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Forty-first annual report of the Wisconsin Dairymen's Association : held at Ashland, Wis., December 10, 11 and 12, 1912. Report of the proceedings, annual address of the president, and interesting ess...

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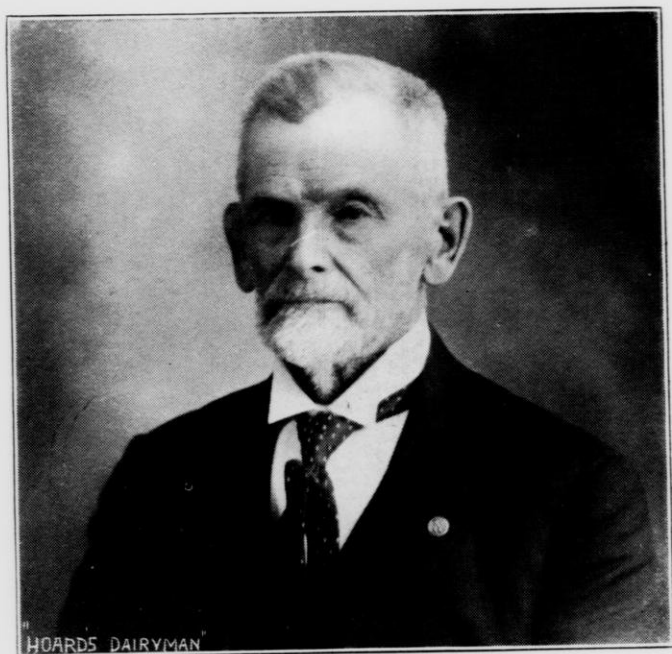
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C. P. GOODRICH

FORTY-FIRST ANNUAL REPORT

OF THE

WISCONSIN

Dairymen's Association

HELD AT

Ashland, Wis., December 10, 11 and 12, 1912.

REPORT OF THE PROCEEDINGS, ANNUAL ADDRESS OF THE
PRESIDENT, AND INTERESTING ESSAYS AND DISCUS-
SIONS RELATING TO THE DAIRY INTERESTS.

COMPILED BY

A. J. GLOVER, Secretary.

MRS. A. L. KELLY, Stenographic Reporter.



MADISON, WISCONSIN
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1913.

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Elk Mound, Wis.

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LETTER OF TRANSMITTAL.

WISCONSIN DAIRYMEN'S ASSOCIATION,
Secretary's Office.

FORT ATKINSON, WIS. JULY, 1913.

To His Excellency, FRANCIS E. MCGOVERN,
Governor of the State of Wisconsin.

Dear Sir: I have the honor to submit for publication, as provided by the law, the Forty-first Annual Report of the Wisconsin Dairymen's Association, showing the receipts and disbursements during the past year, also papers relating to the dairy interests read and discussions had at the annual convention held at Beloit.

Very respectfully,

A. J. GLOVER,

Secretary.

TRANSACTIONS
WITH
ACCOMPANYING PAPERS AND DISCUSSIONS
OF THE
Wisconsin Dairymen's Association
AT THEIR
Forty-First Annual Convention

Held in Ashland, Wis., Dec. 10-12, 1912.

President E. C. JACOBS in the chair.

Prayer, REV. MR. JORDAN, Ashland.

ADDRESS OF WELCOME.

DR. J. M. DODD, MAYOR OF ASHLAND.

Mr. President of the Wisconsin Dairymen's Association, Ladies and Gentlemen: It indeed affords me a great deal of pleasure to extend the hand of welcome to the Association and I will not stop at that, I will extend both hands; in fact, I would rather receive you with open arms, and I am sure I represent the sentiments of our people when I speak in this way.

Those of us who have lived in this community for the last quarter of a century, have watched the growth and development of this section with a great deal of interest, and in fact so great is that interest that our lives are wrapped up in the proposition and our destinies are cast with those of the country. When I

came here, I came from an agricultural section of the country, having lived on a farm when a boy, and I missed the evidences of farm life very materially. The plow was something I did not see here for a long time, and I almost forgot what a mowing machine looked like, but those things have become very important implements and influences in our daily life in this section of the country.

First, the lumberman came and reaped his crop with success, but he left behind him desolation. Now the farmer has come and he is converting the choppings into fertile fields, he is reaping annual crops and his land will continue to yield indefinitely. I can remember a few of us who came up here, had been accustomed to having gardens at home, so we planted a few hills of potatoes in our back yards. We had been told emphatically that we could not raise anything on this red clay, but we were surprised to find that the potatoes grew very well. We soon noticed that along the tote roads in the woods, clover began to spring up, and it grew as we had never seen it grow anywhere else. A few of the more energetic and hopeful farmers cleared up a little land and they found it was productive, that they could grow almost anything they planted on it if they took proper care of it. So it went on and on, until we find now that we can grow here, about as well as they can anywhere else, almost any of the things adapted to this climate. We have tried various crops; there is no trouble in making a success of growing potatoes in certain kinds of soil, we can raise corn under certain conditions for certain purposes, but we find we can raise clover better and more profitably than anything else, and that brings us to the subect of dairying.

A few years ago people kept but few cows; and struggled along with them through the long winters by feeding and caring for them as best they could, but it was not a very promising industry. Along comes the silo and it simplifies the matter of feeding cows, and makes winter, the heretofore unproductive and expensive season, the one most productive.

I trust your meeting will be very profitable. Thank you.

RESPONSES.

Mr. C. P. GOODRICH, Fort Atkinson.

Mr. Mayor, Citizens of Ashland and Mr. Chairman: I am glad to come here because I know we are welcome, and that makes me feel a great deal better than to go where I am not welcome, because I tried that from 1861 to 1865. Some of the time I was trying to go where they didn't want me, and I can tell you there wasn't a bit of fun in that.

We are here to talk over dairy matters. Now, we old fellows who have been at work in the business a great many years and come from the southern part of the state, do not yet know it all by a great deal, so we are here to talk over those things that interest us and to learn from one another. There is no one that knows so much but that somebody can tell him something he doesn't know. There is no one that knows so little but that he knows some things some other fellow doesn't know.

Wisconsin has become the greatest dairy state in the union. It produces more butter and cheese than any other state, and it is growing very rapidly in this respect, but we would like to see it being carried on more profitably than it is.

I came to the southern part of the state over sixty-six years ago. I know for many years the general opinion was that there was more than half of the state that was not good for anything, except to grow trees; it was never supposed it would be an agricultural country; in fact, a good many years ago we never dreamed there was any good country north of us, but I am well satisfied from what I have seen of the northern part of the state that it is going to excel the southern part in the dairy business.

MR. CHARLES L. HILL, Rosendale.

I am glad to say I have been to nearly every State Dairymen's Association since 1887, and I never went to one yet that I did not go back home full of enthusiasm to take up the work that the Norwegian calls "yust pulling teats," with a little more enthusiasm than before I went. I never brushed up against any man who was "pulling teats" or was in any way connected with

the dairy industry, but that I learned something from him that I could put in practice on my own farm.

We little realize the magnitude of the dairy industry. We know some things and talk about our particular end of it; it may be from the breeders' or the feeders' standpoint, or it may be from the milk dealers' and it may be from the standpoint of the dairy machine men, or the men who manufacture barn equipment, but we can hardly imagine anything about the other lines of work.

Wisconsin produces forty per cent of all the cheese produced in the United States at this time, and not only does Wisconsin produce a large percentage of the cheese manufactured, but it produces a larger variety, more different kinds of cheese than in any other state or territory. I am sure it would surprise most of you if you knew how many different kinds of cheese we produce here,—I know it surprised me very much when I looked into the subject a short time ago.

If any of you had the privilege of attending any of the great dairy shows this year, at Waterloo, Milwaukee, or Chicago, you had a pretty good chance to learn considerable in reference to the dairy industry as it is and perhaps is to be. Some of the dairy machinery people took from \$3,000 to \$5,000 worth of machinery to those shows for exhibition purposes just to give people an idea of the magnitude of that side of this industry. And still we can keep on studying to realize better what there is in it. We are apt to deal in figures to such an extent that they do not mean much. We say, for instance, the dairy industry in Wisconsin brings in eighty or a hundred million dollars a year. It is easy enough to say that, but almost impossible to conceive what it actually means. We can't realize even what a million is. A man attempted once to make a million marks on a sheet of paper in a week. He worked day and night and had to have alcohol dropped on his wrists in order to be able to keep up the work, and he finally failed. Now, if one million means that, what would eighty million mean? This illustration was used in relation to the cost of the drink traffic in this nation, but the figures will apply just as well to our business. If it included the entire number of cattle in the United States, we would have to say about sixty-one million. Perhaps an illustration will bring that nearer home. It is said that if you took sixty-one mil-

lion head of cattle and had them all corraled at Eastport, Maine, and would start West, putting them four abreast on the highway, and go to Seattle, a distance of three thousand miles across the country, and down the coast to Los Angeles and back to Eastport, Maine, when the first of them got back there, two-thirds of them would not have started. That will give you some idea of the magnitude of the dairy industry in the country and when you think that this industry brings into Wisconsin something like \$81,000,000, you may begin to realize something of its magnitude.

On many farms this morning, the farmers got up and lighted their lanterns—if they didn't have an electric plant on their farms,—went to the barn and began to milk their one to twenty cows, as the case might be, and each contributed his little mite to the eighty million dollars. Others contributed a great deal more. I have in mind one farmer who told me that up to the first of December there was \$14,000 profit in the milk produced on his dairy farm. He has a little over two hundred cows and receives an average of 31½ pounds per day per cow, and for every quart of milk he received 12 cents. You see cows producing fifteen quarts of milk a day which sells at 12 cents a quart, brings \$1.80 each and estimating the average cost of feed for the 200 cows at 26 cents each you can see where the nice profit of \$14,000 in eleven months comes in.

Of course very few of us are capable of running such a farm, there are too few of that kind of farmers. The bulk of farmers who make up this \$80,000,000 are those who have about ten cows milked by the farmer himself.

A. J. GLOVER, Fort Atkinson.

We came to Ashland not expecting to meet a large number of already successful and well-seasoned dairy farmers, but with the expectation of finding men who were thinking, at least, about the dairy cow, about the relation of dairying to agriculture, and how to get into this work and in the right way. We are here to help these men.

We do not make a great deal of noise about the Wisconsin Dairymen's Association, but I think we are doing good work. We receive the sum of \$3,000 a year from the state of Wisconsin

and for every dollar the state puts into our hands, the farmer puts in nearly two dollars more. With that small appropriation of \$3,000, we are keeping fourteen men at work the year around for this state. We are here to call your attention to the importance of the dairy industry, and if we do no more than to interest five or six good farmers in each community in the dairy cow and get them started right, I think our work shall have been well done.

Mr. Scribner called to the chair.

President Jacobs: I want to add a word to what Mr. Glover has said. I was not particularly enthused at first with the idea of coming to Ashland. I thought perhaps it was too new up here, not enough farmers, but we received some urgent letters from some of your citizens and so we are here, and I believe we have come where we are wanted. My experience has shown that we can do a great deal more good with a few people that really want to learn that with a big crowd who are indifferent. So I also can say I am glad we came to Ashland.

PRESIDENT'S ANNUAL ADDRESS

E. C. JACOBS, Elk Mound, Wis.

We have met here in Ashland to hold this, the 41st annual meeting of the Wisconsin Dairymen's Association. I trust that we have brought to this meeting, and that it will manifest itself at every occasion, the same spirit of helpfulness, and devotion to the dairymen's welfare, that has been ever present at former meetings of this kind.

The immediate necessity which prompted the organization of this association, and which first engaged its attention, was the lack of transportation facilities, although that was by no means the sole purpose of that loyal band of pioneer dairymen. At that time, Wisconsin had forty cheese factories, no creameries, and the annual income from dairy products was about one million dollars. Compare this with the 1928 cheese factories, 1005 creameries and 19 condenseries in operation in 1910, and our present annual income near the one hundred million mark.

When we consider this rapid growth, and the fact that northern Wisconsin, an empire in itself, is just beginning to demonstrate its value as a dairy section, no man will dare predict the growth of the dairy industry for the next forty years.

While it is not claimed that the Wisconsin Dairymen's Association has been the prime factor in this wonderful development, it has ever been alive to the best interests of the dairyman, I believe, and this belief is the result of personal experience, that the knowledge and inspiration that this association has been able to disseminate, has been the means by which thousands of farmers have been able to better their conditions. It has enabled them and their families to live broader and happier lives.

It is not best for us to spend too much time in contemplation of the past, but rather to earnestly promote the work that has been so well begun.

We need not dwell on many lines of work that took the attention of this association in the past, because much of this is now being done by the Dairy School, the Farmers' Institute, the Cheese Makers' Association, the Dairy and Food Commission, the Butter Makers' Association, etc. These organizations are all direct and legitimate descendants of the Wisconsin Dairymen's Association, of which we are justly proud.

GETTING EFFECTIVE WORK DONE.

I hope soon to see a better system of organization for governing the activities of all the different agencies that are at work for the upbuilding of agriculture, that a duplication of effort may be prevented, and more effective work be done.

