pasture; I notice the cows prefer being on the side hill rather than the bottom. We grow clover in the bottom where we live, but they prefer the hills.

Mr. Jacobs: They do well on the native blue grass pasture.

Mr. Jones: Yes, they do. They eat off the hillside before they begin at the bottom, as a rule.

Prest. McKerrow: I now introduce Mr. E. Nordman, who will discuss Farming in Northern Wisconsin.

Mr. Nordman: I feel a little lonesome in this audience. Now, you take Mr. Jones and Mr. Roberts and they each had plenty of neighbors down here to sustain what they said, and to discuss these questions with them, but as I look over this audience, the only neighbor I can see is Mr. Scott, and I am thankful for that much.

Prest. McKerrow: You are thankful for small favors.

PROFITABLE FARMING IN NORTHERN WISCONSIN.

Ed. Nordman, Polar, Wis.

The highest profits in farming can be secured only when the farmer manages his farm in harmony with his surroundings. Because of peculiar soils, climatic and market conditions, every locality is better adapted to some lines of farming than it is to others, hence it follows that one of the first essentials of success is that a farmer shall study his environments to the end that he may produce the things that are at once best suited to his land and to his market.

Applying this principle to northern Wisconsin, we find there are several lines of farming that this part of the state is well fitted for. First of these in importance, of course, is dairying. After this might be mentioned, sheep husbandry, vegetable growing, poultry, fruit culture, etc.

I think it has been fairly well established that considering area, no other section of the United States has greater advantages for those engaged in these lines than has northern Wisconsin. Of course, there is a variety of soils and other conditions here that for each of these lines make some parts of this
territory more desirable than other parts, but taken as a whole, there are opportunities here for a large number of people to engage in many kinds of farming.

But for many years to come, a large majority of these farmers will make dairying the big end of their business. Natural conditions will compel this. While generally speaking, the soils are fertile, they will not stand much cropping without putting something back. It sometimes happens that the crops best suited to the dairy cow, when raised in a rotation are also the easiest on the soil, and when, besides, they are fed out on the farm and the manures are carefully saved and applied, they build the land up, instead of running it out.

There is another reason why farmers should turn their attention largely to dairying in this section. Northern Wisconsin is sometimes credited with having a great abundance of cheap land. What is meant is the unimproved cut-over land of which there are great quantities. These lands can be bought for from ten to twenty dollars per acre, but by the time they are improved to resemble a modern dairy farm in the older sections, they are not so cheap after all. Being more or less expensive, the more a farmer can make his farm produce, the less land he needs to improve to answer his purpose. I wish to say, that I know of no way, taking one year with another, to get larger returns per acre than to go into dairying. If the land is farmed intelligently, there would be no difficulty in keeping a cow, per acre, of the cultivated land, but how should we proceed to get this result? To get the feed for these cows, we should establish a rotation to consist of corn, clover, and some kind of small grain, but the principle dependence should be placed upon clover and corn. Indeed, I believe it possible and profitable on a level farm, or one only slightly rolling, to establish a two year rotation consisting of corn and clover. This can be done by seeding the clover in the corn at the time of the last cultivation.

In this connection, I desire to point out the necessity of a silo on a northern Wisconsin dairy farm. I believe there is greater need for silos in this section than further south, for the reason that the seasons are shorter and the weather cooler and more moist, making it more difficult to mature and cure out our principal crops. When they are put in the silo they are stored in the best possible condition, and now just a word as to how good corn silage can be made in our part of the state.
A variety of corn should be grown that will mature in ordinary seasons. Even though it does mature, the stalks will contain more juices than the same variety grown farther south, and it will greatly improve the quality of the silage to dry the corn out some before putting it into the silo. I have never thought that frost injured corn any, except to stop its development if frosted before maturity. In case of frost it is necessary, of course, for best results, to ensilo the corn before the leaves are damaged by the weather. Silage made from corn handled in this manner can be fed in much larger quantities and with better results than if made from corn that from any cause contains too much moisture. Most of our cows will eat a well packed, well rounded bushel basket of this silage, each, twice a day, and thrive upon it as they would upon good pasture.

