year.

MR. BOFF: What will be the comparative yield between alsike clover and timothy and clover on similar land—also red clover.

MR. WALLACE: You can not grow timothy and clover on wet land. Do you mean on good corn land?

MR. BOFF: No, slough land.

MR. WALLACE: I will chance alsike. If your timothy and clover

will grow, you will get more bulk from timothy and clover, but alsike will grow where timothy and clover will not grow—at first. My experience is this; after you have your stand of alsike, if you pasture it off, your slough narrows. Why? Because you have killed out your deep rooted prairie grass that leaves an opportunity for the water to sink down. The tramping of your cattle narrows and compresses it, and finally where you had a broad slough you have a narrow slough. Then, if you have bluegrass, red clover, white clover or timothy in the same field, this will gradually come in and you will have your slough completely set with grass. There is no necessity of having lands cut up with sloughs and raising coarse grass and weeds. All you have to do is to get the alsike and sow it about four pounds to the acre.

A VOICE: I have been told only the first crop of alsike matures the seed.

MR. WALLACE: It is the first crop of alsike that matures the seed. I want to make a statement on that whole question. We have the idea that it is only the second crop of red clover that produces the seed. That is not true. We have an idea that it is the first crop of mammoth that produces the seed. We get confused. The first crop of early clover, either red or mammoth, produces no seed because there are not sufficient bumble bees to fertilize them, and the Italian bees are working on white clover which they prefer. I have cut three bushels of seed to the acre from the first crop of clover, because it was pastured off early and then let stand until August or September. I make it a point to keep a large apiary of Italian bees. The fertilization of clover is the main thing. They serve a double purpose.

MR. GOVE: General purpose.

MR. WALLACE: Yes, sir; for honey, for an example of industry, and to fertilize the clover. The mammoth clover will produce seed if you cut it early enough. It produces seed the second crop but the season is too short in this country to grow both crops. I have a field that has been in red and mammoth clover for eleven years. I have cut it for ten crops but I have never taken a crop of seed until this year. It is partly mammoth and partly red. The mammoth has held its own in all these years and it has been mown about the 4th of July. Mammoth clover, although botanists give it a different name, is simply a large variety of red clover.

MR. STOUT: Do you say the Italian bee is the only bee that can operate the fertilizing?

MR. WALLACE: I don't say it is the only bee, but I say the little

black bee is too short at one end. (Laughter.) The bumble bee is the one that does the business.

MR. STOUT: Do you know of that insect called the clover midge that bothers the seed of red clover and alsike?

MR. WALLACE: Yes, sir.

MR. STOUT: And mammoth clover?

MR. WALLACE: It don't affect mammoth clover for the reason that mammoth clover is three weeks later than the common red. That insect has timed his visits to the blossoming of the common red clover, both the first and second crops. The eggs are laid in the clover heads before the bloom comes out, but just as the heads form. They hatch and creep into the floret and then they drop out about the time the clover should be cut. Before the time we usually cut it again they go through their transformation and are ready for business and do the same thing the second crop. Now, if you pasture your clover off or cut it off early enough and get rid of them before they come out, then you get your second crop. The mammoth clover comes out between those two broods. As a precaution against this, I am not sowing ground to red clover and do not expect to, until these calamities be passed.

A VOICE: When we find the head of red clover with only part of the florets perfect, is that the midge?

MR. WALLACE: No, it is more likely to be the work of the clover root borer.

A VOICE: The balance will remain green.

MR. WALLACE: The clover root borer lays its eggs in the crown of the clover the second year, not in the first, and if there are enough of them they will so weaken the plant in boring right down through the roots, that it will not produce any head at all; or, it may weaken it so that it will only produce part of it, or so weaken it, when you mow along that the root will pull out. That is the work of the clover root borer.

A VOICE: Will alsike clover live on land that is overflowed occasionally, say in June?

MR. WALLACE: Yes, but it must not overflow too long so as to drown it out. I have a field that for ten years has overflowed nearly every year, and sometimes twice a year. The water stays on about twenty-four hours.

MR. GABRIELSON: You said you had cut a crop of seed from clover in August, I think, and that it was the first crop?

MR. WALLACE: Yes, sir.

MR. GABRIELSON: Have not you observed that the first bloom dies and may be an imperfect bloom, and there is sort of a natural second growth? Have you observed that?

MR. WALLACE: Yes, sir, but in this case there was no second growth. The second growth had not had time to mature.

MR. GABRIELSON: I have observed that the first bloom will often wilt away and almost die, being imperfect, and a second growth will come along.

MR. WALLACE: I suspect there is something wrong with the plant.

(The clover plants are fertilized by the pollen from the stamens falling on the stigma at the summit of the pistil. Unless this is done the plant ripens no seed. Nature has adopted a multitude of devices for carrying this pollen from one blossom to another, but perhaps the most general, and the one we have to do principally, is the agency of bees. Common red clover was a few years ago introduced into Australia, and it made a most excellent growth in that warm, rich soil, but not a bit of seed could they raise. After trying in vain it was suggested that bumble bees were required to fertilize the blossoms. Some nests were accordingly shipped from the New England States, and the result was perfectly satisfactory, for seed was raised then, without further trouble. It is presumed that a few colonies of Italian bees would have answered as well as they are provided with a longer proboscis which will reach the honey. The main trouble with the red clover blossom and the honey bee is, that the corolla of the blossom is so long that common honey bees can not reach them and are of little use as a honey plant except to bumble bees.—EDITOR.)

MR. COWNE: There is one idea in connection with this that is calculated to create a wrong impression and that is in regard to tame grass being successfully cultivated on prairie sod—that is on account of prairie sod. Now the reason why they grew better on prairie sod is, because that land has not yet been exhausted. I have tried sowing clover and timothy on prairie sod. I broke the sod and raised a crop of wheat on it. The wheat was an entire failure. I never harvested it, but the grass that grew, I never had better. The breaking up seemed to do it good, but when the land is cropped for years and then seeded down to clover and timothy, there will be where the preference to sowing it on prairie comes. I think for a good crop of timothy or clover we need good soil, just as we need for corn. If your land is worn out and exhausted you

do not get a good stand of clover or timothy. We do not in Iowa county. The better our land the better our grass.

MR. ATKINSON (Humboldt county): My impression is that the reason the grass does so well on this unplowed prairie is because there is a hard compact surface. I have had poor success getting a stand of clover on a loose surface. I had a failure on a crop of rye during some particular dry seasons a few years ago. On the same ground we put in rye again with a disk harrow and again it failed. We put in the oats with a corn cultivator and the surface was continually hardening. We got a first class stand of clover the third fall on the same ground.

MR. WALLACE: The gentleman is entirely right on that matter. Every man here has noticed when he first begins to sow clover he did not know how to do it. At least that is my experience. For years I would have a failure on a field, where I simply followed the eastern method of surface sowing, except where it had been wagoned across, or where, at the end of the land, the horses had turned around or where there was a road that went through it or where some cattle were in the habit of getting off the road and tramping; there you have clover. Where the ground was loose you would not have it. The trouble is this. We come from Pennsylvania, Ohio, New England, and we adopted their method of sowing clover seed on the top of the ground. That is where we make our mistake. In loose land like there is in the western part of this State, you want to give it some covering; give it the same covering you do your oats and then you will succeed. If you do not do that then you will not succeed.

PROF. WILSON: We tried an experiment this spring with regard to the depth of sowing clover and last spring with regard to the time of sowing different grass seeds. We sowed this spring half an inch deep and raked it in plats sixteen feet square. This was done very early—as early as we could get the seed in, some time in April. You will find it in your bulletins. Then we made a trench one inch deep in little rows, seeded them, and covered them. We took another plat and made trenches two inches deep and covered them. Then we took still others and made the rows three inches deep, thinking we had gone to the extreme depth clover would ever be heard from. The clover all came up, came up nicely, too, even at three inches in depth, and during the drouths in September and October this fall when we visited those plats to see how they appeared, when the vitality of grass was all being tried by the long

and extreme drouth, the finest clover grew where it had been put three inches below the ground and the very poorest where we simply raked it in. It was a wet spring and they all germinated promptly and grew promptly.

Some of the other grasses that are put in three inches do not do well at all. That was too deep for some of them. I do not remember especially what happened to the others. You will find that in the bulletin, but I made a very careful inspection of the clovers in that regard. Now, this land is a black loam and lies high. It cannot exactly be called a sandy loam because there is not a large proportion of sand but still sandy loam is probably the name under which it would come. To what depth we ought to sow clover seeds or grass seeds of any kind in clay lands we have not determined. We made experiments in regard to the loams of the county and we got different results from what we expected. I expected when we put that grass seed in at three inches, never to see it again. If I had supposed that would grow I would have put it in five, six, seven, or eight inches deep.

A MEMBER: I have succeeded by planting grass seed six or seven inches.

MR. ATKINSON: We dropped it down by the side of a sulky plow when plowing and it came up two years afterwards.

PRES. BARCLAY: Next on the program is a paper by Mr. E. C. Bennett, Tripoli, Iowa, "Progress in the Dairy."

#### PROGRESS IN THE DAIRY.

BY E. C. BENNETT.

A pioneer preacher once came across an emigrant and his large family. They were in swampy ground; literally in it. The wheels were hub deep in the mire, the ox team stood (presumably stood, the legs were out of sight) and switched flies. "You don't seem to be making any headway," said the preacher. "No," was the reply, "but we are getting settled; we are holding our own."

When the preacher reached his appointment he made a spiritual application. If we apply it to dairying, we find it exactly represents the condition of Iowa dairymen twenty years ago. No progress was being made. Not only were dairymen not making any advance, but they were content to hold their own. They were deep in the ruts made by their predecessors.

But reform has come. It came with the creamery. Iowa's advance in dairying is due to the introduction of the creamery. The creamery has been our schoolmaster

The pupils might have learned at home instead of employing a schoolmaster, but the parents would not or could not teach them, so the schoolmaster was needed.

The first forward step was the abolishment of the shallow tin pan and the introduction of deep setting in cold water. Dairy men might have adopted this method of their own accord, but not until the creamery said so, and inaugurated a neighborhood movement was it done. Dairy men have made few improvements of their individual volition. They have made progress by joining a creamery and following the customs of the creamery.

There is some reason for this. It is explained by the gregarious nature of men. As separate individuals they are lethargic. They lie down in green pastures in drowsy listlessness. But when they are together and the leader goes over the fence into greener pastures, they all go, if there is any "go" in them.

The creamery system furnishes a leader, and it inaugurates a general forward movement. The community moves. There are laggards in every army. Creamery patrons include laggards. There are some inefficient officers in the army. Creamery managers are some of them inefficient. But despite the inefficient officers and laggardly privates, the army is vastly more efficient than would be the same persons if left to follow their own devices. But for the introduction of creameries comparatively small advance would yet have been made in this State and dairying conditions would to-day be much the same as they were twenty years ago.

There are different classes of creameries and they are suited to different degrees of progress. Certain conditions are necessary before any creamery will succeed. Creameries are not omnipotent. They require patrons with a certain degree of intelligence and tractability. Where the calf does the milking is no place for a creamery. Where the farmers are too shiftless to care for their cows the creamery has troublesome times in store. Where farmers post themselves fully and get abreast of the times the creamery is not a necessity, and close planning on the part of the manager is needed to make it a convenience.

This middle ground between a dearth of dairy facilities and an abundance of dairy facilities is held by the creamery by the force of necessity. To go off this ground in one direction is to go where it cannot live, for there is not the wherewith to support it; to go off this ground in the other direction is to go where it must take off its hat and say, "Give me part of your work to do and I will promise to do it by wholesale more economically than you can do it each by yourself."

The first advance, as stated before, was the introduction of deep setting for cream raising. The next advance was the centrifugal separator. The latest claimant for recognition is the butter extractor which churns the cream while it is still inside the separator bowl. Each method has its advantages; this is but another way of saying that all have their defects.

The best method of all, so far as securing the best quality of butter goes, is for each patron to take his milk to the creamery twice a day, fresh from the cows, and have it set in ice-water leaving the further care of it to an expert. The objections to this method are the extra work caused by making two trips a day and the loss of parts of the butter fat, probably a half a pound per hundred of milk. The extra hauling is a very serious objection to this method.

The best method of all, so far as securing the greatest quantity is concerned, is to haul the milk to a separator creamery and have all further handling done by an expert. The greatest yield is secured in this way (the work of the butter extractor is not now under consideration) and also good quality.

The above statement is made, not with the claim that mechanical churning is necessarily injurious to both milk and cream—that point is waived—but in cream-

ery practice economy in hauling requires holding milk until part of it is "aged," it is then mixed together, steam heated and subjected to violent action in the separator bowl. Ordinary separator milk from the creamery is much inferior to skim milk from deep setting, partly because it has lost all the fat, and partly because of the way it has been handled. The effect upon the cream is not so deleterious, but it was stated at the last Iowa Dairy Convention that separated cream would not stand shipping like raised cream.

The most economical in labor of all creamery methods is gathering cream raised on the farms by deep setting. The idea is current in some places that gathered cream butter is necessarily inferior to separator butter. This needs correcting. Under proper conditions gathered cream butter is all right, but if the management is loose, and spoiled cream from filthy patrons is accepted, the butter will be poor. Under proper conditions raised cream is better than separated cream. All the premium butter at the late Pure Food Show in New York was from raised cream, so far as we can learn. One premium lot was made, the exhibitor states, from gathered cream where the practice is for patrons to deliver the cream daily, instead of the milk.

At the last Iowa Dairy Convention two buttermakers each exhibited butter made by both methods, and in each case the gathered cream butter scored highest by two points for one exhibitor and three points for the other. There were two exhibits of dairy butter, one from raised cream and the other from a baby separator; the butter from raised cream scored one point above the others.

The average scoring for the whole exhibits, forty-nine in number, was the same to within a small fraction for each class, with this small fraction in favor of raised cream. This is for quality; for quantity the separator has the advantage of some ten per cent, and a good deal of inferior butter is made in those gathered cream factories when the management is loose and bad cream is accepted from filthy patrons. Slightly less cream and slightly less better in quality is obtained by deep setting, but the chances for it to be injured before it gets to the creamery are greater than when the sweet milk is hauled to the separator factory.

The butter extractor has obvious advantages and obvious disadvantages. The churning and the separating is done simultaneously, but the best temperature for churning is not the best temperature for separating.

Again, the market now demands a flavor which is obtained only from cream which is soured before it is churned. The market demands may sometime change and call for sweet cream butter, but under present conditions the butter extractor has no place in Iowa creameries.

It is not very strange that dairy advancement commenced only so short a time ago. Improvement commenced when all things were ready, not before. Our young State had to be covered with a network of railroads before creameries could be conducted as they now are. Refrigerator cars now deliver our butter fresh before the eastern consumers, and I have the assurance from New York houses that no better butter reaches that market from any place than comes from Iowa. Good facilities for transportation make a demand for our dairy products and creameries have raised the grade of our butter to the kind demanded much faster than would have been done had individual dairymen waited to learn, each for himself.

But let no one hereafter make "store butter." There are parts of the State not supplied with creameries, and there are places where a creamery could not live. It would pay any dairyman living in such a place to go somewhere, no matter how

far away, and learn how to make creamery butter. By this I mean, learn how to make butter by the granular process. An intelligent man can learn how in three days, provided he knows nothing about butter making before, and knows he doesn't know anything about it. The hardest person to teach is the one who knows all about it by the old methods. Such a person is generally a woman and the "best butter maker in the neighborhood." She will never progress. She will continue just the same, and store butter will continue co-existent with her unless her ignorant husband or son goes away and learns how to make butter by the granular process, and likely girls and boys in the neighborhood learn from him.

This is not denying that excellent butter can be made by our women and by the old process. It is not the best way, however. There is an easier way, a quicker way, and a way which gives greater uniformity and catches a better market. Every private dairyman should learn this way to make butter. After he learns it the creamery is not essential to his success, although it may be desirable on the score of convenience.

Some parts of our State are not yet ready for a separator creamery, and in some parts the people are not far enough advanced to support even a gathered cream factory.

Cows are necessary to a creamery, and the cows must be fed and milked. Steers and creameries are bad bed-fellows. In my county—Bremer—the farms average 123 acres each. There are two times as many creameries as there are congressional townships in the county. In such a county it does not pay the "average farmer" to raise a steer. Those with plenty of cheap pasture and few milkers turn off some steers as stockers. If there is a farmer within ten miles of my place who is feeding any steers I do not know where to find him. A steady stream of calves about one week old goes by rail to Chicago, to feed our cultured city cousins. How soon, if ever, this condition will obtain all over the State I leave others to prophesy.

Here, in Humboldt county, the farms average 159 acres each, or twenty-nine per cent larger than in Bremer county, and steer raising has still a good lease of life. In some other counties the average farm is larger than here: In Lyon county the average size is 233 acres. In the nature of things these large farms wait for subdivision, or for a milking machine, or for something else in the future before becoming dairy farms. When these large farmers do take hold of dairying, they still hang on to steers. But when the farms are small the dairyman soon learns to ignore the steer. The average size for the whole State is but 142 acres, and as the counties one after the other range themselves in the dairy belt, and progress even no farther than the moderate stage of advancement of my own locality, the progressive dairymen of such counties will call for dairy cows without the slightest reference to steer raising.

#### DISCUSSION.

MR. TUPPER. I think on the program they meant me to criticize Mr. Bennett's paper. They have got me down for corn. That was a mistake. I am very much pleased with the paper. There is a great deal of accurate and correct dairy information in that paper, and he did not tell you all about the thickly settled dairy county where he lives. Mr. Bennett is too modest. I will tell you about it. Right on that land he describes there are more great, big barns where one neighbor has tried to surprise another neighbor

and built his barn a few feet wider or a few feet longer than any barn around him. They have better barns in that part of Iowa than any part I was ever in (and I have been almost over this State). They have better houses and better surroundings in that county he describes than in any part of Iowa I ever saw, and they are the nearest confined to strict dairying than any part of Iowa I ever saw. Mr. Bennett, you are entitled to have the people know what dairy farming will do. It gives good barns, good houses, the parlors well furnished, and carriages for the boys and girls in which to go to town.

MR. BENNETT: We have everything up there but mortgages.

MR. TUPPER: That is right. There are no mortgages there. Lawyers have to emigrate from that county. (Laughter.) There are but one or two left. The private dairy that Mr. Bennett is in, any farmer can go into and make a success of it, from the fact that creamery butter is graded and recognized the world over. As quick as the market gets that grade it is recognized and of course travels in good company.

The reason why a great majority of people do not succeed in dairying is, that they do not pay attention to details. They make a small quantity of butter and if they have something else to attend to—bread to make for instance—they let the cream get too ripe, and that puts conditions wrong for good butter. They put it off and the butter will not right. Churning the butter to make a tub full of it is pretty hard to get correspondence in color, but the private dairyman can go into it, thoroughly acquaint himself with the surroundings, details and conditions, and can have the best butter in the world, when he knows how to make it and pay attention to all the details of it. I have inspected too many creameries, looked into the bottoms of too many cans, and have seen their conditions in the last two or three months, not to admit that the claims you have made that the conditions were not always right with regard to creameries. I also say to this convention that there is no danger of fine butter becoming cheap. Why? Because the demand for fine butter is growing faster than the farmers are furnishing the goods, and why do not they all go into creameries? One part of Iowa is just as good as another. One part of Iowa is just as well adapted as another, so far as I can see, for creameries. I will tell you why. Because it is an irksome job to milk. You have to milk twice a day, 365 days in the year. The people get tired of it. New creameries are started in counties where they never have had any, and where the goods are hauled. Milk is taken from one-

third or one-half of the farmers at best. It costs to haul the milk in. It costs to run the creameries. It costs to employ men there. Some dairy supply man who does not have the fear of God in his heart will come around and act as though he is a Christian and a philanthropist and has come purely to help you farmers. He does not come for any such thing at all. He has come to fleece you farmers by praising your building and location and he almost always succeeds in doing it and gets a great many creameries located in places where the conditions are entirely wrong and unfavorable. You learn in a little while that the expenses get heavy, the cows are few, the people get tired of milking and quit, consequently the creamery remains idle. That is not the worst thing. Here is the supply man who comes with malice aforethought and selects some good, thrifty farmer, who appears to be better off than his neighbors, and says, "Here, if you will help get up this stock company, we will give you \$500," and the man who has spent his life in acquiring a good reputation will accept the bribe and will become the "decoy duck" and "stool pigeon" to his neighbors. (Laughter.) That is a great deal worse than taking money out of a neighborhood, to bankrupt the character of a man who has stood well in a community—it matters not whether the neighbors find it out or not. He knows that he is not honest. He knows that he has fooled his neighbors, and the supply man knows they have bought something and "bought it hard." I would advise you to go to the old dairy counties and see what the goods are worth that go into a creamery. See what a creamery ought to cost. This has been published in the *Homestead* and a good many letters. I have found out that committees would go into old established dairy counties and accept the advice of the best creamerymen in regard to what to do and would get all of the information they asked for with regard to price and say, "No, we won't have anything to do with this firm and that firm," and they would go straight home and make a contract with them. The men on that committee were bought, were bribed. God deliver me from my friends. Gentlemen, I think us dairy fellows have taken enough of your time. (Applause.)

MR. SHEEHAN: There is one question I want to ask Mr. Bennett. I noticed a little article going the rounds of the agricultural papers. The remark was made about the gathered cream system being the best. Well, I believe it is the cheapest. I have heard of an experiment made by two young friends of mine, at the Agricultural College some time ago, which was going the rounds of the

press, but I have not heard any of the agricultural folks say anything about it yet. They did it for the sake of stopping the hauling of so much milk to the factories. They stored the night's milk, I presume under pretty good circumstances, if I remember right at a temperature of forty-seven degrees, I think the water was. They found out that it was only a very small per cent more that they would get by sending the whole milk next day and at the factory skimming the night's milk, mixing the cream with the morning's milk. In other words, sending just the cream of the night's milk and the morning's milk to the factory where they used the test.

PROF. WILSON: I remember the circumstances very well. During the spring the roads became almost impassable and some of the haulers found it difficult to get their loads of milk to the factory and it was difficult to keep the skim milk sweet long enough. It occurred to us we would have a demonstration made if they would skim the milk at night and put the cream in the morning's milk and send it to us the Babcock test would tell us how much fat was in the whole thing. That was the object. Then the hauler would get rid of hauling so much skim milk, and the skim milk kept at home would be kept sweeter for the calves. Mr. Wallace and Mr. Leighton went to work to make the demonstration. You will find it in bulletin eighteen, I think. They took the milk from our own dairy cows to conduct the experiment with. They took the night milk and set it in different degrees of temperature so as to ascertain what the difference was in fifty-five, fifty, forty-five and forty-two degrees. They found they could get all the cream out by setting it at forty-two degrees. Two-tenths of one per cent was as close as they could get it out. They went through the whole operation of mixing the whole of the night's milk and the whole of the morning's milk, brought to the factory. There was no difference worth speaking of. What loss there was, was in the leaving of two-tenths of one per cent in the skim milk. Our separators take all of the fat out. We do not leave any in the skim milk. In fact the gravity process will bring all of the fat up. Babcock gives the reason. He tells us there is febrine, etc., that has more or less to do with arresting the progress of the fat globules in coming to the surface, and in handling the milk there is much loss by contact with the dishes in which we use. We published it that the farmer can skim his night's milk and send his cream to the factory and we will find out that the cream is there. He can then have his skim milk at

home without hauling it. He can keep it at home and feed it to his calves.

MR. SHEEHAN: One point you do not make clear to me, but probably do to the rest. How long could they let the milk set, twenty-four, thirty-six or forty-eight hours?

PROF. WILSON: No, the question was whether they would send us all the night's milk the next day, or whether they would skim the night's milk and send us the cream among the morning's milk.

MR. SHEEHAN: You do not let it set but twelve hours?

PROF. WILSON: That was all. They might have explained the experiment to a longer sitting. It was mixed just the same as our patrons would. The night's milk was mixed that way in order to make less hauling.

MR. TUPPER: I wish to make one more remark. Now, the difficulty that has been found with the Babcock test, by the farmer who thought he was getting the best of his neighbor in the general pool, was, that it is hard to get a sample. You could not get a fair sample of the milk. When you take off the night's milk, if you keep it cool, that will keep the cream thin but in this way at the same time we must recognize that the difficulty of getting a fair sample, and doing justice is a more difficult task, and while there are plenty of men like they have at our experimental creamery, who stir the milk up and all that, but I would have grave doubts about that doing very well with the average farmer where the time is short.

PROF. WILSON: You can see if we make a blunder and do not make a complete mixture and a fair sample, the loss is ours because the cream is more likely to be at the top than at the bottom. You can see that we would lose by it.

MR. GABRIELSON: You are more likely to take the sample below where the cream is not.

PROF. WILSON: We never do that.

MR. GABRIELSON: You certainly do not take it from the top!

PROF. WILSON: We *certainly do*. We mix it up the moment it is turned in and dip out a sample. So if there is any mistake, we lose, and I assure you we look very sharp as to the fact we do not lose.

MR. HENRY WALLACE: It is possible in our best dairy counties in this State to find a best dairy township and then have an accurate, careful cow census taken of that township to find what has been attained in Iowa in the dairy business. I do not expect any action on it this time but I want the people to think about it. I am satis-

fied if we had the results attained in some of our best townships in Bremer and other counties, so that it could be published to the world through our papers, it would open the eyes of the farmers of Iowa and all these western States.

PROF. WILSON: Mr. Shimmerhorn, of the Agricultural College, out of curiosity inquired for that average in Floyd county. He had communications sent to the patrons of every creamery in the county who sold milk and he found that the number of pounds of butter ranging from one hundred and eleven to three hundred and five to the cow, with an average of all the cows in Floyd county that contributed milk, of one hundred and twenty-five pounds.

MR. HENRY WALLACE: There has been a cow census taken at Bovina, New York, recently in which the average, I think, is two hundred and fifty pounds. It is about that. Now then, here you have it, one hundred and twenty-five and two hundred and fifty. It goes without saying that if one hundred and twenty-five pounds pays, two hundred and fifty pounds pays better profit than any National Bank or railroad stock in the State of Iowa or the United States.

PROF. WILSON: I want to make a single remark and then I will try and keep quiet for a year. The people have been going in the wrong direction. The men who want to sell the Babcock testers have had the floor entirely too much, and the people have had it dinned into their ears about Babcock testers, and then about their cows. That is getting the cart before the horse. If the people go to work and feed their cows they will get one of two things. They will get milk or they will get fat. Let them sell the fat ones and keep the ones that milk well and then after they have done that let them try the Babcock tester. The difficulty with the cows in the State of Iowa is, that they are regarded as "stock" and do not get half enough to eat. (Applause.)

A MEMBER: I would like to ask Mr. Bennett his views on winter dairying in his county.

MR. BENNETT: They are changing to winter dairying as much as possible, and that, of course, increases the profits. From about September until the first of June a stream of calves go to Chicago; from my little town alone, probably two thousand go. Along during the summer a great many calves are knocked in the head and fed to the hogs. Our conditions are such that we know we are independent of steer raising. There are places in Iowa where I presume I would raise steers. In our county we are in the dairying business as a community. Go ten miles in any direction from

my place and you will not find one steer being fed, not one. Farmers who go to dairying as a community will find things such as he never dreamed of. Calves in our community this year, when they are dropped, are worth possibly from a dollar to a dollar and a half a head. In the summer they are worth nothing. I might say there are but three counties in the State that produce more butter than we do.

MR. CHANNING: How do you keep up your supply of dairy cows?

MR. BENNETT: The abstract of the Dairy Commissioner shows that there are but three counties that produce more butter than we do. We make 2,632,693 pounds. We beat Delaware by a good many thousand pounds now. Linn county makes 3,375,372 pounds; Fayette makes 3,462,855 pounds, Buchanan county makes 2,247,094. But our county is only a small county, and these are large counties, so that for the size of our county we probably have as many pounds as any in the State.

MR. CHANNING: How do you keep your supply of dairy cows if you slaughter all your calves?

MR. BENNETT: I think I told you we slaughtered 2,000 and kept 1,000, which we raise and keep up our supply. We keep our cows from eight to ten years.

MR. COWNIE: What breed do you prefer for the dairy when you make it a successful business?

MR. BENNETT: I do not know that I care to answer that. Prof. Wallace has referred to Bovina, New York. There they have Jerseys; most of my neighbors prefer the Jerseys. One of my neighbors close by has Short-Horns; also another neighbor has Holsteins. Brother Gabrielson has sheep. (Laughter.)

MR. GABRIELSON: I feed skim milk to lambs and sheep to as good advantage as Bennett does to his red pigs. (Laughter.)

MR. HOOK: I would like to ask for information in regard to furnishing milk to these creameries. What is the best plan in furnishing it? I believe I understood Prof. Wilson to say that they would mix the night's milk with the morning's milk. I want to know if that was done by the farmers, keeping it in the same can, or was it kept separate?

MR. WILSON: We were only showing an experiment as to what they might do—those patrons who furnish us milk—in regard to keeping the milk in the summer time. The night and morning milk should be kept separate. The night's milk should be kept by itself, and the morning's milk by itself, in the summer time.

MR. HOOK: That was my impression. It makes more expense where you keep them separate.

MR. BARCLAY: The next is a paper by C. Murdock, "Summer Care of Hogs."

In the absence of Mr. Murdock the paper was read by Mr. Cownie, with whom it was left by Mr. Murdock.

PRES. BARCLAY: We have a report of the committee appointed to audit the Treasurer's books.

Your committee to whom was referred the annual report of the treasurer, beg leave to submit, that we have made careful and minute examination of said report and accompanying vouchers, and find the same correct. We therefore recommend that the same be approved by this Association.

JOHN COWNIE,  
J. T. BROOKS,  
J. G. BROWN,  
Committee.

Unanimously accepted.

PRESIDENT BARCLAY: We will now hear the report of Committee on Resolutions.

The following resolutions were offered by Mr. Stout:

*Resolved*, That the thanks of this Association are due and hereby gratefully tendered to the citizens of Humboldt and Humboldt county for their generous hospitality and brotherly attention to us during our stay in this place.

*Resolved*, That notwithstanding the clouds that temporarily overshadow some branches of the live stock industry, we have an abiding assurance that the sun is shining overhead and that his rays will bring prosperity and happiness to all who, by faithful observance of nature's laws, and with due regard to the nobleness of his profession, shall magnify his work and make it honorable.

*Resolved*, That we ask of the State Agricultural Society that it give such recognition of the Iowa Stock-Breeders' Association as will give them representation upon the directory board.

WHEREAS, The chairs of agricultural and organic chemistry have been consolidated at our agricultural college,

*Resolved*, That we regret that a distinctively agricultural chemistry chair can no longer be sustained at the college.

*Resolved*, That the professor who fills the combined chair should be a thorough agricultural chemist, with the experience of years of labor in that distinctive line of work.

*Resolved*, That a committee of three members of this Association be appointed to confer with the president and trustees charged with the appointment, and make such recommendations as they may deem wise.

*Resolved*, That we approve of the past work of Prof. Patrick at our agricultural college for the benefit of agriculture, resulting as it did in inventions valuable to the dairy industry.