This association, of late years, has given special attention to aiding farmers in weeding out the unprofitable cows of their herds. This has been done not only by showing the necessity of such elimination, but by organizing cow testing associations for the purpose of keeping an individual record of the production of each cow.

The term "weeding" has well been applied to the culling out of the unprofitable animals of the herd. The herd, like a growing crop, if left to itself will result in loss and failure to its owner, whereas with a thorough weeding it will result in profit and success.

The boarder cow is a tax on the dairyman. It is for her that many farmers work hard during the day to provide her with feed, and then they spend part of the night trying to extract a little milk from this beast which if intended for any use by the Creator, was certainly not intended for a dairy cow. She occupies the room in the barn, and eats the food of a cow that would render a profit. She robs the farmer of many comforts and luxuries that would make life easier and pleasanter.

I will not burden you with the evidence which proves the magnitude of the loss caused by poor cows, or rather the difference in profit between the poor cows and good cows. All who have made investigations along this line are agreed that it is great, and that to escape it, it is necessary to know what each cow in the herd is producing.

Not the least advantage derived from a yearly record of each cow is the interest created in better breeding, better feeding, and better care. Many cows that would otherwise be unprofitable are thus made profitable, and others are made to increase their profits.

The subject of cow testing will be taken up at this meeting by the representative of the association who has charge of the work. I know he will be able to give a reason for "the truth that is in him," and I trust that much good will come from his handling of the subject, and the discussions that will follow.

MORE COWS ARE NEEDED.

The farmers of Wisconsin need not alone to have good cows replace the unprofitable ones, but they need more cows—many more good cows. According to the last census the average number of cows per farm is 9—ranging from 2 in Forest and Oneida counties to 18 in Green county. Ashland county has 3.8 cows per farm.

Although the population of the United States is increasing rapidly, the number of cows is decreasing. We are importing three times as much in dairy products as we are exporting.

The larger cities are reaching out farther each year to obtain a sufficient milk supply, and as it is customary in this territory to veal the calves, few cows are raised. Last year there were marketed in Chicago a half a million veal calves, many of them heifers. I believe a great opportunity is before Wisconsin farm-

ers in supplying the demand for dairy cows that already exists and that is sure to increase. We shall need all we can raise for many years, if the farms that are already under cultivation are to be adequately stocked.

Owing to the direct profits of the dairy business, and to the fact that it conserves the fertility of the soil, as no other system of farming does, it will be found that where dairying is practiced intensively, land is the most valuable. On the Island of Jersey, land is worth \$2,500 per acre, and rents for \$50 per acre per annum. The Jersey cow is the basis of the business that justifies this extreme value.

Patrons of creameries are especially well situated to make the rearing of dairy heifers a source of profit. However, in order to do this, cows must be kept that are good producers, and a well bred dairy bull must head the herd. The rearing of calves for dairy purposes that are not at least one-half blood of one of the recognized dairy breeds, can not be expected to be profitable and usually will be attended with loss and disappointment.

No small part of the enviable reputation enjoyed by Wisconsin's dairy products and dairy cattle, is due to the care which has been exercised to prevent the spread of tuberculosis among our herds.

STATE AID WILL BE WITHDRAWN.

The state has done much in the past to aid in this work, but July 1st, 1913, all state aid is to be withdrawn and dairymen will be obliged to combat this disease, without being indemnified by the state for the loss of tubercular animals. In the interest of the public health, and to protect Wisconsin's greatest industry, I believe that prompt and wise action should be taken to eradicate tuberculosis from Wisconsin herds.

I would call your attention again at this time to oleomargarine legislation. The battle against oleomargarine being sold in semblance of, and for butter, has been waged long and successfully. There, however, remains the same determination on the part of the manufacturers to sell their product in a manner to deceive the consumer, that existed when the war began. It is another case where "vigilance is the price of life." It behooves all friends of the dairy industry, and of a fair deal to aid in de-

fense of the law that protects an honest product from being counterfeited, and assures the consumer of getting that for which he pays.

Much time has been spent in the past in explaining the advantage of feeding silage and urging farmers to build silos. This is no longer necessary, for the value of silage and silos is too well recognized. The question now before us is how to build the best silo, and this will be answered by a man whom you will all recognize as an authority in this matter.

ALFALFA WILL GROW IN WISCONSIN.

We have another subject to bring before you that we believe in as fully as we do the silo, although it is comparatively new to a majority of Wisconsin farmers. I believe that alfalfa is destined to become as popular among dairymen as the silo is at present. Its successful growing is only a matter of knowing the necessary conditions demanded by the plant, and, where they are lacking of supplying them. We hope at this meeting to be able to increase our knowledge of growing alfalfa in Wisconsin and to enlist many converts in behalf of this most valuable forage plant.

In closing, I wish to extend my thanks to the members of this association for the honor conferred upon me and in the name of the association I wish again to thank the good citizens of Ashland for their cordial welcome and for the most effectual aid in preparing for this meeting.

Chairman Scribner: It is my privilege to be connected with the Dairy Division at Washington, of which we are all very proud, and feel that it has done a great deal for the development of the dairy business. As I go through the country I find that Wisconsin is looked to as a model in a great many things, and so we have occasion, I am sure, to be proud of our state and what she is doing along dairy lines. But we are confronted with the question: How can we keep up the reputation we have? We certainly have to work to keep it up, because our sister states are a close second. We do not have to go very far across the line, even in Minnesota, to realize that she is crowding us pretty hard. If we are going to keep on progressing, we have to aim high, aim for better conditions.

Mr. Hill: Mr. Jacobs said that the average cows per farm in Green county is eighteen. That large increase is partly accounted for, of course, by the fact that they farm both sides of the land, so there is twice as much room for a cow as most anywhere else in the state. Some counties in the state average only two cows to the farm. Now, why that difference? Why do they keep only two; and the Green county farmers seventeen or eighteen to a farm? The fact is, those men are dairymen and every one of them is enthusiastic over his work. Their business is largely cheese production, although the condenseries are taking some of the milk now.

Mr. Scribner: I held a farmers' meeting in Green county at one time, and on our program was the subject of silos. The local committee in charge of the meeting said to me, "We do not wish to have the subject of silos brought up here, because we cannot make the kind of cheese we are making with silage." Of course I had to follow the program that was laid down for us, and I told him we should have to talk silo just the same, whether they wanted it or not. I gave the best talk that I could. Of course, there wasn't very much interest taken in it. Four or five year later I received a letter from that same man, saying "We have changed our minds in regard to the silo business; we are going to put up some silos in Green county; we find we can make Swiss and Brick cheese from milk of cows fed ensilage all right." And so a great many silos have gone up in that county; indeed the silo has been a revelation to those men, as it is everywhere we go; the silo is an important factor in milk production.

President Jacobs resumed the chair.

ALFALFA AND CLOVER AS FEEDS AND SOIL BUILDERS.

C. P. GOODRICH, Fort Atkinson.

Mr. President, Ladies and Gentlemen: This subject is the most important that can engage the attention of man; it is what keeps this world alive—the fertility of the soil. I am afraid the United States has started on the road that some other countries started on years ago in destroying their forests, depleting the fertility of the soil, and whenever that is done people are bound to revert to barbarism. You know about the promised land where the children of Israel were going, the land that flowed with milk and honey, well the people that inhabit that country now are pretty near to barbarism.

I am afraid we have commenced the journey on this downward road in the United States, the road that begins to rob the soil of its fertility. Now, this is not necessary at all. A good many men say "I guess I can do as I am a mind to with my own land. I can raise wheat every year and it is nobody's business." But I tell you it is somebody's business. When a man says he can do what he is a mind to with his own land and what he is a mind to do is to destroy the fertility of that land, I say he is mistaken. He is mistaken when he talks about its being his own land. You often see a man strut around boasting, "I own a thousand acres of land." "I tell you, my dear sir, you do not own an acre of land, there isn't a man here that owns an acre of land; it isn't your land, it is God's land. It was here before you came and it will be here after you are gone for your children or somebody else's children, and it is your duty to turn it over to the next generation in just as good a state of fertility as it was when you took it, and if you do not do that, you are a thief and a robber." The fact is we can keep up the fertility of the soil and at the same time feed a very dense population. The fertility of the cultivated parts of China, some of them the most densely populated spots on the face of the earth, is so great that that land is producing just as much as it was three thousand years ago, and it is simply because they keep up the fertility of

the soil even while they are feeding that immense population. Belgium is the most densely populated country in Europe to-day, yet the soil is more productive in Belgium now than it was five hundred years ago.

Men say, how can we do it? We have to raise wheat and certain crops that take lots of fertility out of the soil. But I tell you the soil can be kept up. Certain plants add fertility to the soil and they are clover and alfalfa. Clover has the ability to take nitrogen from the air and has roots that bore into the subsoil and bring up the potash and phosphoric acid and after clover has been raised on land and the roots have decayed in the soil, the land is better than it was before; those decayed roots have added humus to the soil.

Clover grows naturally in this country. But you want to keep on raising clover. If you keep cultivating the land and do not raise clover, after a while it will not be so easy to raise clover.

I know that is so, because it has been so in the southern part of the state. With clover, more than half of the product is below the ground; that decays and makes humus which is plant food, and at the same time it loosens up the soil and makes it capable of resisting drought and less liable to suffer from wet weather, more fitted to hold water to carry it through a dry season. It acts as a sort of a drainage proposition by boring down through the hardpan below.

I can remember twenty-five or more years ago, I bought some land a little way from where I live. It was originally very rich land. It lay pretty level and they harvested good crops of wheat on it. But for forty years that land was cropped to grain right along, one year after another, and never a bit of clover raised on it; no stock kept and no manure put on; and when I bought it, I didn't pay much for it; it wasn't worth much. But I will tell you what I did. The first year I sowed it to grain and seeded it to clover. Well, the grain didn't grow more than six or eight inches, but it happened to be a season that we could get a good catch of clover, and to my astonishment and the astonishment of everybody, that was as good a crop of clover as anybody had about there that year. The fact was, the fertility had been used up in the surface part by plants that had not rooted very deeply, but when clover was planted the roots had gone down and worked the subsoil. Then I plowed the clover under and after

that I got a fairly good crop, and the land has been increasing in value every year since. I kept it four years and sold it for about three times what I paid for it and it is worth three times more to-day. It was simply built up by raising clover on it. I can tell you another thing that clover did for my land. This level land had occasionally a little depression in the surface. When the land was new the water didn't stand there, but after it had been cultivated every little root held water and now the water does not stand in those depressions, the clover roots have gone down through the hard subsoil and decayed and left places for the water to get out.

Now I am going to talk about alfalfa. I have seen it growing in Washington county and it was doing finely there, but it was the opinion for many years that we could not raise alfalfa in Wisconsin. I remember at a farmers' institute near Medina I was talking about alfalfa, and the conductor, a local man, stopped me and said, "We don't want to hear any talk about alfalfa. I have tried it and it was a failure." I want to say to you, last year that man's farm had on it a magnificent crop of alfalfa; it was not a failure when it was handled right. It has failed a great many times. There are some queer things about alfalfa that we have to understand before we can raise it. Scientific people talk about nodules and bacteria. I sowed some alfalfa a few years ago on my farm and it came up sickly, it looked poorly; here and there was a bunch of soft-looking stuff. I couldn't understand it, because the land wasn't poor, but that was the way it acted. I plowed that up and planted it to corn and the following year I sowed it to alfalfa again. The alfalfa was good and I have known of a great many cases where it acted that way. I suppose in the meantime the soil became inoculated with something that it needed.

Alfalfa is different. It lives too long for some farmers, though I suppose that sounds a little queer to some of the gentlemen here, but what you want to do and what you must do to get the best results is to use alfalfa in a rotation of crops. I know some folks will say alfalfa is not applicable to a rotation, but I know it is, because I have seen it used that way. One of my sons has half of his farm in alfalfa. He keeps it in alfalfa three years; then he plows it up and has it in corn two years, the next year small grain and then seeds to alfalfa again.

There is a good deal of discussion about the right time to sow alfalfa, and it does depend a good deal on the locality. We used to sow it early and it has happened that when we sowed it in March, it just got nicely started and there came a heavy frost which killed it. Then we sowed it with a nurse crop and we thought we got it simmered down about right when we sowed about three pecks or a bushel of barley mixed with the alfalfa and cut the barley for hay, then the alfalfa would go on and do pretty well.

Then we tried sowing it alone and early, but we found in doing that, the weeds would come along too fast; foxtail, pigeon grass and all kinds of weeds would grow very rapidly and get above the alfalfa. We found that when we tried to clip off the weeds, we were apt to clip off the alfalfa, and that didn't work very well. Then finally, there was one man who had a fine stand of alfalfa. We drove five or six miles to see him, and he had a beautiful stand of alfalfa about the last of July. We asked him how he did it, and he told us he plowed the ground early, in April, and pulverized thoroughly. He wasn't ready to sow his alfalfa, so he harrowed the ground. He didn't put his alfalfa seed in then, but he kept cultivating that ground every week or so, until all the weed seeds had had a chance to germinate and he got them all killed off. It was the 24th day of June before he sowed and everybody said he was a fool to put it in then, but do you know, he had a magnificent stand of alfalfa. He had killed all the weeds and got a big crop.