I have had no experience with clover silage except what was put into our silo mixed with the corn, but I have seen it on other farms, and I have come to the conclusion that hereafter it will pay me to, each year, fill one of my silos with clover.

I have gone to this length to discuss silos because I believe the future of the dairy industry in our section clearly hinges on their construction and proper use.

Our seasons up north are short at best, but while they last crops make a rapid and vigorous growth. One field of flint corn on our farm made a gain of 100 inches in 30 days, which was on an average of better than 3 inches of growth per day throughout the month of July. While this growing period is on, our stock is, of course, provided with the best feed that nature produces in the form of pasture. By the use of silos, our farmers can extend this favorable season over the whole year.

To return again to the question of fertility and the facts are, of course, that other things being equal, the farmers' profits from his work are in direct proportion to the richness of his soil. However, if the Northern Wisconsin farmer depends upon the plant food placed in his soil by Nature, for his profits, he will be disappointed. Opportunities in his case do not lie in the richness of his soil, but in the fact that his soils can be made and kept rich by growing clover without extra expense or labor except what he gets pay for. A crop of clover for feeding purposes is worth as much as a crop of wheat, and it has the additional advantage that after it is consumed it furnished sufficient plant food to grow a crop of grain. So our farmers
are none the worse off for this lack of nitrogen in their soil, but rather fortunate, as they will be forced in the beginning to depend upon the air as a source of their plant food, and not entirely upon the soil as many are doing at present.

The same conditions that make clover so valuable to the North Wisconsin farmer, also make his farm manures one of his most valuable assets. To keep his land up to the highest state of fertility, the farmer must carefully save, and scientifically apply every fork-full of manure he produces on his farm. Another way in which the farmers of this section can materially increase their incomes is to improve the pastures for their cows. As these pastures are managed now, they do not, as a rule, furnish the feed they should. Every permanent pasture should be divided into at least two parts, and every other year, early in the spring, one of these parts should be gone over with a disc or a sharp spring-tooth harrow. This should be seeded to clover, and the stock kept off from it until it makes a good growth. The two parts should be alternated in such a way as not to permit either to be eaten down too closely.

In the matter of stock, the farmers of Northern Wisconsin must do as the best farmers are doing everywhere. That is, they must keep stock that has been bred for dairy purposes.

While the matter of feed and care is all important, our farmers cannot hope for the best results unless the question of breeds is also carefully considered.

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**DISCUSSION.**

Mr. Imrie: Mr. Nordman stated that he could raise a cow per acre. That is on cultivated land, you mean, you don't figure in pasture?

Mr. Nordman: No, sir, not so far. I am not keeping a cow per acre for all the land that we use, but I think it can be done and will be done by the best farmers in a very few years.

A Member: Do you market your product at the great northern cities, or do you send it to Milwaukee and Chicago?

Mr. Nordman: Most of our product is sent to the creameries.

A Member: Wouldn't St. Paul or Minneapolis be better than Chicago for you?
Mr. Nordman: No, sir, we live on the eastern side of the state.
Mr. Imrie: We live thirty miles from St. Paul, but all our butter goes to Chicago and New York.

Mr. Convey: Mr. Nordman states that he thinks it would be possible to have a two-year rotation. Do you think you could farm all of the farm in that way or just a portion of it?

Mr. Nordman: No, in our case we could not farm all of it that way. I think I stated that only the level portions would permit of that. You take land that is more or less rolling and it washes too badly to permit of that, but where the land is level it works all right.

Mr. Convey: Do you think that would be ideal farming?

Mr. Nordman: I would like to have you point out what the trouble would be.

Mr. Convey: Wouldn’t you prefer to have a three-year rotation, don’t you think it would be more desirable, on all your farm?

Mr. Nordman: No, sir, not on all of it.