*Resolved*, That we recognize and appreciate the work of the National Agricultural Department in its efforts to promote the interests of agriculture, and we pledge our hearty support of all earnest endeavors in continuance of the work.

WHEREAS, It seems to us that the appropriation to the fine stock interests of Iowa by the Iowa Columbian Commission is entirely inadequate to secure a respectable representation; therefore,

Resolved, That it is our earnest request that there may still be given sufficient inducement to the live stock interests to insure as creditable a display as her rank in the live stock business demands.

A. V. STOUT,  
J. J. SMART,  
E. C. BENNETT,  
*Committee.*

WHEREAS, It is eminently fit and proper for the Iowa Improved Stock-Breeders' Association, representing as it does, the great and growing live stock industry of Iowa, to co-operate with and aid the Iowa Columbian Commission in their efforts to make an exhibit of live stock from Iowa at the World's Columbian Exposition, creditable to the State and this association, therefore,

Resolved, That a committee be appointed by the chair, constituted as follows: From among the breeders of the State, from the beef breeds of cattle, two; from the dairy breeds, two; one from the draft and coach horses; one from the standard horses; one from the swine; one from the sheep and poultry; and the President of this Association shall be ex-officio member of said committee, being a committee of nine, and further

Resolved, That this committee shall consider the whole question of a live stock exhibit from Iowa at said World's Exposition and in conference with the Iowa Columbian Commission shall devise ways and means for the promotion of such exhibit, and shall appoint judges to decide on the merit of the stock offered for exhibition and shall determine what shall be deemed worthy, and be it further

Resolved, That when the president shall name this committee he shall fix time and place for its first meeting.

It was moved, seconded and carried, that the chair appoint a committee to confer with the president of the State Agricultural College. Thereupon the President appointed, Mr. A. V. Stout, Parkersburg, Iowa; O. T. Denison, Mason City, Iowa; P. G. Henderson, Central City, Iowa.

The following committee was appointed by the President to confer with the Iowa Columbian Commission, to devise the best plan of making a creditable exhibit of Iowa live stock at the World's Fair.

# COMMITTEES.

To meet at Des Moines the second Tuesday in January.

## DRAFT HORSES.

E. Knott ..... Waverly.

## ROAD HORSES.

P. S. Kell ..... Des Moines.

## BEEF BREEDS OF CATTLE.

W. A. McHenry ..... Denison.

C. W. Norton ..... Wilton.

## DAIRY CATTLE.

W. B. Barney ..... Hampton.

J. J. Richardson ..... Davenport.

## HOGS.

W. W. McClur ..... Waterloo.

## SHEEP AND POULTRY.

C. L. Gabrielson ..... New Hampton.

# SUMMER CARE OF COMMON FARMERS' HOGS.

BY C. MURDOCK.

Gentlemen—I am aware it is not possible for me to offer anything new pertaining to the subject, and can only reiterate thread-worn ideas common to intelligent farming of this time.

I do not claim to be a practical summerer of swine of any considerable experience, as my experience in the swine industry has been mostly in producing through-breds for the trade. I therefore do not claim to be authority on "Summer Care of Common Farmers' Hogs." I will offer a few thoughts, and trust others will dwell on important items of my omission.

The people of Iowa are deeply concerned in the prosperity of the swine industry of our State because it has added immensely to the wealth of our State; has helped to pay for more comfortable homes, and contributed more toward the education of Iowa's sons and daughters than the profits of any other industry in which any considerable portion of our population is engaged.

"The Summer Care of Common Farmers' Hogs" is therefore a subject of considerable importance, and will be, in my opinion, viewed in different manners by different kinds of farmers, according to his usage of hogs, and his general custom of handling and caring for hogs. We will assume to start with that the farmer has succeeded in wintering fifty head of shoats, and that spring time has arrived.

These fifty shoats are of the right breed, and conform closely to his ideal hog. He desires to keep these shoats over to the time of a maturing corn crop as cheaply as possible, but he cannot afford to permit any of them to get thin or runty between spring and autumn time. The first requisite, in my judgment, is a well seeded clover pasture of not less than ten acres, with fresh running water, or a trough full of fresh water arranged so the hog cannot get in and lie during the hot days. In no case permit stagnant water. In a dry, protected place keep a box of ashes, a little sulphur in slacked lime and copperas—keep it replenished every few days. A little sand and pebbles are good to throw into the feed yard, also soft coal.

Concerning feed rations the farmer must be governed to a considerable extent by the price of grain and the probable prospects of future crop. The object of carrying hogs through the summer is to find ready market for the growing corn crop. If old corn is not too scarce I think it best to feed some corn throughout the summer. A light corn feed all along will keep the shoat in better condition to take on flesh rapidly at the finishing time. Hogs left on grass alone are liable to get very thin at the close of the summer season, and much feed is then consumed in getting them to a starting place for taking on flesh. I believe the store hog should constantly gain from weaning time on. A slop feed once each day made of bran, shorts and ground oats of equal parts soaked in water, and some milk, if you have it, fed before decomposition sets in, is profitable. I would feed old corn in moderate quantities, according to the size of my pile of old corn. When finishing time comes a chiefly corn diet can be resorted to—feed all they will eat up clean without any waste; feed twice a day and see to it that they are hungry at each feeding time. The same party should have constant care and not change from one to another.

For shelter in summer I prefer a straw shed, with plenty of ventilation, built on a spot with right drainage. I don't think much of expensive hog houses. Comfortable sheds and constant care, along with common sense, contribute greatly to successful swine growing.

Less farmers summer quantities of hogs now than twenty years ago, for the reason that many farmers think there is more profit in maturing the pig at nine months, weighing from one hundred and seventy-five to two hundred and twenty-five pounds. This is a matter that many of our most successful swine growers differ, and I hope to hear some one discuss this matter here.

The matter of providing a suitable pasture is an important problem to be governed by conditions and circumstances. The slat fence is perhaps the cheapest pasture fence, but for small yards I prefer strong board fence with posts eight feet apart.

#### DISCUSSION.

PROF. KENT: The hog question is too important a matter to slip by without saying anything on it. There are two questions about summering hogs. One is: Will you begin and feed a pig from start to finish, all that his constitution will consume, till he is ready for market? The other is: Whether it is better to let him pasture along through the summer on a limited ration and then after a considerable development of the skeleton, start in the fall and fatten him from that time to the finish, until he is ready for market. The question is, which is the most profitable. Circumstances will

govern. If hogs are only worth two and a half cents or three cents a pound and corn is worth 50 or 60 cents a bushel, which circumstances are generally the case. It is usually the high price of corn that runs pork away down and vice versa. If you happen to get caught in these circumstances, and the first proposition is true, then it may be economy to carry those pigs over the summer and wait until you can raise a crop upon which to fatten them. I can say this from experience, that hogs summered on light feed and plenty of clover pasture, are the most responsive animals, with good feed in the fall, that I ever came across. They fatten right along and lay on fat at the very highest degree of profit possible, leaving out the expense of summering. There is no possible way in which you can lay on as many pounds of pork for a given number of pounds of feed, as you can the animal prepared in this way. We have an illustration in point at the college. Three hogs were fed nothing but buttermilk. In eighty days they were fed all of the buttermilk they would drink in conjunction with some other hogs who were being fed corn, for the purpose of determining the value of buttermilk alone.

MR. GOVE: With or without grass?

PROF. KENT: Nothing but buttermilk. Part of the time they lost, part of the time they gained; part of the time the solid excrement showed constipation, part of the time the opposite effect was apparent. Finally the experiment was closed and the pigs were fed all of the corn and buttermilk they would eat and they put on twenty-six pounds of flesh for every bushel of corn that they ate with the buttermilk thrown in and they drank a very small quantity of buttermilk for the next thirty days, something over eight hundred and forty pounds. Allowing the buttermilk that they drank was two bushels of corn, it made those pigs about twenty-two and a half pounds of fat and flesh for every bushel of corn they ate. It goes to show this. If you load up the system of the animal with protein and if you develop the skeleton, you are simply preparing them for the very highest possible condition of laying on fat and finishing flesh formation. (Applause.)

MR. BROWN: I have always met opposition in the advocacy of making hogs large and making them so by grass. There is nothing that will make meat as cheaply as grass. Grass will make more meat on a hog than on a steer. Clover will produce two pounds of pork on stock hogs to one pound of beef on stock cattle; I have demonstrated that by tests. The profit is in making the

meat cheap, and we have to keep the hog over the second summer in order to do that. If we are going to have a hog for early maturity he must be crowded. I believe in feeding and keeping them until they are fifteen to eighteen months old and making them weigh from four to five hundred and make over half of that on grass. They are the most profitable kind of a hog and no risk to make the hog large.

Take conditions this year. There are from sixty to sixty-five per cent of the usual number of shoats in the country to-day. Let us add the weight and make the same amount of meat by keeping them longer. One hog can do the work of two, almost.

A MEMBER: Will not some hog man grow up some shoats and hurry them along for market?

MR. BROWN: We will risk that. A hog to-day that weighs four hundred pounds brings the highest price, and has for the last twenty years.

PROF. KENT: I have cleared a dollar a bushel for corn by feeding soaked corn to hogs running on grass, by actual weight and calculation when pork was worth four cents a pound.

A MEMBER: How was that gain?

PROF. KENT: I have cleared a dollar a bushel for corn, by feeding hogs soaked corn and allowing them to run on bluegrass, timothy and clover.

MR. SHEEHAN: At the college this summer did you make any experiment feeding buttermilk and corn at the same time? Explain to us what the gain was, the gain of the buttermilk and the corn, when you fed the buttermilk and the corn at the same time.

PROF. KENT: We have just closed an experiment in which we took three hogs weighing a little rising of two hundred pounds on a feed of buttermilk; three more hogs all the buttermilk they would drink and two pounds of corn; in another pen all the buttermilk they would drink and four pounds of corn; another pen all the buttermilk and all of the corn they would eat and drink. I haven't written up the experiment. It will be in the bulletin.

MR. LAMMING: In figuring on that dollar a bushel, do I understand that you made that from the corn or have you thrown in your grass and not taken any account of that?

PROF. KENT: Not taken in the account. I say that with pork four cents a pound I can feed corn to hogs on grass and get a dollar a bushel for my corn. I would not have received more than forty cents without feeding grass.

MR. LAMMING: I want to understand whether grass cuts any figure in that.

PROF. KENT: No, I figured nothing for the grass.

MR. BAKER: Are your pounds live weight or dressed weight?

PROF. KENT: I weighed the hogs at so much money and sold them at so much money. I reckoned from that basis—live weight.

MR. COWNIE: I am heartily in favor of Mr. Brown's theory of keeping hogs until they are more fully matured. The great majority of shoats selling at 250 or 275 pounds cannot aggregate the pounds that those hogs could do if they weighed 400 or 450; neither will they realize so much money. But, there is an evolution in this business. Fat hogs ought not to be sold under twenty or twenty-two months old. That was our former mode of thinking, but seeing the weights of my neighbors' shoats now, from eight to ten months old at selling time, makes me feel somewhat doubtful if I have been entirely right about this twenty-two months business. Let me give you an instance among my neighbors. Generally, at home, when I make a statement they believe me, but when I go away from home sometimes they do not. (Laughter.) I will give you one or two instances, and if you doubt my word, I will give you the postoffice address and you can write them. (Laughter.)

A neighbor of mine sold, last February at South Amara, all his barrows, less than ten months old, average weight 329 pounds. John Parks, adjoining me on the east, sold a bunch of shoats last spring at South Amara, less than ten months old, average weight 299 pounds. Lewis D. Jones, of Williamsburg, sold in the town of Williamsburg, last February, a lot of hogs a few days over ten months old, average weight 335 pounds. Now, these lots that I have mentioned are not the poorest in Iowa county, but you see what it is possible to do.

Gentlemen, these are weights, if any man had told me twenty years ago it would be made with pigs, I would not have believed it any more than you believe me sometimes. (Laughter.) It is a gain of over a pound a day for each day. Some of you may have the curiosity to know how these pigs were made to attain this weight. I will briefly tell you. The sows run on clover pasture while nursing the pigs and are fed a little corn—only a little. The pigs are trained to eat shelled corn soaked, as soon as they are able, and as soon as the corn is fit to feed, they are fed new corn. Along about this time they are put in a house adjoining and fed on the floor. I believe there is a great secret in making these hogs. That

floor was cleaned every time they were fed. They were fed also salt, ashes and pure water.

MR. NORTON: No milk?

MR. COWNIE: No, sir; no milk.

MR. HENRY WALLACE: How much is a little corn down in your county? (Iowa.) They were fed a little corn you say.

MR. COWNIE: The sows?

MR. HENRY WALLACE: No, sir.

MR. COWNIE: It was the sows that were fed a little corn while they were suckling the pigs. The pigs were given all they could eat.

MR. MCKITTRICK: I have no wish to advertise my herd but I will tell you what happened in this little town. Last spring we sold a sow to a gentleman residing in Humboldt. She raised eight of her nine pigs. He sold two of the pigs at weaning time to a gentleman who just left the room. One of those pigs is now in his pen in the northeast part of town, kept for breeding purposes. The other one was sold a few days ago, under six months old, weighing 290 pounds—a few days under six months old.

PROF. WILSON: I would like to hear from Prof. Georgeson, if it is not imposing on good nature, on this point. We would like to know how our neighbors do in Kansas on the hog question, whether they sow alfalfa for hog pasture.

PROF. GEORGESEON: At the college we keep but a few head of hogs simply because we cannot accommodate a great many. We aimed to keep only the best breeds, Poland China and Berkshire, and have nothing but pedigreed stock and we shall breed nothing else. The way to keep them is after the fashion you have described here. In the summer we keep them in the lots and we feed them right in the lots. Our favorite feed is that recommended by Mr. Murdock in the paper just read, bran or shorts, as you say, ground oats and corn in about equal parts. If we have a little milk at supper we add that to it. Now, I do not mean to say that we fill them up on this, but we feed this to them to help them along. Some of our pasture will get short in summer about the end of June and during July and August, and we have to feed them some; also a practice to feed our sows very well, especially after farrowing and as long as they are suckling their pigs. We believe she ought to supply all the pigs need. They cannot do it unless they are fed well. We even feed milk to the sows if we have milk before the pigs learn to drink it. This, we find, is a good practice. I have been taking this discussion all in with a good deal of pleasure and

profit to myself. I can say that this is one of the liveliest meetings I have ever attended of its kind and it certainly speaks well for the farming industry of Iowa. I see here the farmers take the greatest interest in the discussions, they have the most to say and are all anxious to be heard. I am satisfied that Iowa is one of the leading farming communities in the United States, have the best stock, finest thorough-bred cattle, the best farm houses, the best horses, and I can say that without any exaggeration; therefore, I have learned a great deal from your discussions. I find there are several things, however, upon which we differ. I have heard but little said of wheat here, if anything at all. At the Farmers' Institutes which we have, wheat is a *leading subject*. You do not take much stock in wheat here, I see that.

MR. NORTON: We did.

MR. FRANKLIN: *We do now.* Winter wheat pays.

A MEMBER: We took stock in it, but it was not worth anything. (Laughter.)

PROF. GEORGESEON: The question of fodder crops in Kansas differs considerably from what they do in Iowa. In the eastern tiers of counties, as far west possibly as Topeka or a little beyond that, they grow timothy and clover very successfully, but if you get west of that timothy will be a failure. When you get out to Manhattan you can grow clover successfully, but we cannot grow timothy. We substitute orchard grass. If you go still further west the clover will go out and the question is, what can we grow instead of it. We have found that alfalfa is one of the most profitable fodder crops that can be raised in that region and the acreage in alfalfa is being extended very rapidly. It can be grown successfully all over western Kansas in the low lands wherever roots can reach water. There was some talk about long clover roots here this morning. We have alfalfa roots in Kansas that grow thirty feet long wherever the soil is congenial for them. They have been traced along the banks of streams where the soil was washed away by rains, to that depth. On the uplands alfalfa does not do so well, but still they can grow it there and they can grow it at a profit where they can grow nothing else better. Of course it will do well on irrigation. There are some places in the west where they irrigate alfalfa and have phenomenal crops.

Alfalfa is grown something as you grow clover here. After they have it established for three or four years they plow it under and they tell me they raise ever so much better wheat or that land than they did where no alfalfa has been raised. It stands to reason

this should be true. I do not know what alfalfa seed is worth now, but the last time I heard it was worth four dollars a bushel. We are interested in finding something that can withstand the drouth. The United States has a grass experiment station at Garden City. I think it is in the county the second tier from the Colorado line, about three hundred and fifty miles from the eastern line of the State. They experiment with a great many grasses and forage plants there. They have, for some years past, grown a variety of sorghum, which is called Jerusalem corn. I do not know why it is called that unless the seed came from Jerusalem. It is a sorghum with white seed. It is seed that is grown in Egypt, and it is not grown for cattle food but food of the people—ordinary food for the people.

The superintendent of the station has written me that it has excellent flouring qualities—will make fine flour. That it is the equal in feeding qualities of good corn. That it has gone over thirty bushels to the acre on five inches of rainfall. That is an important addition to the crops in that region.

If there are any points concerning which you would like to have information and I can give them, I will cheerfully do the best I can.

MR. HENRY WALLACE: Farmers in Missouri, Minnesota, Iowa and Illinois, frequently write to me and ask whether I would recommend sowing alfalfa where red clover does as well as it does in those states.

PROF. GEORGESEON: I do not think I should for a general crop, no sir. Alfalfa has some drawbacks. It can be used for pastures, but only if you use it with care—for cattle I mean. It is apt to bloat the cattle and if they are not looked after very carefully it will kill them. We have many instances of that kind. Red clover, you know, will occasionally do the same, but, not to the same extent. Wherever red or mammoth clovers are any kind of a success I think I should grow them in preference to alfalfa except perhaps on the possibility here and there where you prefer to have it in permanent pasture for hogs. Now, there is nothing better for hogs than a good patch of alfalfa. That has been demonstrated over and over again. They do not need anything else but the alfalfa. They will grow well on it and produce bone and muscle and grow fat and it is the cheapest feed they can get.

PROF. WILSON: Then the conditions under which you would sow it would be where the roots would go to water?

PROF. GEORGESEON: Yes, sir; that is the condition out there; here you have plenty of water near the surface, and it is not necessary to stimulate that, then.

PROF. WILSON: We have places in Iowa where the water is a good ways down.

PROF. GEORGESEON: Yes, but you have plenty of rainfall. Out there it is necessary that you get water because we do not have rainfall to amount to anything. Here you have sufficient rainfall, so that it would not be necessary for alfalfa roots to reach water here. You can grow alfalfa here anywhere, where you have a good porous sub-soil. You can grow alfalfa where you have hardpan or a hard layer of clay. It will grow, but not successfully. It needs a deep, porous soil to do its best on. If I were a farmer here and had a little patch in the bottom, of a few acres, handy by the barns that I could use for a hog lot, I should sow it to alfalfa. It produces abundantly. It produces sometimes three crops a year sometimes four, and even five. It is good every time it begins to bloom; it should be cut then.

PROF. WILSON: It is richer in the protein than clover.

PROF. GEORGESEON: Yes, sir; it is richer than clover, about one to three, which makes it very rich. As I said, it makes a fine hog pasture, and it is a simple matter to sow it; sow the seed about twenty pounds to the acre; sow it as early in the spring as you do oats, when you can conveniently work the soil. Cover it with a few harrowings and keep the stock off till the young plants are firmly established. You must not begin to pasture it too early the first year. Alfalfa is a little delicate. It does not do well or become vigorous until the roots are well down in the soil and begins to feed well; then they will grow vigorously; the first year, then, you had better handle it a little gingerly; if the weeds come up, I would put the mower on, raise the cutter bar as high as it can be raised, and cut the tops off the weeds. Repeat this process a couple of times if the patch is weedy, so they will not smother out the young plants. Alfalfa makes no sod at all. It will cover the ground, but not in the sense of a sod. You get one plant for each seed and no more.

PROF. KENT: How does the winter affect it?

PROF. GEORGESEON: It is entirely hardy for us. I think it to be so.

PROF. KENT: Do you know how far north it has been successfully raised?

PROF. GEORGESEON: No, I do not know that I can answer that question. I saw of an experiment in New York State for instance, and in that part of the country it is something of an experience yet. You know it came from the west. It first came in from California.

It crossed the Rocky Mountains and came into Colorado and along the line of western Kansas. They raise it in Nevada, but it has not got a foothold in the east or the central part of the United States, and I think it would be well for the farmers of Iowa to experiment with this plant.

A MEMBER: Would it probably grow in northwestern Nebraska? It is the cold weather I want to get at. Also, how about northwestern Iowa and southeastern Dakota?

PROF. GEORGESEON: Northwestern Nebraska, I should say, would be a little colder than western Kansas, but much the same otherwise. I should say that it would, if properly handled.

MR. HOOK (Humboldt county): I can answer the last question by saying that some twelve years ago a little package of alfalfa, the first I ever heard of, was sent to my brother-in-law, farming north of here. It was sowed in two patches, one patch in the garden, on very high, dry, sandy-like soil; the plat was five or six feet wide and ten or fifteen feet long. This lived three or four years and grew up every year to be some two feet high, not very full of branches or leaves; grew up and fell down again, and grew up again the next year; but it was lost sight of in three of four years by stock running on it and destroying it. It grew as I have described, under these conditions, for three or four years. That was twelve years ago.

MR. BROWN: Alfalfa is the chief forage crop of southern California. It is sown there on what is called moist land, that which will not grow fruit, where water stands within a few inches of the surface; and they mow there sometimes seven or eight crops, and sometimes nine or ten crops during the year. They can mow it during certain times of the season, about once a month. They get a crop of a ton or over to the acre. On land where the water stands within a few inches of the surface of the ground is where it is seen.

A MEMBER: Do you get these heavy crops in dry or wet season?

MR. BROWN: It don't make any difference. That water is always there near the surface. It is land lying near the foot of the mountains, and they mow it right along. I saw them mow it there in January.

A MEMBER: What I asked was, do they get their heavier crops wet season or dry season?

MR. BROWN: It does not make any difference.

A MEMBER: You do not get so much heat and light in the wet season as in the dry season.

MR. BROWN: They mow it from six to eight times a year under the most favorable conditions.

A MEMBER: The point I desire to know is, how wet land you can grow alsike clover on. Mr. Wallace, you know, said there was water where he pulled up the alsike clover.

MR. WALLACE: I did not wade in through continuous mud and water to get the alsike. I can describe the condition of the land. It was land, which, in an ordinary dry season, in the summer time when you can plow corn, when the cattle would tramp through you could see water in their tracks, and this particular bunch of alsike that I drew up was growing on the edge of one of these tracks. That will give you an idea, and it is as near as I can put it. I want to say to you that no clover will grow where land is continuously under water or in pure mud, but in the ordinary sloughs, swales as we call them, too wet to plow, too wet to put a team on, except in moderately dry times, you can grow alsike, provided you follow the directions I gave you. There is a good deal of interest in this alfalfa question, and in preparing to write a book on the clovers I spent two or three weeks in Kansas, traveling from east to west and north to south, and part of Nebraska, and concluded the best thing I could do was to get Prof. Georgeson to write on "Alfalfa as a Substitute for Clover," which he has kindly done, and then get Prof. Ingersol, for five years in the alfalfa irrigation country, to write part of a chapter on "Alfalfa under Irrigation," and as these two gentlemen have written most of the chapter, I think I can say that it is the most complete and exhaustive statement on the subject of alfalfa, the conditions of its growth, that has ever been written. I would not think so if I had written it myself.

MR. KING (Humboldt county): In regard to raising alsike clover here, there seems to be a great deal of interest. Four years ago I sowed a piece of ground where there used to be a piece of gumbo land, so deep you could not mow it with a machine. You could not run a machine over it. I sowed it to alsike clover in the spring of the year. I have a good stand of alsike growing on that pasture, and it is as good pasture as you ever saw. That is right here. (Humboldt county).

A MEMBER: With regard to growing alsike clover on wet land—it will grow on wet land, but I tell you your cattle won't eat it if they can get any other kind of grass, while that land is wet. I

have seen pastures eaten close to the ground, with alsike a foot high, yet cattle would not touch it.

MR. BROOKS: We have had lots of things said about alsike. I have thought perhaps it might have its limitations. Mr. Gabrielson tells us about his crowding out grass with alsike. Did he mean to tell us it crowded out willows as well as grass?

MR. GABRIELSON: I took a bushel of alsike clover and sowed it across the piece by hand. The first year it didn't show up very much, but gradually the cattle crowded in there and ate the wild grass along with the alsike, and the alsike gradually spread out. The willows are gone by reason of the cattle browsing them. The only reason why alsike and white clovers will grow in lands of that kind is because the sun can get in and dry the land out, and gradually the water is evaporated as the sun can get to it.

MR. BROOKS: Did the sheep run in that pasture?

MR. GABRIELSON: No, sir; just horses and cattle.

MR. BROOKS: Following that right up I would like to ask for a little information, if there is any, on the subject. I have a great quantity of hazel brush, and the ground between the bunches of hazel brush is set in bluegrass. I have hesitated for years about plowing that because I did not want to disturb the natural surface of my stand of bluegrass; yet I have been unable to get rid of my hazel brush at any reasonable cost. I would like to know if any party in the audience has any experience that would enable him to tell me how to get rid of my hazel brush at a reasonable cost without the plow?

MR. GABRIELSON: How long have you pastured the land?

MR. BROOKS: Fifteen years.

MR. GABRIELSON: Adjoining my farm is a piece of 80 acres. The land has never been touched by the plow. It is the best piece of bluegrass pasture I know of and that, at one time, was covered with hazel brush or knolls of hazel brush. Now, the cattle have killed them out in that way, I presume, and also the bluegrass has choked the roots, same as a sod-bound tree.

PROV. KENT: Mr. Wallace, do you recommend that these sloughs and ponds and low lands be sown in alsike simply because the farmer is not able to drain his lands, or, do you recommend that it is better to sow them in alsike than to remain in their wet condition, or rather, that the most profitable thing to do with the land is to drain it dry enough so you can raise a higher order of plants?

MR. HENRY WALLACE: It all depends on the price of the land. It won't pay to put \$30 worth of tiling in \$15 land, but it will pay to put it in \$30 land. It will dry out partially and give him better grass, and less tile will do after awhile than would have done if he had undertaken to have tiled it out at first.

## THE WESTERN SHEEP INDUSTRY.

H. A. HEATH, TOPEKA, KANSAS.

It certainly affords me, Mr. President, great pleasure to have this opportunity to present a few thoughts and facts regarding this very important branch of the animal industry. It is a fertile subject, and the topic assigned to me is one so broad in its scope that it will be almost impossible to attempt to cover the subject in a single paper; therefore, I shall only attempt at this time to outline a few general facts and thoughts for the consideration of this convention, and the practical flockmasters present may further develop them in the discussion which will follow, as they may see fit.

To one who has had a general survey of the field covered by the title of this paper, it is gratifying to notice the increased interest manifested in sheep husbandry by the farmers and stockmen generally. And from an economic standpoint it is very important to everyone identified with live stock husbandry that the sheep industry should have serious consideration for the purpose of diversifying the animal industry, and at the same time preserve and restore the constant waste of fertility to the soil of our farms. The tendency of the western stock raisers is in the line of overproduction of cattle, hogs and horses, but with a general increase of range and farm flocks of sheep there will be a corresponding decrease in the number of other stock; and it is to be hoped that improvement in quality of stock as well as in methods of conducting stock husbandry, which would be a manifest benefit to the stock raisers.

The western sheep industry is supposed to be confined to all that portion of our country lying west of the Mississippi river, which is bordered on the north by British America, on the south by the Gulf of Mexico and Mexico, and on the west by the Pacific Ocean. The flocks of the trans-Mississippi region comprise the major portion of the sheep in the United States. Of the total number of sheep in the United States on January last, 44,938,365, the region here described contains 26,424,751 head; or, perhaps, in round numbers at the present moment there are not less than 30,000,000 sheep.

Sheep are to be found now in every state and territory of this Trans-Mississippi region. The leading states, or where a million sheep are now owned, are in the order named: Texas, California, Oregon, New Mexico, Montana, Utah, Colorado, Wyoming and Missouri. There are two classes of flocks to be found in the west, the range flocks and the farm flocks, and the latter comprise at the present time not

more than fifteen per cent of the sheep of the west. In the range country where the large flocks are owned the number is not now increasing but very little from year to year except where they displace cattle, which is particularly true of the Rocky Mountain region of Arizona, New Mexico, Colorado, Wyoming and Utah. The fact is that all that country known as the open range and Rocky Mountain States and Territories has reached its full live stock capacity and a marked decrease of cattle is sure and certain and to the extent that grazing will permit, sheep will increase in numbers unless the growing demand for wethers by eastern feeders exceeds the regular increase of the flocks.

Sheep husbandry in the west has finally settled down to something like a permanent basis. The experimental period has now passed by for the industry as a whole except from an individual standpoint, and this branch of the animal industry in comparison with the other branches is the most profitable of any, and this condition is not local but general. There are several causes for the prosperity of this industry. First, there is an under production of both wool and mutton sufficient to supply the regular demand. Our production of wool for 1891 fell short of meeting the total consumption by a little over 260,000,000 pounds, and during the past three years it has been utterly impossible to supply the domestic demand for mutton, in fact most of the year not a single market has receipts sufficient to supply the demand, and the large packers can only fairly meet a portion of the reasonable demands of their trade by keeping a force of buyers out among the growers contracting for wethers and lambs months ahead of their delivery. These large packers have also established large feeding stations in Kansas and Nebraska, and have encouraged stock feeders to do likewise, in order to be sure of a partial supply at least for slaughter. It is the demand for mutton at stiff prices and the sure prospects for a permanent demand at remunerative prices that has given such a decided mutton tendency to western sheep husbandry. The production of wool is no longer the sole object of the sheep raiser, but instead it is now both wool and mutton which are main objects of the grower. And it is the mutton tendency of the sheep industry, without sacrificing any material value of the clip, that has made the business prosperous and led to many changes in breeding, which has given a greater diversity to the industry and caused a much more general demand for all of the improved breeds of sheep throughout the entire west.

We now have two general classes of sheep owners. The one the possessor of the range flocks and the other the farm flocks. (I might appropriately add right here that we have Sheep Princes instead of the quondam Cattle Kings.)

The range flocks constitute the larger holdings of sheep and are mainly confined to the great plains and mountains in the arid and semi-arid regions of the west and where the flockmasters make sheep raising the exclusive business and seldom have less than two to five thousand sheep and frequently holdings run up in to the tens of thousands in exceptional cases. The class of sheep comprising the range flocks are mainly grade Merinos. The class of rams used heretofore have been principally grade Merinos although at the present time all breeds are represented and more pure bred stock is used than formerly. The general tendency and most marked recent change is to smaller and better flocks and improved methods of handling. The range flockmaster has also an equal show with the cattle men who formerly owned the earth and the fullness thereof, or assumed that they did, and as a consequence they did not dwell in peace and harmony, but recent years have had a tendency to subdue the domineering cattlemen and many of them have seen the error of their ways and become sheep owners themselves; in any event these two classes of stockmasters get on together much better than formerly.