I have been in southwestern Missouri and Kansas and I found alfalfa raised there, but it is sown in the fall, in September, after a crop of wheat or oats has been cut. They plow the ground and cultivate it thoroughly so as to keep down the weeds—you have to do that. Then they sow it to alfalfa and it does well, but whether that plan would work so well in the north, we don't know. I know they have tried it in the southern part of the state, and I haven't heard of any failures.

In western Iowa, near Sioux City, where one of my sons and my brother live, that is the way about all of them do it; they raise a crop of barley, then plow the land and harrow it a few times after the weed seeds begin to sprout and after the first of September, sow alfalfa.

I do not know that you can raise alfalfa in this part of the state, but I know if I lived here, I would try it, and I would try

it thoroughly, not on a big piece of land, but on a small piece first and see what it would do. If it didn't do well the first year, I would plow it up and seed down again the next year. If it did a little better then, but still not very well, I wouldn't plow it up but I would try it another year. I would keep on with it until I got it to grow. Wherever the soil has been inoculated, it does first rate. You know, in the southern part of the state we suffer with drought sometimes and it is hard to get a catch of clover, and of course, it is hard to get a catch of alfalfa, but when it is so dry that we cannot get a catch of clover at all, the alfalfa will survive; its roots go deep for water.

I want to talk a moment about the time to cut alfalfa, as that is a very important matter and where a great many people make a mistake. Alfalfa grows very rapidly; it starts early in the spring and grows very fast. When it begins to blossom, say, not more than ten per cent of it in bloom, look at the crown of the root and if you see some little sprouts starting, (those are for the second crop, the second cutting) it is time to cut the first crop. In two or three days that field of alfalfa will be growing rapidly again. If you leave it a week longer in warm, growing weather, and these little sprouts have grown maybe six inches, they are sure to be clipped off, and they will have to start from the root again to make the next crop, and it is bad for the plant. I have seen fields cut off that way that looked as though they were dead after they had taken off the first crop, and the crop was not as good either as it would have been if it had been cut at the right time; it was more woody and part of the leaves had dropped off, and of course it set back the second crop considerably. It has to be cut just at the right time. In the southern part of the state, we cut the first crop about the first week in June, then in thirty days the next crop, and in thirty more days another crop. We always expect to get three crops and sometimes four.

DISCUSSION.

A Member—Where would you recommend us to get alfalfa seed?

Mr. Goodrich—We get seed out west in Idaho and Montana. They are more successful raising seed there than we are here. I have known it to be tried in Wisconsin, but without success.

There is a peculiarity about the seed where they irrigate land. It must be dry, that is, not irrigated just before it ripens. I think the trouble with raising alfalfa seed in Southern Wisconsin is a heavy rain is liable to come just at the time you don't want it. At any rate, those who have had experience have found it best to get their seed from out West where they can regulate the moisture.

Mr. Glover—Would you advise farmers in this neighborhood to purchase it from irrigated districts?

Mr. Goodrich—Yes, I would, because I don't know how or where they can do any better.

A Member—Wouldn't the high and dry land of Montana be better?

Mr. Goodrich—Perhaps so, I don't know which would be best. Former Governor Hoard got his from Colorado, didn't he, Mr. Glover?

Mr. Glover—He gets some of it from Montana, but not the irrigated districts, and he believes it is better to get seed from fields which have been irrigated in the natural way.

A Member—Which would be the better way to put up alfalfa, to make it into hay in the usual way, or to put it up as ensilage?

Mr. Goodrich—I wouldn't put it in the silo, at least not in this country where we can raise corn. Your mayor said you could raise corn up here. Corn makes the best silage of any crop we have and we want some dry feed to go with the silage, and alfalfa is the finest kind. I have never seen alfalfa put in the silo, but I have seen clover and it doesn't make real good silage, but corn does. Alfalfa is fine feed for all stock. For dairy cows it is a great ways ahead of any other forage that we can raise, because it has such a large percentage of protein. It contains 11 per cent digestible protein which is a very necessary element in feed for dairy cows. It is also good feed for horses. Yes, I know, I have heard men object before to that statement, but I say it is good for horses, and I can tell you how I know. One of my sons has fed his horses alfalfa hay for fifteen years and that is the only hay they have had all that time. They do very well and they don't need as much grain as they do with other hay. Corn and alfalfa makes a well balanced ration. Of course, I know a good many men object to alfalfa for horses, and I would object to it unless I had somebody that used good judgment about feeding

it, because horses like it so well they will over-feed, and if you allow them to do that and then drive them on the road fast, or require them to pull hard, they are apt to get the heaves just as they will with clover.

A Member—Would you advise pasturing alfalfa?

Mr. Goodrich—Not in this country. Out in the West where the ground is solid and dry it can be pastured all right, but the crown of the root is right on top of the ground and if that is bruised, the plant is injured and it will likely die. If you undertake to pasture it and the ground becomes soft from the effects of rain, the cows tramp it too much and kill the alfalfa. It is also good feed for hogs, especially when it is cut green. It is also good feed for sheep as the sheep men have found out; they hung back a good while on that proposition. George McKerrow, the king sheepman in this state, feeds it to his sheep, and he says it is excellent feed. It is really good for all kinds of stock. It makes chickens lay and it will do you good to see how they will eat it. I had a cousin that used to run it through the feed cutter, cut it up short and then steam it for his chickens.

A Member—Do you cure it the same as you do clover hay?

Mr. Goodrich—Oh, yes, cure it just the same; in fact, it is not as hard to cure as clover hay, because it has a little finer stems. We mow it in the afternoon when there is no dew on it, and the next day after it has wilted, rake it and put it in small bunches. A good many cover the cocks with hay caps, though it will do very well without.

Mr. Currier—Do you pay any attention to the lay of the land; in other words, do you prefer level land, or slopes?

Mr. Goodrich—We put it on all kinds of land and the only kind that refuses to raise alfalfa is low land where the water line is within three or four feet of the surface, or where it is likely to be flooded,—it won't stand flooding. Right below Governor Hoard's house was a field that produced three and four crops every year, but when a wet season came along, and the water settled in the ground, the alfalfa didn't do well; it was sick; and come to find out, the roots were going down into that water. That is the only kind of land I know of that will not grow alfalfa.

Mr. Scott—I wish to state that alfalfa has been grown within 500 feet of this very building for the last seven years. Mr. Mat-

thews, the grocer, sowed it on red clay in June, and he obtained three crops every year until last year.

Mr. Goodrich—This land is just as good for alfalfa as for clover.

Mr. Glover—I want to make one or two statements regarding the value of alfalfa. One is this, alfalfa goes splendidly with corn silage, because alfalfa is rich in protein, and corn silage is rich in carbohydrates; both are important elements for feeding purposes. Feed a dairy cow thirty to forty pounds corn silage daily, and all the alfalfa she will eat, and she will do well. Our best dairy cows require a little grain, but a man can be very independent if he has on his farm a good silo and a good mow full of alfalfa. Alfalfa is not only rich in protein, the material that makes muscle and milk, but it is rich in ash, a material that makes bones.

Another suggestion is this, in feeding alfalfa hay to horses great care should be taken not to feed too much, for not only will they eat too much to interfere with breathing, but too much is apt to cause kidney trouble. The reason is this, that all protein matter taken into any body, whether it be human or horse or cow, is thrown off through the kidneys, and if you feed an animal too much protein, too much work is thrown upon the kidneys and therefore trouble follows. So, be careful not to feed a horse more than ten or twelve pounds a day per thousand pounds of live weight.

Recess to 1:30 p. m.

TUESDAY AFTERNOON SESSION.

The convention met at 1:30 P. M.

A telegram was read from Mr. J. Q. Emery, regretting his inability to be present at the meeting.

THE ORGANIZATION AND MANAGEMENT OF CO-OPERATIVE CREAMERIES.

F. D. CURRIER, Secy. Minn. Dairymen's Assn., Nicolet, Minn.

Mr. President, Ladies and Gentlemen:

I am more than pleased to be with you, the members of the Wisconsin Dairymen's Association, and hope that my coming here may not be entirely in vain but that some hint, thrown out somewhere, may be of some benefit. We have had and expect more very valuable assistance from Wisconsin at our Minnesota dairy conventions and, while I know that my coming here will not begin to repay the deep debt of gratitude due you, I trust that it may at least contribute toward a small portion of it.

With a change in the system of farming from general grain farming to a more diversified system, including dairying, the question of organizing coöperative creamery companies often comes up for consideration. This has been especially true in Minnesota, Iowa and Wisconsin and is being largely followed in states farther west and these creameries, if rightly organized and conducted on sound business principles, foretell a great future for all these states.

The local coöperative creamery, if organized and managed on a sound business basis, is an absolute necessity where the largest returns are desired from the dairy business and is putting millions of dollars annually into the pockets of the dairymen and adding to the general prosperity of the whole people. Show me a well managed and successful coöperative creamery in operation, in any community, and I will show you a generally prosperous and contented people, whether they be on the farm or in the country village.

It has been demonstrated and proved and is being proved year by year, that all other conditions being equal, the closer to the point of production of the raw material the butter can be manufactured, the better the quality of that butter and the larger the returns to the producer; hence the question of proper organization and management is of the utmost importance and, if the creamery is started on a sound business basis and conducted along those lines, failure is an unknown quantity.

The term "coöperative" is much abused and I believe that every state should have a law governing the incorporation of coöperative associations and fees to be paid by them. The law should further provide a heavy penalty for the use of the word "coöperative" by any organization that is not based on true coöperative principles; that is, any company that pays profits on capital stock instead of on patronage, and such a law should be rigidly enforced.

I do not mean by this that stockholders of a coöperative creamery or any other coöperative association should be denied a reasonable rate of interest on money invested; but, aside from that and the actual cost of operation, the balance should be divided pro rata according to patronage.

There are two ways of forming coöperative creamery organizations—a right way and a wrong way. The right way is for the farmers to do it themselves and the wrong way is to let the creamery promoter, whose only interest is from a personal standpoint, do the trick. A plan often followed and one which works out well, is for those most interested to call a meeting of the farmers of a community where such an association is desired and find out if enough farmers—cow owners—are sufficiently interested, to warrant them, from the standpoint of raw material available, in organizing the association.

One of the most important factors and one which should be given first consideration in the organization of a creamery is a sufficient number of cows from which to obtain the supply of raw material, as it takes something more than enthusiasm to keep a creamery in operation. Should it be found that the supply of raw material is not available it would be better to postpone any further action than to make a start only to be followed by failure. This is a point which has been largely, and often

purposely, overlooked by the creamery promoter and accounts for a large percentage of the failures of coöperative creameries.

I have learned from personal experience also that where a creamery company has been organized and the creamery opened for business, operated a few months or perhaps a year or so but in the course of time closed for the reason that there were not a sufficient number of cows to keep it in operation, it is like pulling teeth to again get the farmers interested in reorganizing, even if their herds have increased to that point which would justify them in making a second venture.

They will usually think that they have tried that once, to their sorrow, and do not want a second experience. I would much prefer to organize than to reorganize a creamery that had been prematurely opened for business and later forced to close for want of patronage.

With the average herds in Wisconsin and Minnesota I would not consider it advisable to organize a creamery association, build, equip and open a creamery for business without at least 400 cows within a radius of five miles from the creamery unless, perchance, there was reasonable assurance that the number would be materially increased or that they would be better fed and cared for so as to increase the production per cow.

With the cow question and the question of organization settled in the affirmative, the other considerations to follow should be: the location and kind of creamery building wanted together with cost of same, the number of shares of stock to be issued and the value per share, the cost of the necessary equipment, etc.

It will be found necessary to hold more than one, perhaps several meetings, before arrangements are completed; and at these meetings it would be a good plan to invite some disinterested party from the Dairy Department, who is thoroughly familiar with all details of the business, able to answer any reasonable question that may be put to him, willing to coöperate and render every assistance possible to make the venture a success. It might be a good plan also to invite a manager from a successful coöperative creamery in operation to some of these meetings to relate his experiences, the obstacles he had met with and how they were overcome; or to select a committee to visit some successful coöperative creamery in operation,

as a great deal of valuable information could be obtained through any or all of these agencies and we will often find it better and cheaper to profit from the experience of others than to experiment ourselves.

At some of these preliminary meetings, as early as convenient, the name of the association should be agreed upon and officers consisting of a president, a secretary and manager, a treasurer and three or more directors, should be elected. There should be two considerations in electing the officers, viz., qualification and location. By qualification, I mean reasonable ability, honesty and an interest in the success of the association; and it would be better to select these from different directions from the creamery than for all to be in one immediate neighborhood. Articles of incorporation and by-laws should also be drafted, agreed upon, signed by all members of the association and filed with the secretary of state and register of deeds in the county where the association is to have its headquarters.

The selection of a suitable site for the creamery building, one where drainage facilities are convenient, should always be given consideration before the commencement of the building, as a proper underground system of drainage, one that will take the waste product and wash water away from the creamery building, is of the utmost importance. I have known creamery buildings to be erected on low, level grounds where good drainage was absolutely impossible when, only a short distance away and just as convenient for patrons, there would be all the natural conditions for a good drainage system.