Mr. Convey: I mean all that is cultivated.

Mr. Nordman: We have in the neighborhood of twenty acres of land that you cannot grow corn on at all, on account of the washing, and in that I think the two-year rotation is also desirable. We have to substitute peas for corn. Now, I do believe that you can keep the largest quantity of stock on your farm by following that two-year rotation, because you get more feed from your corn and in your clover than you do from the grain.

Mr. Convey: What would you do for bedding in a case of that kind?

Mr. Nordman: Sawdust.

Mr. Everett: Where do you get the protein feed for your work horses?

Mr. Nordman: I can afford to buy it.

Mr. Scribner: Have you ever seen any bad results from using sawdust for humus?

Mr. Nordman: We don’t depend on sawdust for humus, we depend on our clover. This is hardwood sawdust and I haven’t seen any bad results from it.

Mr. Scribner: Do you grow rape?

Mr. Nordman: Yes, I have sowed rape in the last cultivation with corn, but not with very good results.
Mr. Hill: What success have you had growing clover?
Mr. Nordman: It is all right on level ground.
Mr. Everett: Don’t you think you might get too much clover in a twoway rotation?
Mr. Nordman: No, I don’t think so, though I am not prepared to state positively.
Mr. Scribner: Maybe you would get the land clover sick.
Mr. Hill: I have got a piece of land on which I am alternating grass and clover—corn and clover, putting it in grass one year and corn and clover the next year. I have got it sowed the third time now. I haven’t been very successful with the clover part of it.
Mr. Scribner: What kind of clover do you sow?
Mr. Hill: Medium Red clover.
A Member: What success have you had with alsike?
Mr. Nordman: It grows very well in Northern Wisconsin.
A Member: I mean alfalfa.
Mr. Nordman: On a piece of land that is more or less rolling, it is pretty hard to get alfalfa started, for the reason that you cannot work the soil sufficiently to get a good seed bed. A rain storm is liable to come along and wash your land all full of ditches. On land that is level, we can grow it about as well as in most other sections. You have got to prepare a good seedbed for it and have the land rich.
Mr. Jacobs: Wouldn’t it be advisable to select some level land when you go up there to settle?
Mr. Nordman: When I selected that land I wasn’t old enough to judge, at least I didn’t use good judgment, I confess that.
A Member: Have you ever tried to raise any Kentucky blue grass?
Mr. Nordman: The Kentucky blue grass tries us.
A Member: Are you sure it is Kentucky blue grass?
Mr. Nordman: No, sir, this is Wisconsin blue grass.
A Member: That is different from Kentucky blue grass.
Mr. Scribner: In name only.
A Member: I have both on my place.
Prest. McKerrow: Does it continue different after you have grown it several years?
A Member: Yes, the Kentucky blue grass has a different green, and it has a large grain and a larger berry; the berry is almost like chess and it grows in bunches. It must stand a few
years before it makes good pasture, and the longer it stands the better it is. I have it growing in my pasture, and I like it.

Mr. Utter: Are there not two kinds of Kentucky blue grass?

Mr. Cowan: I did not intend to take part in this discussion, but I cannot afford to see my old friend, Kentucky blue grass, misrepresented by saying it is a grass that will grow only in bunches. If there is any grass that deserves credit above all other grasses for the stock farm, in the Central States, it is what we call the Kentucky blue grass, and it is a grass that, as that gentleman says, will grow almost anywhere, and will root out almost any other grass that grows, and it is a grass that sods over completely your farm, as thick a sod as any grass that I know of. In the Central States, Missouri, Iowa, Indiana and Ohio, it is absolutely the best grass that the stockman can grow, take it the year around. So I think that the grass the gentleman refers to must be some other grass than Kentucky blue grass, because it forms a complete sod all over and a very stiff sod, so much so that it will get into your clover pastures and into your timothy pastures or meadows in a few years and you will have neither clover nor timothy, but a solid sod of blue grass.