The farm flocks, so designated, are confined to the agricultural states, like Iowa, and constitute only a portion of the live stock of the general farmer, who keeps from a few head to not more than a few hundred. These small holdings consist of everything, from the mongrel to the thorough-bred and grade of nearly every breed, with a marked tendency to increase the English breeds of middle and long wools. Heretofore many farmers who would have been vastly benefited by having a few sheep, have not done so, because they did not understand the value or merit of this class of stock, and thought it was too small business, and consequently ignored them, thinking that they would not pay for the personal attention required. Other farmers who were disposed to handle a few sheep were deterred from so doing because of the ravages of dogs or wolves.

While there is more of promise at the present time, and prospectively for the future, with sheep than with any other class of stock, yet there are serious obstacles and difficulties to be considered and overcome before the highest success can be achieved; and every stockman and breeder, regardless of his personal interest in sheep, should feel it his bounden duty to consider them, because the future prosperity of the animal industry must largely depend upon the success of the western sheep industry, for it is the balance-wheel which will prevent too great a surplus of other classes of stock and insure a remunerative demand for their production. This is a fact that does not need further demonstration to this convention. Hence, I cannot too emphatically urge your earnest consideration and solution of the problems to be solved in the interest of the western sheep owner, which briefly stated are as follows: The devastation of flocks by dogs and wolves, the fence question, and a change of the system of marketing wool. It is not necessary to enlarge upon these questions, but they constitute the only serious problems which confront the sheep-raiser and militate against their success.

Don't overlook the tariff, some of you may say. Well, I don't consider this a very serious problem for the western sheep owner, because the tendency of sheep husbandry, which is rapidly assuming a permanent basis, will work out its own salvation, and in a very short time the western wool grower will be independent of the tariff. During 1891 the classified imports of wool at Boston, New York and Philadelphia were as follows:

Class 1.—Clothing wool, 30,739,018 pounds.  
Class 2.—Combing wool, 5,723,837 pounds.  
Class 3.—Carpet wools, etc., 87,983,518 pounds. Or total wool imports of 124,446,373 pounds.

The class of wools we import will hardly effect the western producer. We now produce the finest medium wools in the world, and the time is fast approaching when the same may be said of our mutton product. Immediate free trade would work a hardship to the growers in Ohio, New York, Michigan and New England, and temporary hardship to many owners of range flocks. I heartily commend the action of the *Breeders' Gazette* and the *Kansas Farmer*, in their recent issues, in trying to avert the tendency of some sheep owners to stampede because of pending calamity of further tariff legislation.

The *Kansas Farmer* last week says:

For sheep owners to become panicky as a result of the election, and threaten to stampede the sheep business, is unwise and unbusinesslike. There is no use in unconditional surrender until the contest is forced to an issue, and this, in the judgment of the writer, is altogether improbable, because of the prevailing conditions of the situation.

The elements which are most interested for free wool, do not under any circumstances want free woolsens or manufactured goods admitted free, and it is a fact that the mass of farmers would surely insist on free woolsens in the event of free wool, that will deter the manufacturers from insisting on free raw material. As evidence of this, it is only necessary to refer to the action taken last January by the National Association of Woolen Manufacturers, who passed resolutions asking Congress to make no changes in the tariff on wool, and they took this action simply as a matter of protection, fearing that the people would insist on free woolsens, and while almost every manufacturer is anxious for free wool, yet, fearing that the influence of the wool-grower will be added to those now in favor of free woolsens, the manufacturer is forced by the demands of his own interests to remain a powerful ally of the grower against free wool.

If the next Congress makes wool free it will also make woolsens free. However, it is more than likely that nothing will be done in the matter, because the revenue from this source is sadly needed, even should the manufacturers become indifferent as to the measure.

For these reasons, and others equally potent, there is little fear of any present change. Again, from the present trend of the western sheep industry, it will be less than ten years when the sheep owner west of the Mississippi river will be in a position which will make him independent of the effects of tariff legislation, and from a business point of view free wool will cease to be a bugaboo. Therefore, if western sheep owners will continue sheep husbandry, as now conducted, in the even tenor of their way, they may rest assured that there is no calamity forthcoming to their business.

In conclusion, I desire to call attention to a few facts regarding the western sheep industry. There has never been a time in the history of the industry when there were so many sheep owners as now. There is no branch of the animal industry of which so little is known concerning it by the farmers and stockmen as sheep husbandry. By many it is supposed to be a special and technical pursuit that cannot be made a success unless one has been raised to the business from boyhood, acquired a taste and liking for the profession by inheritance or it is too much of a "small potato" business for a would-be big farmer or stock man. There are many erroneous notions prevailing about sheep husbandry that do not exist in regard to other branches of live stock husbandry, which seem to militate against the industry. Evidently there is a large field of education work open regarding it which breeders of sheep will do well to consider and act accordingly in order to dispel the clouds of dense ignorance which now handicap the development of the industry. In this connection I desire to say the United States Bureau of Animal Industry promises us this year a report on the "Sheep Industry West of the Mississippi" which will contain all of the essential facts regarding sheep husbandry and the condition of the industry in the west.

One thing is evident, and that is the Trans-Mississippi region of country will produce nearly all of the surplus live stock of this nation and that sheep husbandry is certain to rank high as an important branch of the animal industry if stockmen and breeders are to become as prosperous a class as I hope and believe they will. The future prosperity of the vast region of country must depend upon the wisdom and success of our improved stock breeders. The responsibility is yours. Keep up the good work and the victory is yours.

#### DISCUSSION.

MR. FRANKLIN: When I wrote to Mr. Heath to prepare a paper for this meeting, I did it with the assurance that he knew more about the sheep interests of the west than any other person I knew and I was assured by Mr. Heath that he would be present to read

his paper, and we would put him on the stand and find out many things about sheep that he probably would not write in a paper. I have before me a telegram from Mr. Heath, stating that he cannot be present on account of sickness in his family and will not be with us.

I cannot refrain, however, from saying something on the paper just presented. He has spoken of the over production of cattle, horses and hogs, of which we are so painfully aware—lest it be hogs at this time, and the corresponding shortage in number of sheep. Now it seems to me that this pasturage could be better and more profitably divided if more of the grazing lands were devoted to sheep grazing and not so many of the other kinds of stock. It has been mentioned at this meeting about killing calves and feeding them to hogs. Why not raise fewer of them and more sheep? We have always advocated the idea that the farms of Iowa would be the better by having a few sheep on them. Certainly none of them will be the worse by their presence, unless the owner would neglect them and permit disease to come in through his carelessness, which would mean certain loss. My friend Brooks' hazel brush pasture would be the better by pasturing to sheep.

MR. BROOKS: How many sheep?

MR. FRANKLIN: The more the better, if it is the purpose to exterminate the brush. If enough sheep are put on the land they will kill out the brush—and likewise the sheep, if protracted too long. We have in Iowa a little more than a half million of sheep, and there is not a person in this room but what is well aware that this is one of the most admirable states for the growing of sheep in the Union. The grade of sheep in the State has been growing better each year, and at the present rate of improvement it will be hard to find a scrub in a few years. Our farmers have long since changed right about face from the views they once had in the sheep industry, in that they are now growing the sheep for the mutton, which they once kept for their wool.

MR. NORTON: It is a combined machine for converting feed into wool and mutton.

MR. FRANKLIN: Yes, that is so. But the mutton is the prime consideration rather than the secondary one. When the sheep breeder is selecting a sire, he selects him for his mutton qualities rather than that of the wool, and if he is wise, he will not lose sight of the wool, if he does not have to sacrifice too much of the mutton qualities to get what he wants in the fleece.

A VOICE: Is sheep growing still going to be profitable?

MR. FRANKLIN: We know of no reason why it should fail to be. It has been profitable in the past in the right hands and it will continue to be so, under the right kind of management and care in future, tariff or no tariff. The sheep business, like any other industry, will have its ups and downs in the years to come just as they have in the years that have past and gone. We need not breed with one eye toward the tariff tinkers. We need expect no radical changes in the tariff on wool that will be permanent. If we attempt to change our business to suit the changes in the prices of wool and mutton, we will find that the changes will come faster than we can make changes in our business. My plan of sheep breeding is, to mark out some point to be attained, and keep right along in that line, paying no attention to what some other person is doing in some other line of breeding with some other kind of sheep. It is the *stick-to-it-iveness* that wins in any line of breeding. Our dairy friends here in the northern part of the State do not milk cows one year and feed steers the next; our hog brethren do not breed for pork one year and for the kink in the tail the next, nor the grunt that is lost to its owner when the usefulness of the hog begins.

A VOICE: What are we to do with the scab?

MR. FRANKLIN: We have a good and wholesome statute passed at the last session of our legislature, that will regulate that matter, and if any of you know of any scab in your respective localities all you have to do is to notify your board of supervisors and they will appoint a sheep inspector for your county whose duty it will be to inspect, and in case the disease is found to exist he shall cause them to be cured at the expense of the owner. If the owner refuses, the inspector will attend to the matter, and the owner or agent will foot the bill.

A VOICE: Are not dogs and wolves a drawback to the sheep business in the State?

MR. FRANKLIN: In some localities they are, and in others they do not bother much. It depends on the bounty paid on wolf scalps and the price of strychnine in the vicinity. If the poison is put out *for the wolves* it sometimes catches a dog and seldom ever catches a wolf. The hunters get the wolves and the—well, nobody knows who gets the dogs.

A MEMBER: Do you know the rate of increase in the demand for mutton?

MR. FRANKLIN: The only data we have in this direction will have to be computed on the basis of the sales in the Chicago market for the last ten or twenty years. The rate of increase over the shipments of sheep into the Chicago market from the year 1873—when there were more sheep in the State of Iowa than at any other time in its history—up to the close of the present year has been an increase of 60 per cent, while that of cattle for the same period has been 37 per cent. This, too, under the unprecedented shipments of cattle which have been made in the past four years. If this means anything at all it means that the demand for mutton is on the increase, for prices have not been unsatisfactory for some years.

A VOICE: How do sheep sell in the Chicago market compared with other kinds of stock?

MR. FRANKLIN: The averages have been for the past year: Cattle, \$4.35; hogs, \$5.20; and sheep, \$4.80 per hundred.

A MEMBER: Did you not ship some new breed of sheep into this country from England the past summer?

MR. FRANKLIN: The Iowa Suffolk Sheep Company did, of which I am secretary.

A MEMBER: Will you tell us something about them?

MR. FRANKLIN: We imported from the county of Suffolk, England, twenty-two head of Suffolk sheep, composed of twenty ewes and two rams. The sheep arrived at my farm, in Cass county, on the 23d of August last, and were in a very poor condition, being thin, and having the appearance of having been on a long journey without having had a sufficient amount of feed. The breed is the result of a series of crossings by the Southdown ram on the native Norfolk ewe. The latter is noted for its hardiness, fecundity and excellency of flesh, while the other parent, the Southdown, except that they are about thirty per cent larger in size and the faces and legs are jet black instead of a brownish grey in Southdown. They are very prolific, there being instances on record of flocks of eight hundred or more in their native country where they have averaged thirty lambs to every twenty ewes in the flock. One ewe of this breed was shown at the Royal Show the past summer, having five living lambs, all her own, twelve weeks old, all of which were getting their only sustenance from their dam and her feed; that is, none of them were raised by hand. On the day I left home to come to this meeting a pair of Suffolk lambs were dropped, and when I left they were doing nicely. We have great hopes that this will prove to be a good breed of sheep for America.

[Prof. Curtiss was to have prepared a paper on the "Horse,"

but owing to sickness the paper has not been prepared. Mr. Gove, who was to discuss the paper, having word from Prof. Curtis that he could not be present, prepared an article on this subject which we present in the proceedings. We very much regret that we did not have an opportunity to hear a discussion on this paper.—Ed.]

#### THE FUTURE HORSE—WITH REFERENCE TO ITS VALUE.

BY B. F. GOVE, DE WITT, IOWA.

Future horse, with reference to value. The praises of the good qualities of the horse have been sung so long it would seem to be well nigh impossible to say anything new on the subject. Again, the statement of question to be discussed calls for the wisdom of the prophets, in asking us to tell what will be in the future. But we have the past to guide us, and can sometimes make a forecast of the future.

The business of breeding and selling horses, like many other kinds of business, seems to run in cycles, or regular periods of recurrence. But if we look closely into the laws of cause and effect it is easy to discover why periods of depression in the business come upon us. A few years ago the draft horse breeding was begun and was increased at a rapid rate. For a few years the colts of these horses sold at good prices. But when the business was carried on without any reference to the liability of overproduction, it was only a question of time when the horse breeders would find their business overdone. Such is the condition of the draft horse market to-day. An accident, like the breeding and sale of Axtell, has done more to demoralize the United States people in horse breeding than all other causes. As a diversion men of great fortunes may engage in raising flyers, and while it is not unlawful for anyone to be in the business, I think a very large per cent of these breeders will find no market for their horses. First, because the chances of producing a phenomenally fast horse are very remote, and second, the useful business of the country is not carried on at a Nancy Hanks gait. Every class of horses has its proper place. The business of breeding horses requires a period of four or five years before they are ready for the market. Therefore it requires taking thought for the morrow, and beyond. It seems to be the inclination of humanity to go into a business when it is profitable, without any reference to its future profit, and to go out of it when it is unprofitable. I do not claim to be an oracle, but to me, now is the time to breed the heavy draft and good sized general purpose horse. By the time these colts are in the market the Axtell and Nancy Hanks craze will be over with the great bulk of people. A tolerably safe way for the road horse men would be, breed a horse of about 1,200 lbs., then if it fails as a roadster you have a good back ground to fall back upon as a general purpose horse. My idea of a good, useful horse, is a Morgan built horse of about 1,200 lbs. This kind of a horse is able to do all the work required by the farmer and has the requisites of a road horse. Perhaps I may be allowed to make a pen portrait of a good horse. We

will begin at the head, which is the chief end of the horse, as well as of man. He should have a good countenance, which includes a good strong, but mild, eye, set in a wide head at eyes. When the head is wide above the eye it gives a space for a large brain, which is indispensable for good sense and courage. From this we go back and put a good neck on the horse. This neck should be high in the crest and well back in the withers, and deep down in the breast, thus giving good lung power. Give him a good sloping shoulder, with large size around the girth for good vitality. The loins should be broad and full, coupled upon a long hip; give us a long bodied horse with short back, with the fore and hind legs well apart. He should be long from hip to hock, for a good sweeping stride; short from knee and hock to pastern joints, with clean legs, with pasterns and front of hoof at angle of 45 degrees, bottom of hoof copping, to take good hold of the ground. With a horse with sloping shoulders the draft should be at right angles with the shoulder. This is a picture of a good road or general purpose horse. In heavy draft we expect a more upright shoulder. If we wish to be moderately certain of the future colt you must breed to a good mare. For the mare has to carry it for eleven months and suckle for four or five months, to say nothing of all the external influences that are liable to take effect during the first eleven months. With all the calculations that can be made there is an element of uncertainty of what we will get, either in the animal, or in the price we will get. But if we confine our breeding to the class of horses that are useful we will be more likely to get fair prices than for them, than those of phenomenally great speed are to be raised or sold.

#### GRAIN FARMING COMPARED WITH STOCK FARMING.

[The following paper read at the annual meeting of the State Agricultural Society we append to this report.—Ed.]

Mr. President and Gentlemen:

"Comparisons are odious," were the words of a distinguished scholar and writer when asked to contrast two different subjects and give his reasons and conclusions in regard to the merits and demerits of a certain question at that time agitating the public mind. The subject assigned me at this time requires that I shall compare the raising of grain with the breeding and fattening of live stock, assuming that they are two distinct callings, and that it is optional with the farmer to embark in either pursuit. While there are states and localities which are by nature better adapted for the raising of grain, other parts also appear to be better adapted for the breeding of stock. Certain portions of California and Colorado belong to the former class, while Wyoming and Montana belong to the latter. While spending some months a few years ago in California, I was surprised at the small amount of stock on the largest farms, and on inquiring the cause was informed that grass was unknown and clover never heard of. "We have no other alternative," said a large and successful farmer in Sacramento Valley, "grass will not grow; neither will corn, unless irrigated, and our supply of water is too limited for that purpose." Spending some time with the cow-boys on the western plains the thought occurred to me, if it were only possible to make during the summer, some provision for the subsistence of stock during the severe winter

months the terrible sufferings and losses from starvation could be prevented. But I was assured that grain growing, or even the possibility of securing hay was out of the question. "Why," said a ranchman, "it takes of such grass as we have here from twenty-five to forty acres—the more the better—to furnish pasture for one animal during the year, and nothing else will grow on this land." In these localities a comparison of these two subjects would certainly have been odious, for I soon found that to expatiate on the value of corn and clover for fattening purposes to a Wyoming cow-boy was not to him an interesting subject.

Wheat, oats and barley do well in Colorado. The dry climate of that state and the systems of irrigation appear to be peculiarly adapted for these grains. I have seen many fields of wheat in Colorado that yielded thirty-five to forty bushels per acre, oats sixty to seventy bushels and barley forty to fifty bushels. The straw of these grains, straight and stiff, lodging almost unknown, and the grain bright, heavy and of excellent quality. Corn on the other hand does not take kindly to the soil and appears to have a strong antipathy to irrigation. No small boy ever came out of the bath tub looking more dejected and crestfallen than does a Colorado corn field after having been irrigated. Consequently very little corn is grown, small grain which yields abundantly taking its place. While timothy and clover do well in a few favored localities, the growth of these grasses is very limited, alfalfa taking their places to a large extent. This plant yields a large amount of hay, but for pasture does not compare with timothy and clover. With these conditions no comparison could be made between grain farming and stock raising, as the natural and climatic conditions all favor the former system. In Iowa the circumstances are different, as both grain and stock can be raised not only successfully but profitably in nearly every section of the State. Assuming then that the Iowa farmer can have his choice and that by proper attention to his business a specialty of either grain or stock raising can be made remunerative, success only being limited by the ability of the farmer himself. There are many men so constituted that no matter how favorably they are situated in regard to raising stock, they would be utterly unable to ever make it profitable. These same men might be very successful in raising grain and marketing it, but if they undertook the feeding of it to stock the result would be disastrous. As I write I have in my mind many such men whose every attempt at feeding either cattle or hogs ends in an abortive failure. Not that soil or climatic conditions are against them—for in their immediate locality others are making a success where they fail, but because they are not adapted to the business. In raising grain success will depend on the condition of the soil. The manner in which the plowing, seeding, cultivating and securing the crop is conducted, and if all these conditions are favorable, a good result can be confidently expected. In grain raising with the securing of the crop, the work is practically ended, and during the inclement weather of winter, there is little labor to be performed. In stock raising it is entirely different, no cessation of care and attention from the first to the last day of the year, Sundays not even excepted. To be successful in stock raising, requires broad minded views, and the farmer who is of that economical kind, considering timothy and clover wasted when they go to seed in his pasture field, had better confine himself strictly to grain growing. The farmer also who when grain is high feeds it grudgingly to his stock, thinking all the time it is more profitable to sell the grain, has evidently mistaken his calling. Liberal views in regard to prices for the best types of breeding animals, generous in furnishing ample food, either in summer or winter regardless of cost, is the price of success in raising stock profitably. I refer to these matters for the reason that many of the failures in this branch of farming are caused

by a mistaken economy, which brings failure, when an opposite course would have brought success.

But it is not possible to continue grain growing exclusively as in former years. That period has gone, never again to return. A system of farming that was profitable in Iowa thirty years ago would only result in bankruptcy to-day. Then the soil was rich with the accumulated wealth of centuries. Decaying vegetation protected the soil from the scorching rays of the summer sun or the fierce blasts of winter. If perchance fire swept over the treeless prairies, potash, one of the principal elements required in plant growth, was left upon the surface to further enrich the ground and increase its fertility.

The early settlers of Iowa were not men of means raised in affluence, with the ability to embark in a system of farming best calculated to retain the fertility of the soil, but compelled by their poverty to resort to such means as would most readily and quickly respond to the necessities of their families. In those early days there was no choice, no question as to whether grain growing or stock raising would be most profitable, no other alternative but break up the ground, and the following year raise a crop of wheat which was marketed as soon as possible. Good crops were generally raised, and it cannot be denied but that it was the only means then possible. But the wealth secured by this means was obtained at a terrible cost; the land by repeated croppings became impoverished, and like the weary horse without food or rest, refused to proceed further. What farmer would think of driving his horse continually without rest, without food and without cleaning? What farmer would desire to work continuously himself, without stopping for rest, allowing time for meals, and the luxury of a bath occasionally? The farms of Iowa are just as much in need of these requisites as the horse or the farmer himself—they need food, they require cleaning and they ought to have rest. That farmer is on the highway to success, who feeds his land before it is hungry, cleans it before it is foul, and rests it before it is weary.

And here let me say that while I have not adhered very closely to my text, I will now abandon it altogether and take the position that to make farming successful in this State, grain and stock raising must be combined on the same farm. A crop of twenty bushels of wheat an acre takes away 1,200 pounds and nearly two tons of straw; oats, barley or rye about the same amount. Sixty bushels of corn an acre takes away over two tons of matter mostly taken from the soil that produced it. Is it any wonder that the average corn crop in Iowa is under thirty bushels an acre when we take into consideration the fact that for many years every pound of grain that could be wrung from the soil has been hauled away and shipped to an Eastern or European market? Is it any wonder that Great Britain, when she was a grain growing nation, produced on an average only sixteen bushels of wheat per acre, that since the repeal of the corn laws, the free importation of grain and the seeding of large areas to grass, the average crop of wheat on that island has increased to thirty bushels an acre?

Will we who left our homes in the beginning of the week with well filled pocket books have any occasion to wonder when on returning home, we find them sadly depleted? It is the inevitable result, and unless we can take home with us some new ideas, something that will benefit us hereafter, then the money spent here has been lost to us. The same principle applies to the farms of Iowa, so that while taking from them to a certain extent unavoidable, every effort should be made to have an equivalent returned. Farmyard manure will do this, but is not made in sufficient quantity to cover the entire farm. Artificial manure, on account of cost, is beyond the reach of the farmer, so that there is but one avenue open, seeding

with timothy and clover and the pasturing of stock. By this means the land is cleaned, fed and rested, and at the same time produces a good income. Small grain, corn and timothy are all soil exhausting crops, for the reason that their roots remain near the surface, depending for their subsistence on a few inches of soil. Clover, on the other hand, does not depend for its food upon the surface soil after it has had sufficient time to penetrate the subsoil with its roots, but brings to the surface plant food that cannot be reached by any other means now known. That this statement is true is undeniable, the sides of the road where the surface soil has been removed to a depth of from three to five feet, leaving nothing but yellow clay on which neither small grain, corn or timothy will grow proves to be a favorable soil for the common red clover, abundantly attested by its growth. Heretofore, when land was cheap, breadth was a great requisite in farming, in the future it must be depth. The farmer must realize that he owns beneath every acre on the surface, to the center of the earth, and that he is the undisputed owner of the atmosphere above him as high as it extends. That its inexhaustible supply of nitrogen is his to command, without money and without price. With all the improvements of agricultural machinery of late years, no tool has yet been invented that will bring to the surface, from the subsoil below, the parts most suitable for plant food, leaving the residue behind. With all the discoveries in agricultural chemistry, no method has yet been devised, whereby the elements contained in soil and atmosphere can be readily combined by the farmer into plant food. But, although inventive genius and science are powerless, an Almighty Being has placed within the power of the humblest farmer in Iowa the means of combining these elements in such manner as to double the average crop now obtained. This machine is the common red clover, and the sooner the farmers of Iowa realize this truth the better it will be for them. Had the acreage of corn in Iowa last year been one half what it was, and that one half on clover sod of from three to five years, the crop would have been larger and better in quality. This is no theory, but a demonstration, for there are many fields of clover sod in Iowa that produced sixty bushels of corn last year while other fields adjoining produced only twenty to twenty-five bushels.

The labor unions are demanding that the hours of work be reduced to eight hours daily, and one of the arguments used is that more and better work can be done than with more hours. Of this I cannot speak, but I do know that larger and better crops can be raised with one-half, or, better still, by two-thirds of the farm being in grass than by cultivating all. In grass, in clover, in improved stock, lies the hope of the Iowa farmer, and God speed the day when not another bushel of grain will leave our borders.

## LIST OF MEMBERS.

G. W. Fouts.....	New Sharon
G. W. Franklin, Cotswolds, Chester Whites, Light Brahmas.....	Atlantic
Prof. F. C. Curtiss, Ass't Prof. of Agr., Ag'l College.....	Ames
C. L. Gabrielson, Dairyman and Shropshire Sheep.....	New Hampton
B. F. Gove, Roadsters, Short-Horns and Poland Chinas.....	De Witt
Col. J. J. Smart, Shropshires.....	Dakota City
C. C. Bennett, Red Hogs and Dairyman.....	Tripoli
Taft & Co., Poland Chinas, "George Wilkes strain".....	Humboldt
J. T. Brooks, Breeder of Good Stock.....	Hedrick
D. J. Paton, Cheese.....	Hampton
C. W. Norton, Short-Horns, Poland Chinas and Shropshires.....	Durant
J. J. Edgerton, Jr.....	Nasau
Hon. W. O. Mitchell.....	Corning
Ex-Gov. S. B. Packard, Herefords.....	Marshalltown
J. W. Bopp.....	Hawkeye
Jordan & Dunn, Short-Horns and Poland Chinas.....	Wanhook
H. L. Pickering.....	Eagle Grove
H. D. Parsons, Short-Horns and Poland Chinas.....	Newton
W. W. Vaughn, Short-Horns and Chester Whites.....	Marion
John Cornie.....	South Amana
J. R. Crawford, Short-Horns.....	Newton
N. J. Harris, Standard Breed Horses.....	Des Moines
R. J. Johnston, Short-Horns and Poland Chinas.....	Humboldt
F. R. Shaffer, Poland Chinas.....	Campbell
J. F. Morris.....	Ireton
C. Murdock, Poland Chinas.....	Waterloo
Ex-Gov. C. C. Carpenter, Short-Horns.....	Pt. Dodge
N. R. Jones.....	Humboldt
A. A. M'Kittrick.....	Humboldt
Hart & Fuller, Short-Horns, Poland Chinas and Duroc.....	Kalo
E. Hoover.....	Waterloo
John Johnston.....	Humboldt
J. A. Benson.....	Sanborn
Thos. J. Smith, Sheep.....	Livermore
F. B. Drake.....	Otho
L. Brodsky, Short-Horns.....	Plover
W. Z. Swallow, Black U. S. Poland Chinas.....	Booneville

James Hook.....	Hedrick
A. A. Berry, Herefords.....	Clarinda
F. N. Chase, Sec'y World's Fair Commission for Iowa.....	Cedar Falls
Dan Sheehan & Sons, Short-Horns.....	Osage
W. W. McClung, Poland Chinas.....	Waterloo
Wm. Thompson.....	Humboldt
W. M. Lambing, Poland Chinas, Black U. S.....	West Liberty
J. D. Herrick.....	Fredericksburg
John Paulson.....	Britt
D. W. Benedict.....	Fredericksburg
A. V. Stout, Poland Chinas.....	Parkersburg
C. M. M'Dougal.....	Celery-dan
M. M. Kirkman.....	Chicago, Illinois
Y. W. Short.....	Webster City
Daniel Leonard.....	Corning
C. S. Barclay, Short-Horns, Poland Chinas.....	West Liberty
Richard Baker, Jr., Short-Horns.....	Farley
F. F. French.....	Humboldt
J. T. Clark, Veterinary Surgeon.....	Humboldt
Loren Hezelwood.....	Humboldt
J. G. Brown, Pork and Corn raiser.....	Marshalltown
B. O. Brington, Stenographer.....	Atlantic
B. G. Stark.....	Livermore
Prof. D. A. Kent, Assistant Professor of Agriculture.....	Ames
Prof. James Wilson, Professor of Agriculture.....	Ames
F. E. Carpenter.....	Livermore
P. G. Henderson, Holsteins.....	Central City
E. Wautenpugh, Dairyman.....	Sumner
Homestead Co., publishers of Homestead, \$1.00 per year.....	Des Moines
A. C. Tupper, State Dairy Commissioner.....	Osage
G. H. Shellenberger.....	Humboldt
A. D. Bicknell.....	Humboldt
Robert Paterson.....	Dana
F. P. Walter.....	Livermore
D. B. Hamersley.....	Humboldt
C. H. Brown.....	Dakota City
S. A. Wolcott & Sons.....	Gilmore
W. O. Atkinson.....	Humboldt
Dr. I. L. Welch.....	Humboldt
F. P. Avery.....	Humboldt
Matt. Berkheimer.....	Humboldt
M. V. Reed.....	Unique
G. F. Root.....	Humboldt
A. M. Adams.....	Humboldt
Hon. J. R. Sage, Weather Service Director.....	Des Moines
O. T. Denison, Creameryman.....	Mason City
J. P. Finch.....	Humboldt
D. S. Day.....	Humboldt
E. K. Kauffman.....	Massena
W. W. Seeley, Chester Whites.....	Stuart

J. F. Walters, Chester Whites, Plymouth Rocks.....	Greenfield
Samuel Henry.....	Martinsburg
S. A. M'Candless, Cotswolds, Short-Horns, Poland Chinas.....	Belle Plaine
Hon. Oliver Mills, Ex-President State Agricultural Society.....	Lewis
S. A. Converse, Red-Polled Cattle.....	Cresco
J. Wragg & Son, Nurserymen.....	Wauke
Hon. H. C. Wheeler, Pehererons, Shire Horses.....	Odebolt
J. P. Manatrey, Short-Horns.....	Fairfield
B. S. Brown.....	Hampton
J. R. Shaffer, Secretary State Agricultural Society.....	Des Moines
August Post, Clydesdale, Standard Horses, Holsteins.....	Moulton
Gen. L. F. Ross, Red-Polled Cattle.....	Iowa City
Hon. John M'Hugh, Short-Horns.....	Cresco
A. C. James, Short-Horns, Shropshires.....	New Sharon
W. A. Bryan, Short-Horns, Poland Chinas.....	New Sharon
B. F. Myers, Short-Horns.....	Corning
Dr. J. C. Shrader, Professor of Obstetrics, I. S. U.....	Iowa City
L. M. Van Anken, Poland Chinas.....	Mason City
H. D. Holister, Short-Horns.....	Audubon
Prof. G. E. Patrick, Professor Agricultural Chemistry.....	Ames
W. P. Young & Sons, Short-Horns, Poland Chinas.....	Mt. Pleasant
A. A. Bryan, Short-Horns.....	Montezuma
A. J. Graves, Short-Horns, Chester Whites.....	Ames
C. Gilchrist, Short-Horns, Poland Chinas.....	Walker
George D. Ross, Poland Chinas, Cotswolds, Wyandottes.....	Harlan
Hon. L. S. Coffin, Poland Chinas, Short-Horns, Shropshires.....	Ft. Dodge
Ex-Gov. Wm. Larrabee, Black Swiss Cattle.....	Clermont
J. L. Todd, Poland Chinas, Thorough-bred Poultry, Small Fruits.....	Atlantic
W. D. Pratt, Short-Horns.....	Anita
Harry Harding.....	Churdan
J. H. M'Gibben, Short-Horns, Percherons, Merinos, M. B. Turkeys.....	Albion
Hon. B. R. Vale, Holsteins, Chester Whites.....	Bonaparte
B. H. Bohart, Red-Polls.....	Elvira
W. L. Addy, Duroc Hogs.....	Dana
Charles H. Cook (successor to Wm. Cook), Short-Horns, Cotswolds, Chester Whites.....	Marion
Wm. Roberts & Son, Duroc Jersey Red Hogs.....	Paton
S. L. Benedict.....	Mitchell
P. M'Cuiker.....	Ossian
H. T. Dildine.....	Kinross
C. F. Robe, Short-Horns, Poland Chinas, Fine Poultry.....	Jenop
W. A. McHenry, Aberdeen Angus.....	Denison
Barnett Wilson, Short-Horns, Poland Chinas, Cotswolds.....	Earlham
C. C. Pease, Poland Chinas, M. B. Turkeys, Plymouth Rocks.....	Stuart
J. S. King.....	Grundy Center
J. W. Blackford, Herefords, Poland Chinas.....	Bonaparte
H. M. Reasoner, Jersey Cattle, Roadsters.....	Reasoner
George W. Snoor, Polled Angus.....	Mt. Auburn
W. R. Westrope, Short-Horns.....	Harlan
S. S. Sessions.....	Algona

J. W. Wadsworth.....	Algona
I. Smith .....	Mason City
A. L. Harrah, Short-Horns.....	Newton
W. B. Barney & Co., Holsteins.....	Hampton
Mike McDonald.....	Yale
J. A. Evans.....	West Liberty
B. J. Moore, Standard Bred Horses.....	Missouri Valley
A. M. Nelson.....	Canton, South Dakota

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## APPENDIX.