The strength of any coöperative organization will depend largely upon the number of persons interested in that organization and, for that reason, I consider it advisable to make the cost per share in a coöperative creamery low enough so that every patron may become a stockholder and that every stockholder be given one vote at any annual or special meeting regardless of the number of shares held. The cost per share of stock would be governed somewhat by the amount of money necessary to be raised as compared to the number of stockholders available and is usually fixed at from \$20 to \$25 per share. I would place a limit to the number of shares owned by any one individual as well as to the total number of shares of stock issued.

Should there be any dairymen tributary to the creamery who

do not feel disposed to take stock (you will find a few in most any community) but who wish to become patrons, they should be accorded the same privileges and be paid the same price for butter fat delivered as the stockholder patrons, as it is patronage and not the few dollars invested in stock that keeps the creamery in operation. The only difference that should be made is to give the stockholder a reasonable rate of interest on his investment and a voice in the affairs of the association.

The cost of the creamery building will depend on the size of the structure, the kind of material used and the convenience for obtaining that material and, as this would be governed largely by local conditions, it naturally follows that figures that would apply very closely in one locality might be far from correct in another. The kind of material to be used would also have to be governed by local conditions but, as there is always a certain amount of steam and dampness in every creamery building, I would consider it advisable, where practicable, to select material that will withstand this dampness.

I believe hollow concrete or clay blocks reinforced with brick and a good stone or cement floor, to be entirely practicable in most localities and; while the cost may be a trifle more than for a frame structure it will prove the cheaper in the end. Convenience of operation should always be given careful consideration in the erection of the creamery building and in the placing of the machinery, as a little premeditation and study as to conveniences of operating the plant will be well repaid. In this connection, I would say that the butter maker should be employed and on the ground before the machinery is installed, as he is to operate the plant and should be given some say as to arrangements. The machinery required to equip a creamery will depend upon the prospective amount of business and it is usually a good plan to begin only with what is actually needed, then to install such other machinery as is found necessary.

With the creamery company organized, the creamery built, the machinery installed, the operator employed and everything in readiness for the opening of business, one might conclude that responsibility ended there and then, when the fact is that no patron is exempt from a certain responsibility for the continued successful operation of the creamery. The patrons are furnishing the raw material from which the butter is manufactured and

the quality of the finished product is largely dependent upon the quality of the raw material delivered. Even if one patron delivers bad flavored milk or cream, it will affect the whole churning so that every patron must keep in mind that he is, to a certain extent, responsible for the quality of butter produced.

As the price obtained for butter will be governed by the quality of that butter and, in the coöperative creamery, will affect the price paid to patrons for butter fat, it naturally follows that there is an individual responsibility resting upon each and every patron of the creamery.

The members of the creamery board may have met with and overcome several difficulties in getting the creamery company organized and the creamery started, but their responsibility does not end at that. They should be held equally responsible with the other patrons in delivering a sweet, clean and wholesome quality of raw material and should also be careful in checking up the accounts of the secretary and treasurer.

They should meet once a month for this purpose as they can thus keep things better in hand than by meeting less often. They should authorize the purchase of new machinery when found necessary and should insist on knowing exactly how the finances of the association stand and authorize the payment of all outstanding accounts at the earliest possible date.

We now come to the so-called manager of the creamery who should also be the secretary. He should be the best man available from among the stockholder patrons because, all things being considered, there is no man better qualified to look after the management of the creamery than one who has a financial and personal interest in the business. I have often met with the contention that the butter maker should be manager and believe that to be partly but not wholly correct, as he is not a permanency, has no financial interest in the association and, even though he might be a good all-round creamery man the board might not realize his worth, and this might lead to his resignation for a more lucrative position, when the creamery would be left without either manager or butter maker.

You might say the creamery board could do as Lot did when his wife turned to a pillar of salt—get a fresh one—but the next one might prove a little too fresh to be of any value to the creamery, either as manager or butter maker, when the creamery would

be "up against" rather a serious proposition. I would therefore contend that, all things being considered, it would be better to elect a stockholder patron as manager, he to work in coöperation with the butter maker with a view to the up-building of the creamery and making the highest possible returns to patrons consistent with honesty and a safe business policy.

The manager is supposed to transact the business deals of the creamery and to keep a record of all business transactions. He does not need to be college bred in order to do this, although some knowledge of the fundamental principles of accounting would be necessary and very helpful. He should also possess a large amount of good horse sense and be able to exercise diplomacy and sound business judgment in his dealings with his fellow patrons and others with whom he meets in a business way.

He should not become imbued with the idea that he is as a mountain to a molehill beside his fellow patrons but simply one of them; and should accord to each and every one the same courteous treatment and consideration which he would claim were the tables turned.

As I have repeatedly stated, he should be willing to devote all necessary time, study and consideration to the business to make it a success, as no man can afford to incriminate himself by accepting the responsibilities of a creamery manager and then attending to his duties as such manager in a slipshod, go-as-you-please sort of manner. He must ever keep in mind that it is not only his own personal interest that will be affected through any neglect of his but that the interest of all the patrons and that of the creamery will suffer likewise, only in a greater or lesser degree; while by close attention to all the details of the business with the thoughts uppermost in his mind, how to interest the patrons in becoming better patrons and in delivering a better quality of milk or cream, how to make the creamery a better and more successful creamery; he may become a public benefactor instead of blot to the creamery and the community in which he resides.

He should familiarize himself with the business in a general way, in buying supplies, coal, etc., and in selling the butter. This is a matter of business and should be done from a business standpoint rather than that of good fellowship. It is a very simple and very easy matter to treat all supply men and butter so-

licitors courteously and wrong to treat them otherwise, but when it comes to giving an order for supplies or sending a trial shipment of butter to every Tom, Dick and Harry that comes along, any manager who tries it and figures results will find that he is doing so at quite a loss to the creamery. I do not mean by this that we should tie ourselves indefinitely to any one supply firm, butter house or coal dealer; as it may occasionally be all right to experiment, but with that experiment we should do a little figuring and note results very carefully. This has been my experience and, I believe, that of a number of my fellow creamery managers.

Where there is ample storage room that supplies may be properly cared for, the manager should order them in quantities, provided he knows what he is getting, as by so doing he is given the benefit of reduced prices for large orders and can thus usually effect quite a saving. Another plan also, and one which often works out well, is for neighboring creameries to coöperate in ordering some of the more commonly needed supplies, such as tubs, salt, coal, etc., and making payment pro rata according to the supplies needed.

We now come to the butter making end of it. The butter maker may have come highly recommended and prove to be an A No. 1 all-round good man or he may have, through some source, obtained those same recommendations and still prove to be quite the reverse. It is up to the manager to find out his qualifications and interest in the work. He should know how to check up the work, how to figure the test, yield, over-run and all details in that line; he should note the appearance of the creamery and machinery, whether kept sanitary and in good working condition, or whether there begin to appear signs of neglect.

He should, in fact, learn to discriminate between good and poor work done in the creamery and, when he has learned that very important factor in creamery management and finds that the butter maker is making good, he should not be one of those to hold out against a raise in salary in proportion to his worth. Thousands of dollars are being lost annually and creameries sometimes wrecked through a lack of management and the employment of cheap, go-easy butter makers when, with a change in the system of management and the employment of an up-to-date butter maker, these same creameries could, in the course of

time, be brought back into the rank and file of the most successful. This is a deplorable condition in some creameries but is, nevertheless true. God helps those who help themselves and may He have mercy on some of these so called "creamery managers."

I do not claim that the manager should assume the role of dictator in the creamery, always watching for the slightest opportunity to criticize, find fault or "kick," but that he should learn to distinguish between good and poor work done in the creamery instead of knowing nothing about it and caring less.

He should keep in touch with dairy officials, both state and national, reporting to them the true condition of the business as it is their mission not to criticize but to help, and they will gladly render every assistance in their power. He should keep his accounts balanced with the bank through which he is doing business, at least once a month, and, should there be any difference, he should endeavor to locate it at once and not put it off to some more convenient time. He should attend to all business matters promptly and always have the checks ready for the patrons at the specified time. He should cheerfully correct any error which may have occurred and, should an error be claimed which did not occur, he should be prepared to submit figures by way of proof. He should above all things be honest and at the end of the year his accounts should balance to a cent.

(Continuing) I want to say another word on the salary question. We have in Minnesota, and I believe the same conditions exist in Wisconsin, a large number of butter makers who are working for a low salary, but still getting more than they are worth—we have entirely too many of them. We have other butter makers that are well paid, but in many instances I believe the creamery man could afford to give them a still further raise. It is not a question so much of salary as it is what the butter maker is actually doing. If he is earning his salary, do not begrudge him a good one, and if he is not earning his salary, it is up to the manager to find it out, and to replace him.

DISCUSSION.

A Member—Will these rules you have given apply to a cheese factory the same as a creamery?

Mr. Currier—Personally I have had no experience with the cheese factory. I think, however, it works on the same principle,

so far as wages, and management and the drainage is concerned, and in fact most of the principles I have attempted to bring out.

Sec. Glover—The only difference would be you could start a cheese factory with half the number of cows.

A Member—Yes, that has been our experience. We found we couldn't get milk enough for a creamery but we could for a cheese factory business, and have done very well.

Mr. Goodrich—It has been truthfully said that if one or more patrons furnish milk to the creamery that is not first class, it affects the whole product. Now, then, Mr. Currier, what do you think of the proposition of grading the milk? Have the butter-maker or some inspector grade it the same as they do at West Salem. They had a very successful coöperative creamery, but some men would not bring first class cream so they had two vats to put cream into, one for the best cream and the other for the inferior cream. Each was churned and marketed by itself and those whose cream went into the poor vat did not get so much money as the others. Isn't that a pretty good way to do it?

Mr. Currier—Yes, that is a good way if it can be carried out. I don't know that this system of grading could be carried out, because where a coöperative creamery is in close competition with the centralizing systems, they are right after this poor cream as well as the other, in fact, they will pay a premium for it and make it up on the other fellow at some point where they haven't such competition.

The Chairman—Will not the local creamery be better off in that instance to have the poor cream taken away?

Mr. Currier—I believe they really would be; I believe in most instances with most creameries the grading proposition could be carried out successfully, but the better suggestion is that they take in no poor cream under any conditions. If the big concerns want that cream, let them have it, and let the coöperative creamery insist on a good quality of cream, so that every patron will be encouraged, and, if possible, forced to produce at all times first class cream to make first class butter. In one of our counties, where a creamery was started on the hauling system it was found they were not producing the quality of butter they ought to. We organized a whole milk creamery and for several years such a creamery was conducted very successfully. Finally the hand separator came into use, and one patron after an-

other commenced to use it and of course that left less milk to be hauled and it had to be done by a few. Now, our by-laws are drawn up in such a way that we could not accept hand separator cream. The patrons came to me as manager and wanted to know if we couldn't make some arrangement to get around that. I told them the conditions exactly and said, "Do not get prejudiced against the creamery, we don't want to turn you down. As soon as the hand separator becomes strong enough, we will call a meeting and endeavor to change our by-laws." Well, more separators kept coming along and the sentiment steadily grew stronger; by separating at home they felt they could deliver to the creamery a great deal easier, with less hauling. We noticed that a rainy season had a tendency to rapidly increase the use of the hand separator. Finally, we called a meeting. Of course there were a certain number of patrons who thought nothing but whole milk would do, and they wanted us to turn down the separator proposition, in fact, some of them went amongst the patrons of the creamery and urged them to by all means avoid the use of the separator. The butter maker called me to the phone and said he would like to have a talk with me before the meeting. He said, "We are going to have trouble, I am sure of that, and before there is any chance for any serious complications, I would like to have you come to that meeting and explain the situation as best you can." I told him I would do the best I could and as soon as the meeting was called to order, I explained the conditions, told them what I considered necessary in order to receive cream and that we should make the same regulations to govern the quality of the cream as were governing milk patrons; in other words, that we should accept nothing but that was first class. I also stated it would be necessary to build a storage room. The first vote taken was on the storage room, and after awhile they voted to accept cream, subject to the same conditions which had held good in accepting milk. The first person who went out to get votes against this proposition voted for it himself after he thoroughly understood it. Then another problem came up; some of the patrons that had hand separators began to be a little bit careless. They thought if they could keep their cream two days, it would be easier work, so they kept it two days and it came in in good condition. Two days' old cream well taken care of in a cool

place, or in cold water, is all right for making butter, so the two-day hauling was all right. But some of them began to think they wanted to delay it a little longer, and thought if two days was all right, three days, or possibly four, would work and they acted accordingly. So we called a meeting of the different creameries of that county and undertook to coöperate on the grading proposition. We made a difference of two cents per pound between cream that was perfectly sweet, graded as No. 1, and that which showed any signs of acidity which was graded as No. 2. We also decided that if it was sour or spoiled, it was to be rejected, just the same as our old by-laws provided for in handling milk or cream. This has worked out very successfully, and it has given patrons a little warning. If they are inclined to be a little careless in taking care of their cream and delivering it so that it begins to show at least a sign of acidity, maybe just on the point of turning sour, their cream is graded No. 1, and they get two cents per pound more than the man who brings cream which is sour. Of course, difficulties arise sometimes, but we show them how it worked in handling whole milk, and the reasonableness of applying it to cream, and they agree to the plan. At one time there were a dozen or more dairymen who should have been patrons of our creamery but were shipping to the cities, but I am pleased to say there is not one of that kind now and we are grading according to quality and not selling any butter not right up to the mark.