A Member: It takes a year before it gets started.

Mr. Cowan: If you put seed enough in the ground the sod will form very quickly, but the longer it stands the thicker the sod and the better the pasture itself.

Prest. McKerrow: Of course there may be different varieties of blue grass, but the late Dr. John A. Rice brought at different times Kentucky blue grass seed from his old home in the blue grass district and sowed it on his Waukesha county farm, and he told me after several experiences that he would never do it again, because Wisconsin blue grass was the same for all practical purposes as the Kentucky blue grass.

A Member: If I think of it next season, I will send you the seed of these two varieties? We also have what they call orchard grass.

Prest. McKerrow: That is very rank.

A Member: We also have what they call quack grass.

Prest. McKerrow: Please don’t send any quack grass seed.

Mr. Convey: I would like to ask Mr. Nordman if he has had any experience with Angora goats in Northern Wisconsin farming, and what he thinks of them.
Mr. Nordman: Yes, I have had experience with Angora goats, and—

Prest. McKerrow: He is pretty slow in answering.

Mr. Wylie: Tell it, tell it.

Mr. Nordman: They are all right in their place. I will tell you, the goats will help very materially to clear the land if it doesn’t cost more to confine the goats than it does to clear the land. Of course that is a thing you have got to study for yourselves.

Mr. Scribner: Mr. Nordman touched on one point which I think is very useful and that is putting up some clover for summer use. We did not make a success in making ensilage out of it, the part which was not cut but I believe the proper thing to do, is to make some clover ensilage; it helps, not only in the summertime, but in the wintertime. I don’t think our cows ever did as well as this past year when we put up some clover silage, it helped to carry our cows through the bad times, in July and August. I want to ask Mr. Nordman, how many silos have you?

Mr. Nordman: Two.

Mr. Jacobs: What was your experience in feeding this clover? I understood you put it in in June. Now, what was your experience in regard to its spoiling as you fed it?

Mr. Scribner: You have got to be a whole lot more particular in putting in clover silage than corn. You have to have a great deal of moisture with it. If I were doing it over again I should add some water to it while we were filling.

Mr. Nordman: I want to say in regard to Northern Wisconsin, I believe there are enough natural juices in these clovers to keep clover all right in the silo. I believe we have more moisture in our northern crops of all kinds than you do south.

Mr. Imrie: Did you cut this clover or put it in without cutting, Mr. Scribner?

Mr. Scribner: We ran it through the feed cutter.

Mr. Nordman: Did you find that more expensive than making hay?

Mr. Scribner: No, I don’t think so.

Mr. Convey: Is it more difficult to cut or handle than corn silage?

Mr. Scribner: No, I don’t think so; we used our ordinary horse mower and other tools.
Prest. McKerrow: You say you have two silos, Mr. Nordman. What kind are they?

Mr. Nordman: One is partly wood and partly stone, and the last one is one that is made entirely of concrete. It is not completed yet, I didn't have time to finish it this summer, so I arranged it so I could complete it later on.

Prest. McKerrow: Is there any roof on it?

Mr. Nordman: Yes, we put on a temporary roof.

Prest. McKerrow: Which would you prefer, the concrete or the wood and stone?

Mr. Nordman: I would prefer the concrete every time. This concrete silo I believe for cheapness and efficiency has all other kinds of silos beaten.

Mr. Everett: How thick are the walls?

Mr. Nordman: They are six inches, well re-enforced. It is a solid concrete silo.

Mr. Everett: Does it freeze any more than in a wooden silo?

Mr. Nordman: Not a bit worse.

Mr. Convey: Did you put 2 by 4 pieces in your wooden silo?

Mr. Nordman: No, it was a silo that was lined inside.

Supt. McKerrow: What was your air space?

Mr. Nordman: It was entirely open at the bottom, no protection there; it was practically the same as one thickness.

A Member: What do you re-enforce with?