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## APPENDIX.

### IOWA DRAFT AND COACH HORSE BREEDERS' ASSOCIATION.

The sixth annual meeting of the Draft and Coach Horse Breeders' Association was held in the Savery House, Des Moines, January 10th and 11th, 1893.

President Hon. D. P. Stubbs delivered the following address:

*Gentlemen of the Iowa Draft and Coach Horse Association:*

In calling the sixth annual meeting of our Association to order, it is well to consider the work that we have undertaken as well as a reference to what the Association has done, what has resulted from its efforts, and what yet remains for it to do.

It may be that we have accomplished but very little in material attainment ourselves, yet all must acknowledge that there is now a vast difference in the conformation and make-up of the equine race in this country compared with that of fifteen or twenty years ago. On whatever hand you look you will have to acknowledge that the changes wrought stand out in bold relief and might be said to be phenomenal, and yet many feel discouraged and are almost ready to say that but little progress has been made.

I willingly confess from my standpoint that we have not accomplished as much as some of us anticipated. A race with the longevity of the horse cannot be transformed from a low to a high, permanent grade in a short time. Many men who engaged in the enterprise were sanguine in the opinion that two or three crossings of superior with inferior animals would bring permanency in conformation and would make our horses almost the pride of the world, forgetting the law of nature that retrogradation excels progression and especially when the very great odds were in favor of the inferior to the superior from which we expected to raise the standard. We must all acknowledge more or less disappointment.

It is a fact that there are many poor horses in the country, the offspring of imported stock, and it is equally true that stock has been imported to this country which in some cases would sell for pure, genuine blood, which was not in fact what it ought to have been. Some of our people have been in too great haste to realize the efforts of their toil in a very short time. Some men who imported, purchased the cheapest kind of stock in the foreign countries and brought it here to represent it as first class; others bought very cheap blood here and sold it cheap, because their customers called for cheap horses. Patrons of these horses received

their services because they were cheap, and the marks of impurity are now plainly impressed upon the horses of the country.

In Germany, in France, in England, ages upon ages have been required, with the exercise of the best talent and economy, to build up a permanent blood as a standard, and the American citizen will learn sooner or later that perfection or anything like perfection cannot be attained in any other way.

But men tell us that they are discouraged; that they shall quit the breeding and rearing of horses; that horses command no price and that they are not worthy of attention, and they cite the fact that electricity, though in its infancy, to-day is doing the work that was formerly done in the United States by 44,000 horses. While this may be true, yet the demands by this very appliance of electric power requires a great many horses that were not demanded before. This class of horses thrown out of employment were most if not all of the smaller and lighter species, and yet with this fact staring the farmers in the face they have to a very great extent abandoned rearing the large horse and gone, by the wholesale, into the breeding of the standard-bred or trotting horse. For what purpose no philosopher can tell because there is but one of every thousand trotters that ever reaches distinction while the other nine hundred and ninety-nine are worthless for any purpose whatever. They are not good farm horses, they are not good drivers, and of course worthless as draft horses; but this is the great popular horse in this country to-day.

There is no discount on the heavy horse. The well-built, sound-boned draft horse is bringing a grand price, and there is another horse that is paying well and in great demand, and that is the fine, stately coach or driving horse. These two classes of horses have and will continue to command good and paying prices. The running horse, as well as the standard-bred trotter, is not in demand. We are not a nation of fox hunters like the English and care nothing for the horse that will bound over the hedge and clear a ten-foot dike.

The rearing of horses has not been a failure in the old country; in fact they command high prices, and yet we are doing nothing to supply the great demand in those countries that should be filled with American horses.

I hold in my hand a criticism by an expert on the American horse. He says: "The war horse does not exist on this continent; the cavalry or artillery horse is not known in America." This country could find sale for thousands upon thousands of this kind of horses did we produce them. The large, high headed, high stepping coach horse also brings almost a fabulous price in the large cities of the old world, and I am glad to know that some of our enterprising horsemen are collecting and transporting some of our best steppers to the old country and are realizing handsome prices therefor.

We can in this country produce horses equal to that of any country in the world, but this cannot be done, gentlemen, by the course that has been pursued by the breeder, and especially the farmer for the past five or ten years. Instead of the best collections he could make, in most instances he selects the worst, because it looks to him to be the cheapest, and the result obtained is to his great detriment.

The same writer and critic to whom I have referred, says:

"It is easy to explain the reason of Europe's superiority. The large countries make this superiority a business. In the military districts of Prussia, France and Austria there are sustained at the government's expense expensive studs. Every stallion has to pass through a severe veterinary inspection. Everything is done to keep up the standard."

Can we as an association, or by our individual efforts, induce the people of this country, or a goodly number of them, to stand by the well selected draft blood and coach blood until they shall have provided a strain of blood and race of horses that will not only bring to them wealth and honor, but a consciousness of having well served their fellow men and helped to build up one of the great industries that the times demand?

The committees appointed were as follows:

*Resolutions*—Hon. S. B. Packard, of Marshalltown; Hon. James Wilson, of Ames; Mr. L. B. Goodrich, of State Center.

*Officers and Arrangements for Next Meeting*—Mr. J. W. Wadsworth, of Algona; Mr. J. E. Fagen, of Des Moines; Mr. John Cowrie, of South Ansonia.

Professor Wilson, of the Iowa Agricultural College, then read a valuable paper on "The Mare During Pregnancy."

## THE MARE DURING PREGNANCY.

BY PROF. JAMES WILSON.

Too many colts are lost at foaling time, or soon after it, because of something wrong with the sire, or dam, or the feeding and handling of the mare during pregnancy. The colt inherits the family vigor or weakness of both sire and dam. Whatever was defective or delicate or weak, or diseased in either horse or mare, will be inherited in a latent or prominent condition by the colt. The young thing when it comes is the result of all its grandparents, and all the good and bad usage they may have had. It is more affected by its immediate ancestors, than by those remote, and the sire and dam should have most consideration. The usage of many stallions is very reprehensible. They are quite often too fat, with tissue that has not been put on contemporaneous with exercise. The greatest vigor is never found in connection with fat. The idle stud is not at himself, his nervous system is excitable, his respiration is not normal, his circulation is not good, nor is his alimentary system in perfect order, his powers of endurance are low.

Now this condition has no name among diseases, but where stallions are kept this way for generations, they lose vigor and the progeny becomes more liable to disease. The speed horse and road horse are not abused by idleness as much as draft horses are, and still too many men own driving horses who do not attend to their exercise. Powers of fecundity become low with such usage, and the weakness is transmitted to the colt.

Another evil needs attention. Stallions are used too much, and the study of the laws of life shows us that weakness in the progeny results from overmating the sire.

Then the colt is the depository of all transmissible diseases as well as tendencies to them. Europe has given us many bad specimens of the horse in this respect.

The mare transmits just as the horse does; she has equal prepotency with the horse, if her blood is as intense and no more; if the horse and the mare both have

latent weaknesses, the colt will have them with added force, but she is not as likely to transmit the weaknesses that are the result of idleness, over-feeding and pampering as the horse.

Men and women in the wealthy classes cease to have large families, children come seldom, come feeble and are short lived, then barrenness results, when the family dies out and is replaced by the newly rich, that reform in living or go through the same degenerating process. Reasoning by analogy it is the same with domestic animals. There are more deaths among well bred colts from pampered ancestors than among the colts of Indian ponies that are half starved; and on the other hand it can be said, that the wisely managed, well bred horses are the most vigorous of the equine breeds; they live to old age, are impressive and fecund, and their progeny are hardy and vigorous.

When the mare is pregnant she needs more than the ration of support for herself, and requires different nutriment than she otherwise would, and different handling. The embryo horse must be fed through the ration of the mare. Its bones and muscles and tendons and skin and hair grow, and get nourishment through the feed of the mare. Nature shows us object lessons here. The pasture gives the proper nutriment, and brood mares thrive best on green grass, and bring the healthiest colts. The winter season is the dangerous time for the pregnant mare, if she is kept indoors.

Corn is the fattening cereal of America; it has no rival in stuffing the tissues with fat, but nature never offers a ration compounded as corn is, to any young animal. There is not enough of the bone and muscle making material in corn to grow the fetus. The steer will fatten on corn alone if you give him enough of it, so that he can get what protein he needs; he will waste the surplus carbohydrates; if you add oil meal he will waste less; but the pregnant mare tied in a stall with a colt to develop must eat what you give her.

The milk cow needs a different ration from the feeding steer. He will lay on fat with one part of flesh formers to seven or eight of fat formers; the milk cow has a different product to make; nature designed her to suckle a calf and give milk, and for this purpose she needs one part of protein to four or five of carbohydrates. The mare has the same requirements as the cow, and her requirements during pregnancy are quite similar to these after foaling. When the pregnant mare foals in midsummer, after being on grass, nature gave her the proper rations. Young grass has one-third to one-fourth or one-fifth of the flesh formers, or protein or nitrogenous matter. During winter the pregnant mare needs something succulent. Roots are good for her and the coming colt, if fed wisely. We fed at the experiment station pregnant cows on oil meal and flax meal, as high as eight pounds a day to a cow of each, after a gradual increase. None of the cows were injured in the least. One cow dropped a calf weighing 108 pounds, during the experiment, very strong and vigorous.

I suggest careful trial of a little flax to the pregnant mare or oil meal, depending on the rest of the ration. Oil meal and flax meal are very different in composition.

I need not state that pregnant mares should be carefully handled, no sudden backing, no fast driving, no irregularity in feeding, no slipping on ice, no floundering in snow drifts, no association with kicking companions, no foul smells about the stable, no rough usage, no contracted quarters.

If we do not have healthy, sound horses in Iowa it will be our fault. If the mare aborts, it is our fault. If the colt dies young it is not its fault; we have

failed to study its wants in caring for the dam, or those who had charge of its progenitors entailed early death upon the progeny.

In the discussion which followed this paper, Mr. Cownie took the ground that where abortion occurs there is always some cause traceable to the owner, something in the feeding or care of the mare, or in the care or management of the stallion. It was Mr. Cownie's belief that stallions were allowed to serve too many mares, and the result was seen in the failure of so many mares to get with foal and so many weak, unthrifty colts. One service a day, Sunday's excepted, he thought was as much as any stallion should be allowed to do.

Mr. Fagen, of Des Moines, thought at this rate it would require a long time to pay for a \$2,000 stallion.

Mr. Wadsworth, of Algona, stated that he limited his stallions to two services a day, and they always got 75 to 80 per cent of foals.

Prof. Wilson stated that a stallion might get a good percentage of foals, but if the foals were weak or lacked constitution something was wrong in the management.

Mr. Fagen said stallions had not been overrun lately, and that he knew of cases where stallions had not served over twenty-five mares and yet nineteen-twentieths of the colts had been lost by abortion.

Judge Stubbs, of Fairfield, testified to the same experience in his locality. The mares had either aborted or the colts had died soon after foaling.

Dr. Niles, of Ames, stated that where extensive abortion occurs it is probably due to infectious disease, but that the agent of this disease or exciting cause had not yet been discovered. Experiments are now being made along this line for the purpose of ascertaining.

Treatment in cases of abortion was discussed. It was generally thought best to immediately remove aborted animals to separate quarters and disinfect quarters previously occupied. Prof. Wilson called attention that abortive germs might be carried by a stallion in service from one mare to another, and the disease thus spread.

Mr. N. J. Harris recommended the practice of letting mares run out on pasture during winter, with access to a shed where they might be fed shock corn. Under this management he said 75 per cent of the mares got with foal and no colts were lost.

Mr. A. V. Stout, of Parkersburg, urged the importance of more careful selection of breeding stock, citing an instance of a "Kentucky Whip" mare, and all of her offspring being good breeders, while her mate and her offspring were always unreliable.

Mr. M. R. Saddler, of Mitchellville, thought the abortive difficulty was confined to draft breeds. Messrs. Fagen and Shelden cited cases of extremely heavy losses in trotting stock as well.

The next paper was by Dr. Niles, of the Agricultural College.

# UMBILICAL DIFFICULTY IN COLTS.

BY W. B. NILES.

I have two reasons for calling your attention to the umbilicus of new born foals. 1st. It is not usually considered or recognized by stock breeders (and the same may be said of some veterinarians) that any attention to this part is necessary to the well-being of the young animal. 2d. The most common trouble arising from neglect to the umbilicus at birth and for a few days afterward, is in most cases incurable, but easily preventable if the proper precautions are taken. As these precautions must be carried out by the breeder, it is proper that I make these remarks before this body. The absence in this paper as much as is possible of scientific terms and lack of careful description of symptoms and pathological anatomy is due to the fact that I am not writing for the profession, but for the breeder of our most useful domestic animal, the horse. To begin with let us notice how different the treatment of the umbilicus in foals is from that accorded the same regions in children. With infants the umbilical cord is cut and ligated at birth, after which the region is kept clean and bandaged, and also dressed from time to time with antiseptic preparations, but in foals, no one usually being present at birth, the cord is not cut and ligated, but is torn asunder—many times very close to the body; no pains are taken to keep the parts clean, no dressing of any kind applied, but the ends of the cord is free to come in contact with and be acted upon by all kinds of filth containing pus microbes.

When we consider the bad sanitary conditions surrounding many of our brood mares, we can readily conceive how easily it is for contamination to occur. As a result of this contamination the umbilical cord becomes inflamed; the inflammation process extends to the abdominal portion of the umbilical vein, and suppurative occurs, followed by *septicemia* or *pyemia* and death. This is the umbilical difficulty referred to in the title of this paper.

In my opinion this trouble causes by far a greater loss in foals under three weeks of age, than all other troubles combined. Every spring I see and hear of some of these cases. The past season, judging from reports which reached us from different parts of the State, the loss was unusually large.

While it is often noticed by the owner of the foal that there is a discharge of matter from the umbilicus and perhaps some swelling present, the resulting general symptoms, and fatal results are not connected by him with the local trouble.

The same may be said to a certain extent of veterinarians, and hence we find in veterinary literature the subject treated of under different names. Prof. Williams

of Edinburgh, Scotland, calls it "scrofulous ostitis of foals," and in his description of it makes no mention whatever of the true cause. By some it is described as specific *arthritis*, from the fact that it often appears to be a specific joint disease. A common name in some places is "joint ill." All observing breeders are aware that after birth that part of the cord remaining attached to the foal should soon become dry, shriveled and hard, and eventually drop off, leaving the umbilical opening practically closed. Instead of this condition of the cord we have, when inflammation occurs, softening, tumefaction, and the formation of pus. The remains of the cord soon drop off, leaving an opening into the vein. The coagulated blood filling the vein becomes infected with pus organisms, and pus forms along the course of the vein as far as the liver. Serious results now follow from the entrance into the general circulation of the organisms or their products. Death usually soon occurs from what we call *septicemia* or *pyemia* (blood poisoning). In many cases the local symptoms are not noticed and the colt is supposed to be doing well until it begins to appear dull, with loss of appetite, and perhaps breathes faster than natural. In some cases the first thing noticed will be well marked diarrhoea. When death does not occur quickly from *septicemia* or *acute pyemia* important organs become involved and the case is really one of chronic "blood poisoning" (*pyemia*). Abscesses form in the kidney, liver, and in the region of the joints. It often happens that the first indication of trouble is that the foal has been suddenly taken lame and is found with a swollen joint. It comes on so suddenly that the owner supposes the mother has in some way injured it. The inflamed joint suppurates, other joints become involved, and eventually in most cases the animal dies.

*These results of inflammation of the umbilicus should convince anyone that that part of the new born foal should receive careful attention.* In infants this attention is given by the physician in attendance, and the subsequent care by others under his direction. In lower animals, as no veterinarian is usually present at birth, this care and attention devolves on the owner of the animal. I stated at the beginning that the trouble under consideration was preventable. I will now endeavor to point out how this can be done.

In the first place, I would advise that the mare about to foal be kept under surveillance so that the time of foaling can be known and such attention given as the case demands. In normal labor but little attention is of course needed, but it sometimes happens that the life of a foal may be saved by removing the membranes from it when it has been born in them. It is also of advantage to learn early if any obstacle to birth exists, so that if necessary the veterinarian can be called at once; and last, but not least, the cord can be cut (and if there be much hemorrhage ligated) about two inches from the umbilicus. This saves it from being torn off close to the body, and thus lessens the danger of inflammation of the abdominal portion of the vein. After birth the mother and foal should be kept in clean quarters. Especially should damp, imperfectly drained stables be avoided, the object being to keep the umbilical region dry and clean; no pains should be spared to secure that end.

In addition to the attention received at birth, and the placing of the mother and offspring under good sanitary conditions, the cord soon after birth should be bathed with a solution of carbolic acid—about one part of acid to two parts of water. The acid has a two-fold action; it destroys organisms which may have already come in contact with the parts, and also causes the cord to quickly become dry and hard. I consider carbolic acid the best agent to use on account of the drying effect which it has on the tissues. The acid should be applied more than

once—I would advise washing the parts at least three times—but the wash need not be so strong for the applications following the first. It can be applied to the best advantage if the coat be thrown. Care should be taken about letting the strong solution run over the skin, as it will cause more or less irritation.

This washing of the cord with the carbolic solution is by far the most important feature of the preventative treatment and should not be neglected, especially in certain seasons, and when it is necessary to keep animals in bad quarters this alone will prevent most cases of inflammation of the cord and its resulting complications, whether the young animal has been left under bad sanitary conditions or not.

It may be asked what caused the unusually large number of cases such as described the past season. I would answer that a dry, warm atmosphere favors the drying and hardening of the cord previously mentioned, but that a cold moist atmosphere retards the process and thus the cord remains in a condition easily acted upon by the organisms of disease. Last season we had continual cold, wet weather, which I think largely accounts for the loss. This loss no doubt could have been largely prevented by the treatment indicated above.

\* What has been said in regard to foals applies equally well to calves and other animals.

In response to questions Dr. Niles discussed quite fully the nature of this trouble and the importance of timely attention.

At the conclusion of the discussion following this paper the Association adjourned to 7:30.

#### EVENING SESSION.

The evening session opened with a paper by Phil. S. Kell, of Des Moines, on "The American Trotting Horse as a Coach Horse."

#### THE AMERICAN TROTTER HORSE AS A COACH HORSE.

BY P. S. KELL.

About 1788 Messenger, among the first horses imported to America, landed at Philadelphia. Many breeders are proud, even to-day, of the fact that they own trotters whose blood lines trace back to that noble, grand and illustrious sire. Ever since that time the American horse fanciers have been breeding speed horses. Naturally some fancied the trotting gait, others the swift running gait. The latter gait, unquestionably at that early period, was the more popular. The former, however, due to the fact, without any doubt, that the American trotter's usefulness is not alone confined to the race course, has become more popular and forms to-day one of the leading industries of this country.

To begin with Messenger and trace the history of the trotting-bred horse in this country to the end of the season of 1892, which Nancy Hanks closed by trotting in 2:04, would, I fear, require paper writing on the pneumatic tire plan. Turf history (reliable, of course, perhaps turf reminiscences by some of the older knights of the

sulky would be better), informs us that Flora Temple actually sold once for \$13; the great mare Princess, dam of Happy Medium, sire of Nancy Hanks 2:04, only brought her breeder \$40; Abdallah 1 once drew a fish peddler's cart; Goldsmith Maid, the fiery daughter of Abdallah 15, sold at one time for \$100; Ethan Allen, at ten years, brought \$35; Old Columbus tramped a leg in a brick yard, and Andrew Jackson was foaled in one and saved, being a cast off, by a merciful woman; the sire of Barus delivered beef steak, hitched to a butcher's wagon (that was before the time of Armour & Co.), and the dam of Green Mountain Maid, ground apples in a cider mill. Wouldn't Arion, for which Col. Forbes paid \$125,000, and Stamboul, recently sold to Mr. Harriman, of New York State, for \$41,000, laugh, if they could read English. Has the human family accomplished more? Can it claim superior advancement? We are told that there are yet in remote districts in this great country places where an ox and one of Balaam's equine descendants test their motive powers side by side in a team. Is there a horseman, a business man, is there a citizen of America to-day, when he looks at the advancement made in the science of breeding, unwilling to congratulate the men of renown who have been foremost in producing on the American continent a type of horse superior to that of any country on the face of the earth?

The grand breed of horses known in this country to-day as the American trotter or standard-bred horse may be the result of the growth of sport. If so, can it be said in justice to the breeder that his love of sport has been ruinous to the country? Is the breeding farm, is the 2:04 record of Nancy Hanks more dangerous to society than the gun club, the field trial, the "church trial," or the bench show? Morality is not measured off in furlongs on a kite-shaped track, shot out of a gun, nor tread by a trained 'coon dog. Are you entirely sure that the love of sport does not lurk behind the growing demand for a typical coach horse in America?

My farmer friend's love of sport may not find time to assert itself, but his object in breeding the draft horse, road horse, or coach horse is to supply the demand. Where shall we turn for the demand? To the large cities. Who buys the coach horses? The young business man who enjoys a wholesome breath of air out on the boulevard after business hours, with a few companions in a trap behind a pair of proud-stepping coachers.

The restless energy of the American people is not born of idleness, which, it is said, develops evil. The horse is a delicate piece of machinery, yet his development has kept pace with any of the other large industries of the country. As a live stock industry, the breeding of standard-bred horses to-day, in point of prominence and value, ranks higher than that of any other live stock industry in the world—the noblest of the equine race, the American trotter, stands before the people of all countries, superior and without a parallel. The foreign blood potent in his veins is turning back to replenish the fountain head considerably at an advance of what it cost us. The American trotting-bred horse is a naturalized American citizen and no true American citizen will offend his horsemanship by asking him to give up his comfortable 16x20 box stall to any imported bred.

The question of an American coach horse has formed a theme for discussion in the annual meetings of nearly every horse association in this and sister States for a number of years past. More or less prejudice, at times, was manifest against the trotter in many of these meetings, not so much, we think, because the trotter was despised, but because "imported" sounded better. The trotting horse breeders did not waste any time in trying to destroy any prejudice of this kind. Instead, they kept right on nursing their unprotected industry, carefully studying

and applying the science of breeding until the product of their labor has grown into an industry, the commercial value of which has no equal in the world.

I am willing, in order to save time, to admit that the American trotting horse originated somewhere. Some persons claim that he is a descendant of the English thoroughbred. Other persons claim that if Messenger had never danced down the gang plank of an English vessel at the Philadelphia dock we never would have had a trotter.

If Columbus, aided by the queen of Spain, in 1492, had discovered some other country instead of America, the people of the whole world to-day would not be preparing to visit the World's Fair in 1893. But Columbus nor Queen Isabella did not build Chicago. It is one of the proud achievements of American enterprise. The American trotting horse is purely the product of American labor, and he is not indebted to any foreigner for the proud distinction he has attained.

The value and popularity of any breed of live stock lies in its ability to perpetuate its kind and reproduce itself.

Prompted by a desire to excel in point of speed as well as add money value to the product, the breeder of the standard bred horse discovered that he must breed to the sire that could reproduce himself and also transmit speed. If he failed to do either of these and was able to produce good individuals he was still valuable as a stock horse. When a sire produced speed he was bred to for speed; when he produced good individuals he was bred to for that. If he failed to produce speed or individuality they quit breeding him and he was imported to some other locality and sold as a "standard and registered" stallion.

America has been importing coach horses a good deal longer than she has been establishing the standard bred trotter. Have we any other breeds in this country to-day as distinct a type?

Not many years ago there was foaled at the famous Woodburn breeding farm in Kentucky, a colt by the prominent sire Belmont. Robert Steel, of Philadelphia, purchased of Mr. Alexander that spring the entire product of Woodburn yearlings, among the lot this colt, being Warlock; his dam Warwitch, the most famous of trotting matrons, and her sire Pilot Jr., one of the leading trotting sires. The colt for a number of years was never heard of; where do you suppose he was? Why some Englishman came to America and took him over to England and had him registered in the Hackney Stud Book as a "pure-bred" Hackney. His five ounce trotting shoes were replaced with forty-five ounce Hackney shoes to give him knee action. The English, it is said, were a little shy of the new Hackney stallion and did not give him much patronage. A few years later when the Belmont blood began to reproduce itself, that shrewd Kentucky breeder, John Madden, shipped over to England, purchased the Hackney stallion Warlock by Belmont for \$10,000 and brought him back to America. He was soon resold to S. A. Browne & Co., of Kalamazoo, Mich., for \$15,000, who now own him. I do not blame our foreign friends for trying to make a Hackney out of him because he is as fine a specimen of horse flesh as one might wish to see. It might improve some of the other breeds to export them from America before importing them. I am inclined to look at it about as follows: Our foreign friends have been trying for nearly five hundred years, perhaps more, to establish a breed of coach horses. History states that up to 1838 the Cleveland Bay was the adopted English coach horse. He did not stop high enough to suit the English gentry and he was abandoned for something more fashionable, and these gentlemen began to develop a coach horse by crossing the Norfolk horse and Yorkshire trotter, so says a writer, and later it was declared

that the Norfolk trotter had transmitted the desirable qualities to the French horse and the French coach breed was established; and still further along in history some one discovered that the Norfolk and Yorkshire or Hackney were found to have the most substantial claims as to a distinct breed tracing back to eclipse. Instead of adhering to the law of science, our friends over the water have followed the whims of fashion and every time the fashion changed England had a new breed of coach horses to sell. Too many of our agricultural districts to-day are trying to raise coach horses by crossing the Englishman's fashion hobby horse on the Frenchman's Norfolk trotter. Did you ever hear of an Englishman panning off one of his Norfolk trotters with a Hackney out-cross on Budd Doble or John Splain? On the contrary, one of John Splain's recent purchases was Lady Duroc 2:31 1/4, a Polk county mare, to send across the pond. Hundreds of others have gone over and more are going.

I do not assume to advise farmers or others to undertake the breeding of trotting horses, but the use of the trotting horse is not alone, as a great many people suppose, limited to the turf.

What better foundation have you to-day for an American coach or road horse than the American-bred trotter? His blood is purer than that of any other breed now in this country, and if any other country has any better we will be pleased to yield the medal this year, but not until the score cards are footed.

The American trotting horse has size, action, beauty, style and speed. He has all the qualifications that anyone might desire. He has tireless energy, will power, good bone and muscle, is spirited and game. He is a horse for the sporting man, the business man and the clergyman; what more do you want?

Many of you will recall the fact that a few years ago the English breeders, or the English government, sent a commission of English gentlemen over to this country to inspect the American type of trotting horses. I cannot recall the time, nor do I remember how extensive they made the investigation, but I do recall the fact that among other horses examined was the trotting sire, Mambrino King. He was pronounced by them a model horse, the handsomest in the world. His size, style, conformation and individuality filled all the requirements, withstood the test, and he was pronounced faultless. The Hambletonian blood in this country (but it can't all be traced back to the "Old Hero of Chester") is certainly famous. Crossed with the Mambrino blood it should produce a coach or road horse to suit the most fastidious.

The draft horse breeders of America, I believe, are on a better basis than any class except the breeders of trotters and runners. I believe we have in America to-day the best of material and plenty of it to establish a typical American-bred coach horse. I believe the foundation can be laid by commencing with the trotting-bred horse. What more do you want than size, style, beauty, intelligence, stamina and the best of trotting action? The trot is the coach horse gait. Can any one imagine anything finer than the frictionless motion of the pure gaited trotter?

His blood contains a less percentage of foreign infusion than any other breed in America. The American draft, coach and thoroughbred breeders have been constantly adding foreign blood. No foreign country ever succeeded in breeding trotters. The trotting horse breeders, aside from a dash now and then of thoroughbred blood, have succeeded by inbreeding and out-crossing in developing a type of horse superior to any of the others.

What better recommendation could any one demand to engage in the business of breeding American coach horses?

The trotting horse has distinguished himself above all others. In gaining this distinction he has been aided by the energy and ingenuity of the scientific breeder, the skilled trainer and the artistic shoer. If science and skill has raised the American trotter to the highest pinnacle of fame as a turf horse cannot this same science and skill succeed in producing a coach horse? The mission of the coach horse is more closely related to that of the light harness horse than any other class of horses, and why should it be so serious a matter to bring them together and establish a breed? I am not opposed to the infusion of foreign blood occasionally, but promiscuous breeding to every breed imported will never produce a distinct type of any kind. The foundation of a typical American coach horse must be laid for the purpose of improving the breed, with a view to developing a product that will fulfill the requirements. Speculation must be a secondary consideration until the experiment has proven satisfactory. I believe the experiment can be tried at less expense to the country and in less time by taking the American trotter as a basis than by taking any other breed.

My candid opinion is that a system of better country roads, better paved streets and more driveways in our cities will very materially aid any breeder in this country who undertakes to establish a breed of coach horses. Give me a boulevard a mile or two in length and one hundred feet wide leading out into the country, from every city of any importance in the country, and I will show you coach and road horses by the hundreds, as fine as ever set foot on the ground. A better system of roads will create a stronger demand for coach horses and road horses than the purest blood that ever coursed through the veins of any type of horse. The present movement in the direction of better roads, which is now attracting the attention of nearly every State in the Union, was started by the wheelmen of America in order to keep up a demand for the products of their shops. If the breeders of the country expect to keep up a demand for their products, they should join in the movement in such a way that their influence will be felt.

The trotting bred horse achieved his distinction on the turf because the breeders have expended thousands of dollars building suitable race tracks for developing speed, without which he never could have succeeded. Success in breeding coach horses in this country for family and pleasure horses will be slow until we prepare suitable roads and drives. When that time arrives the American coach horse, tracing back to the American trotter, will be on hand to draw the coach without the assistance of any imported equine.