Mr. Sanborn—I just wish to state that the law in this state passed in 1911, provides a severe penalty for the use of the word "coöperative" unless organized under the law that provides for a division of the profits, not to exceed six per cent to the stockholders and the balance divided according to the product, and as I remember, the nonmembers to get one-half of that.

Mr. Currier—That should be followed in other states.

THE FEEDING AND CARE OF THE DAIRY COW.

F. H. SCRIBNER, Rosendale.

The feeding and care of dairy cows is the most important of all the dairy business, for without good feeding the best development of the dairy cow cannot be obtained, nor the best financial results reached. The art of feeding should be learned before one launches out much into the breeding business. A good feeder as a rule will make a good breeder. I have seen so many failures where men, who have had very little knowledge of the feeding end, have started in to breed up a dairy herd. I have in mind one man who now has his fifth or sixth pure-bred sire, and his herd graded up to near full bloods, but they are about the scrubbiest lot of cattle I ever saw, simply because he neglected the feed end of the business. The dairy cow is rather a sensitive proposition and expects kind treatment and regularity in all her dealings, and to disappoint her is as bad as to poorly feed her. The dairy cow of to-day has of necessity got to be a better machine than one that satisfied our grandfathers years ago. She has to meet the demands of a higher cost of living and the changed conditions that have come upon us in the last quarter of a century. Good bran used to be dumped into the Fox river; corn sold for 15 to 25 cents a bushel and good hay from 6 to 8 dollars per ton. The proposition that confronts the dairyman to-day, and in many cases with no better cows than were had years ago, is, how shall I feed for better results.

In the first place, let us try to make it as easy for the cow to give milk as possible. We know if we run a lot of tough grain through a threshing machine, it is hard on the machinery and not very good results can be obtained and no money is made, and it is a good deal so with the dairy cow. A good share of the roughage we ask our cows to eat is enough to break the concave and knock all the teeth out of the cylinder.

It should be the aim of every dairyman to raise all the roughage possible. This is the foundation on which to build a ration, and is the economical part as well. It is important in planning a ration to have it bulky and yet to be as free from indigest-

ible material as possible. Bulky rations are more digestible and more easily assimilated and for this purpose corn, clover, and alfalfa are particularly adapted and combine in themselves almost a perfectly balanced ration.

The manner in which they are prepared is of great importance. Nothing can take the place of the succulence or the natural juices of plants. It aids digestion and makes it possible for a cow to handle more feed and with far less injury to her digestive machinery. So it stands us in hand in the securing of our crops to harvest them with this in mind. Make the work as easy as possible for the old cow and plan to grow plenty of clover and alfalfa, because these plants contain that protein for which we pay high prices and is the element we must have if a good maximum yield of milk is to be obtained. If these crops are cut in the early blooming stages and secured without much damage by rain or loss of foliage, they are easily digested and very palatable.

Corn in most places is the standard crop, or the one from which we get the largest amount of feed per acre and the feed that all stock eats with a relish, and with the modern way of handling through the silo, we are able to preserve it in all its freshness and in such a way as to utilize it the entire year, thereby making summer conditions all the year around. Cows that have no succulent roughage usually require more grain to produce the same results with silage or roots. With these feeds described we have the foundation for the successful feeding of cows.

The grain portion of the ration is the most complicated of the feeds to arrange, for there are so many things to be taken into consideration, and here is where the good judgment of the feeder must show itself. He must have a knowledge of the analyses of feeds, know something of their digestibility as well as palatability, and then the likes and dislikes of his cows has to be considered for they will do best on what they like best.

In balancing a ration it is not always best to try and make a complete ration of the grains we grow on our own farms, although in a way it would be more satisfactory because we would at least know what they were made of, but often times these feeds make the ration too expensive and by exchanging for other

good feeds on the market we would be able to lower the cost of the butter fat 2 or 3 cents a pound.

As a rule, the bulkier the grain portion of the ration, the better, as it gives more chance for the juices of the stomach to penetrate and makes the digestion more complete. In an experiment with corn meal and corn and cob meal, it was found that corn and cob meal gave as good results as corn meal, pound for pound,—not that there was any particular virtue in the cob because of its woody, fibrous nature, but on account of the lightening effect of the feed.

In feeding cows the manger should be divided so that each individual cow will get the ration that belongs to her. If we study our cows we will discover a great difference in them. Not all cows utilize feed as well as others. Some require more and heavier feed to keep their bodily condition right, while others have to be watched not to lay on too much flesh. The cow that is fresh and giving a large flow of milk should be fed correspondingly a larger ration, also the young heifer in her first milking year should receive a good generous ration, as she is trying to perform three missions: to give milk, to make some growth, and furnish nourishment for her unborn offspring.

There is no fast rule that can be laid down for the amount of feed to be fed daily, in fact it would be hard to tell unless the feeder had some idea of the amount of milk each cow gave, as well as the test.

The rule that prevails nowadays is to feed 1 lb. grain for each $3\frac{1}{2}$ or 4 pounds of milk testing from 3 to 3.5% fat, and for cows giving milk testing around 5% fat, about 1 lb. grain to 3 lbs. milk.

A cow giving 60 lbs. of 3% milk, according to the above rule, would receive about 20 lbs. grain per day. This is getting pretty close to the danger line. Of course a ration like this must be worked up to gradually, the cow watched closely, and the milk scale used. The chances are if she eats it with a relish and is hungry for the next feed, she is all right and with a little experimenting it may be found that by decreasing the amount a few pounds, the same results may be obtained.

I believe in liberal feeding; it not only develops and brings out the best there is in a cow, but is economical as well. We have many instances of where scant feeding is unprofitable, and

as a general rule it is true. Of course a cow may be so worthless that any feed given would be as good as wasted. Many dairy-men, in fact, I might say a majority of dairymen feed but little more than a maintenance ration. A cow is similar to a boiler, enough coal may be used to hardly furnish steam to run the engine, while a small quantity more would furnish the power necessary. So with the cow; it is only for the amount given above the maintenance ration that we get anything and this is where the profit comes in.

As protein is the element we are looking for in purchased feeds, it has been advised to buy protein in the feeds where we can get it the cheapest. This rule does not always apply, as some of the feeds containing the highest amount of protein need to be fed with a great deal of care and without silage or roots as a laxative, often cause trouble.

The care of cows cannot be separated from the feeding; they go hand in hand. A man may spoil the good effects of good feeding by poor care. The dairy cow to be profitable must not be subjected to the cold. The kinds of feed necessary to produce milk are not the heat producing kind, and nature does not supply her with as good an overcoat as the beef animal. The wise dairyman will provide a warm, comfortable stable so that the cow can utilize her feed for the making of milk rather than to furnish heat for the body. A warm stable means economy of feed, and feed is an expensive heat producer.

The stable should be a cheerful place, not only for the benefit of the cow, but for the one that does the work as well. A bright sun-shiney stable is a blessing in every way,—healthier and more pleasant to do the work,—and the feeder can more easily observe any changed condition in the cows or their feeding.

Some system of ventilation should be installed. Changed air means healthier cows; healthier cows means better feeders; and better feeders, better producers, as the milk is made by the blood, and the blood passing back to the lungs can only be purified by the air that is breathed. How essential then that the air be as pure as possible.

The watering place should be convenient and the water of the right temperature. It takes a lot of water to digest feed and keep the digestive tract in an active condition, and as milk is

composed of a large per cent of water, we should try and supply the cow with an abundance of this cheap commodity. Some cows are shy drinkers and should be encouraged to drink more. This may be done by adding salt to the feed; it helps to bring the kidneys into greater activity. I think all cows should receive from $\frac{3}{4}$ to $1\frac{1}{2}$ oz. salt each day in the feed.

Probably one of the places where we fail most in care is in the autumn or early fall when we are busy with our farm work and hardly realize the short pasture conditions. If we are going to have long period milkers, and by the way, they are the most profitable, we must learn to help tide over these bad places, either by some soiling crop or the silo. The cow can only be made a profitable machine by being kept continuously at work.

DISCUSSION.

A Member: What would you advise as a grain portion of a ration with corn silage and mixed hay?

Mr. Scribner: That means some timothy, which is pretty hard and woody as a rule, and not very good as a milk producer. If you left out the timothy, you would have a little better ration. In order to offset timothy, you have to supply protein feed. Wheat bran has been one of our standard feeds. We are growing cheaper feeds than we can buy, but there is something about wheat bran that keeps the digestive system in good condition. There is oil meal which carries high protein contents. Gluten, a splendid feed, is also very rich in protein. Cotton seed meal, is one of the highest protein feeds we have, but it has to be fed with the greatest care for it has a constipating effect on animals.

A Member: How are potatoes and corn meal as a mash?

Mr. Scribner: Potatoes are pretty starchy, and that means fatty food, and the same is true of the corn meal; they are pretty much of the same nature. Of course there is a lot of succulence in potatoes, in fact, that is the best thing about them for feeding. If I were going to feed vegetables at all, I would rather feed roots, mangels or sugar beets, or something of that kind.

THE CARE OF MILK AND CREAM.

C. E. LEE, Madison, Wis.

The future of the dairy industry of Wisconsin will in a very large measure depend upon the quality of the butter and cheese manufactured. It is with pride that we can all say: "Our state ranks first in the production of both butter and cheese." Nearly one-sixth of the butter and one-half of the cheese consumed in the United States are products of Wisconsin dairymen. It is of interest to note that for every cent per pound that the butter brings it adds \$1,000,000 to the state. The quality of Wisconsin cheese ranks first, but it should not be inferred from this that there is no chance for improvement. The quality of the cheese sent to the scoring exhibition conducted by the Dairy Dept., College of Agriculture, University of Wisconsin, has not improved as much as one would naturally expect. The cause of this can partly be placed upon the milk producers.

For one month, 39% of the cheese was criticized as having an unclean, tainted flavor. One of the judges stated that the cheese makers had received milk that was slightly tainted. The cheese made last July and scored at Madison showed that at nearly 25% of the factories where the exhibits were made milk had been received in a more or less tainted condition. At that time one of the judges stated: "Unless the patrons produce a better grade of milk during the season of hot weather and short pastures, the result will be a very poor cheese." The factory operators should examine the milk daily because the farmers will produce better milk when they know that their product is being watched. During the fall months there is a tendency for the patrons to deliver milk to the cheese factories every other day instead of daily. The additional day that the milk is kept on the farm reduces the quality. This was strongly shown by the cheese made in Wisconsin during the month just passed and entered in the scoring exhibitions. The average score for cheese made from milk delivered daily was 92.66 and from milk delivered every two days the score was 90.56, a difference of over two points.

The above statements show that the quality of the cheese is in a large measure governed by the condition of the milk received. It is reasonable to believe that the great majority of the dairymen who produce milk for cheese are producing good, clean milk but there are always a few who are careless and, consequently, they lower the average quality of milk used in making cheese. If it were possible to keep separate and make up the two grades of milk received at one factory and the cheese sold on its merits, one could then estimate what the state is losing annually on account of tainted milk being made into cheese.

What is true of the relation of the quality of milk to the flavor of the cheese is equally true of butter. This has been brought out on several occasions by men who have made a study of their factory conditions. Wisconsin makes a great deal of butter that has a fair quality and some that is exceptionally fine, and a third lot that is not a credit to the state. This difference in the butter is not due entirely to the skill of the factory operator. Nor is it due to the factory equipment because some of our best butter makers are operating well equipped creameries and yet they are not making good butter.

One butter maker was making high scoring butter in a whole milk factory but on account of sickness he resigned. A few months later he took charge of another factory and the first few tubs of butter from this creamery sent to the scoring exhibitions scored considerably lower than the butter he had made at the other factory. After a few months there was a marked improvement in his butter due to better raw material.

The following is a striking example of what good milk will do for the quality of the butter. A young man who had been instructor in creamery butter making at the Wisconsin Dairy School took charge of a creamery. His first exhibit to the scoring exhibitions scored 91.83. His next two months' butter scored 90.83 and 91.50, respectively. His next ten exhibits scored from 93.00 to 95.3 with an average for the ten of 94.25. Comparing his score on the seven exhibits for the first year with corresponding months for his second year, his average score is 93.1 and 94.7.

A letter was written to this man for the purpose of obtaining a statement as to how the improvement was brought about. His reply was as follows: "When I first took charge of this creamery

the patrons carried home buttermilk in the same cans used for delivering milk. This condition was difficult to overcome because it had been the practice for some time. One by one the patrons brought old cans to put the buttermilk in. At the beginning of the second year I took personal charge of the intake. Not a single farmer received buttermilk unless he had extra cans for that purpose. I then wrote to H. C. Larson, 2nd Asst. Dairy and Food Commissioner, requesting that he spend a day at the factory for the purpose of inspecting the milk. This resulted in several cans being discarded and several patrons had their faulty cans repaired. Since Jan., 1912, I have received all of the cream at the intake, mixing it all with the milk and re-skimming it. If the cream was too sour to permit mixing it with the milk, it was returned. This resulted in a much better grade of cream being delivered at the factory. I was just as careful a year ago in making my butter as I have been this season. I am positive that the improvement in the butter is due to a better grade of raw material."