Mr. Nordman: With No. 9 wire, not smooth wire, about two to the foot. Every layer around we put in an extra wire; the wire cost only three or four dollars, as I remember it now.

A Member: What shape is your silo?

Mr. Nordman: Our silo is square. I would not recommend that shape for general use, but in our case we were obliged to build it that way in order to have the door where it would be handy at the corner. We built the silo to fit the place.

A Member: What would you do if you couldn't raise clover? In Southern Wisconsin we have a good deal of trouble with clover winter-killing.

Mr. Nordman: You ought to ask the Southern Wisconsin fellow that question.

-Supt. McKerrow: You would have him sell out and come north.

Mr. Nordman: I think it would be advisable.
Mr. Convey: Is your re-enforcement of much value in a square silo?

Mr. Nordman: Yes, it should be placed on the outside always, or near the outside, and in that event it strengthens the silo just as it does all re-enforced concrete work.

A Member: Is it continuous, does it extend all the way around?

Mr. Nordman: Yes.

A Member: Did you use some stone?

Mr. Nordman: I used more than half stones, these little cobble stones that we have up north in our section and it lessened the amount of cement that I had to use about one-half. This silo holds about 100 tons and the material that I had to buy only cost me $38.

Mr. Jacobs: But you hadn’t material enough to finish it you say?

Mr. Nordman: It holds 100 tons now. I will make it 16 feet higher and then it will hold 200 tons, or more.

Mr. Imrie: Do you think that is a safe proposition, to use more than half stone? In talking to an inspector on concrete work, he said they were allowed to use 40 per cent green rock without weakening it.

Mr. Nordman: I couldn’t tell as to that. The way we mixed our concrete was by mixing good, coarse gravel and cement one to five. Then I put stones enough in with the gravel so there was a good connection, and that is all. We dumped the stones right into the mixture after the water had been added.

Mr. Scribner: Some lay in concrete and then put in a layer of stone.

Mr. Nordman: Yes, we did that in building the foundation for the sheep barn, but in this case we mixed it together and it was quicker work, shoveled it into the hole. It has been very satisfactory, we have got a good, solid structure.

Mr. Scribner: Would you build a round silo in the same way?

Mr. Nordman: Yes. Mr. Imrie has a form for a round silo that is very good.

A Member: Did you plaster up the inside with cement, or was it smooth enough?

Mr. Nordman: In our case it was not. Our forms were common boards that warped considerably. The stones worked right out next to the boards, so that it was an even surface ex-
cept that in some places the boards projected more than others when we were filling. It was not a good form to have, these common boards won't do, because they warp too much.

Mr. Imrie: If you have a smooth form I don't think it is necessary to plaster. Give it two coats of cement whitewash and it is smooth, especially if this form is lined with galvanized iron.

Mr. Convey: I suggest that you ask Mr. Imrie to bring that form here tomorrow.

Supt. McKerrow: Yes, I will request you, Mr. Imrie, to bring in the form of the Farmers' Institute silo. Some of these fellows have fixed up this form for a round silo and it has been a great success and we have christened it the Farmers' Institute Silo, and you will see it tomorrow.

Mr. Convey: About what per cent of northern Wisconsin that is capable of being cultivated is actually under cultivation, or, to put it another way, about how much undeveloped land is there up there yet?

Mr. Nordman: You mean land which would make good agricultural land?

Mr. Convey: I mean that is capable of being cultivated?

Mr. Nordman: Oh, we will call it 60 per cent.

Mr. Convey: No, I guess you don't understand. I ask you how much is under cultivation that is capable of being cultivated.

Prest. McKerrow: That would depend on how far south he draws his line, I suppose. Are you in the north third or below it?

Mr. Nordman: We are in the north third; not one-fifth of the land is cultivated, is being farmed or is settled.

A Member: I don't think there is more than one-twentieth.

Mr. Nordman: I guess you are nearer right than I am.

Prest. McKerrow: Mr. Nordman said 'settled,' meaning by actual settlers. This question as to being cultivated I think the gentleman who says not more than one-twentieth is probably nearer right on that.