#### DISCUSSION.

Parley Sheldon, of Ames, said the coming coach horse of America is to come from the American trotter as the foundation. Mr. Sheldon said he had yet to see the first pair of ideal coach horses, the produce of any sire of the so-called coach breeds.

Mr. J. E. Fagen, of Des Moines, then discussed expert judging, as follows:

#### EXPERT JUDGING AT FAIRS.

BY J. E. FAGEN.

In the beginning God created man. In the end He will redeem him, if he is worthy.

Doubtless there is not a person within the sound of my voice who has had any experience in exhibiting stock at fairs, who has not at some time or other, seen great injustice done, not only to exhibitors, but to fair associations, by incompetent and unscrupulous men being selected to award premiums—men, perhaps, who had never owned an animal of the kind they were expected to pass upon—men, who when brought into the show ring would look at the animal once, and the owner twice, and the fact is, the animal had just as well been left in the stall and their owners been brought into the show ring, as far as justice is concerned. We look away back in 1851, when the first fair was held in Polk county. It was held on the court house square where the court house now stands. Buckskin breeches, beaded shoes, red blanket, war paint, and a few porcupine quills constituted the wearing apparel of many, if not a majority of the inhabitants. The fine art hall was conspicuous by its absence, but the floral department was immense and extended for miles across the broad prairie and through the dense hazel thickets and briar patches, over the wooded hills and into the tops of the tallest trees. The farmers from all the surrounding country brought their fine animals and farm products on the ground in the forenoon, and after arranging a few work benches, wagon boxes, dry goods boxes, wheelbarrows, washtubs, dishpans, and last (but not least, by any means), rail piles upon which to spread the products of the soil, the arrangements were declared complete. At 1 o'clock the officers, consisting of Dr. T. K. Brooks, Dr. P. B. Fagen, Uncle Tom Mitchell and Judge P. M. Cassidy, declared the fair open without any long speeches or melodious notes from the brass band; after which the committee proceeded to the laborious task of awarding premiums. The most difficult task was testing the strength of the many yoke of oxen entered for the honors. This was done by hitching the yoke at a time to a huge saw log and seeing which team could drag it the farthest on the bare ground without stopping. The horses were tested in like manner, and after a hard tussle of the various committees which lasted for about three hours, the premiums were all awarded, the fair was declared over, and everybody went home feeling that the greatest event in the history of Des Moines had just passed, and everybody was happy, not realizing that they had lost anything, or that anything had been left out, in the absence of the horse trots. In those days there was not much competition in the exhibit of live stock, for nearly all animals of the same breed were alike scrubs, but a little later on when better blood began to make its appearance the farmers

began to grade up both by breeding and feeding, and the competition in the show ring became more apparent. But still the same old fashioned unsatisfactory way look at the animal once, and the owner twice, and the exhibitor who chanced to have more influence in getting judges appointed was sure to be most successful in the show ring, and he, and not the animal, carried off the blue ribbon.

We had a little experience in the beginning and were wiser in the end. Our first exhibit was in the swine department. We had a fine young Berkshire and only had one competitor. One of the judges was a banker. The other fellow got the first premium and our pig got the second. It reminded us very much of the boy's first day at school. When he went home in the evening his mother asked him how he got along at school. Oh, very well, was the reply. Well, were you ahead in your class, my son? No, but I was next to head. Ah! indeed, that is doing well; and how many were there in the class? Oh, just me and another girl, was the reply. But we as a new beginner took the liberty to ask the banker judge in what respect the other pig was better than ours. Well, said he, it is thicker through the shoulders. That was right, too, for it was. But in the exhibit of Poland Chinas we had two pigs, and one of the judges was a pork packer; and after the blue ribbons had been given to the inferior pig (in our judgment) we asked Mr. Porkpacker why that pig was better than the other. Well, said he, when we packers buy hogs we pay as much per pound for one part of the hog as we do for the other; but when we sell our meat the sides and hams are the high-priced meat and the shoulders the low priced, and hence we want a hog with small, thin shoulders, broad sides, and deep, heavy hams. And his reasons were good, notwithstanding they were directly the opposite of the reasons given by Judge Banker.

But a little later on when the best draft and coach blood of the old country began to be brought in and the standard of our horses brought away up, the competition became greater, and hence the necessity for the best judge of horseflesh, and the old committee ways became very unsatisfactory; and still a little later on a so-called expert judge put in an appearance, and he too often happened to be some local horse buyer, who, by the way, may be an excellent judge of horses for the market, and yet, never having had any experience in breeding and raising horses, would have but little idea of what a horse or mare should be to make a profitable animal for breeding purposes; and since nearly all horses exhibited at fairs are kept for breeding purposes and should possess individuality, yet many horses of a plainer type may be more preferable for breeding purposes. As an example, take a seemingly perfectly formed coach stallion weighing 1,200 pounds, would not be considered as valuable as a breeder or show ring horse as one weighing 1,500 pounds with a little less finish, and our experience and observation has been to take a coach stallion weighing from 1,400 to 1,500 and cross with good, lively, active mares weighing from 1,000 to 1,200 gave better results than to take the same stallion and cross with mares weighing 1,500 and upwards. So in order to be able to judge any breed of horses reasonably well, one must have some knowledge of their breeding and their powers to transmit. Since each pure breed of horses has to a certain extent a distinct type, take as an example the German coach stallion, they all look as if they belonged to the same family or breed of horses, and the same may be said of the English Hackney and many of the other breeds. One of the first and most important things for a judge is that the horse brought into the ring for his inspection belong to the class they are entered in. This he should be able to do at a glance, and if they do not he should pass them

by unnoticed or send them to their stalls. Take as an example, the general purpose, ring or class—this seems to be the general dumping ground for all horses not admitted to other classes—and you will often find horses in this class ranging in size from the broncho to the 1,800 pound draft, when in reality it is a class that belongs to the coach breed, or the coach breed belongs to it, and the real, right-down general purpose is, in my judgment, the best horse that walks on four legs; they fill more places and fill them with a snap that no other horse does or can do. They are a horse that the stallion should stand about 16 or 16½ hands high, have clean-cut, bony head, broad and flat between the eyes, small ears, tapering arched neck, deep through the chest, round-bodied, good loin, well flanked down, long hips, high-set tail, large, strong hocks, clean, heavy bone and good feet, and should weigh from 1,400 to 1,500 pounds, and should be full of life and good movers. The mares should be from 15½ to 16 hands high, well formed, full of life, good action, and weigh from 1,200 to 1,300 pounds.

A little less than two years ago, we were employed by the Northwestern Livestock Insurance Company to go to Illinois and work livestock insurance. This brought us in direct contact with the best horsemen and the best horses in the state, and every day in the week (excepting Sunday). During the first fall we attended between fifteen and twenty county and district fairs, and the second year about the same number. Our experiences were immense, and our observations unlimited. One of the first fairs we attended, on entering the show ring they were just showing the all-work class for mares. In this class was everything one might imagine, and among the rest was a span of well-matched 3-year-old fillies that stood fully sixteen hands high and the making of a beautiful carriage team, but clear out of it as an all-work. But the judges tied on one of these mares and a black mare that stood about fourteen and one-half hands high and weighed about 950 pounds, and in voting off the tie the 3-year-old sixteen-hand filly got the first place and the black the second, when it was very plain that if the sixteen-hand filly was entitled to the first place her mate that stood by her side and as near like her as one silver dollar is like another was entitled to the second. And all the black mare needed was the bucking qualities and an application of the branding iron to convert her into a fairly good broncho. While they were two other animals in the same ring that did not even get a good passing notice that were entitled to the first and second places, which were afterward demonstrated to our own personal knowledge and satisfaction at three different fairs. At another fair in the draft ring, which admitted all draft horses, the first place was given to the second horse in the ring and the second place to the fifth horse in the ring, and at the same fair in the sweepstakes class shown without off-spring the third horse was awarded first place, and it afterwards leaked out that one of the judges had said to the other judges before entering the ring, that Mr. So-and-So must have the sweepstakes, and when he was accused of it, he never attempted to deny it. And, again, at the same fair called the general sweepstakes class (a class by the way that no fair association should ever have) the premium to go to the best horse in his class, and to our astonishment the premium went to a half-blood Clyde stallion that stood about seventeen hands high and weighed about 1,350 and would not have sold for more than \$200. And in this class was nearly all the different draft and coach breeds, and standard and thoroughbreds, and many of these horses would have sold under the hammer, or any other way, for more than five times as much as the horse that got the prize. And, in the class just mentioned, was a beautiful black Percheron that weighed over 2,000 pounds without a blemish, and scarcely a fault,

a horse that the fall before had taken first prize at the Illinois State fair, and was by odds the best horse on the grounds, and he barely received a passing notice. We might go on and enumerate dozens and dozens of such cases, but this is sufficient to show the injustice and unsatisfactory ways of the committee of judging at fairs. And, again, you will find at all fairs exhibitors who enter their stock every place there is seemingly a chance to get a prize. And with incompetent judges they are as likely to get a prize out of their class as if they were in their proper classes.

Take the draft classes, and nearly everybody knows what a draught horse is, and it does not take much of a judge to pick out the best horse in the ring. But take the all-work class and the roadster class, and in my judgment they are the two hardest classes for a judge to handle, for the reason that they both require so much weeding out, but once the weeding out is done, the battle is half fought. The roadster horse like the coacher, their looks add greatly to their value. They should be handsome, they should be beautiful, they should be just immensely so. They should be proud—proud as a young soldier with his first new uniform and on his first dress parade; proud as the young rooster with his first spurs; proud as a peacock with a full tail; yea, as proud as Lucifer. And, in our judgment, no man is competent to award premiums in any show ring who simply attends his own county or state fairs, and who cannot tell at a glance upon entering a show ring the animals that belong there, and also be able to tell why, or in what respect one animal is better than another. And if a man is a judge of horses, it is not much of a task to pick out the best horse; but if he is not a judge, he may have a hard time of it, and then be mistaken in his choice. But one thing is certain, the more a man gets out among horsemen and horses and fairs, the better he is qualified as a judge of horses. And the time is coming, and coming quickly, when all animals in the show ring will be passed upon by experts. Men who know what to do, and then do it without fear or favor. Looking only to giving to the poor dumb brute that which he is justly entitled to, and to the building for himself a name for honesty, uprightness and intelligence; and the sooner fair associations take to this way of awarding premiums the sooner they will give satisfaction to their patrons and build up their fairs. Our plan of passing upon horses is, to first have them pass by broadside about three or four rods away, first in the walk and then in a trot, passing this way until you are satisfied. This gives a chance to get a general outline of the horse, and you see them as everybody sees them on the road and other places. This gives a chance to judge their action, style and beauty. Then have them pass to and from you in a walk and trot, and after this is done and you have a note of it, draw them up in a line and do your close inspection, but never be afraid of testing their action too much. Be thoroughly convinced in your own mind as to which is the horse for the different places and then if called upon you can give your reasons why one horse is better than another.

#### DISCUSSION.

Mr. Goodrich, of State Center, strongly advocated one competent judge. Honest, fearless judging was more likely to be received from one judge than from three. Three judges often render a compromise decision.

A paper on "What the Market Demands," by John S. Cooper, of the Union Stock Yards, Chicago, was then read by Mr. J. W. Wadsworth, of Algonia.

#### WHAT THE MARKET DEMANDS.

BY J. S. COOPER.

The horse, generally speaking, is man's greatest friend. In the barbaric ages when the pursuits of peace were unknown and petty jealousies between reigning monarchs led to daily conflicts for supremacy, the horse played an important part. We read of them in those desperate assaults upon solid squares of glistening steel, displaying almost human intelligence, dash and courage, and we see him after the conclusion of a victorious siege bear his lord and master home triumphantly, with head erect, half conscious of the important part he played.

But it is in the peaceful struggles that the real worth of the horse has been established. Within the recollection of many, before steam railways were operated, the horse was practically the only medium of travel, and the only means through which the interchange of commodities could be made.

In Europe, especially France and England, the draft and coach horse have been raised to a high standard of excellence. In France particularly, under a system of paternalism the government has protected, fostered and cared for under strict veterinary inspection all colts and fillies of quality and breeding, and prevented under severe penalties the propagation and breeding outside the charmed circle. In England the same end is sought to be accomplished by individual pride and ambition but without power to impose penalties for its infraction.

Here, in our own country, it is a system of evolution, dating back but a few years, utilizing such mares as we had regardless of their ages, quality, temper, or in many cases of their soundness. It may safely be said, however, that a general improvement has been effected—in some of the older sections a very marked one. It is, however, frequently commented upon here where vast numbers of horses are handled daily, that few, in fact a very small percentage, possess shape, bone and quality.

And this brings me to the point to be analyzed, namely, which breed is best adapted for the requirements of this and other markets, will meet the readiest sale and command the highest price. The title of your association gives the answer, namely, draft and coach horses.

In all large centers of commercial activity teaming is conducted on a scale of great magnitude, and the demand for draft horses from sixteen to eighteen hundred pounds is ever in excess of supply. It would hardly be politic for me in a paper of this kind to indicate my own personal preference, or the one which the trade, reflecting as it does, the consumer's requirements, always seek and quickly buy, but it is sufficient to say that early development, strong flat bone, good feet, compactly built horses with good dispositions are the prime essentials. The demand for coach horses is constantly on the increase, and the supply is both small

in volume and inferior in quality. It seems like a parody on "taking coals to Newcastle," to mention that for the past three years there has been a large demand from Great Britain for this class. The supply is never half adequate to fill home orders although the prices should be an incentive to breed this class on a very much larger scale. It is a conservative statement of fact that more than fifty per cent of the total receipts of horses at the yards sell above \$100 limit, and if we would but stop to think that in round figures 60,000 horses were sold here last year, without taking into account the large numbers that went direct to the several cities of the east, a number it is supposed nearly equal to those received here, one can at a glance see the enormous loss to the farmer and breeder of the west; a loss of say \$100 per head, or upwards of a million dollars per annum. An A No. 1 team of draft horses will always find ready sale at prices ranging from \$400 to \$550. A team of coach horses are worth from \$500 to \$1,000 and find ready sale at these figures if of good color, quality and action. These two, in my opinion, cover the entire field as money makers for the farmers, that will in any market at any season of the year sell freely at a paying price and rid the market of that endless and seemingly inexhaustible supply of ill-shaped, coarse grained common horses for which the farmer expects a high price, failing which he gives Chicago a wide berth and feels that the commission men are allies of the footpads and burglars.

I have here briefly outlined for you, from the practical standpoint of the seller, the two breeds which are always free sellers at good and sometimes high prices, and the supply of which is always much below the demands of the trade.

I trust a discussion of these points may lead to a reform in breeding methods, and I wish your association much success.

#### DISCUSSION.

Prof. Wilson said there was a place for coach horses and other small breeds, but their place was not on the farms. The heavy farm work demanded heavy horses. Mr. Wadsworth thought a good 1,200-pound, trotting-bred horse was better for general farm work.

Mr. Evans, of West Liberty, also favored the trotting horse for farm work.

Mr. Post, of Moulton, said that he was using both at hauling wood, and that it was costing him 25 cents a day in difference of loads to use a light horse.

Mr. Wheeler, of Odebolt, stated that for light farm work the light horse would do, but that he had sixty days' heavy plowing for a good many teams, and that under these conditions it was very rare indeed that a light horse was found that would stand up and do the work.

On motion of Mr. Wheeler the thanks of the Association were extended to Mr. J. S. Cooper for his valuable paper.

The last paper of the evening was by Mr. L. B. Goodrich, of State Center, on "Raising What the Market Demands."

#### RAISE WHAT THE MARKET DEMANDS.

BY L. B. GOODRICH.

It would seem at first thought that this subject was superfluous in the face of the fact that there are so many valuable stock and agricultural journals, and even the press generally bearing upon this point by ably written articles and the daily quotations of the market, which to any thinking man and breeder would seem sufficient food for thought, to awaken anyone to the fact, that unless he was getting top prices for his produce he was not furnishing what the market demands. Pick up the price current and you will notice that nothing sold upon the market has so wide range of prices as the market for horses. I allude to the staple class, and when you go into the price of fancy trotters, you find it still more so. But I shall only refer to the draft and coach horses, for only with them has this particular Association to deal—for the farmers are our breeders.

I say this with all deference to the noble and spirited trotter and other speed classes, for I do love them, and no one likes better than I to get behind a "flyer," and would not be understood to utter one word of disparagement of them. But they must be bred and trained in a scientific manner, which our breeding public has no time or ability for.

This is an age of specialists—and this must be carried into the breeding of horses as well as any other business, to make it highly successful—to breed, one must breed for a purpose. The day of "all purpose" and breeding at random, with no special object to obtain, is gone—I say forever, and hail the day when it becomes a thing of the past.

If this be true, then the first thing to do is to decide for what shall we breed. We all want to breed what we can sell, and when we sell we want remunerative prices. In deciding what to breed, at least two positions confront us, and they may be antagonistic, namely: Our own ideal horse, and the horse that sells well and is sought after in the market. Admitting that the massive draft horse, with clean cut, bony bone and good feet, and the majestic coacher sell well in the market, we turn our attention to them. Either of them may not be our ideal horse. If a compromise is to be made between our ideal horse and the demands of the market, profit will insist that we shall yield to the demands, and expect to realize good prices. This we must do.

When the decision is made, then provide with a foundation of mares, suitable to the purpose of the choice. Get one pair of pure bred mares of the breed of your liking. If you can only afford one, get that; get a foundation in the right direction. It is a fact, however, that every owner of eighty acres of land in Iowa can afford to buy and own one span of pure bred draft or coach horses.

Did you ever think of the grand results that could be brought about if every farmer in the State would buy one span of pure bred draft or coach mares, imported or home bred, but of the purest blood of the selected breed—how in a very few years Iowa would attain a position as a horse breeding State unequalled by any spot on the globe? Their interest would then be identical with that of the stallioner, and the mutual interest increasing every year as the strife grew, to see which could raise the best produce. Then every locality would be furnished with "top" stallions, and the vexed problem of service fees would be no longer a barrier between stallioners and owners of mares.

Life is too short and this age too fast to depend on crossing up from the common scrub to the perfection sought after by the ever restless demands.

Sell some of those common mares and buy the one span of pure bred, and surprisingly soon you will find all the common and cheap ones gone and the farm actually proud of the grand string of fine, stylish coachers or the honest and ever-willing draft horses. But I insist, get the blood foundation, and then stay close to the blood lines, and never leave them until you have again changed the foundation. These blood lines are now well defined. Once they were compelled to interbreed to institute the marked lines, but now we are relieved from that dangerous experiment and the field is open to stimulate and perfect the lines already drawn without calling an antagonizing mixture by introducing the blood of different breeds, which at once institutes strife as to which shall predominate, with results uncertain. None of us now on earth will live long enough to see the limit of improvement and perfection of any and all present standard and well defined breeds of horses. All breeds have their respective points of excellency; select one; make that special; excel in that, and I assure you in so doing you will have what the market demands. If I could impress you, the breeding public, with the absolute necessity of selecting and using the best sires of the breed of their choice, regardless of cost, then should feel that I had discharged a part of a duty which every man who is interested in the improvement of horses owes to the breeding public.

It is surprising how many breed with no fixed purpose in view, and often expect a fancied sire to overcome in one cross what years of careless mating has left.

To close—select your breed, get a pure blood foundation; never deviate from the blood lines of the selected breed; use the best sires of that blood, together with judicious common sense crossing, and believe me, you will have what the market demands.

#### DISCUSSION.

Mr. Stubbs spoke of the grand results that might be brought about by following the plan outlined by Mr. Goodrich, and said that this idea alone was worth enough to amply repay him for attending the meeting.

This paper was one of the most valuable and practical papers presented, but the discussion was limited by lack of time.

The Committee on Nomination of Officers and time and place of next meeting reported as follows:

*President*—D. P. Stubbs.

*Secretary and Treasurer*—C. F. Curtiss.

*Vice-Presidents*—H. C. Wheeler, P. S. Kell, R. Pilmer, S. B. Packard.

*Directors*—Peter Hopley, D. McCarthy, D. P. Stubbs, John Cowrie, L. B. Goodrich, C. F. Curtiss.

Next meeting to be held at Des Moines on the Tuesday preceding the annual meeting of the State Agricultural Society.

#### REPORT OF COMMITTEES.

Your committee on resolutions respectfully report as follows:

*Resolved*, That we congratulate the draft and coach horse breeders of the state upon the encouraging conditions of the market for good horses.

*Second*. That we favor a creditable exhibit of the draft and coach horses of the state at the Columbian Exposition this year.

*Third*. That we request the Veterinary Professors at the State Agricultural College to investigate abortion in horses.

*Fourth*. That we favor a single expert for judging.

*Fifth*. That we favor exclusion of all distinctly bred pedigreed horses from the general purpose class.

Respectfully submitted,

Signed by JAMES WILSON,  
S. B. PACKARD,  
L. B. GOODRICH.

## TWELFTH ANNUAL MEETING SHORT-HORN BREEDERS.

HUMBOLDT, IOWA, DECEMBER 6, 1892.

D. SHEEHAN, *President*, - - - - - Osage, Iowa.  
 C. W. NORTON, *Sec. and Treas.*, - - - - - Wilton Junction, Muscatine Co., Iowa.

## PROGRAM.

TUESDAY, DECEMBER 6, 1:30 P. M.

Address of Welcome.  
 Response.  
 President's Address.  
 Appointment of Committees.  
 How to Feed and Care for the Show Ring.—A. L. HARRAH, Newton.  
 Short-Horns, the Best Breed of Cattle in the World.—R. J. JOHNSTON, Humboldt.  
 The General Purpose Cow.—A. J. BLAKELY, Grinnell.  
 Discussion.

6:30 P. M.

The Short-Horns of Britain: My Observations While There.—A. B. SANDERS, Chicago, Illinois, Editor of Breeders' Gazette.  
 The Short-Horns for the West.—J. R. CRAWFORD, Newton.  
 Paper.—COL. J. J. SMART, Dakota City.  
 Short-Horns for the Dairy.—D. SHEEHAN, Osage.  
 Discussion of questions.  
 Unfinished business.

WEDNESDAY, DECEMBER 7, 8:20 A. M.

Treasurer's report.  
 Enrollment.  
 Exhibit at the State Fair.—O. S. BANGLEY, West Liberty.  
 Paper.—PROF. JAMES WILSON, Ames.  
 The Situation: Its Demands.—HON. L. S. COFFIN, Fort Dodge.  
 Also papers by HON. W. A. HARRIS, Linwood, Kansas; MESSRS. JORDON, McHugh, CAPT. SMITH, and others.

Meeting called to order at 2:00 o'clock P. M., December 6, 1892, President Sheehan in the chair.

PRESIDENT SHEEHAN: We have before us to-day the program of the twelfth meeting of the Iowa Short-Horn Association. We meet by invitation from some town in this State, once a year, and we try and make it interesting, not only for ourselves but for the community in which we meet, and we hope to see many of

the residents of Humboldt county here with us. Our latch string is always out and we are always glad to take them into fellowship; and we, as fine stock breeders and as breeders of Short-Horn cattle, will do everything in our power to make it instructive for you.

The first thing I see on the program is an address of welcome from one of the citizens of Humboldt, Mr. W. L. Smith.

MR. W. L. SMITH: *Mr. Chairman and Gentlemen of the Convention*—Perhaps a little explanation how I came to occupy this position to-day would be in order. About ten minutes ago two of the gentlemen of this town rushed into my office where I was engaged, and said I was wanted at the opera house to make an address of welcome to this body of men. I always like to welcome strangers into the community in which I have cast my lot. I occupy a position to-day where I can speak with experience with reference to the people of Humboldt and vicinity. My citizenship with the people of this community is not of long duration. A year ago the 2d of this month I arrived in this town. I knew none of its people save one, and I early learned to like the people of this town and the people around the town. They extended to me, as they will to you, the right hand of fellowship, friendship, and hearty good welcome to their community. They made me feel in sympathy with them, showing that they had kind hearts and willing hands, and I am satisfied that they will welcome you as they did me. They will welcome any body of men who come into their community for the purpose of doing those things which are laudable and right, whether you be a body of men for the development of the animal kingdom or organized for the elevation of mankind itself. Be your calling what it may, if you are a body of men who intend that your influence shall be exercised for that which is good, that is noble, that is manly, and elevates man and gives him a higher standard, that gives him a better opportunity in the world of bringing forth the products of nature, shall give him more of the pleasures and comforts of life, they will extend to you a hearty good welcome, and in behalf of the people of this town and county welcome you to their community. Yours is an honorable calling. There is no part of the product of the farm more useful, more profitable, more beneficial, than the bovine part of it. Gentlemen, we are glad you are here. We want your meeting to be one of cordiality, of freedom, and when you go to your various places of residence benefited by having been with the people of Humboldt, I also hope that the people of Humboldt and vicinity shall realize a benefit by your having been here. May all your meetings while here be an interchange of thought, an interchange of ideas, and when you come to separate will each clasp the hand of the other and say, "We have had a good time with each other and the citizens of Humboldt." [Applause.]

PRESIDENT SHEEHAN: I see on the program that a response is expected from one of our number. I have the pleasure to introduce to you Mr. B. F. Gove, of Clinton county.

MR. GOVE: *Mr. President and Gentlemen*—I am forcibly reminded by being called upon since I came here, to take this place without any formal preparation, of the position I used to occupy in our school house debates, years ago in our country school houses. Then, part of the program was a five minute speech, which was impromptu, the persons not knowing the subject on which they were to talk until on the floor. Then the subject was given them. I found them very long minutes sometimes. Two years ago, at Oskaloosa, Mr. Wilson, of State fame, was called upon. He took his position on the stage, in his way, which you all know, and remarked, "I received a personal letter from Mr. Wheeler urging me to be at

this meeting. I thought he wanted me because he liked me, but half an hour ago he asked me to reply to this address of welcome." (Laughter.) I have not even had the benefit of a half hour of preparation.

Mr. Smith has told you that the town and county gives you a hearty welcome, which, I doubt not, is true. I was struck, when I came into this town yesterday, with the broad streets of the town, which was indicative of the character and purpose of the men who laid out the streets—they had broad ideas. On further acquaintance with some of your citizens I find that their hearts are in the right place, and they have shown a cordial feeling and done all in their power to make this a pleasant gathering for us.

I will consider for a moment the importance of the question of fine stock, which we are gathered here to discuss. We have history taking us back a hundred years or more of the improvement of the different breeds of cattle, Short Horn, etc., but now we become personally interested in the matter and are anxious as to the outcome.

We have a pride connected with it, to try and excel our fellows. We wish to have stock and have it in such a shape that when people come to see it, we are not ashamed to show it, and I am glad so far as my limited acquaintance goes, when you go to an improved stock breeder, as an individual, to see him or to see his stock, he makes you at home and gives you hospitable treatment. We are now at the end of an important year. Every year there are discoveries made, not only in the improvement of the individual animal, but discoveries made in regard to warding off diseases to animals, which are important to us. A man comes here who has stored in his mind some fact that he has discovered, by accident perhaps; nobody knows anything about it, unless they are told of it through agricultural papers, but associating together here, we get, to use a common phrase, "all there is in it." (Laughter.)

Mr. Buckley, the English historian, tells us that the first settlement of the human race was in the hot climates and he tells us the prompting reasons therefor. It was to receive, as far as possible, the spontaneous productions of nature such as grow in the hot climates, or, in other words, to earn their existence with as little sweat of the brow as possible. When they became too populous to make a good living there, they gradually separated and went towards a colder climate, and with a colder climate received an invigorated energy and spirit. That is true with persons residing in temperate zones and holds true until you get to the Esquimaux. You get into the north part of this State and they will tell you the horses are believed to do better work and travel faster. Up in Minnesota they will tell you they are still better. It is a good climate and a man can work better, the horses travel faster without feeling the fatigue. I was thinking last winter, when the committee reported, that we were going to meet here.

I didn't know exactly where the location was; I had an idea it was in the extreme northwest of Iowa; I was afraid we were going pretty near to the Esquimaux, but I do not see any Esquimaux at all. (Laughter.) Here you have given us a hearty welcome, look human and act human. What better do we want? (Laughter.) I thank you gentlemen for your attention. (Applause.)

Sec'y NORTON: Gentlemen, the next on program is the address of the President, Mr. Sheehan.

MR. SHEEHAN: I have a few ideas which I have put on paper and which I will read to you, but before I read the paper, I will say that we have made an arrangement that the Short-Horn breeders will not occupy all the time. We have swine

breeders, and we have wool growers with us, and we will go into a joint meeting and divide time with the different branches.

(Mr. Sheehan here reads paper, which is received with applause.)

*Gentlemen of the Short-Horn Breeders' Association*—The year just drawing to a close has been a singular one in some respects, both politically and financially. While the nation has been blessed with a fair degree of prosperity, and the laboring men of the country have had as a general thing steady employment and good wages, yet strikes and lockouts were never more numerous, all of which goes to prove that the greatest prosperity does not always bring the most contentment. And I presume it is perfectly safe to say, that in this respect our Short-Horn Breeders are no exception to the rest of mankind. Although we have had no boom in the Short-Horn business, still the most of our sales, both public and private have been fairly remunerative, and a close observer will see signs that will cause him to believe that ebb tide has been reached in the cattle business, and better times are coming in the near future. The one fact alone that for the last two or three years thousands upon thousands of real calves have been sent from sections where such a thing was never thought of before, cannot fail to have a very perceptible effect on the cattle market of the future. Then in most of our cattle raising sections the young heifer has gone to the beef block just as freely as the steer. Thousands of farmers that some years ago were eagerly buying up and saving all the young heifers that they could procure, have for the last three or four years been just as eager to sell or almost give away this kind of stock, and without the cows and heifers we cannot have the steers. When the shortage in the beef supply comes, and when prices boom up to the old time figure, then will come the demand for blooded bulls to improve the beef quality of the western farm stock, which in many sections has been going back for the last few years. In this year of our Lord 1892, we can congratulate the State of Iowa that our herds and flocks are vigorous and healthy, and in behalf of the Short-Horn Breeders of Iowa I wish to extend hearty thanks to Secretary Rusk for his heroic work in stamping out that most dreaded of cattle diseases—pleuro-pneumonia.

The Short-Horn breeders of this State and nation should encourage more of the spirit that has been manifest for the last year, in placing the animal first and the pedigree afterward. What possible good is the best pedigree to be found in the herd books unless you have the good animal to go with it? We should also rejoice that the color craze, which has sent many a first-class animal to the block because of his unfashionable color, and kept, perhaps, some inferior animal in the breeding ranks because his color alone was up to the fashion, is dying out, and the most fashionable of the breeders are beginning to act on the principle that a good animal is always of a good color. I hope to soon see the time when the breeders of Iowa will not discard a good animal on account of his color. When it comes to the most critical test of all, the block, the pail, or the appearance before the expert judge in the showing, then the color cuts no figure whatever. And, speaking of the showing, reminds me that, as usual, the Short-Horns have been capturing the major portion of the prizes at the great fairs, and they are also fighting for first place at the milk pail as well as the block. At the London Dairy Show the best yield of solids was made by three Short-Horn cows, and in competition with several other breeds of cattle.