The average score of butter made in Wisconsin from cream skimmed on the farm is fully one point lower in score than the butter made from both milk and cream, while the butter made from whole milk is over two points better in quality than butter made from cream alone. Fifty per cent or more of our butter is made from cream skimmed on the farm. Since the whole milk butter will pass in the highest grade and the butter made from gathered cream one grade lower, the loss to the state can be estimated on the following basis: The difference in market quotations on the two grades of butter is very close to two cents and approximately 55,000,000 pounds of butter in this class at two cents per pound is a loss to the state of \$1,100,000 annually. This is not counting the value of a reputation for always making good butter. It can be further stated that fifty per cent of Wisconsin butter at the International Dairy Show recently held at Milwaukee was made from farm skimmed cream not selected and the average score was 92.1. This score places the butter in the second grade, while the butter made from non-selected whole milk scored 94.00. These facts are presented to show that there is a great need in our state for a better coöperation of the cream producers and the creamery men. In order that the average quality of our butter may reach a higher standard, it

rests with the dairymen as to whether or not this is to be accomplished.

THE AVERAGE DAIRYMAN CAN PRODUCE MILK AND CREAM OF CLEAN FLAVOR.

It is not a difficult task to produce good milk and cream when the farmer understands more fully some of the factors that must be observed:

1. The cows must be in good health. The barn must be properly ventilated and provided with a floor so constructed that it can be kept clean and sanitary.

2. The feed that the cows consume is not of such great importance as is cleanliness, but it must be understood that there are certain feeds that impart to milk a flavor that from the butter and cheese maker's viewpoint are objectionable. For example, when cows are first turned out in the spring wild onions are consumed and that flavor is imparted to the butter. Certain weeds also produce bad flavors.

3. Milk and cream must be stored in a room free from taints of any kind. During the winter months milk is sometimes left too long in the barn in uncovered cans. Milk cans while in the barn during milking must be kept covered after each lot of milk is poured. When the milking is finished the cans must be taken out of the barn.

4. Cleanliness is of great importance in the production and handling of milk and cream. It is not to be expected that clean milk can be produced if the barn is not kept clean. It would be a great step in advance if the barns were whitewashed at least once a year in the creamery and cheese factory sections of the state as they are in the territories where the condenseries are located. If the cows are not bedded the hind quarters become more or less covered with manure and the milkers are careless; some do not understand why it is necessary to wear clean clothes, milk with clean, dry hands, into a clean tin pail.

CARE OF DAIRY UTENSILS.

5. "Dairy utensils should be made of the best grade of tin and never used for any other purpose. Wooden or galvanized pails are objectionable. See that all joints in the pails, cans and

strainers are well made and filled with solder. Cans with the tin partly worn off are not suitable receptacles for milk and cream because they rust and this condition imparts a metallic flavor to the butter. Utensils that come in contact with milk and cream can best be cleaned by first rinsing with cold water and then washing with a brush and hot water. Washing powder suitable for use in the dairy should contain no grease. Ordinary sal-soda used in small amounts is also a good dairy cleanser. After washing the utensils with hot water rinse thoroughly with boiling water and place them where they will come in contact with the direct rays of the sun. In washing the ordinary five, eight or ten-gallon milk cans, be sure that the inside of the shoulder of the can is rubbed with the brush, as this is the most difficult part to clean. Utensils scalded with boiling water and left in contact with it long enough to be thoroughly heated need not be dried with a cloth. Simply place them where they will drain and be exposed to the sun."

6. In case the farmers skim their milk, it becomes necessary to have a suitable place for the machine. The separator should not be kept in the barn, nor in any other room where odors that are likely to taint the milk, are found. Clean the separator each time after using, as once a day is not sufficient. This is best done immediately after it has been used. Take apart, rinse well with cold water, and then wash all parts of the bowl and tinware in warm water. Never use a dish cloth or soap of any kind but rather use small quantities of sal-soda or washing powder free from grease. After all parts are thoroughly washed, rinse in boiling water and place in the sun. During the night leave all parts in the supply can without putting them together.

A great deal of the tainted butter made from farm skimmed cream has a flavor and aroma that is very much similar to the odor found in a separator bowl that has been left standing unwashed for twelve hours. Sometimes the cream is tainted because the cans used are not in good condition, the seams may be partly open or a portion of the inside of the can is rusty; the can may be old and badly dented. If anything but cans that are perfectly smooth with seams well flushed with solder and inside free from rust are used, tainted cream will result.

7. Cream must be stored in a suitable place in a can that is clean and has a tight fitting cover. It is a good plan to place

this can in a tank of cold water. The tank should be in a milk house but if one has not been built, the following arrangement answers the purpose quite well:

“Make a small water-tight box of two-inch material and of sufficient size to hold all the cream cans necessary in handling the cream. This box should have a tight fitting cover, and be divided into sections by means of rods which will prevent single cans from upsetting when left alone in the tank. The best place for this tank is in the milk house. It may be placed between the well pump and the stock watering tank and in that case another box or small house should be built over it for protection. All the water pumped for the stock should flow through this tank, the inlet discharging near the bottom, which will force all the warm water out first. The overflow pipe should have one-half inch larger diameter than the inlet in order that the water may be freely carried off. The water in the tank should be of sufficient depth to immerse the cans within two inches of the top. Another place that would be suitable for holding cream could be built inside the watering tank, or an ordinary kerosene barrel may answer the purpose. Burn out the oil and bore holes for the water inlet and outlet between the second and third hoops from the top. Make connections the same as for the box, but be sure the inlet water pipe is extended nearly to the bottom. It is a good plan to bore one-inch holes between the first and second hoops from the top and place rods through them, so the cans will not float when partly filled. Shelter this barrel the same as you would the box, remembering to change the water in the box or barrel often enough to have it reasonably cold, so that the cream may be kept at nearly the same temperature as the water from the well.”

8. Skim a cream that will test between 30 and 40% butter fat. This kind of cream will give good results for both the producer and the manufacturer. If 40% cream is skimmed, more skim milk will be left on the farm to be fed to young stock than when 30% cream is produced.

9. Too many creameries in Wisconsin are taking in cream that is too old. As a rule when the age of the cream increases, it reduces the quality of the butter. Four times each week in summer and three times in winter is not any too often to have the cream delivered. Milk and cream producers in Wisconsin

are able to do a great deal to assist in placing the quality of the butter on a higher plane, than it is at the present time. Wisconsin butter has improved in quality during the past three years but we are still short of possible perfection.

DISCUSSION.

The chairman: I think in your talk, you said, Mr. Lee, there was a difference of about two cents a pound between the gathered cream product and the whole milk product. Now, I do not believe the farmer is delivering his gathered cream properly. I think there is a deeper reason for this difference, which goes back to the hand separator. I think there is something behind this which has not been brought out.

Mr. Lee—I believe the best thing that was ever done for the state of Wisconsin was the invention of the hand separator. We can make just as good butter out of farm skimmed milk as out of whole milk. The reason of this difference, however, is this; when we delivered whole milk we expected to deliver it seven days in the week in summer and at least four days in winter. When the farmer changed to home skimmed cream, he expected to be able to keep it a week as that would be a great advantage not only in the work of delivering, but he could keep his skim milk at home. I have investigated and found in the factory invariably a pipe connected with the skim milk tank. The only thing a dairyman will steal is skim milk, and in order to get enough the creamery man must mix water with the skim milk. I believe the man who is raising young stock ought to raise them on skim milk produced on his own farm and not mixed with that from many other farms. There is one thing I did not bring out in my paper. We realize that not every farmer can build a milk house, but he ought to have some place where he can keep milk or cream, not connected with the barn. The barn is not the place for keeping it, and you can't have it in the house nor in the cellar without imparting some peculiar odors which you do not want. If you can't do anything else, you can take an ordinary kerosene barrel, burn it out, whitewash or paint it, and put it somewhere near the pump. It will hold a whole lot of cream, all that will be produced on the ordinary

farm in Wisconsin. It will easily hold a ten-gallon can and a small thirty-pound can. Do not empty the cream out of the small can in the morning, but at night. The cost of a kerosene barrel will not exceed one dollar and the necessary pipe fitting will not exceed another dollar. In fixing up this barrel, drill the hole for the inlet pipe just above the last hoop; the outlet is drilled just below the last hoop.

I know of farmers who have fixed up a small arrangement like this and they find it the best kind of a place for keeping cream. In the winter time a small house can be built over it at a cost of not to exceed ten dollars, and it makes a nice place for handling cream.

Another thing: Cool fresh cream thoroughly before mixing with the old. If you pour warm cream in with the cold, there is a much more rapid souring of the product.

Mr. Goodrich—Mr. Lee has said truthfully that he can make just as good butter from separator-gathered cream as can be made from whole milk. I am perfectly sure that is right, but the people making it must take care of the separators and of the cream. We are always talking to the farmer, telling him he must give them better care, but it is pretty hard to get some of them to do it. At the same time the butter maker cannot shove all the blame onto the farmer. I tell you the creamery man has the whole thing in his own hands. I have a friend that built up a creamery and kept increasing it till he got so that the average product for the whole year was 2,000 pounds of butter a day and it was all from separator gathered cream, but he would not take any cream that was not first class, and that is where he had the best of it. Of course the farmers were angry, but he paid three cents a pound more for butter fat than anybody else paid, and I tell you money brings them to it. He had several teams gathering and he would go out himself most every day, first with one team and then with another. I happened to ride with him one day and we came to a house where he usually got cream. There was nobody at home but he knew right where the cream can was. It was down cellar. He looked at the cream and said: "I can't take that cream, it isn't fit." So he wrote on a card that the cream wasn't good, that they had not taken proper care of it. It had not been properly cooled, and the separator had not been cleaned. So we left the cream. The

next day, the cream gatherer asked at this house: "Have you any cream for me?" The answer came, "No, I haven't. You said my cream wasn't good and I know better, I know it is as good as anybody's, and you never need to call here again." "All right," and he went on. For two weeks he didn't call there. Finally, one day he saw the woman looking anxiously, but he drove right along, whistling and looking the other way. After he got by, the woman called, "Say, I had the separator cleaned and the cream is good to-day." Well, he stopped and looked at the cream and it was all right, so he took it. She was getting three, or four, or five cents a pound more for butter fat and she could afford to take care of the separator and the cream.

Mr. Lee—There is one factory in the eastern part of Wisconsin where a new butter maker went in to take charge, a man who had been well trained and who understood his business. He worked with the farmers and got them to do the right thing and the consequence was that factory got \$1200 more the second year than they got the year before. Another butter maker told me, "Our contract next year will mean an increase of over \$200 a month to our factory."

The Chairman named the following committees:

On resolutions: Messrs. SANBORN, EVERETT and SCRIBNER.

On nominations: Messrs. HILL, GOODRICH and BEEBE.

On auditing the books: Messrs. CATLIN and SCRIBNER.

Adjourned to 7:30 p. m.

THE IMPORTANCE OF CLEAN MILK.

DR. E. C. JACKSON, Ashland, Wis.

Up to the present time, the safeguarding of milk supplies for municipalities has been considered chiefly from the standpoint of the effect that regulation might have upon the commercial interests of those engaged in the various departments of the milk business. That the problem is far too large and too serious to be considered from this standpoint alone, is a fact to which the state and general public is slowly **awakening**.

Now we build asylums for the diseased; nurseries and homes for the epileptics and idiots; sanatoria for incipient tuberculosis, and places where our dying consumptives may pass their last days, comfortably isolated, which is all very good. We do our best to prevent and cure, but are we not starting at the wrong end? Would it not be better and would our efforts not count for more, if we expended some of our money and more of our time in investigation and prevention of conditions existing at the birth of our future citizens?

In this country, it is the calves that are looked after by our government. The babies have no votes yet. They will wait. The fact that the infant has a money value has not permeated the politics-filled brain of our authorities. The government control of all infants and children of school age, has not yet come, and until the government does have absolute control of its future citizens from infancy, it behooves us to see that they have at least a fair deal.

When a baby is born it wants many things; among others air and food, mostly food. Mother's milk is the only safe nutriment for the little stranger. There is rarely a woman who cannot nurse her infant, but ignorance of this fact may be blamed on attending physicians and nurses, who by hints and suggestions, make the mother believe, after an insufficient trial, that her milk is "not good" for the baby. From 30 to 40 per cent of mothers do nurse their infants, thus leaving from 60 to 70 per cent to be fed on other foods. By far the largest per cent of these other foods is cow's milk because it more nearly approaches mother's milk in all its constituents.

What I am endeavoring to make you understand is this, that you, as milkmen, are furnishing the food that is taken by from 60 to 70 per cent of the babies under one year, and about three-fourths of all the food taken by all children up to five years.