Mr. Convey: With a 160-acre farm, how many acres can you actually use in keeping cows?

Mr. Nordman: Why, all of the best of it. I want to say right here, and this advice isn't going to cost you anything, I am talking now especially to young men, some who are go-
ing up north to take a farm, I want to advise you to get small farms. Do not spend your lives clearing up 160 or 200 acres of land and get no benefit from it in your life time; take from 60 to 80, or perhaps less than that, and cultivate it thoroughly, establish your rotations, and get to making a living, and you can do it just as well as they can in central Wisconsin or southern Wisconsin if you have herds, and you will not have so big a burden on your hands. You can make a living all right.

Prest. McKerrow: Will that include a wife and family?

Mr. Nordman: That will include a wife and biggest family they can raise.

Mr. Everett: I have been a good deal interested in the discussion of these three gentlemen. It has in a measure given me some encouragement. I get a good many letters, sometimes as many as a hundred a day, asking questions all the time, and I get discouraged sometimes at the character of those questions, and I have wondered a good many times what was becoming of the farm institute work, if it was not degenerating, and I especially had that thought in my mind when I received a letter the other day asking if it was all right to put marsh hay into the silo. I have rather concluded that why the institute work is not so effective possibly is because my friend Convey is back in the work this winter. I used to travel in the farm institute work with friend Convey and he always had the last question, he made us all kinds of trouble, just as he does now. I remember one time that a good, sharp Irishman up in the western part of the state got after him, and if any one ever saw Convey downed, it was then and there. He began to talk carbohydrates and potash and about microbes in milk, etc., and he wound up by saying, "You want to be careful when the microbes begin to crawl up the capillaries," and sat down. After we got over to the hotel I said, "What on earth was the matter with you, talking about microbes crawling up the capillaries?" and he said, "By golly, the fellow had me up a tree and I had to say something."

Prest. McKerrow: Now, Everett has told a story on Convey, so I must tell one on him. We were holding a very large institute at Manawa, Mr. Everett had given one of his very learned talks on the dairy cow, and the discussion was on and there was the same kind of an Irishman that he has been talking about who sat back in the audience. Another gentleman
asked Mr. Everett what kind of a calf he would buy to make a good dairy cow, and Everett straightened up and began to work his mind so he wouldn't step on the Jersey or the Guernsey or Holstein breeders' toes, and seemed to be at a loss what to say, when this Irishman spoke up, way back in the audience, and said, "A heifer calf, of course."

Mr. Everett: Now I will have to tell a little story on McKerrow.

Prest. McKerrow: It is time to close this meeting.

Mr. Everett: I think the audience will overrule the chairman and I think I have a right to close. I have not only been in the institute work with my friend Convey, but I have been in the same kind of work with McKerrow; he and I used to travel together in this kind of work and we were together up at Algoma at an institute fifteen or twenty years ago. He had been giving one of his most excellent sheep talks, as he always does, and he gives them better as he grows older, because he is getting pointers constantly from his boy, and down in a front seat sat an old German farmer who had been sitting there all through the meeting, just sitting back in his chair listening without saying a word. George finished up his story and the old German said to Mr. McKerrow, "I would like to ask you a question," and you know McKerrow likes to be asked questions, especially on the sheep subject, and it is pretty hard to find one that he can't answer, so he says, "Of course, go ahead and ask any question you wish." Well, the old gentleman says, "What is it that makes black sheep?" McKerrow's head went down at once, he looked serious in a minute, and I saw at once he was up a tree. The old German rather enjoyed his discomfiture and kept grinning, and let McKerrow stammer and stutter for a while, then he says, "Would you like I shall tell you?" "Well, yes," Mr. McKerrow says, "you may answer the question." "Well," he says, "it is the black wool."

Adjourned to next day, 9:30 A. M.

The convention met at 9:30 A. M.
Prest. McKerrow in the chair.