In our own herd we make a practice of milking the cows that have heifer calves. In the month of October we milked eight cows, and sold 148 inches of cream, and churned at home 41 pounds of butter, besides all the cream needed in a family of

eight persons. And this record was made on grass alone; not one pound of any other feed did these eight cows get during the month of October. All of those cows dropped their calves before the first of June. Now, we think such Short-Horns as these are entitled to be called fair dairy cows. When it comes to the feed lot, in our part of the country the Short-Horns have always been considered the choice for feeders, and although nearly all of the other breeds have been tried, it is safe to say that of all the steers fed in our section aside from the scrub, nine-tenths of them are grade Short-Horns. Last winter we fed on our farm seven yearling steers, twenty-seven two-year-olds and three cows, all high grade Short-Horns except four which were from grade Short-Horn cows and a Red Polled sire. We weighed the lot at 11 a. m. the 6th of January, and again on February 6th, a period of thirty-one days, and the entire lot made a gain of 3,800 pounds, or an average of 103 pounds per head. Their feed was good corn fodder once a day and a lunch at noon, consisting of 100 pounds of oil meal and 100 pounds of succotash, a mixture of wheat and oats. The next month on the same ration they made a gain in twenty-nine days of ninety-one pounds per head. We sold the lot some time in March, and kept no detailed account of their gain after the last weighing, March 6. Now we fed those cattle at a profit, and while there certainly has been no fortune in the cattle business for the western farmer during the last few years, yet I firmly believe that at no time has it been impossible to raise cattle on our western farms at a profit, provided that the right kind of cattle were raised.

I have given those results for the benefit of certain live stock writers and journals that make a loud claim for the special purpose animal, and who also claim that there is no such thing as the general purpose cow. And I believe that when it comes to the general purpose cow, the Short-Horn cow has no equal on the face of the globe. To the Short-Horn breeders of this grand State I would say that you can not afford to ignore the milking qualities of your herds. We have grass, the great milk producer, in the greatest abundance. We have corn, the great beef producer, in as great abundance. And there is no branch of farming in this State to-day that is more of a money making business than butter and beef production, provided you have the right kind of stock to start with. It is safe to say that there is no breed of cattle in the world of which the cows are all first-class milkers, still if we would breed our cattle as the breeders of the American trotting horse breed their horses we would not have so many failures in the milking qualities of our cows. If the horseman wants to breed a trotter he uses a sire that is trotting bred and has shown it by performance. Just so if we want to breed milking stock we must use sires from the best milking stock we can find, regardless of color or price. If the Short-Horn breeders would make a practice of using sires from the best Short-Horn milking cows to be found, it would not be long before we would have one of the best dairy breeds in the world. And this is the proper foundation to build upon, as it has been my experience in the cattle and dairy business all the best years of my life, that the Short-Horn cow will come nearer to perpetuating the dairy indefinitely than any other cow, for when her days of usefulness at the pail are over, by feeding her a few bushels of corn she will sell for enough to place a younger cow in her place in the dairy.

Gentlemen of the Short-Horn Breeders' Association, I have not words to thank you for the courtesies extended to me in the past, yet if the business of our Association is to be kept to the front, I think it would be well to have one of the younger members of the Association for president for the ensuing year; and whoever he may be we should all give him assistance in keeping the interest of the Short-

Horns to the front in this, the most prosperous, the most intelligent and the grandest State of the Union.

## DISCUSSION.

MR. COWNIE: I have listened with a good deal of pleasure to this address, and I wish to ask a question. You have spoken about the Short-Horn being developed into a good milker, by selecting sires from good milking families. Would it not be the case if this line of breeding was pursued, would not that be accomplished at the sacrifice of beef producing qualities?

MR. SHERMAN: I have made it a practice never to sell a steer until he was fit to go to market. I have milked cows all my life. I generally tried to get all I could out of them, and get all out of them that was in them, and it has been my experience that as good feeding steers as we had on our farm came from good milking cows. These cows that I fed last year that made this average, were good milk cows; we only fed them sixty days. I also think that the great mistake is in putting the cattle on full feed too quick; and then, after getting them on full feed, feeding them too long. That is where the money is lost. Those three cows were respectively 10, 11 and 12 years old. I think you can have the combination with the right kind of a selection. You take the best male from the best milking Short-Horns. Gentlemen, the hog smells to-day sweeter than he did three years ago, all because there is money in him; but, I tell you, there is nothing in Iowa that will lift the mortgage off the farm quicker and surer than good milking cows. They are the only animal on the farm that you can settle up with every night. Gentlemen, you cannot do that with the steer; you cannot with the hog, I raise hogs; I cannot, and you cannot, without you let them run to grass and one thing or another, but the cow you can settle with every night, and if the balance is not on the right side of the ledger you can sell her most any time, and in her place you can get a cow that will have a balance on the right side of the ledger every day in the year. (Applause.)

MR. COWNIE: I am not differing with the President in regard to the qualities of Short-Horn for milking. There is nothing that he can say in praise of the Short-Horn that I will not agree with him on. The question is, whether in breeding we wish to develop a certain line, or whether we can combine the beef and milk in one animal? I am aware that the Holstein is preferred by some for dairy purposes, taking them as a breed; taking them for beef, they are, to my mind, absolutely worthless, almost as the Jersey; taking the Short-Horn, we can have milk, we can have butter, and certainly beef.

MR. NORRIS: We are living in the corn belt and would it not be best to raise that kind that will bring the most money here? I have a few figures, from memory, of cattle that I sold last spring. My steers were not three years old; their average was 1,540 pounds and they sold at five cents in Chicago last spring. There was little money in those steers at that price. There were two or three of them that were not but a few months over two years old. In the bunch I put two cows. One was a young Mary that I bought nine or ten years ago and paid \$135 for. Those two cows, after making me from \$700 to \$1,000 a piece, became dry and barren and I put them with those steers. Those cows weighed 1,610 pounds each in Chicago. They brought me \$3.75; I think they were good enough to sell with the steers. Those cows brought me \$60.40. I never sold a calf from either of them for less than \$125 or \$175. Now, how long will a man have to milk a Jersey or a Holstein cow and when you get through with her, put her on the market and get the price

of \$90.40 a piece, after their paying from \$125 to \$175 a year in calves? I ask the gentleman that question.

MR. BARCLAY: Gentlemen, I think there is nothing as good at steers in these lines. I have had experience in the direct line in which the gentleman asks his question. You are all aware that of any class of Short-Horn cattle that has ever been imported to the United States, the Cruikshank has been as successful a beef family as any of them. I have been told by men who worked for Mr. Cruikshank and in his herd of cattle, that he made it a rule to milk his cows and make butter from them. He raises a great many of his calves by hand and uses his herd as a dairy herd. I have now in my herd fifteen or twenty of those Scotch cows, and I believe I have never handled any family of cattle that were uniformly better milkers than the Scotch cow.

MR. SHEEHAN: Aren't they pretty good feeders?

MR. BARCLAY: They are the easiest and quickest feeders I ever owned. I know what I am talking about, and am not talking at random. I have had them on my farm for twelve years and know what they are. Some of those cows will not give a great quantity of milk, but it is milk that will make a calf grow one hundred pounds a month, and my experience is that any cow that will raise a calf and grow that calf up to eight or ten months old, at one hundred pounds a month is a good cow. I do not care what she is, and give me a cow of that kind. It would be useless for any man in this audience to undertake to convince me that if that cow is good enough to go with the best society she will find out here at our State Fair at Des Moines and compete with the best cows on the ground, she is undoubtedly a good cow individually and a beef cow. I have an illustration for you. Imported Lovely 43rd was the mother of a bull calf that took the first premium a year ago last fall at the State Fair as the best Short-Horn bull calf, and the sweepstakes as the best bull calf on the ground, and stood at the head of the sweepstakes herd of calves of all breeds. His mother, I think, is as good a dairy cow as is in Wapsinnac township to-day. That is what I call a combined beef and milch cow. I have never tested her and I do not know what her milk will test. I do know she will grow a calf that will grow 1,100 pounds by the time it is twelve months old. He gets a little feed besides what his mother gives him. I depend on my Short-Horn cows altogether for the milk we get to use in our family. We make no butter to sell as a rule. Occasionally we sell a little, but we depend on our Short-Horn cows for that. I only own one grade cow and am feeding her for beef. I mean after this to own only Short-Horn cows. They are good enough for me to milk and good enough for me to raise.

MR. FRANKLIN: And good enough to eat?

MR. BARCLAY: Franklin, that is a foolish question. (Laughter.) Three years ago I had a cow that run on pasture all summer. She got in pretty good shape and I fed her a little to help her out in the fall, from four to six weeks, to sweeten up the beef a little, and had her killed. The butchers made a terrible fuss about it; they said they had to throw half of the beef under the counter. It was not fit for anything. I met several gentlemen in town who got some of the steak out of that cow. They said they wished I would furnish that butcher beef all of the time. They had not eaten such beef as that before. The butcher didn't know what beef was. The patrons could stand it. I don't know whether a sheep man could or not. (Referring to Franklin.)

MR. COWNIE: I do not wish to be misunderstood in this matter. I had no idea of disparaging the Short-Horn breed, for the simple fact that I have never owned

anything in the bull line but a thoroughbred Short-Horn bull in my life and will not use anything else. My friend Norton has asked me the question, which was the best, the Holstein or Short-Horn. That is not the question at all. The idea that I meant to bring out was, whether breeding in a certain line for milk would not sacrifice some of the beef producing qualities, and that was all I referred to. Taking the Short-Horn all through, for beef, milk and butter, I believe they have no superior. I am well aware, taking the Short-Horn for a general purpose cow, they cannot be excelled and for that reason do not wish to be understood as saying anything disparaging to them.

MR. NORTON: We agreed that the sheep men and the swine men should share the time with us.

MR. MURDOCH: I do not want to take up your time here this afternoon, but there is one thing we are all deeply and vitally interested in and that matter was discussed before your Association at Waterloo a year ago, and we passed a resolution praying for our next legislature to make a sufficient and equitable appropriation for an exhibition of live stock from Iowa at the World's Fair next year in Chicago. You are all aware how our last legislature granted our prayer. They did nobly (in their own estimation). Standing here before a class of citizens of Iowa who, I believe, have done more to place Iowa where she stands in the sisterhood of States than any other class, whose pride and aspiration it is for Iowa to shine in the industrial exhibit at Chicago next year and in the live stock exhibits, the next question that confronts us is, how are we able to do that? We have nothing to do it with. It takes money to do that. Every State of importance, in the make-up of its industries, has a proper showing of its prominent industries. We cannot be important exhibitors in the products of manufactures, in the products of our mines, the products of many other things, but we have the resources to make the grandest exhibit of live stock, especially swine, cattle, horses and sheep, of any State in this Union. I would like to hear some ideas advanced on this important subject.

MR. BARCLAY: I move you, Mr. Chairman, that we have a love feast this afternoon, and anybody who has anything to say, let him get up and say it. (Seconded and carried unanimously.)

MR. SHEEHAN: If this is a love feast we do not want to call you out. We want you "fighting" for the floor. That is the way to make it a love feast.

MR. BARCLAY: In one thing I think my friend Murdoch is a little mistaken. At the State Fair there were a few of us had quite a time with the State Fair Commission in regard to this money question for the exhibition of live stock at the World's Fair. They then actually consented to allow the Fine Stock Breeders of the State of Iowa, what they considered a fair proposition, five thousand dollars, for the live stock interests of the State. I want to say if it had not been for a committee from this Association that the appropriation would have been \$25,000 less than it was. That \$25,000 the stockmen claimed was properly there to represent their interests at the World's Fair. Probably we will have a grand exhibit at the World's Fair, but I fail to see where it is coming from.

MEMBER FROM HUMBOLDT COUNTY: A year ago as President of the Humboldt Agricultural Society I attended the State Board of Agriculture as a delegate. I think the Commissioners of Iowa were there with their report before the Board. My recollection is that they asked \$33,000 for the State of Iowa in order to make its general exhibition at the Columbian Exhibition. There was such an awakening in this matter over Iowa being such a great place that I was warmed up and got to

believe that it was myself one of the greatest States in the Union, and I felt into that proposition of the Commissioners, that the State of Iowa should appropriate \$383,000 at least to represent this great State there.

When the vote was taken, it was moved and seconded by somebody that we endorse the proposition of the Board and recommend to the Legislature an appropriation of \$380,000. When it came to a vote I voted for it with all my might "yea."

When I came home I undertook to make a report in our meeting here of what we had done there, and I reported this action and some member says, "Did you vote for that?" I said, "Yes," and I thought for a while they were going to throw me out of the office. Every Board represented there cast a vote for that \$383,000. I have never been ashamed of it, but I tell you I was ashamed of the action of the Legislature. (Applause.)

I do not know that this meeting can do anything. I do not know that this State can do anything. This is a great meeting of the farmers of Iowa to be assembled before the week is through and the sentiment and power of this meeting should be felt and heard. We cannot get any further appropriation, of course, but the world should know and the State should know that the farmers of this meeting think we ought to have more money. (Applause.)

MR. McCLUNG: I took a great interest in watching what the Legislature was doing in regard to that appropriation. I heard some of the arguments that were made. I talked with some people who were not in favor of making the appropriation, who were not in the Legislature. As this gentlemen here says, I found men who thought we were spending too much money. I will tell you how I felt about it. I felt like the old woman who said "they were stopping up the spigot and letting it run out of the bung."

You want to advertise your business. I find that history tells us and teaches us that the men who have done the most advertising have been winners in the end. I felt that the State of Iowa should have done the same thing.

I do not know any way now to get any more money. I do not know that there is any way to get any more. I do not suppose there is, but I do know that the division of the money appropriated is not a just one according to the interests of the live stock people in the State of Iowa. Only \$5,000 for stock out of \$125,000. I felt quite confident that the live stock interest of the State of Iowa was the biggest interest in it and the best for the welfare of the State. I am aware of the fact, also, there are a great many interests to be looked after but it seems to me the live stock exhibit is of the most importance of all and it certainly would be the biggest advertisement of any thing we could do at the World's Fair, and it does seem to me that \$5,000 out of \$125,000 is too small and the commissioners might possibly be reached in some way so as to give us a larger appropriation. (Applause.)

MR. NORTON: I had the honor, the pleasure and the what not to meet this honorable body the Legislature somewhere from twelve to fifteen days last winter at Des Moines. I find these politicians to be men, broad men, liberal men—in some respects they are broad and in some respects they are narrow. They think of their constituency first and themselves last. Says I, "There is only one thing to do and that is to get acquainted with these men as you do all men, and have a little talk with them." "What will you do when you get there?" "I will stand by you, Norton." When the time came to act upon it in the Senate we knew how every man would act upon it, how he would vote, unless he lied to us. There was not but one or two that did. I am sorry to say that the President last year, of this great Association, and when he was instructed to ask for \$300,000.00 we had the hardest work in the world

to get that man to stand up to one hundred thousand. Fine fellow he is, but he says, "My constituency instructed me so-and-so." I says, "Your constituency will say so-and-so, when they find that Illinois has appropriated \$800,000 and Iowa \$100,000." "What will you say then?" Says I, "You are a swine breeder. You go into the ring with a herd that costs you \$500, and your neighbor goes into the ring with a herd that costs him \$1,000 and he is going to win." "What are you going to do when the State of Illinois appropriates \$800,000, and Iowa only \$100,000, what are you going to say to your constituency then?" "They will say you are mistaken, we were mistaken and led you into a mistake. We thought \$50,000 was ample and will limit you to \$100,000." "They will say to you see did not know, you ought to have known better."

We asked the Senate and House to set aside 1½ mills for the World's Fair, which would have raised about \$275,000, but both Republican and Democratic parties objected to that. Said 2 mills was the maximum for all State appropriations, so you see we had to go in and get our share with the different State institutions, the Blind, Insane, Deaf and Dumb, Agricultural College, University, etc., etc., and were really thankful when we finally succeeded (after a defeat in the Senate) in getting an appropriation of \$125,000. So many of our Representatives and so many of our county papers were advocating the small sum of \$50,000 I wrote the chairman of our Stock Commission before I left Des Moines, that in my judgment the stock interest of Iowa should have at least \$25,000. We represented the heavy and expensive goods, the care and labor connected with stock was so much greater than any other industry. But when learning that our commission of eleven men had set aside only \$5,000 for the stock interest, I feared for the exhibit, knowing that one year ago the stock men asked for \$50,000, they would be disappointed; yet we must not be discouraged. Iowa has the stock, and must make a creditable exhibit at Chicago Dexter Park, of all the breeds. It is Iowa's opportunity. We must come up in our might and make our exhibit independent of the small State appropriation.

MR. SHEKHAN: In order to give all the different lines a fair show, I shall call upon Mr. McFadden, Secretary *Poland China Record*, for a few remarks.

MR. McFADDEN: There is one subject in the way of sheep that I should like to hear discussed and that is the proper way or the best way of feeding sheep. I do not know whether we have enough sheep men here that would be interested in that to have it talked. I am firmly of the opinion by my experience that there is nothing so good to feed sheep with as corn. This idea of mixed feed, a change of feed I never liked. I have fed a few lots of lambs that topped the Chicago market every time. I always fed them corn and corn alone and fed them corn on the cob. I think shelled corn is not the thing for sheep, soaked or otherwise. I think the best way for feeding sheep, where you have a clean dry place, is to feed them on the ground. I would like to know whether anyone every tried feeding ear corn in the fall in feeding sheep for market.

MR. FRANKLIN: I have tried feeding ear corn for sheep, both in the troughs and on the ground. I think the feed should be diversified feeding. If they have corn at all, it should be corn fodder. I like that better than I do plain corn. I shall not object to ear corn in fattening sheep. I believe it is a benefit to the sheep, for they will not eat too fast. When they have shelled corn, unless they have all they can eat, one sheep is going to try and get as much down as possible and the one that is the fastest, swiftest and strongest gets the corn. With the ear corn they all have an equal chance, with the exception of the lambs.

MR. BROOKS: Is it best to feed sheep in troughs? Has anybody ever had any experience in feeding sheep in troughs? I would like to ask Mr. Gabrielson if he has ever had any bad experience or any satisfactory experience in feeding sheep in troughs?

MR. GABRIELSON: I would say that I find it difficult to feed sheep corn on the ground any length of time. You have to hunt up a new place and they stand around that place and deposit so much dung that the food becomes unpalatable. I would myself, feed shelled corn in troughs, especially if the troughs are in such shape that you can clean them out. The sheep is a very fastidious animal, and does not relish any unclean food.

MR. GOVE: Is there any danger of sheep being fed so much corn that they are liable to lose their wool before the proper time? and if so, what amount would be proper to feed them?

MR. GABRIELSON: What class of sheep have you reference to?

MR. GOVE: Speaking generally.

MR. GABRIELSON: I have never had that trouble. I make it a rule to feed sheep ear corn while they run on grass. I think when they have abundant exercise and are getting grass and such stuff to go with the corn, they can endure the corn in safety. As soon as they are put off grass feed there must be something different. There must be oats or clover hay, or something of that kind, to take away the heating properties of the corn.

MR. LEONARD: When the gentleman speaks of feeding sheep on the grass, if he has any rule of keeping feed clean, he can come down in the blue grass regions of Southwestern Iowa, where we have sod where we can feed on the same land I do not know how long. You can feed a thousand times in some places as we had the weather last fall, and they will pick up every grain of it. In feeding ear corn, how should it be fed that sheep will do the best on it? Let me say this: When you have thrown out the feed to the sheep and it is on the cob, you will have some delicate sheep—there have been some in all the flocks I ever saw—I mean delicate in their eating. They may have been the very first sheep to the trough, or the very first sheep at your feeding, probably for a couple of feeds preceding. What is the matter? Why, an excess of food. And then they will stand back when they are feeding in the trough. They are not going to come up to the ear of corn so readily. I am satisfied in my own mind that the best way in feeding corn to sheep is to feed it in a trough and have it shelled. Why? Why, because if the sheep are delicate and you want to feed them for market, you want to feed them for all there is in them, and make them pay as quickly as possible. Why, you go out, if you please, this evening, and it is warm, it is sultry, and you will be feeding a certain quantity, and have been; gentlemen, you want to cut that food down this evening; if you do not do it, to-morrow morning, if it is the same kind of weather, those sheep are not going to eat; but if you feed them what is a proper feed, those sheep will eat to-morrow morning, and they will eat it quick and clean. Why? Because they will not eat when it is warm. What will you do if you go out to feed in the morning and find the thermometer at zero? Are you going to feed them the same quantity you fed them the night before when it was warm? It will not be near enough. I know there are men here that have had sheep who know that to be a fact. Suppose to-morrow night, it has been cold during the day, you want to increase the feed and then say the weather changes again and becomes warmer, you want to cut the feed down again. When you throw sheep their corn it is not their business to chew it directly. It is their business to get it down into

their stomachs, and at their leisure they will chew that and they will chew it finer than any animal I know of, that chews grain.

MR. FRANKLIN: I would like to hear that question answered which my friend Mr. Brooks asked, "What disadvantage McFadden had found in feeding in troughs?"

MR. McFADDEN: I never fed corn to sheep in troughs; that is, on the ear. That is what I want to get at, whether any one has had experience in that line or not. I feed sheep for market sometimes shelled corn in troughs. I would rather have 150 bushels of corn on the ear than 200 bushels shelled, to fatten sheep and get good results out of it. My experience has been that in no other way can sheep do as well as running in a corn field with the corn unshucked. I have 275 sheep running in the corn field now, and as long as the weather stays so it is not blustery or snowy so they go in the field, I am going to leave some corn for them there to eat. I think, as far as my experience goes, I can get better results than any one can feeding in troughs. I do not agree with the gentleman before me, who had the floor, in regard to slacking up on feed. I have found in turning sheep out to shelled corn, they will eat it up in two or three minutes. If you feed your corn on the ground—I have not fed in troughs, they will go out; and if they have a quiet place where nothing disturbs them, they will nibble away at the corn if it is lying on the ground. I think it is better to have nice clean water, and they will nibble away the whole day or half a day at the corn—at least while they may chew it again. I think the slower they eat the first time the more good they get out of it. Shelled corn has not been a success in my experience.

MR. BROOKS: I think on that rough question, I am feeding sheep both on the ground and in troughs at the present time.

MR. McFADDEN: Only corn?

MR. BROOKS: Ear corn. It is not a matter of choice, but a matter of necessity with me. I like ground feeding very much the best; that is, we quarter our sheep at night and when the hand comes around to quarter them he does the feeding and of course he can not have it on the ground in their quarters. But, in the morning, we on preference, feed on the blue grass sward in the pasture. The sheep are let out in the morning and fed outside. In the evenings they are put in their quarters and fed in the yards. The only bad experience we have, they throw out more or less corn. There might be some way to prevent that. We have not tried it, but this is the only bad result we have had. They jerk the ear out and it becomes soiled and consequently lost so far as the sheep are concerned and so far as the eating is concerned. In my experience nice blue grass sod is better. They seem to enjoy it and like it better. They feed that way from preference in the morning.

MR. McFADDEN: Have it laying there for most of the time?

MR. BROOKS: No, sir; we aim to feed about what they will want in the morning. I notice they frequently leave the corn before it is cleaned up and go to the pasture, but during the day they run to it and eat up the balance of it. We do not generally have much left and nothing left in the troughs but what is soiled.

MR. CHAWFORD: I have had some experience in years past in feeding sheep, not for the market, but stock sheep. The experience was along in the '60s. I would say in regard to sheep, there is nothing better than shocked corn. I give it to them in their yards. In those days in our feeding we had no blue grass sod at all. We fed in the yards. Of course this was the older sheep. The lambs we separated and fed in troughs, oats or shelled corn, but for stock sheep or breeding sheep, I think shocked corn is the best feed we could supply.

MR. GABRIELSON: I would like to ask how the sheep did upon that shocked corn. What per cent do you think is utilized; that is of the stalk itself is utilized by the sheep?

MR. CHAWFORD: The blades and the fodder was all. It served a very great advantage in keeping their feeding place clean. When you put the fodder on these stalks it kept it very clean all of the time. Of course that includes the ear on the stalks. I have reference to shocked corn unhusked.

MR. DRAKE: I have had some experience. Like the gentleman who last spoke, we fed our corn with the husks on it. Snapped corn we called it. We have had better success in feeding that way than in the troughs.

MR. LEONARD: If I was going to advise my sons to feed sheep I would say to them: When you feed those sheep this morning do not put it off on some other one the next time and some other one the next time. You can not feed sheep successfully in that way. The same man must feed the sheep each and every time. I do not care what they are being fed for—if you are feeding them to hurry them to market—it wants to be the same each and every time. I am only raising the one point. I say the same man should feed the same flock of sheep. He wants to weigh the feed, not in pounds, so much each feed for each sheep, but he wants to stay there until they are done, and if he does not, inside of a week he will have some of those sheep scouring. He has got to stay by them three times a day.

MR. J. D. SMITH: I have had some experience in feeding sheep. I fed one hundred head sometime ago, not a great while. About half of them were lambs that had run with the flock right along. I commenced to feed them, and it was a new thing with me at that time, and I found it harder to get them on a full feed than it was cattle. I had fed cattle for twenty years. I was feeding oats and shelled corn in troughs, and after I got them on a full feed I found no trouble in feeding them and feeding them as I did cattle. I had no sheep scour. All of them seemed to do well. I watched them closely from the first. The lambs and all ate and ate heartily.

MR. GABRIELSON: What would you do if they did scour?

MR. J. D. SMITH: I think I would feed them oil meal and oats with the corn. I think that would keep them from scouring. I had no trouble in getting them to eat and they had no trouble in eating too much. Sometimes, when the weather was mild I would not feed them too much, or I would say as much. I found from my experience in feeding sheep and cattle, when we think it is pretty cold, and it is getting warm they will not eat as much. I am careful not to feed them quite as much. It is getting colder let them have all they will eat. After I got them on a full feed I was not afraid to feed them.

MR. FRANKLIN: I wish to make a few remarks in teaching lambs how to feed and eat, my experience is this. I tried what you would call "lamb creepers." A little creep that the lamb can go through and the adult sheep can not. Have inside an enclosure or pen a trough filled with oats and a little oil meal or bran. The lambs will teach themselves to feed after they once learn to run in there. They will never thereafter depart from it. They never forget it. I bought some lambs this year. When I fed them they came to the straw stack and I carried out some corn in the blue grass pasture. You will see those lambs of ours go to the straw stack but the new ones do not know what corn is. They have not learned to eat.

MR. GABRIELSON: You do not mean you let them go to the straw stack?

MR. FRANKLIN: I mean exactly what I say, because I am not going to have a straw stack only about ten days more and then they won't go to the straw stack.

That will be the end of the straw stack. In feeding fattening sheep I provide nothing but a lot and feed troughs in there. I have two wide gates to the lot and shut the sheep out of there and put in the feed, then I open the gates and let them in. I stay there and milk some cows or do some chores that will take but a short time, when the sheep are through feeding, then I chase the sheep out and close the gates. I take the corn that is left and give it to the colts, or turn the troughs upside down. There is no danger of any sheep coming back and foundering. In the other lot they have clover hay in the rack for them to eat.

MR. GOVE: I am not a sheep man but I am interested in this discussion. The gentleman drops a remark about the liability of sheep scouring. I have been feeding cattle for fifteen years. I found that the best preventive for scouring for cattle is slaked lime; take one-third lime as is sold at the stores, airslaked lime, and two-thirds salt. You will find it good for hogs, cattle, and horses and I know not why it would not be good for sheep.

COL. SMART: Speaking about scouring being stopped, I have never seen any of my sheep scouring. I fed some lambs last winter and am feeding some this winter. I think we give them all they will eat of shelled corn. Speaking of the scouring of cattle, I fed some cattle last winter and topped the Chicago market. We had some people that went from this part of the country and somebody asked them if they saw any "tops" there from Iowa.

"Why, no, there are no tops from this part of the country." But I got down there in May and got 5 cents more than anybody else did that day I was there, and there were some pretty good export cattle there too. I found last winter when my steers went to scouring, we would give them their feed a little richer in bran and oil meal than we were doing. I fed ground oats and corn mixed with a little bran in it and a little oil meal.

MR. SHEKHAN: How much oil meal?

MR. SMART: I think during the last three months they averaged 5 pounds a day. As I said, when there was any indications of scouring, we increased the oil meal, more bran and less corn.

SECRETARY NORTON: We will now take time for the enrollment of members.

#### NAMES OF MEMBERS HUMBOLDT MEETING DEC. 5, 1892.

J. J. Smart.....	Dakota City, Iowa
B. F. Gove.....	Delbitt, Iowa
D. Sheehan & Sons.....	Osage, Iowa
L. Brodsky.....	Plover, Iowa
J. R. Crawford & Sons.....	Newton, Iowa
H. D. Parsons.....	Newton, Iowa
Jordan & Dunn.....	Waubesa, Iowa
J. F. Morris.....	Ireton, Iowa
Hart & Fuller.....	Kalo, Iowa
John Johnston & Sons.....	Humboldt, Iowa
F. B. Drake.....	Otho, Iowa
G. W. Franklin.....	Atlantic, Iowa
F. A. Shafer.....	Campbell, Iowa
C. W. Norton.....	Wilton Junction, Iowa

C. S. Barclay.....	West Liberty, Iowa
J. J. Edgerton.....	Nassau, Iowa
A. C. Topper.....	Oaage, Iowa
Daniel Leonard.....	Corning, Iowa
J. Weaver.....	Durant, Iowa
E. Heever.....	Waterloo, Iowa
G. W. Henderson.....	Bradgate, Iowa
F. C. Brown.....	Humboldt, Iowa
H. Baker.....	Farley, Iowa
A. O. Stout.....	Parkersburg, Iowa
C. C. Carpenter.....	Ft. Dodge, Iowa
W. W. Vaughn.....	Marion, Iowa

On motion the convention adjourned to meet in the Masonic hall, at 7:30, on the evening of December 6, 1892.

Evening session of the Short-Horn Breeders' Convention met at 7:30, President Sheehan in the chair.

PRES. SHEEHAN: I will appoint on Committee on Resolutions: R. J. Johnston, Humboldt, Iowa; A. C. Topper, Oaage, Iowa; W. W. Vaughn, Marion City, Iowa. I will appoint as Committee on Officers and Location: J. M. Dunn, Waukegan, Iowa; J. R. Crawford, Newton, Iowa; J. J. Smart, Dakota City, Iowa.

The next thing on the program is a paper by Mr. R. J. Johnston, Humboldt, Iowa, subject, "The Short-Horn the Best Breed of Cattle in the World."

## THE SHORT-HORN THE BEST BREED OF CATTLE IN THE WORLD.

BY R. J. JOHNSTON.