Every day in the year an average of 142 babies are born in Wisconsin. The deaths among children under one year of age average 15 per day. This shows that 10.5 per cent of children born each year die before reaching the age of one year. The average annual death rate does not exceed 12 per thousand gross population, while the death rate for children under one year is 105 for every thousand such children.

It is evident, therefore, that if measures are adopted to reduce the high death rate among infants there will be an appreciable decline in the rate for other groups and in the general death rate. The mortality of babies below one year has been found, not estimated, to be for exclusively breast-fed 6.98 per cent; for those fed on breast milk and artificial food, 9.87 per cent; for those fed artificially,—cows' milk,—19.75 per cent. The cause of this great infant mortality is worthy of serious consideration, especially as 70 per cent of the deaths are preventable. Of the four chief causes of deaths of infants under one year, diarrhoea—the result of insufficient, or bad milk feeding—heads the list as causing more than half. They have been counted by the statisticians, by the parents, and by the undertakers.

This all means that somebody or something should be held responsible for the deaths of these babies, who should live in good health and with good prospects—the “somebody” is the unclean milkman and the “something”, his filthy milk. We may even go farther than this and claim that the effects of poor, unclean milk are much more lasting to those who survive the dirt. Rose studied 164,000 persons with relation to the diet which had been given in the first year of life, and found that in many respects the deleterious effects of artificial feeding were often quite discoverable in these individuals, and that even in men capable of military service, the difference to the disadvantage of the cows' milk baby was very apparent.

The supposition is not to be taken from the foregoing statements that when we have passed through infancy we have no cause to fear contamination in milk. Our chances are improved as we grow more able to stand it, but we still have to face the fact that bad milk figures largely in the spread of infectious diseases.

Until recently it was thought that tuberculosis could not be transmitted from cow to child through milk. Dr. Park, of the Municipal Research Laboratory of New York has found that 10 per cent of the deaths from tuberculosis among New York children under five years of age, are caused by bacilli of the bovine type. In non-selected cases from the Babies' Hospital, $6\frac{1}{3}$ per cent were due to bovine infection. This conclusively

shows the necessity for regular testing of cows for tuberculosis and prompt isolation of those infected.

The importance of clean milk is shown again, very forcibly, by the ease and frequency with which typhoid fever is spread through the medium of dirty, contaminated milk. The United States possesses the unenviable distinction of having a death rate from this filth fostered disease, among the highest of the nations of the world—Spain first, our country second with 288 deaths per million.

A careless dairyman, careless consumers and a case of typhoid fever along the route make a combination that spells an inevitable epidemic of that dread disease.

Recently an epidemic of twenty-eight cases with fifteen additional suspects, occurring on the route of one small dairyman near Philadelphia, directs attention to some interesting points. Typhoid fever is propagated from one case to another and milk is its most perfect medium. The dairyman in question did not have enough bottles to supply his customers along the route, so as he went from house to house, he picked up bottles set out for him, which of course had collected dirt, flies, and miscellaneous filth and filled them from his bulk supply. His first bottle customer had typhoid fever and used as a source of water supply, a spring, the overflow from which was the source of water supply for the family of the next customer, who also bought loose milk from the dairyman. Typhoid fever soon developed in the latter family and soon there were twenty-eight cases in the forty families served by this dairyman, with a possible fifteen who were suspected of having it. The loss of time and money and suffering caused by this epidemic is obvious and need not be dwelt on here, but it certainly serves to call the attention to the criminal carelessness of the individual—the dirty milkman—which makes such a thing possible. This dairyman should have been hauled into court and damage proceedings instituted against him. With the direct testimony that the illness was due to contaminated milk sold by him, the dairyman could be held responsible in no small degree, and when he found his pocketbook touched in this way, he would be more ready to comply with the requirements and see that the milk he sells is clean.

Trask of the Public Health Service has compiled a list of 107 typhoid epidemics in the United States traced to milk.

Some years ago a severe epidemic of typhoid fever, directly traceable to contaminated milk, occurred at Port Washington, of this state, causing 10 deaths out of 100 cases. The milk supply of the city was furnished by three milkmen. Following the line of these distributors we find that one man supplied 90 families. Upon this route were no cases of typhoid. Milk distributor No. 2 was supplying 207 families, with only one case of the disease, the origin of which could not be traced. Milkman No. 3 was furnishing 300 families and upon this particular route 83 cases had developed at the time of this investigation. No. 3 lived a few miles from Port Washington and had several cases of sickness in his family. Members of a neighbor's family were also sick with a fever, but were not distributing milk, however, No. 3 was buying one milking from this family in order to supply enough milk to his 300 customers. The origin of fever in these two families was simultaneous and about two weeks earlier than the first cases in the city—there is not a question of doubt as to these two families being the source of the epidemic. No. 3 milkman is just ten times a murderer and should be treated as such by the state. Infection of milk with typhoid bacilli as far as known, never takes place from the cow itself, always some human agency in the person of some typhoid convalescent, mild case, who either infects the milk directly during the process of collection, or is indirectly the source of infection by excretal contamination of the surroundings of the farm or dairy. Improper disposal of excreta on a farm may lead to infection of milk in many ways, especially through contamination of the well water used in rinsing utensils and through fly infection.

That absolute cleanliness in all departments of milk production and handling is necessary, is again shown conclusively by a widespread epidemic of scarlet fever, occurring in Boston in 1907. During the first 20 days of January, 367 cases of scarlet fever suddenly appeared in Cambridge and neighboring towns. About 84 per cent of these cases were supplied by a single dealer. A milk taster and his daughter, employed by this dealer, suffered from symptoms suggesting scarlet fever. The method employed in tasting was this: plunging a long spoon into the

can to be tasted, lapping the spoon, shaking it and plunging it into the next can. "This spoon was produced from a dirty pocket, was plunged into the milk without washing or without rinsing between the lapping of the spoon and plunging into the next can." There is no good evidence that cows suffer from scarlet fever, hence the responsibility can not be pushed off on them.

Another striking instance of this sort is the outbreak of septic sore throat in Eastern Massachusetts, reported by Winslo Darling, Richardson, and Goodale. This extensive epidemic, which involved more than 1,000 cases and caused 50 deaths was traced clearly to an infected milk supply. From this, Sedgwick affirms that "The greatest lesson of all is the utter inadequacy of milk inspection."

In the later part of December, 1911, Chicago was visited by an epidemic of sore throat, which, for its widespread distribution and severity, was unique in the history of the city. The main source of infection was traced by Dr. Capps to a dairy designated as X by him. Fourteen times as many users of Dairy X milk contracted sore throat as among consumers of other milk. The contamination was traced to mastitis or garget in the cows of Dairy X and a resulting sore throat in most of the milkers and farmers of this dairy. Another farm showed the coincidence of eleven cases of mastitis in the cows and sore throat among all three milkers. The milk from the diseased cows was sometimes thrown away, sometimes saved, "depending on how it looked." The infection was carried to the milk from the milker or directly from the cows. If it was infected from the milker, it occurred in one of two ways. Either by hands soiled with the infection; or by infective droplets discharged from the mouth by coughing, sneezing, speaking, or laughing. Such droplets may float for as long as half an hour and as far as 3 or 4 feet. A slight unconscious cough by the milker who is infected; or well and a "carrier," may be the means of conveying the infection to the milk. It is hardly necessary to add that most bacteria do not remain quiescent when introduced into milk, but propagate a million or more times as rapidly as the proverbial rabbit. Dr. Capps says concerning this epidemic, "I have no accurate way of determining the mortality rate; in all probability about 200 or 300 died."

The seriousness of unsanitary conditions existing in all departments of the milk business is beginning to be realized; the care necessary to obtain a clean milk is being constantly shown by instances such as I have related, and by many others which are occurring almost daily. That milk produced and handled under unsanitary conditions can be clean, is out of the question, absolute cleanliness in every step of the process is essential.

Milk fresh from the udder of a healthy cow is, practically speaking, clean, that is, it contains but few bacteria, particularly if the first few streams of each teat are discarded. The time for contamination, therefore, is during the milking and while the milk is being handled.

The responsibility for unclean milk and its consequence lies primarily, then, with the milkman. None of you care to be held responsible for deaths caused by drinking dirty milk, however, the fact remains that you will not be free from blame until you have exerted every energy in your power towards a cleaner, safer milk.

The responsibility for unclean milk and its consequence lies secondarily with our health officials. That the milk conform to the legal standard of fat content and total solids are the requirements most cared about by health authorities. They overlook entirely the most important part of the supervision: Is the milk from sanitary stables, is it handled as it should be, in other words, is it clean and fit for human consumption?

In conclusion I will read a short editorial from a recent issue of the *Journal of the American Medical Association*, the ideas of which bear out what I have endeavored to show you by the foregoing statements. It reads as follows:

PLAIN SPEAKING ON SANITARY MATTERS.

As the education of the public progresses in sanitary matters the tendency to criticize officials responsible for conditions that are not as they should be, becomes more pronounced. This is a hopeful sign, and means, inevitably, improved conditions. As examples of plain speaking on these matters, two instances may be cited. The headline over an article in a daily paper published in a large western city reads: "One More Baby's Life Forfeited to the Game of Politics." The article contains

an account of an epidemic of scarlet fever which was traced to a certain dairy. It specifically attributes the death of a five-year-old child to the milk from this dairy, and goes on to say: "The milk inspection department, during the time that a milker at the farm was developing scarlet fever, was playing politics. The inspectors were out soliciting votes among such of the dairymen as lived within the city limits, and had a vote May 21st. On their shoulders is laid the blame for the infection spread through the city."

The other instance also concerns the milk-supply, this time in a large eastern city. The chief inspector of creameries of the state board of health made an inspection of creameries and dairies in the city and found only three out of the twenty-seven that were up to the standard. He stated to the local board of health that he had no doubt that the impure milk was the cause of the death of many infants, and that if the board did not take immediate action the state board would step in and force the local board to do its duty. With all the agitation and legislation concerning milk, it is scarcely possible that milk-producers and distributors do not know the role of impure milk in the production of disease and death in infants. A conscience so defective as to permit such conditions to exist in the face of that knowledge requires drastic criticism and vigorous action to penetrate it and get it in a normal working condition. Fearless speaking by the newspapers and the public will surely improve the health situation.

EVENING SESSION, December 10, 1912. 7:30 P. M.

In High School Building.

Music by Nuhguhmon Club of Ashland High School.

ADDRESS. (Abstracted)

W. H. MYLREA, Wausau, Wis.

The people of Ashland have this week received new honors. In 1871 there was organized in this state an association known as the Wisconsin State Dairymen's Association, and that organization has met every year somewhere within the borders of the state for the purpose of comparing views and disseminating information upon dairy questions, thus not only benefiting themselves, but benefitting their fellowmen. Year after year their good work has gone on. Men of all classes have taken part in their proceedings and to-night they are celebrating the arrival of the Dairymen's State Convention at the northernmost border of the state of Wisconsin on the southern shore of Lake Superior. The county of Ashland is one of the characteristic counties of the state, the transformation scenes which have taken place all through the southern and central portions of our state are going to take place in Ashland county. I may not see it and you may not see it. Our good old friends, Governor Hoard and Mr. Goodrich, have been working a long time on these lines and they may not see it, but there are those here who will see it, will see the redemption of the state of Wisconsin from waste places and see it take its place among the greatest states of all the states in the union.

The soil of this state is practically the same in its general analysis as that of any other state. There are places in the southern part where timber land followed by fire has brought about different conditions, but men like Mr. Goodrich will tell you that the time was when they thought they could not ripen corn in Southern Wisconsin. A man told me about living on a

farm at Fond du Lac at a time when they abandoned the raising of corn because they thought it could not ripen, they thought the climate was against them, but it turned out that it was not the fault of the climate, it was the fault of the men who failed to think enough about the matter to pick out the proper variety of corn. When you find corn adapted to your soil, you will have no trouble at all. To-day that country down there is one of the richest and best counties in the state. In 1883, when I became a resident of Marathon county, we could not raise sweet corn in the back yards of our homes because it wouldn't ripen. Now you will find they are raising just as good corn as is raised anywhere. The very best corn land the chemists tell us comes from the pine choppings in the northern part of the state of Maine. This simply means that Mother Earth is here to do the work that Nature intended she should do. She can produce timber and she can produce vegetables and there is no vegetable necessary to human life that cannot be grown anywhere in the state of Wisconsin.

I wonder how many people in this audience, outside of the men connected with this association, know that the state of Wisconsin produces, ships, and sells more pure seed, grain and vegetables, than all the other states of the Union put together. The pure seed movement that has been inaugurated by the professors of the Agricultural School of this state, has brought about wonderful results. They are selling pure seed grains all through the states, south, east and west of us. Our friends from Fond du Lac county will tell you of men down there who are raising and selling seed grains in an association, and if every bushel of seed does not come up to the standard of that association, any member loses his membership and cannot be classed as a producer of pure seed grains. The Oderbrucker barley has been sold all over the country not only in the United States, but it goes to Europe and Japan and China and even to Africa.

We hear a great deal these days about the high price of meat. The fact is there are nine million less cattle on American soil than there were ten years ago, while there are over 20,000,000 more people to eat meat.