It appears that from an early date the Valley of the Tees possessed a breed of cattle which, in appearance and general qualities, were probably not unlike the Short-Horns which abound in various parts of the world at the present day. By the time the Messrs. Colling came upon the field there were many herds around them that showed great improvement, so that they had hopeful material to work upon. In their hands, with careful management, the breed at once got such a hold on the cattle interests of the country that from that time to the present day the Short-Horn breed of cattle has justly been called the "best breed of cattle in the world." It is true that the Herefords and Scotch Polled cattle each have their admirers and who claim their superiority over the Short-Horns. But, boys, when the Short-Horn encroaches on the grounds of other breeds they seem to have such a hold on the good sense of the human race that they at once supplant all other breeds. Cattle are but of two practical purposes for man—beef and milk. The low price of beef cattle at once puts us on the inquiry: What breed will produce the best beef in the shortest time and for the least money? Every breeder of Short-Horns knows that there is no animal in the world that will put on meat from the day it is born until it is hung up in the market equal to the Short-Horn. This is admitted by the other breeders of beef cattle, where the country is fertile and well sheltered. Gentlemen, you can no more produce good beef at a profit when you do

not have rich food and good shelter than you can produce pork where corn is not raised. The Hereford is the breed that contends the most closely with the Short-Horn for the palm of excellence. But the cows are poor milkers and the steers require to be at least two years of age before being put up to fatten. To the feeder who purchases them when they are two years old to feed they will doubtless yield a profit, but the farmer who had charge of their childhood will often wonder where he made any profit out of the deal. Amos Craickbank so truthfully said that the Short-Horns are the rent-paying kind of cattle. We can with equal truthfulness say that the Herefords are not the rent-paying kind of cattle. The main argument in favor of Scotch Polled cattle is their hardiness which adapts them to bleak climates. Well, I never had much confidence in producing beef on mountain tops, and it is claimed where the country is more fertile the Short-Horn cross improves them to the extent that the more Short-Horn you get in them the better seems to be the cross. For a profitable cow for milk and butter there are three things to be taken into consideration—the milk, the value of the offspring, the value of the cow for beef purposes. These three things have to be considered as a unit, when we place the value upon a milk cow for a farmer. Some may say that the Short-Horn is not an animal for milk purposes, because some of the cows are not good milkers. While this is true, it is also true that all cows of a true dairy breed are not good for milk, and if you have an animal of a dairy breed that is not a good milkster, she is just about as valuable for beef purposes as a Texas steer. This much I will claim for the Short-Horns, they are good average milkers and from them you can make butter as finely flavored as any Jersey cream ever produced. The steer calves the farmer raises from these Short-Horn cows are surely just what he wants, for they are worth about three times as much as those of any dairy breed. Now, Short-Horns and grade Short-Horns are of large size, and the carcass is worth twice as much for beef as that of any of the small dairy breeds, and when you take into consideration that six years is the average length for which a cow is valuable for milk purposes, this is quite an object; so taking all things into consideration I believe that the Short-Horn is the most valuable milk cow that the farmer can own. The people of this world have always liked to change and so are always trying something new, therefore they have tried by all the different breeds to down the Short-Horns, but the breed still stands pre-eminently the best. They have only acted as a running horse by the side of a pure bred trotter. They have only urged us on to produce better and more perfect Short-Horns.

FROM ALVIN H. SANDERS.

CHICAGO, ILL., Dec. 5, 1892.

MR. C. W. NORTON, Secretary Iowa Short-Horn Breeders' Association—

Dear Sir: My time is so completely occupied just at this season of the year that I find it impossible to attend your Humboldt meeting, as I had anticipated. As I cannot meet with you, I will call the type-writer in requisition to state briefly my impressions of the Short-Horns of Great Britain as formed during my hurried tour of England and Scotland during the month of June last.

It was my good fortune to have the company of Col. W. A. Harris, of Linwood, on this most enjoyable trip, and as I observe that his name is also upon your pro-

gramme, I presume that you may have something on the same topic from him. so I will not occupy much of your time.

I might particularize at length in reference to what is to be seen in the different leading herds abroad, but I would only weary you in so doing. In the series of letters contributed to the *Breeder's Gazette* beginning with my report of the Royal Show in July, I have drawn heavily upon my notes of the trip, and probably many of your members have followed what was written at that time.

I need only say, therefore, that we first visited the Messrs. Booth & Warlaby, where we were welcomed with genuine Yorkshire hospitality. We saw in the magnificent old pastures of this celebrated breeding establishment a set of cows distinguished in particular for their forward finish, breadth of top, and length of hip. In fact the most perfectly-laid *shoulders* I ever saw were found in this herd. Some of the cattle want a bit more spreading at the floor of the chest, and there seems a slight tendency toward lightness of thigh, but taken as a whole, there is much to admire in this famous collection of Short-Horns. The country round about Warlaby and Catterice is strikingly beautiful. As far as the eye can reach landscape is fairly park-like in its general aspect. The roads are simply perfect. The fields are a brilliant green. Hawthorn hedges stretch away in all directions, and here and there we find towering among fine old trees the stately homes of country gentlemen. It is, in short, the rural England of our dreams. While the Booths still maintain their Short-Horn herd in this vicinity, there is naught but memories left to interests the breeder who visits a little farther to the north, the scene of the early labors of Bates, the Collings, Maynard, and the other old worthies that were wont to assemble on market days at Yarm or Darlington. In company with Mr. Robert Bruce, we had a very enjoyable drive in this locality. The farms of many of the old-time breeders, including those of Ketton, Barmpton, Eryholme, and Kirklevington were pointed out, but all now seem to be in the hands of tenants, who maintain, instead of the lordly Short-Horn, a few straggling sheep and some lean and hungry-looking Irish stores. The "scrub" indeed seems to hold undisputed sway to-day upon these famous old farms overlooking the valley of the river Tees. A pilgrimage to the tomb of Thomas Bates in the churchyard at Kirklevington concluded our wanderings in this portion of England.

Proceeding north, we saw at Mr. Duthie's the great collection of Scotch-bred cattle that has made Collynie famous wherever good Short-Horns are bred. The noted stock of Marr, of Upper Mill, is also near at hand, and Mr. Amos Cruickshank received us kindly at Sittytton. We spent two days in this vicinity, and of course saw the Aberdeenshire Short-Horn in its best estate. At Mr. Duthie's we admired many of those grand old matrons secured when the Sittytton herd was finally dispersed. We saw that magnificent scale, grandly spread middle, short legs, and evidence of milking quality which originally made Mr. Cruickshank's cattle celebrated on both sides of the water. We saw the sort of cows that have produced the Young Abbotsburns and Field Marshals of both continents. I am free to say that in all my experience I never saw such a truly magnificent lot of typical Short-Horn cows as is to be found upon the two farms constituting the home of the great Duthie herd. We were, of course, very much interested in studying these cattle, as embodying the thrifty Scot's idea of "the real rearing sort."

Having a curiosity to see how a public sale is conducted on the other side, we next turned our steps toward Norfolk and attended a draft sale from the West Dereham Abbey herd of Mr. Hugh Aylmer. A large assembly of representative

breeders enjoyed the elaborate luncheon served before the sale; and Mr. John Thornton, who was master of ceremonies, disposed of the cattle in accordance with the English practice by the use of the sand-glass. We were not particularly impressed with the character of the cattle sold upon this occasion.

The Royal Show at Warwick next claimed our attention, and here was found the flower of nearly all the best herds of the kingdom marshaled in show-yard battle. It was truly a magnificent display, and one that I have never seen equaled in our own country. Briefly stated, I should say that we have *individual animals* on this side of the Atlantic quite as good as a majority of the prize winners upon this occasion, but the remarkable feature of this show was the *great number of beautifully brought out animals!* The English climate of course admits of the growth of great coats of hair on the show things, and their system of feeding (including as it does large quantities of roots and other succulent foods) apparently tends to induce a "*sappiness*" such as we seldom attain here in the west. It is scarcely necessary to say that the fatty-coated roans predominated, not only in this competition but in all the large herds we visited. Her Majesty the Queen was wonderfully strong in Scotch and Scotch-topped show stuff. Lord Polwarth gained the cow championship for the Booths, and Thompson, of Ingelwood (of Molly Millicent fame), and other veteran showmen contributed to round out a show which was really a revelation. If our Columbian Exposition of 1893 equals the truly royal show of Short-Horns seen in the Warwick Castle Park this year, it will be well worth a long journey to see.

If asked to summarize in one sentence the most important single conclusion to be drawn from an inspection of the Short-Horn cattle of Great Britain, I should unhesitatingly answer that the one lesson to be learned *above all others* is a full realization of the *unquestioned power of roan bulls* in the perpetuation of true Short-Horn thrift and character. Always an advocate of roan cattle, I returned from Great Britain thoroughly convinced that without judicious, occasional recourse to roan sires of approved form and breeding, it is impossible to maintain the Short-Horn at its highest possible degree of excellence! I am thoroughly satisfied that those who attempt to go on from one generation to another with an unbroken succession of red bulls lose much of all that is best and most desirable in this great general purpose breed. I know full well what the objection to the use of roan bulls has been, but I firmly believe that the roan cattle supply the great leavening power for the entire lump, without which you cannot hope to attain the highest results. The argument that the roans will not sell is rapidly being abandoned. At the recent sale at Des Moines the color which was so unfashionable did not ruin the sale of the Short-Horn bull Crowell nor the great heifer Gem of Hickory Park. What is true of this sale has been true of all others held this year. People are now buying cattle on *their merits* rather than for particular colors, or even for particular blood lines. The time has apparently now arrived when one can absolutely disregard the color line if *he but make his cattle good enough*; and when I call to mind Young Abbotsburn, Gay Monarch, the champion heifers of the Moberly and Lyle show herds, and stand again lost in admiration about those glorious rings of roan cattle at this year's Royal of England Show, and again go over those marvelous roans and whites at Warlaby and Collynie, I do not hesitate to denounce the red color mania as the *one great monumental curse of our western Short-Horn breeding operations*. Greater even than that other curse, incestuous in-and-in breeding, because it has had such a vastly greater hold upon our people. My foreign trip may have made me ultra-radical upon this color question, but I

sincerely believe that the facts fully bear out the strong statement in reference to the roan cattle which I have above made. In taking leave of this subject, I can only say that after we had finished looking over the best big herd of Short-Horns I ever saw, the proprietor of Linwood, for whose judgment your members will undoubtedly have much respect, exclaimed: "There is no use talking, there is but one thing to do; we must go to breeding roan cattle."

In conclusion, let me say that while we cannot transplant the moist squable climate of the British Isles for the benefit of our midsummer grazing, and for the purpose of moderating the severity of our winters, yet we can learn from our cousins across the seas, of the virtues of the roan bull and the advantage of the feeding ration which shall cool out rather than burn up the systems of our breeding stock. In these two points alone there is food for much serious reflection, and two subjects for discussion are brought forward which may with profit engage the attention of any gathering of Short-Horn breeders sincerely anxious to promote the best interests of the grand old breed.

Wishing you a successful meeting and with kindest regards, I am

Sincerely yours,

ALVIN H. SANDERS.

#### DISCUSSION.

PREB. SHEEHAN: I shall call on Mr. Lambing to start this discussion.

MR. LAMMING: It is pretty hard to call on a man who is breeding Jerseys after such an attack as that. Notwithstanding the fact that all of the cattle I have got are Jerseys, I think he has made a pretty broad claim and perhaps he can substantiate it. I cannot say that I agree with the gentleman that the Hereford is the Short-Horn's greatest competitor. My observation has been that the Angus is their nearest competitor. One of the reasons that I attribute to that is the fact that it has never been very well settled there is not some Short-Horn blood in the Angus cattle. Uncle Billy Watson, of Terlington, Nebraska, son of Hugh Watson, one of the promoters of the Angus interests, claimed that his father never introduced Short-Horn blood after they passed into his hands. I think they are a better cattle than the Hereford, for the reason that they approximate the Short-Horn type and character nearer. The Angus cattle are heavy loined, heavier than the Hereford, better hind quarters, have not that surplus amount of beef in the front shoulder, where the cheap beef is, but rather excel in the hind quarter where the good beef is.

In regard to the butter not being excelled by the Jersey: I am not a butter expert. I can only speak from taste. I bred Short-Horns, a few pure bred, and for some time we utilized the milk for family purposes and made a very nice grade of butter from it, but my wife and myself both think our butter from our Jerseys is superior to that of the Short-Horn. I am not a Jersey crank. I have got one for family use, and that is the conclusion we arrived at in regard to the matter. There may not be that difference, but we think we notice it.

MR. BARCLAY: There is a point in which our British friend excels us and that is in the art of feeding. I think there are very few men in the United States who know how to feed Short-Horns, very few. Our English and Scotch friends excel in that particular. When you talk about making a good Short-Horn without feed you are talking about something that is impossible.

I do not care whether it is a roan bull, a red bull, or a white one, you cannot make a good one unless he is properly fed, and he has got to be fed from calfhood

up. The period to make a good animal is in calfhood and our friends across the water understand that fully. The most of us think if we give an animal all the corn he wants to eat, it is his fault if he don't make a good one. There is more injury done for the want of feed to the Short-Horn and the use of corn than anything else. We have got to learn the value of more excellent food and the value of better use of feed to our animals. We want more good grass, more good pastures. You cannot make a good Short-Horn on a poor pasture and especially if you undertake to help it out with corn. You cannot do it, and there is where the breeders of Iowa have to learn their lesson, in the art of feeding and handling their cattle. They want to pay particular attention to the quality of bulls they use, irrespective of color. Although it may be criminal to criticize a paper from our friend Mr. Saunders, I am inclined to disagree with him in some respects. I do now and always have thought that one of the greatest injuries to the Short-Horn interests was the prejudice to roan bulls in our herd, and while I have thought of that I believe there is just as great a danger in running to the other extreme. According to that paper, Mr. Saunders would exclude the use almost entirely of red bulls. Well, now, I believe that just as good beef and just as good quality can be wrapped in the hide of a red bull as in the hide of a roan bull. I think any Short-Horn breeder that will allow prejudice to warp his judgment in the color of a breeding animal has not the best interests at heart. (Applause.)

MR. LEONARD: I agree with the gentleman in regard to his ideas on feed. We must learn to feed our animals. What animals did he speak of? He spoke of the Short-Horn. I would like to give a little suggestion after this fashion, that as the people do not know how to feed themselves (laughter), we should learn to do that a little better and take more pains in that direction, and then we will be able to feed steers.

MR. SHAFFER: It seems to me that the farmers of Iowa do not give Iowa credit for the best feed it raises. It seems to me that every man who gets up commences to tell about the poor quality of our corn. It burns our animals up. It ruins our stock. If we do not raise any corn they will tell us we cannot have any beef nor we cannot have any pork, but still we are burning our stock up in feeding it. That is the best feed we have got. If it is the best feed we have got, then we certainly ought to feed it. I would like to hear some man give a reason why corn is such bad stuff.

MR. BARCLAY: In regard to the corn question, I believe corn is one of the best feeds if properly used, but excessive feeding of corn to breeding animals will ruin any of them, I don't care who uses it. (Applause.) When the gentleman makes the statement that corn is the best feed we use, I want to differ with him. That does not approach our tame grasses. Bluegrass and clover and timothy is a better feed for cattle, horses and colts and sheep than any other feed grown in the State of Iowa, not only better but cheaper. It is the cheapest feed we have. We do not as farmers, appreciate the cheapest crop grown and the best crop grown. If we would let the grass grow more and do less corn planting, we would get along with less labor and more money would be made.

MR. NORTON: How will you make it rain?

MR. BARCLAY: We wanted to know how to make it quit raining last spring.

MR. NORTON: The bluegrass pasture I have depended upon for ten years, until this last year. We never cut it in fact. It is usually good this time of year, but for want of fall rain is short. I would like to know a word or two about the feed we use for young bulls. We take about one-third corn, one-third oats and one-third bran.

MR. BARCLAY: Why do you put the bran in?

MR. NORTON: Because we do not want all corn. We are afraid of burning up the young bulls. Corn will make fat, oats will make muscle, and bran is supposed to make bone. With those three qualities all our bulls are fed with grass or hay in its season. Another point, I find in the old country they raise fully one-sixth of their land in roots. Fully one-sixth. Mr. Cruickshank and Mr. Duthie had over 100 acres out of their 600 acres in roots.

A MEMBER: What kind of roots?

MR. NORTON: Mangels, both red and yellow, and similar kinds of roots, also some carrots and turnips for sheep. Four of the Scotch breeders I visited while there, viz., Mr. Cruickshank, Mr. Duthie, Mr. Campbell and Mr. Marr, all had Cruickshank bulls at the head of their herds, and they were red ones.

MR. BARCLAY: Do you know why?

MR. NORTON: Because they sell better in America, which was largely their trade, and they get enough roan ones then for home use. Why, take Mr. Cruickshank's old bull Cumberland, at that time twelve years of age. I asked him why he was keeping that old bull. He said, "Because his calves are so good." That is a mistake we make, selling our bulls when we know what his stock is. We know what he is and then we are ready to sell him. It is the worst mistake the breeder can make. Keep the old bull of the breeds well improved. Duke of Richmond made J. H. Patterson.

MR. JOHNSTON: Wont they stand the climate right along over there, and breed right along; and no good on earth in this country?

MR. NORTON: They will, because they have not this burning corn, but use more roots. They don't talk much about the color over there; fully three-fourths of the females were roan. I would say there were very few of these deep cherry red ones you see here. They are usually a light red, or yellow red, you might call them. I made up my mind that the soft atmosphere had something to do with it. Perhaps it don't. Mr. Saunders speaks about the laboring men. That cuts a great figure, when you can hire four men over there, for what you pay one man here. Why can't they put up these roots and do all this kind of work with their cheap labor?

MR. BARCLAY: Perhaps free trade has something to do with it.

MR. BARCLAY: I would like to ask you here if they feed oil cake.

MR. COWNIE: In this matter of feed, it is not a matter of choice—it is a matter of compulsion both in Great Britain and in Iowa, of what we feed. In Great Britain they can raise turnips. They have green pastures at all seasons of the year. They cannot grow corn—that is out of the question. We can raise corn. We cannot raise grass at all seasons of the year largely because our pastures become dry. There is just as green in August as it is in June. It is out of the question to raise roots in Iowa and depend on it as a crop. I have raised turnips and mangels for years. Sometimes we got an immense crop. The next year we got nothing. I have raised thirty-six crops of corn in Iowa and never had a failure. (Applause.) It is not a matter of choice. We are compelled to feed corn in this country in fattening and there they feed them on roots because they do not have the corn.

MR. BARCLAY: Do they always have the roots?

MR. COWNIE: They get the roots always. A crop of roots is as sure there as a crop of cockleburrs is here. (Laughter.) They were never known to fail. They place more dependence on roots than any single crop that grows. As Mr. Norton says, they can get labor cheap. I have worked when a boy, in those turnip fields for twelve cents a day and a half pint of milk for my dinner. That was boys'

wages and mostly boys and women did that kind of work. Hay they do not feed their cattle. For all of the talk about shipping corn to England to feed their stock it amounts to very little; a few fancy animals is all they feed corn to—American corn. The great bulk of the cattle there never even heard of it. (Laughter.) They are fed straw and turnips in the winter and pasture in the summer and I agree with Mr. Saunders and my friend Barclay that the feeding of roots and grass is certainly far more preferable to avoid the heating ration of corn for breeding animals. There is no question about that. If you wish to ruin any animal for breeding purpose, feed corn heavily. (Applause.)

PRDS. SHEKHAN: Gentlemen, this cattle question has gone far enough. We shall now give the swine breeders a chance to tell what they know. (Laughter.)

MR. MURDOCH: I want to speak about the matter of hog fences. I would like to hear something said about that. About the best kind, the cheapest kind. I have tried a number of kinds. Since I have come here to the meeting I have heard some one speak of woven wire fences. I do not know much about that kind of a fence, and I would like to hear what somebody knows about it.

MR. BROOKS: My place was fenced for cattle, with barb wire fence. When I contemplated putting in hogs I bought for 35 cents a rod 2-foot woven wire picket fence, slat fence, took off my bottom wire, placed my 2-foot picket fence under the middle wire around a 40-acre pasture. It gave me very good satisfaction. It was as cheap as anything I could find, and made a perfect fence.

MR. FRANKLIN: The objection I have to this fence, or at least in western Iowa is, when the wind whips it back and forth like a United States flag, it is inclined to slack and the pigs are continually getting under them.

MR. MURDOCH: That is right, and they are on the flower garden every time they get out.

MR. FRANKLIN: I had put up on my place in the last six months 40 or 50 rods of this woven wire fence. The kind I had put up is what they call 17 bar, 18 inches high; lacks 2 inches of being 6 feet high. There was an agent came along the country and I had him put it up.

MR. MURDOCH: Sign a contract?

MR. FRANKLIN: A man's word is as good as his contract in my county. (Laughter.) It requires so much labor to set the corner posts, and as I am against labor, unless performed by some other man, that is the reason I do not want 1-6 of my land in turnips. I had two acres of mangels this year; if I had undertaken to have planted 1-6 of all my land in a mangrel crop I would not have been here this evening. (Laughter.) But this piece of fence that is on my place—a chicken cannot get through that fence. A pig cannot get through that fence, any more than you can get through this brick wall there. On this fence the lateral bars are steel, coiled around the iron rod in such a way as to make it perfectly strong and adapts itself to climatic changes.

MR. BARCLAY: What does it cost?

MR. FRANKLIN: Eighty-five cents a rod, placed on the posts. I got the posts out of my own timber; I don't count the posts. You have got to have your anchor posts set in the ground very deep, 7 to 13 feet, because he has got a machine that can move an ordinary house off its foundation, that he stretches the fence with.

MR. McCLENDON: How far apart are the posts?

MR. FRANKLIN: In one place I have them thirty-three feet apart. Around my barn where I have them one rod apart, sixteen feet. I do not think it was necessary to have them closer than thirty-three feet in the field. They come and put the fence up. All you have to do is to set the posts and pay for the fence.

Mr. McCLUNG: I have had some experience with the slat fence. I do not like it. I have to set the posts pretty close together. If I have got a hog fence I do not want my hogs to get out, and if an old sow gets to rooting around this fence and gets a little start, she is going to get out, sure. If they get out once you have spoiled them. They are then hard to keep. What I put around my pasture or field of twenty-five acres or twenty acres, I have not been bothered so much with that. I will have to go around and tighten that fence up once a year anyway to have a secure fence. It is a very hard matter to draw it up and make it permanent. The fence that Mr. Franklin speaks about, the hogs might get through it. When you undertake to corral hogs in a lot they will try and get out more than they do if they have a pasture to run in. If the fence he speaks about is adjusted to contract and expand in accordance to heat and cold, that is an advantage in that fence; but the disadvantage in it, to my notion, is the price. It seems to me that is pretty high—85 cents a rod outside of the posts. We have the fence in our town, and I have examined it and that is my objection to it. The cheapest fence I ever used for hogs is this: I set the posts just the length of a fence board—sixteen feet, so if I ever want to use it for a hog fence, I take two boards and put a short post in the middle. That has given me the best satisfaction, has lasted the best, and is the cheapest all around fence for the hog. I also use wire in connection with my two boards.

Mr. FRANKLIN: What is the price of the fence?

Mr. McCLUNG: Fifty-two cents will buy the posts, boards and drive your nails.

Mr. FRANKLIN: Eighty-five cents is seventeen bars. They make them with eleven bars, not five feet high. About the bars, there is one place where we climb over, right in the middle of the fence. I thought the climbing over there would spring those wires out of place, but it did not.

McCLUNG: How long has it been there?

Mr. FRANKLIN: I think it was put up in August.

McCLUNG: You sagged your gate posts in putting it up?

Mr. FRANKLIN: It pulled them up enough to slack the fence the first panel.

Mr. MURDOCH: I have almost concluded for safety in small yards the only fence we have to-day that we know is absolutely secure is a tight board fence. I believe in yarding small yards such as Mr. McCLUNG urged, the necessity of keeping our stock where we want it, the only security is a tight board fence. I believe the best fence is to nail together closely the boards on posts eight feet apart and build it from forty-eight to sixty inches high for small yards. That is perhaps the best and cheapest fence we have now got. This kind of fence that Mr. Franklin speaks about to set these posts and securely stretch it or brace it at the corners of these small lots, it will be an eternal job. You would want a small boy stationed at each corner to keep the tension tight. I do not think I will try any slat fence or woven wire fence for a small yard unless it be something that has more to it than any we have now.

Mr. LAMMING: I want to call attention to the fact that W. W. Vaughn, of Marion, has used a lot of this wire. I would like the gentleman's experience.

Mr. VAUGHN: I cannot speak with reference to the use of the fence in small lots. I am of the opinion held by Mr. Murdoch that it is not the fence for that, but we use it in front of our pasture, and it is giving good satisfaction.

Mr. McCLUNG: How long have you had it there?

Mr. VAUGHN: Since the first of April.

Mr. McCLUNG: What I had reference to, I have put up wire fences I don't

know how many times; it was good for one or two years; after that time it began to slack.

Mr. COWNIE: After an experience of more than thirty years I have come to the same conclusion as Mr. McCLUNG, that the cheapest fence and the most satisfactory that I have ever had was boards and wire combined. Set the posts sixteen feet apart: sixteen feet is close enough for the wire. I have tried two and three boards. I have come to the conclusion now to use two boards, and to have a barb wire below the lower board. I had invariably put the boards next to the ground, but now I feel confident if you put a barbed wire two and a half inches from the ground, two or three inches to the first board, about three inches between; and if you want to make a good fence, put four barbed wires above that; but it will make a fence, as the Irishman said—beg your pardon, Mr. President, are you from Minnesota? (Laughter)—when called upon to testify in regard to a fence, said: "It was a buncombe fence." "A buncombe fence," said the lawyer; "explain that to the jury." "A buncombe fence, sir, is a fence that is horse high, ball strong and pig tight." (Laughter) With a wire below the bars and four wires above, fastened to good, sound posts, well set in the ground, with a short post in the middle, the short post required to be no higher than the boards, you will find a fence that I believe is the cheapest, will give more satisfaction than any other fence that you can put up. The cost of it—lumber at \$20.00 per M., would be 32 cents. You can buy Glidden hog wire anywhere for four cents. It does not require a pound to the rod. Assume that it does require one pound to the rod, with five wires, that would make 20 cents, so you have your fence for 50 cents a rod instead of 32 cents.

Mr. FRANKLIN: Sixty-eight cents a rod that fence cost.

Mr. COWNIE: No; 50 cents.

Mr. FRANKLIN: You have a half post every eight feet.

Mr. COWNIE: A half post don't cost anything.

Mr. FRANKLIN: A stick of stove wood costs 12 cents in Cass county.

Mr. COWNIE: I use my old ones after they have done good service.

Mr. SHEEHAN: I have on my farm such a fence, pretty near, as he speaks of; a wire at the bottom, a board next, posts sixteen feet apart, and two short posts that come up as high as we want the wires, and if you have any hogs that will go through that fence they will be full of barb wire and trouble. [Laughter.] We put the barb wire first, then the board, then a barb wire next, and we have got a good fence that will hold pigs.

Mr. BARCLAY: How many wires above the boards?

Mr. SHEEHAN: In the hog pasture you do not need many wires. Three are plenty. If you want to turn anything else it will hardly do. The hog isn't a hard thing to keep if they have enough to eat—they are like sheep. The great trouble with hogs, they dig under. In the first place, when we built our fence we put our board first. They commenced at the bottom and worked under. We took the board off and put a wire there, and have not had a pig get out yet. I will say of the barbed wire fence, that my son has got a fence built of barbed wire on his place. It usually keeps the hogs in, but sometimes if the post tips over or a barb comes off they are more apt to get out. I think the boards, of course, are more expensive. He has got two barbs more on his fence than I have on mine. I think the fence where there is one board is a little the best fence.

A MEMBER: I would like to ask the gentleman if he has tried thirteen wires. According to figures given here, five wires above will cost 20 cents and the remain-

ing 32 cents will buy eight more wires, which makes thirteen. Having all of the posts you put the remaining cost into wires. Put the cost of the boards into wire. Take thirteen wires, put it up thoroughly and go to the same expense and you have a good fence.

MR. SHERMAN: My son has two posts in his fence.

MR. TOPPER: I was just going to remark that the combined wisdom of this convention was bringing things around in good shape for the hardware man. I am in that business, gentleman. (Laughter.)

MR. LAMBING: I think a point is made in the barbed wire business by the use of boards which has not been brought out. Every man who has tried to make an exclusively barb wire fence that will turn hogs knows that it is hard on the posts and it is very difficult to keep them in position. When you get two fence boards on there every post is braced and you can keep the wires tight. I have seen thousands and thousands of miles of barbed wire fence all over this western country. For the first six months of the barbed wire fence being put up, it seems all right, but after the first six months I have never seen one that was tight, where it was an exclusive barbed wire fence.

MR. McCLUNG: I wanted to get on the floor ahead of that man and tell the same story. I have never seen a barbed wire fence that lasted and made a good fence unless you had center posts. They have taken very well to short posts. We do not use it entirely for hogs. We use it for cattle and horses, but horses, I have never had a horse cut in the barbed wire where they had two boards fixed on it. I have had horses cut, eight or ten of them, on this fence that I have had the longest, but this fence I have had nine years, it is the best fence I have got to-day on the farm, two boards, a short post, and three barbed wires. It has given me no trouble. It is the best fence I have to-day, except some of the same kind I have built since.

MR. FRANKLIN: I want to add a little on this fence question. I am not in the woven wire fence business, I am in the sheep business. If any of you men have an old sow that is in the habit of breaking out, bring her to my place, turn her on one side of my 17-bar fence, woven wire, and I will turn a Chester White boar on the other. If she gets to him or he gets to her, I will pay the express on her, give you \$50.00 for the use of the sow, and give you your dinner. (Laughter.)

MR. SHERMAN: The next thing on the program will be a paper by J. R. Crawford, Newton, Iowa, subject, "The Short-Horns for the West."

#### THE SHORT-HORNS FOR THE WEST.

J. R. CRAWFORD, NEWTON.

This topic before us to-night, as it presents itself to our mind, is capable of two constructions or propositions. Our first thought, what kind of Short-Horns for the west? and our second thought or proposition, what kind of Short-Horns are the most profitable for the west?

On taking up these we may say there is doubtless vast difference of opinion; and justly, too, for different breeders may have, and doubtless often do have, different ends in view, and wish to arrive at different results.

In many portions of our State, and of the west, dairying is becoming quite an important and profitable business. Now if this is in the mind of the breeder and this is the result he wishes to achieve, he will turn his attention in this line of breeding, and strive to breed the dairy cow.

But we here make the assertion, knowing too that we may be severely criticized for the assertion, that in breeding the cow for milk alone we do it at the expense and very probable destruction of the very valuable points and requirements of the Short-Horn.

But, O, some wise head may rise up and say: What are you talking about? Why don't you breed the general purpose cow? Oh, yes; I know that cow we have heard so much talk about, and there has been so much ink wasted and paper punished writing her up and describing their ideal of her. But we have the first man to meet or the first article to read yet declaring that they had positively found that greatly desired bonanza. It seems to have been the mind and will of the Great Creator. He who created man and placed him in possession of this beautiful world and endowed him with mental faculties capable of reasoning and through his reasoning powers and strong invincible will to bring forth such results as he may desire, providing he works in accordance with the well established laws of nature—that is, that like begets like. Consequently if we persistently follow up this line of breeding, namely, for the dairy, the result will be we will have the dairy cow, but when we do get our ideal cow, we get her at the expense of other very valuable and necessary requirements for profit for the western farmer and breeder.

Now, the question which will naturally be asked is, what are the necessary requirements for profit? Well, when we contemplate this vast western country, with all its capabilities of production, and consider the vastness of the western cornfield and of its pastures, the thought comes to us, what will we do with all this corn and grass that we may gain the greatest profit from it? We seem to hear some one say, convert it into beef. Well, what kind of beef? Why, good Short-Horn beef, of course.

Now, if we expect to convert all this great amount of corn and grass into beef at a profit, we must have the right kind of an individual to feed it to; and this individual we can and must obtain by proper breeding for this purpose.

And we would say just here as we have estimated before, that the breeder has this matter of breeding for a specific purpose almost entirely under his own control and foolish is the man that does not use this power to the best of his ability. And in failing to do so he must and will reap his reward, and necessarily failure will be the result.

Now our ideal individual for the feed yard for profit and for early maturity is that individual wrapped up beneath the mellow hide and glossy coat of the fine and nicely bred Short-Horn. We would not by any means cast any disparagement or say a word against any of the popular breeds of the day. But we do claim the Short-Horn stands to day without a peer as a feeder for profit. And the prime object to obtain in this feeding for profit, is to procure an animal that will take on flesh readily and mature early. Now early maturity is one great point aimed at in feeding at the present day. And it certainly is wisdom to strive for the end, for the first eighteen or twenty-four months of the young animal's life is the time to try its capabilities and bring out of it its greatest gain. Now the animal which will respond most readily and give the best results for the feed and care bestowed upon it is the one we should have in this great west of ours. And it seems to me that it has been fully demonstrated by the feeding test and in the fat stock shows of our country that the Short-Horn is the animal for the western breeder and feeder.

Now, Mr. President and fellow breeders, it would seem unnecessary for us in our weak way to follow this subject farther; but we hope it will be taken up and discussed by wiser heads and abler minds than ours.

But as we look all things over and over  
And comparing notes with the present and past,  
And notwithstanding the election of Grover  
All things will come right at last.

And we will still have plenty of baby beef and butter,  
For the Short-Horn reigns supreme in the west.  
And notwithstanding all this talk and splutter  
For all can see the Short-Horns are the best.

PRES. SHEEHAN: This meeting will now stand adjourned until 8:30 to-morrow morning at G. A. R. hall. In the meantime Mr. Norton will enroll the names of parties desiring to become members of this Association.

Meeting called to order at 8:30, at G. A. R. hall, pursuant to adjournment, President Sheehan in the chair.

Discussion upon paper read by Mr. R. J. Johnston, of Humboldt.

MR. HOOVER: I think in Mr. Johnston's paper he made the remark in regard to the limit of the profitability of the dairy cow. I would like to hear the experience of some of the rest on that line, as to what length of time a cow may be profitably kept as a dairy cow?

MR. NORTON: I think, Mr. Hoover, you can answer that as well or better than anyone else.

MR. HOOVER: Of course, I am willing to give my experience in that line. I had some cows that I kept quite profitably until they were twelve or thirteen years old. Of course we would only have them in actual service ten or eleven years. While this may not be practicable, as a rule, to keep them that length of time in all cases, but it seems to me that a cow can be kept longer than six years, being, I think, the time mentioned in Mr. Johnston's paper, at a profit as a dairy cow. At least that has been my experience, and I would like to have the experience of others that line.

MR. NORTON: I would like to ask you at what age you usually have your heifers come in? You start them at what age? Whether two years and a half or three years?

MR. HOOVER: My experience has been, to make them profitable milkers I would rather have them come in at a little past two years. Say heifers that will be two years old along in February or January, have them calve along in May, if I can arrange it that way, and you get a good milking cow. I notice that those that have run longer, thirty-four to thirty-six months and over, they seem to be more fully developed and a little larger, and, however, were not quite as profitable for milkers.

MR. NORTON: Speaking of the growth before having the next calf do you plan so it will be a longer space intervening, so it gives them an opportunity to make up this loss of growth?

MR. HOOVER: No.

MR. NORTON: That is a question upon which I would like to have a more complete answer.

MR. HOOVER: I generally have the next calf come about a year, if I can, from the first calf. I aim to have one-half of my cows fresh in the fall and the other half along about January and February.

MR. NORTON: Would they not recover and make a better growth supposing (they should run from 15 to 18 months, and if so, what effect would that have on their dairy qualities. That is the question I want to have brought out, if we can bring a good sized animal and make her a profitable dairy cow as well and give them size?

MR. HOOVER: I have not tried that.

PRES. SHEEHAN: I want to ask you a question. These cows that you keep in the dairy from ten to fifteen years, how long in the year do you make a practice of milking those animals and what do you feed them? I do not mean in grass time, but in the winter time, how do you keep those cows?

MR. HOOVER: As to milking, I generally milk as long as I can. I have had cows that I milked when I did not care anything for their offspring. I have milked them within three weeks of calving time, but sometimes I did not save the milk. They will give quite a good quantity of milk at that time but of course I would not advise that to any person who wished to raise the calf. In our county (Black Hawk) it has become so that we look upon calf raising as almost a loss to the farmer, as it has got to be quite a dairy county. As to feeding, I like clover hay, corn and oats and bran mixed. I have this difficulty; that is, unless you lay in your supply of bran during the summer, during this time of year it is almost impossible to get it. I generally feed corn in the ear. When I feed oats and corn I grind it and mix it, or feed it without grinding it. Last year I fed exclusively corn to my cows, other feed being scarce. I could not get it. I think I did it without bad results to the cows.

MR. NORTON: In Muscatine county we have a man named Kelly, who has charge of four different creameries. He tells me that seven-eighths of the number of cows are Short-Horns and grade Short-Horns. Mr. Hoover, I would like to know if you can tell me somewhere near the proportion of the breeds of cattle the patrons of your creamery use—whether largely Short-Horn or not. You are from Waterloo?

MR. HOOVER: Yes, sir. I am somewhat in a position to know. My brother and I have been conducting the creamery for the last three years. Two years ago we adopted the test plan system. Prior to that we had several parties, when we bought cream or took in milk without testing it, who had the idea that the Holstein produced a larger quantity of milk than Short-Horns. But, prior to that Short-Horns were used exclusively in our neighborhood, with very few exceptions. Some parties thought they could produce a larger quantity of milk from the Holstein, and some of them got Holsteins. After we adopted the test plan they found out that their cows were not averaging up to the Short-Horns or grades. I presume they will use Short-Horns as soon as they can. I would not think out of seventy-five patrons to our creamery that we have over one hundred cows but what are Short-Horns or their grades.

MR. NORTON: About how many cows do you think, all told?

MR. HOOVER: Well, I should think along about from 1,200 to 1,500 cows.

MR. NORTON: You say not to exceed 100?

MR. HOOVER: No, not to exceed 100.

MR. NORTON: Are not the Short-Horns in use generally grades?

MR. HOOVER: Yes, sir; in our neighborhood.

MR. NORTON: Are there any full Short-Horns or thoroughbreds?

MR. HOOVER: There are some full-blooded cattle there. I presume most of them adopted the same plan I did. I started with the common cow fifteen years

ago, because of a lack of means to purchase better. I started with a full-blood sire Short Horn bull and graded up. I have been using them ever since. Of course there is sometimes a farmer that will buy a Short-Horn outside, a thoroughbred.

MR. BARCLAY: Do I understand you to say that the patrons of your creamery kill their calves?

MR. HOOVER: They sell them.

MR. BARCLAY: They do not raise them?

MR. HOOVER: No, sir, they do not.

MR. BARCLAY: What are you gentlemen up there going to do for beef?

MR. HOOVER: We can buy it cheap enough; we have for the last five years. We calculated we would until things get better.

MR. BARCLAY: What are you going to do for cows to replace your herd, if you kill the calves. I do not know where the cows are coming from to supply your herd?

MR. HOOVER: We raise calves enough to supply our market.

MR. BARCLAY: Isn't it true, instead of taking a Short-Horn bull, that the people take most anything for a bull, although they will call it Short-Horn?

MR. HOOVER: I admit they are doing that; I think that is where they make their mistake. I do not do it, for the fact that even a dairy cow, after you have used her for that purpose, it is profitable to breed her to a good bull until you want to dispose of her. The extra weight which you can put on a good cow will amply pay you for the use of a good sire, because you can get weight and a good make up of the cow when you come to dispose of her.

MR. BAKER: I would like to ask a question in regard to this thoroughbred business. A cow may be bred successively until she is a thoroughbred cow for that purpose, and while we have thoroughbreds of seven or eight distinct breeds I have never yet heard it claimed we had thoroughbred milch cows, or thoroughbred butter cows; but I do not know that some of these breeds are prolific in their produce and very profitable for milk use, either for public use, or creameries, or private use, or for making butter, and it does seem to me a class of this kind might be established that would be exceedingly profitable if we could get it up and maintain it. The success of the business depends on the magnificent surroundings of the animal in the pastures, grasses, etc. The produce of the animal will hold out as long as suitable provender for that produce does, is my experience. It seems to me that something might be done along these lines, that these pastures of ours in the State of Iowa might be continuously covered with grass. This killing off of the calves that are not worth raising is a sensible action. In regard to tests there is one phase of it which has struck me very forcibly. A great many glory in the fact of having 5 per cent of butter fat in their milk. They forget that they have submitted, by scant grass, to a shrinkage of 50 per cent in their milk. They therefore have only one-half flow with 5 per cent butter fat. If they have full flow of milk and 3 per cent butter fat, then they have 6 per cent to sell for cash, and in a half flow of milk with 5 per cent butter fat they lose 20 per cent by the operation, and yet they glory in this.

MR. BARCLAY: How much pig feed would it make in addition?

MR. BAKER: I am counting only for the man. There is this of it, they have to feed cereals in order to have 5 per cent fat, but they have lost 20 per cent in the bill of receipts because they have allowed the animals to run on scant rations until the milk is reduced 50 per cent.

MR. HOOVER: However, the Holstein at the end of the year will bring very nearly as much cash money to their patrons as the Short-Horn. I do not want to

underestimate the Holstein. When you come to sell a steer calf in our neighborhood you have to sell him awful cheap. I was in the yards of a feeder not long since in which he had one Holstein, and he said if the shippers kicked too much on him he would butcher him for his own use. I should like to ask Mr. Barclay what he would do under the circumstances; would he raise those calves at a loss, or would he sell them at a week old for a dollar?

MR. BARCLAY: From my standpoint I would not raise that kind of calves. I believe I can make a milch cow out of a thoroughbred cow and take her calf and raise it on the pail, if it is a steer or heifer, and not do as hard work as to work on the farm or in the cornfield, and bring me \$75 by the time it is two years old in the Chicago market.

MR. HENDERSON: I am a slip-shod farmer and dairyman. We have strayed from the original question on which we started. Of course these other questions are incidental of how long a cow will do to milk. Now, in my experience, and that is rather limited, it is true, being only at it eighteen years, the cows that are the best are those that come in at two years old; that have their second calf not far from the time they are four years old; and I have raised some pretty fair ones on that hypothesis, and milk them the entire time, or nearly the entire time, from the time the first calf comes until within four or six weeks of their second calf, and do not forget to feed them.

MR. BARCLAY: Isn't that where the slip-shod part of it comes in, in your feeding them?

MR. HENDERSON: I have my own method of feeding. I know nothing about a balanced ration. I do not feed meal. Meal costs us too much. I have had twenty years' experience in a mill, and it costs five cents to grind it. I feed my cows clover hay, oats and all the corn they will eat and let the hogs follow. If I ain't a slip-shod farmer I would like to know where you find one.

MR. NORTON: Don't you get it all in that way?

MR. HENDERSON: There is not much left. I think a cow will stand that kind of feeding more than six years. If she has her first calf at two years old and you milk her six years, she is only eight years old, and I think the best cows I have on my place to-day are nine years old, or eight at least. Once in a while over that quite a good deal. I keep a Short-Horn bull on my place and I have kept one all of the time. I am like my friend Hoover, I kill the calves now and I am keeping a Short-Horn bull for this reason. The time is coming when it will pay to feed calves and make what is called baby beef, and when that time comes you do not want any Holstein or Jersey or any of that kind of stock. You want something by which you can finish off a bunch of calves from 11 to 15 months old and get something for your labor. (Applause.)

MR. PARSONS: Mr. Baker made a remark which I can not exactly see through. He wants to convey the idea to us that the more milk the cow gives and the greater you increase the flow by breeding the poorer the quality is. What I would like to ask my friend is, if the cost in his creamery where he feeds good and gets more milk, if the per cent of butter fat is less than that of the man that does not feed any?

MR. BAKER: I will define myself on that point. If you please the difference is so great that it revolutionized me, and when twenty years ago between letting the animal feed and feeding them, I said to let the animal feed. That makes grass enough for two and one on. The flow of milk is so rapid and inexhaustive that you very often have to leave the ground in order to get all the mess that the cow

gives at one sitting. You hate to carry that away and come back for the pesky thing. You never can do that with cereal food because there is not enough water in it. You know very well that the plant spends itself to concentrate the oil in its make-up, in the grain about the seed and the life of the plant is there. As a matter of fact all flesh is grass and every farmer knows it, or he ought to know it, and the best produce for animals is grass in abundance. For instances we had seventeen cows we had on grass all through October, and they would fill a patent pail full in the morning and one in the evening. One cow would fill a pail full once a day without any feed, whatever, other than that they gathered in the pasture through October. No sooner than did this heavy snow come than this milk shrunk half. The milk was richer to be sure, because they were in the barn and we fed timothy hay and corn. No sooner did the snow melt so that the cows could get their noses below the snow, that the rag weeds held up from the ground, down to the white clover and bluegrass, than the milk increased one-third the second day after they did it. You can let one hundred animals feed that way as cheap as you can feed ten, and if a man lacks the sense to let grass grow, since it does not cost him anything, he is hardly fit for the Short-Horn business.

MR. SHERMAN: I have heard one of the best dairymen in Mitchell county say that a cow was like a machine, and like any machine, you can overdo it. He said that he believed that the time of usefulness at the pail, of the best cow in Mitchell county, would not last more than three years, provided she was kept as some people keep their cows. He made the remark that he could—milk to pieces, he called it—the best cow he had. He did it by high feeding. When the creamery started in Mitchell county he put out eight cows. He said they were good ones. He fed them winter and summer, and milked them right along, and got a full yield from those cows, but he said the third year he could not do it, and the fourth year they were pretty near worthless as a dairy cow. I asked him this question: "Do you think if you fed those cows early in the spring, when they first came in, and late in the fall, and let them run to grass in the summer, and not fed them anything but grass, do you think you could milk them to pieces, and give them from sixty to ninety days rest?" He said "No." So that is the reason I am here defending Mr. Johnston's paper. Mr. Johnston is right; his paper is correct. You can milk a cow to pieces in six years if you want to, and keep her for ten years if you want to.

MR. BARCLAY: Can't you feed a cow to pieces in six months?

MR. SHERMAN: I do not know whether you can or not. It depends on what you feed her. I don't think you can. I don't think you can feed a cow to pieces anyway unless you feed her heavily through the summer time instead of letting her run to grass. Take the feed—as my friend Baker says, "Take pasture for two cows and put one on." You cannot hurt a cow with grass.

MR. HENDERSON: Don't you hurt your pocket?

MR. SHERMAN: I do not know whether you hurt your pocket; you hurt your farm to feed your pastures close during the drouth.

MR. HOOVER: This gentleman here asked me a question, will high fed cows test more according to their feed than those that are not? My experience and the experience of the patrons of our creamery is that it does not test as much; we get more in quantity and less in quality.

MR. SHERMAN: The next thing on the programme is, "Exhibits at Our State Fair," paper by Mr. C. C. Barclay, West Liberty.

MR. BARCLAY: I am sorry there are not more stock breeders interested in the exhibit at the State Fairs. I believe for the last three or four years there have only

been from two to four exhibits made by Iowa men at the State Fair and I wish to inquire why it is so. There is a cause for it. I have thought of that a good deal and I have thought that the fault lies largely with the State Board of Agriculture. They seem to have an idea that the interests of everybody else should be looked after instead of the interests of the breeders in the different fine stock departments, and for that reason I think the fine stock breeders of Iowa should look after their own interests and look carefully at who represents them on the State Board and see that they have a representation there that will stand for Iowa's interests and Iowa breeders to the extent, at least, of giving them a fair chance at the premiums. Iowa has fewer wealthy men in the breeding business than most any other State. She has no millionaires that are in that business and when it comes to making up a fine herd of show animals, for show purposes, and keeping them in fine condition the year around, it means a very heavy expense, and a man who is making his bread and butter out of his cattle in the breeding business can not afford it. As the boys say, "there is nothing in it." A gentleman remarked to me yesterday that Iowa ought to have one of the greatest exhibits at the World's Fair of any State in this Nation. And it ought to be made by Iowa breeders for the advertising there is in it. Now let us take the actual business for the last three or four years. When you take the sale of your bulls and the sale of your surplus heifers and selling those bulls at a price at which men will buy, if there is anything in the advertising I cannot find it. I do not know where it is. It does not pay.

Going to the State Fair and making an exhibit is also an expensive luxury, and we should be represented by men on this State Board who will look after our interests and represent our Iowa exhibits. I like to see grand exhibits from the State of Iowa, and I like to see grand exhibits from outside the State. I believe in extending to them a cordial welcome; but, I believe there should be the best prices offered by the Iowa State Agricultural Society to the breeders of stock in the State of Iowa represented and shown, of cattle, hogs, horses and sheep; it should be for the encouragement of the men breeding these animals and bringing them to the Fair and making an exhibit and every inducement that can be given to that business, should be done by the State Board, and instead of having one representative or two representatives for the stock interests of the State of Iowa on that Board, we should have at least one-half of them. There is no business that brings as many clean dollars in the State as the stock interests, and there are no men or class of men that are as closely or greatly interested in the exhibits at the State Fair as the men in the stock breeding business and for that reason they ought to look carefully to their own interests, and also look after the men who represent them on that Board. I recently saw a report, printed I think in one paper in Iowa, at Mason City, I believe. It was a suppressed report made by Mr. Baldwin, of the State Board, in regard to tickets a year ago. It was in regard to tickets given away by that State Board. I think it aggregated about \$42,000 worth of tickets actually given away, and most of them went to men who have no more interest in the Agricultural Society of the State of Iowa than I have with free trade in England. While that is the case a breeder will have to pay for everything he gets, you have to pay for every privilege you have, it costs you from the time you start from home until you return, it costs you for every turn you make. Mr. Franklin of the Board is heartily in sympathy with us.

Now, in regard to the judges at the State Fair. I ask you the question candidly, "Is a breeder of Short-Horn stock competent to judge cattle at a State Fair?" There has never been a judge at our State Fair that was a practical breeder of

Short-Horns or any other thoroughbred cattle. We have got to depend on some man from Illinois, or Wisconsin, or Minnesota, whom we never heard of. We know nothing about him. What are the results of that judgment? I want to run over some of the exhibits that were made down there. In regard to barren cows, the rules are not enforced. They do not enforce the written rules of the Society. The rule in regard to bearing cows is plain enough. It says that the cow must show unmistakable signs of being a breeder. There were several cows shown last year and have been every year that were not breeders, in that class, and an effort was made to clear them out, which was a farce because they did not have back-bone enough to enforce the rules of the society. In the three-year-old class of cows the premium went to a barren cow. She never had a calf. She was a short legged, thick, fleshy heifer of a grade of merit from the beef standpoint. The second premium went to a broad-bipped—what we call an old-fashioned Short-Horn. She was a fine cow, but altogether of a different type. There were other cows in the ring similar in quality and make-up to the first premium cow, but there were two distinct types of cattle, one taking the first premium and the next the second premium, and a better cow than either of them standing in there unnoticed, was not seen by the judges, was not looked at, a cow of better quality, worthy to go to the head and carry the first premium in any show. The same thing occurred in the two-year-old heifer ring, heifers of two different types taking the first and second premiums. The same thing occurred in the two-year-old steer class, the two types being as distinct as they could be.

What I want to draw out, gentlemen, is this, that with that kind of judgment in the show ring at the State Fair of Iowa, where is your guide to breed to? Is there any lesson to be learned in it? What are you going to breed to—where is your correct type to breed to? What kind of a bull are you going to use? What kind of cows are you going to use? What are you going to bring out to show? My idea is, gentlemen, that these judges on the State Fair grounds should be judges that are practical breeders. That they should award premiums to cows that are doing service, that are giving the best results, that are regular breeders. We want men that will be consistent in their judgment; men who will stand by their awards and defend them against any criticism that comes. Our friend the *Breeder's Gazette*, has criticized the award made at the State Fair, and different fairs, very severely; but I think they have not been half severe enough in their criticism. Now, in regard to membership for the State Board. If there is any body of men in the State of Iowa that is interested in this question, it is the breeders of the State of Iowa, the breeders of fine stock. It is an easy matter for us to have representation on that board, if you go at it the right way. We represent different parts of the State, and almost every man that comes to the Association is identified with his local agricultural society in some way, and the votes that make this representation must come through the presidents of the local societies of the State. It is only a matter of a little work to place men on that, that will look after our interests and will represent us there as we should be represented. I would like to hear others on this question. (Applause.)

MR. GOODWIN, of the *Breeders' Gazette*, Chicago: I have not attended the Iowa State Fair, unfortunately for myself, for the last two years; sickness has detained me, and I am not competent to speak directly to the point, but it does seem to me your societies should have representation on the Board—each society. I gather from Mr. Barclay's remarks that the Board of your State Agricultural Society are elected by the presidents of the local agricultural societies. The plan

of making up the board is varied in different states. A perfect plan is yet to be adopted. So far as I am concerned I am yet to evolve that perfect plan, but I am working on it and I think I can make a report on that subject directly, and furnish a few suggestions. I do not know of a single State Board that is elected as it should be, according to what I think, but in a State where societies are so thoroughly organized as they are in this State, your Short-Horn men, swine men, sheep men, it stands to reason that they ought in some manner be directly represented on that Board in your State Agricultural Society. But, I am willing to venture in general, that I think it would be a good plan if a committee should be appointed, composed of men who are most directly interested, who should be charged with formulating an arrangement of some sort by which this representation can be obtained. I do not know about the judges at the last State Fairs. I have seen some rank work done in your show ring.

MR. BARCLAY: A Mr. Hammer, I believe, officiated at our last Fair. He is a gentleman from Minnesota who I understand is interested in draft horses and has a few Galloway cattle. He has a father, I believe, who used to know something about it; used to be a breeder in England somewhere.

MR. GOODWIN: That is rather a remote pedigree for a judge, at least a judge of Short-Horn cattle. Your society has worked a man by the name of Stocking. He has acquired a reputation largely through his use at your fair grounds. He could not judge hogs or any thing else for me. I have watched his work for a number of years and so far as I can learn the majority of the best breeders are of the same opinion I have just expressed, and in our office we often have wondered why your officials have persisted in bringing out the old gentleman and making him work.

But, I submit it to your consideration that your society and other societies in the State who have a representation in your State Agricultural Society, that it is very near time you were taking some steps to secure it. It is a matter entitled to the most careful and thoughtful consideration. I have not attended a meeting of your State Agricultural society and do not know as to its make up at all so I cannot suggest anything specific, but in general it seems to me that the matter should be attended to.

MR. A. V. STOUT: In 1880 I think I first put in an appearance at the State Agricultural Society without having very much of an idea how that society was organized, but I soon learned that its character or reputation was made up, and that its voting body, its authority and power was vested in a directory board elected by the various county and district societies of this State. The very first impression made on my mind, and which impression I have never been able to get clear of, was that it was a close corporation and that it was hard for a man who casually went down there from a society like that which I represented, Grundy county, to get much of an idea of the inside workings of that board. I remember in 1880 there were efforts made to make some reforms and make some change in the official character of the board and then was held possibly one of the severest struggles that ever took place in its history but, as I remember, it did not succeed. I do not see that there has been very much change in the plan of the State Association, and it strikes me that now we know more forcibly and effectually what can be done and brought about to make a change in that organization.

There is one point I want brought out with respect to this exhibit at the State Fairs and World's Fair. That is the inability of the breeders of Iowa to cope with the outside breeders from Illinois and Missouri, who have been for a long time

breeders of Short-Horns and other families of cattle. Now, I feel as Mr. Barclay does, that there must be something done to protect the Iowa breeder. He is the man who is doing more for Iowa than any other man. These breeders of fine cattle, horses, hogs and sheep are the men who are doing this. I know also that some of them are doing it at a sacrifice. It may be said with shame that some of them have gone down and finally gone out of Iowa's history, but if you look back at the history of the business you will see that this is nevertheless true. But, if the farmers and breeders of Iowa will attempt to place this matter where it belongs and see to it that a directory shall be placed in the Agricultural Society which will attend to our interests, it is not too late to remedy some of the evils under which we labor. (Applause.)

PRES. SHEEHAN: Is the Committee on Resolutions ready to report?

MR. JOHNSTON: We are, Mr. President.

MR. TUPPER: Mr. Johnston, being chairman and also a citizen of Humboldt, does not wish to read these resolutions, so the duty devolves upon me.

WHEREAS, The people of Humboldt have extended to us a hearty welcome to the town;

*Resolved*, That we return them our heartfelt thanks for their magnificent hospitality and for the generous provisions they have made for our pleasure, our comfort and our business.

WHEREAS, The Short-Horn breed of cattle is the best in the world;

*Resolved*, That it is the bounden duty of our breeders to make a creditable exhibition of Short-Horn cattle at the Columbian Fair in order to sustain the high reputation that the State of Iowa has attained before the world as breeder of Short-Horn cattle.

*Resolved*, That the thanks of this Association are due and are hereby given to C. S. Barclay, C. W. Norton and their co-workers for their strenuous efforts to secure an appropriation from the Legislature so that the Short-Horn breeders could make a full display of the Short-Horn interests of the State at Chicago.

*Resolved*, That we heartily endorse the work done by Secretary Risk for the benefit of agriculture; especially his work in thoroughly eradicating pleuro-pneumonia, for causing a more careful inspection of lumpy jaw cattle in our markets, and preventing an indiscriminate slaughter.

WHEREAS, The chairs of agriculture and organic chemistry have been consolidated at Ames Agricultural College,

*Resolved*, That we regret that a distinctively Agricultural Chemistry chair can no longer be sustained at the college, and we request the management of the college to fill the new chair of Chemistry by appointing Prof. G. E. Patrick to it, in consideration of his valuable services to the agriculturists of the State during the last five years.

R. J. JOHNSTON.

A. C. TUPPER.

W. W. VACORN.

PROF. SHEEHAN: You have heard the resolutions. What will you do with them? (Adopted unanimously.)

Next following is the report of the Committee on Officers and Location. Report received unanimously.

PRES. SHEEHAN: Will the newly elected President, Mr. Barclay, take the chair? I will appoint Mr. Doane to conduct Mr. Barclay to the chair.

MR. BARCLAY: I thank you for the courtesy extended to me, gentlemen, but I prefer that Mr. Sheehan shall continue in the regular order of the meeting.

PRES. SHEEHAN: The next paper is that of Col. Smart.

COL. SMART: I do not think my paper will meet with your favor. I tried to write a paper on Short-Horns but could not do it, and I have written a paper on grasses.

## PASTURES, ROTATION, ETC.

BY J. J. SMART.

I was requested by your president to prepare a paper on Short-Horns, but so many of you have been so much longer in the business than I have and know so much more about them I thought I should confine myself to a short paper on short grass. In traveling through Iowa, either by private conveyance or railway, we see the pastures overstocked. The small farmer in many cases, will fence up a piece of slough or rough land and wind his fence around a piece of dry land so he can have a chance to impoverish it by corn and oats, then corn followed by oats, thirty bushels corn, twenty-five bushels oats, etc., while his stock are feasting on the coarse grass of the slough, and in a dry time even trying to eat the sod itself. This is of course an extreme case, but it is not exaggerated, nor is it an isolated one. We are all apt to be too stingy with our pastures, and we pay for our stinginess by loss of growth on our young animals, and in grain necessary to be fed for at least two additional months in winter.

Most of the pastures only afford good feed during the early and favorable summer. When fall comes or a dry spell in summer, it is poor picking and it is also very poor economy. I am not saying this to the older heads of this gathering, as many have had their lesson and profited by it, but to the younger and less experienced. A friend once said to me, "You ought to have your pastures look the first of the summer as if you were wasting half of your grass if you want to make beef or keep stock cheap."

I have become so imbued with the force of the remark that I am planning to change from a five years' rotation to a six years', which will give me one-half of my cultivated land in grass and one-third in pasture, instead as now one-fifth.

I cannot see how a man can afford to keep his pasture and meadow in one place all the time. Of course it will cost something to fence to do otherwise, but see the benefits. If a man will rotate so as to have a clover and timothy sod to turn over for corn each year, he will raise so much more corn to the acre. He will require fewer acres for a given quantity, consequently he can have more in grass, and his stock will come into winter in so much better condition, he will require less corn to carry them through. Since I commenced rotating I have never had less than 65 bushels of corn to the acre. This season I had over 70. Last year I had 24½ bushels of wheat to the acre, this 18, but I had straw and heads enough for 40 bushels, but the berry was only from one-half to two-thirds size.

It matters little what the line of farming pursued it will pay to rotate with clover. If cattle can be taken off grass the middle of November or first of December with their sides shaking with flesh it will certainly take less to carry them

through the winter, either as stores or milch cows. Feeders ought to be full of flesh in August, and on full feed September 1, then they can be fed with profit.

My own experience is that we cut more hay from less than half the number of acres that we formerly cut when the land had been in grass several years. At present we only cut the first crop after seeding, then pasture one year, then plow down; but now I propose to pasture two years.

We often see cattle put up in November in feed yards to fatten of such poor quality and in such poor condition that we could not be induced to take them as a gift and feed them. What is the remedy for this state of thing? Improve the grade of cattle and improve and enlarge the pastures.

It seems that the first could be easily done when good registered Short-Horn yearling bulls can be bought for from \$50 to \$100 each, and many of them sired by bulls that have cost some of us from \$500 to \$1,000 and upwards. It is sincerely to be hoped that the influence of this meeting will be such that a grade bull of any kind will not be allowed to live in this country hereafter.

The remedy for the last trouble is the adoption of a reasonable rotation in their farming operations. As they increase the amount of land in grass they thereby increase its fertility and also increase their grain crops. They can double their corn crop with a clover sod and follow with an increased crop of small grain.

The following were proposed and elected officers for the ensuing year:

*President*—C. S. Barclay, West Liberty.

*Vice-Presidents*—Hon. John McHugh, Cresco; R. J. Johnston, Humboldt; H. D. Parsons, Newton.

*Directors (two years)*—J. C. Frazier, Bloomfield; I. Brodsky, Plover.

*Secretary and Treasurer*—C. W. Norton, Wilton Junction.

*Committee*—J. N. Dunn, J. R. Crawford, J. J. Smart.

MR. SHEEHAN: We will now, owing to the late hour, have the report of the Secretary and Treasurer.

(Report read by Mr. Norton.)

MR. SHEEHAN: You have heard the Treasurer's report; what will you do with it?

MR. BARCLAY: I move the report be adopted. Motion seconded and carried unanimously.  
(Adjourned.)

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