As I sat in the meeting this afternoon, I read what is on the back of the program of this convention. When the association

was organized in 1871, the dairy products of this state amounted to only about one million dollars. Forty-one years later that same product amounts to more than the gold that is mined in the five greatest gold-producing states in the Union. Eighty million dollars comes from the dairy industry. The state of Wisconsin for seventy-five years has been known as one of the great timber states of the Union. At the close of one decade more, it will be known as a practically timberless state. What has become of all the men who have toiled and destroyed this timber, sent the products of these forests to market? They do not stay here; they have not built up any great community anywhere in the state of Wisconsin. They have left burned stumps of trees, a landscape destroyed. They have left no monuments or great works except such as may be found in the growing and strengthening of humanity in certain lines, but they are not the people that come to stay, that remain to make the country blossom and they never will return. The day is coming when they will no longer be known, practically, east of the Mississippi river. Do you realize tonight that the boys that were in this high school building this afternoon are going to live to see the very last forty of stump land in Ashland county sold, and there will be no more cheap land to be sold after that. There is only one crop of land. There is not an acre more within the borders of the United States than there was the morning that Christopher Columbus first landed.

No country or nation ever was great and strong save it lived where green grass grew naturally, just as it does in Ashland county. Talk about the irrigated lands of the west. We have to have something besides water to make even the irrigated lands of the west prosperous. There must go with that irrigation some system of farming which will restore fertility to the land. It has to be fed just as carefully as you will feed high bred cattle. Give them nothing but cold water and they will hardly give you life in return.

W. D. Hoard is not here so I can mention his name. Most of us who have seen him and know his kindly face, realize that he is one of the greatest men ever produced in the state of Wisconsin.

We cannot now tell of any particular thing he did as governor but we know that the work of W. D. Hoard for the last forty years has been the redemption of the state of Wisconsin. Under his influence unthrifty, barren, waste farm land has been transformed into the blossoming fields that we love so much all over the state of Wisconsin. Somewhere back in the minds of men who are realizing his great work is gratitude that no man can measure. In the years to come may he and these others be able to listen and know that their lives were not spent in vain and that many and many a poor farmer who knows nothing of the lives of these men is enjoying the benefits that he never would have known without their work. I thank you.

Adjourned to 10 o'clock next morning.

MORNING SESSION, Wednesday, Dec. 11, 1912.

President Jacobs in the chair.

The Chairman. I cannot tell you how much good it does me to see this group of bright boys here this morning. With many of us our future is mostly behind us, whatever we can learn we have but a short time to use. You boys will have a long time to use what you can learn and to use it for yourselves and for the state.

THE WORK OF THE WISCONSIN DAIRY ASSOCIATION.

H. C. SEARLES, Fond du Lac.

In reporting the work of the Wisconsin Dairymen's Association, I will take permission to go back to the time this association was organized in 1872, when a small body of energetic, enthusiastic dairymen met at Watertown and effected the permanent organization of the above association. Since its organization it has stood for principles that have made Wisconsin noted for her fine dairy products and well bred dairy cattle.

With this meeting the Wisconsin Dairymen's Association reaches its 41st. milestone, and the good work accomplished

by this organization during these years, cannot be easily estimated. Its far reaching influence has directly or indirectly benefitted every dairyman in the state.

This association commenced in 1884 to send a traveling inspector into the field, and as its funds were increased from the state and otherwise, this plan was followed for several years, sometimes with as many as four instructors visiting cheese factories and creameries. This plan was in fact the means of starting the dairy school. The benefits of instruction were so apparent that the association earnestly recommended the establishment of such a school in order that it might be relieved from this line of work, and devote its energies and funds more directly to the benefits of the milk producer. To this end, also, it not only favored the creation of a dairy and food commission, but has consistently and persistently favored the enlargement of its functions, notwithstanding the fact that in a way these agencies have encroached upon the field which the Dairymen's Association had, as it well knew and confessed, inadequately covered.

It has therefore gladly relinquished the technical work of instruction and inspection, and in recent years has centered its activities on those lines of work connected with the economical production of milk, and at the present time, is chiefly engaged in establishing cow testing associations, whereby the farmer is encouraged and assisted to weed out of his herd the unprofitable cows, and feed and care for the profitable ones in a more profitable way.

The Wisconsin Dairymen's Association, and those who have been active in its management, take some pardonable pride in its accomplishments and cannot assert to the proposition that it has outlived its usefulness, or that there is no further need for its efforts.

It is confidently believed that the moderate appropriations the association has received have been wisely expended, and have returned a thousandfold profit to the dairy farmers of the state, and through them to the people at large.

REGARDING ORGANIZATION OF COW TESTING ASSOCIATIONS.

The work of testing cows on the farm began in the spring of 1906. Pursuant to this instruction it was determined to make some initial experiments in establishing cow testing associations. Several applications were received, but none of

them seemed to offer sufficient number of dairies or cows to occupy the full time of an instructor in one locality; but after some delay, by combining the applications from the territory northeast of Fond du Lac with others from Rosendale and Eldorado, a circuit was established, and the writer started work of testing in the middle of May. Later in the season, Mr. H. K. Loomis was persuaded to take up this work in Sheboygan county.

There was a demand for more cow testing associations, and in the year 1907 several were organized upon what we term the fifty-cent plan. The work was carried on in the following manner: Each person who joined the association was required to pay fifty cents per cow per year for having the milk tested once a month. It became necessary for each member to weigh and sample once a month the milk of each cow in his herd, and then take the samples of milk to the creamery, where they were tested by the butter maker, who received fifty cents per cow per year for his labor. This system did not work well for in the busy seasons farmers would neglect to weigh and take samples, and after trying this system for a year or two, it was discontinued.

The following table gives the names of places where cow testing associations were organized under the fifty-cent plan, number of members who joined them, and number of cows tested:

Places where organized.	Number of members.	Number of cows.
Rosendale	38	406
East Fond du Lac	54	559
Cottage Grove	20	154
Tomah	22	261
West Salem	14	240
West De Pere	25	266
West Bend	32	328
New Franken	18	178
Medford	16	146
Colfax	18	249
Galesville	9	113
Plainsville	9	72
Hetzel	32	260
Oasis	15	142
Pittsville	75	737
Flk Mound	29	369
Menomonie	58	542
Knapp	20	241
Dewey	11	65
Burnett	22	126
Vesper	21	210
Barron	226	2,174
Rusk	26	447
Blaine	31	243
Nellsville	17	283
Lake Mills	22	303
Stockbridge	15	173
Total	895	9,287

In the year 1908 cow testing associations under the dollar plan were organized. This plan has proved very satisfactory to the dairymen of Wisconsin. Associations under this plan have been organized in the following places:

Place organized.	Number of members.	Number of cows.	When organized.	Years in operation.
Whitewater.....	25	355	Jan. 1909	2
West Salem.....	25	345	Feb. 1909	3
Tomah.....	27	296	Feb. 1909	1
Sparta.....	27	367	March 1909	1
Waukesha.....	26	386	March 1909	1
Fort Atkinson.....	24	418	Oct. 1908	4
Rice Lake.....	29	300	June 1909	2
Briggsville.....	24	317	March 1910	1
La Crosse.....	35	550	April 1910	2
Menomonee.....	24	415	Oct. 1910	2
Bloomer and Eagle Point.....	26	450	May 1909	3
Winneconne, 2 Ass'n.....	43	706	March 1910	2
Beloit.....	23	470	April 1911	1
Waupun.....	23	342	April 1911	1
Racine.....	19	447	Jan. 1911	1
Wautoma.....	30	350	In operation less than a year.	
Cambridge.....	37	470		
Stanley.....	26	430		
Mineral Point.....	27	450		
Darlington.....	28	300		
Rochester.....	27	485		
Total.....	575	8,649		

The first steps taken to organize an association under the dollar plan, is to get 26 dairy farmers to sign a contract pledging themselves to furnish a given number of cows. It is really necessary to place a minimum number that any one man can enter, unless two farmers live close enough together so the two herds can be tested in the one day; the minimum number should be set at 15 to 18 cows which will enable the association to get sufficient funds to hire an instructor or fieldman. The following is a copy of the contract:

“Whereas the said association is to be organized for the principal purpose of providing means for the coöperation of its members in testing milk of their cows periodically, and for the improvement of their dairy interests. And whereas it is proposed by the said Association to engage a suitable person for that purpose as soon as enough subscribers are obtained to warrant said Association to engage such person. We the undersigned members of said Association, each for himself, and not one for the other, severally agree to pay the sum of one dollar (\$1.00) a year for each cow set opposite our respective

names to said Association for that purpose. Said fees to be paid in quarterly installments in advance. The first payment to be made as soon as such person is engaged by said Association. Each one of us also agrees to furnish board and lodging for said person for at least one day each month, and convey him to his next place of work, or should said person furnish his own conveyance, each one of us agrees to feed and shelter said person's horse one day each month. Said person shall not work on Sunday, but shall have board and lodging over Sunday at the place he is working Saturday."

After the required number of cows are obtained, then a meeting should be called and an organization formed, constitution and by-laws adopted and officers elected. It is then the duty of the officers, through the aid of the Wisconsin Dairymen's Association, to select a fieldman to take charge of the work.

The man visits each member's herd once a month, and weighs the milk of each cow night and morning, testing the same at the farm. From the weights of milk and test he calculates the amount of butter fat produced for one day, and estimates the amount of milk and fat produced for one month. Then taking the price received per pound of butter fat, he figures the value of such product. He also weighs the feeds consumed by each cow for the one day, and estimates from such weights the amounts fed for the month. The feed is figured at market value. He also figures the cost of producing 100 lbs. of milk, 1 lb. of butter fat, and the returns for one dollar (\$1.00) in feed fed. This enables the farmer every month to know what each cow is doing for him. Balanced rations are also figured, and a general discussion is carried on each month between the instructor and farmer as to the most profitable way of feeding and care of the herd.

Several of the dairy farmers have voluntarily admitted that they received information enough through "Feeds & Feeding," to more than pay them for their investment of one dollar (\$1.00) per cow; not counting fifty dollars (\$50) to seventy-five (\$75) saved in locating boarder cows.

Since starting the work of organizing cow testing associations in 1906, 1470 dairymen have belonged to them, and 17,936 cows have been tested for a year.

At the present time we have twelve cow testing associations in operation in the state with 345 members and 5,350 cows. The dairy farmers belonging to these associations are putting \$5,350 into operating cow testing associations, while the appropriation from the state to the Wisconsin Dairymen's Association is \$3,000 per year. In other words, for every dollar that the state gives, the farmer pays \$1.78.

It is not an easy matter to show exactly in a tabulated form what these associations have accomplished. One of the serious drawbacks of our work is to get the dairy farmers to realize the importance of continuing this work year after year. They seem to think one year's work gives them complete information concerning the individual differences of the animals in their herds. Last spring, while starting one of our associations, an incident happened which shows how little the average dairy farmer knows as to the profits or loss in his herd, unless he is keeping a record. After weighing and testing the milk of this patron's 13 cows, and weighing the feed, we found that the cost of feed exceeded the value of the product to the extent of \$45.95 for one month. When this patron was asked as to how he thought he stood in regard to profit or loss in his dairy, he admitted that he was quite sure they were paying for their feed. This patron has erected a silo this summer, and not only this one but 25 silos have been erected among the 37 patrons that we have, who belong to this association. It is my actual belief that this state of affairs was brought about by the cow testing association giving them light to see what they were doing.

Mr. J. H. Kelly of Eagle Point, Wis., who has four farms and four herds of cows in the association at that place, writes as follows:

"I have belonged to the Eagle Point cow testing association for three years and must say am well satisfied with the results attained from it. We are milking over one hundred cows at present. It has taught us how to feed and weed out the cows which are not profitable. We feel that the testing association has a good influence, in that it has a tendency to stimulate the interest of the help in the work; as close records are kept, and a sort of rivalry exists as to whose herd will be the best."

Another letter to our Secretary, Mr. Glover, from W. H. Clark of Rice Lake, has the following to say:

"Your letter of inquiry at hand, and I am pleased to reply. Previous to entering the testing association, our average production for three years was about 200 lbs. of fat per cow. The first year of the association we raised it to 308 lbs. of fat per cow. We then entered our entire herd in the Wisconsin Dairy Cow Competition, and made an average of 405 lbs. of fat per cow, placing every cow and two bulls in the Register of Merit.

During all this time the herd remained practically the same, except that heifers were added as they freshened. No culling was done, and the gain was made only by better care and feeding.

Previous to this test, I had sold a party several head of cattle and offered him a cow for \$150. The next year after the test was made, I sold the same cow to the same man for \$275. Bulls are being sold for from two to three times the price I got before the test, and I sell many more of them.

Since making our official test our average production has held good on the whole.

I could write pages of the benefits of a testing association in a community, but trust this will meet the requirements of your inquiry.

Signed,
W. H. Clark."

The following tabulated statements, showing the increase that has been made in two different associations for three years work, is self-evident of the value of cow testing work.

It must be remembered that the dairymen suffered by the drought during the years, 1910 and 1911, and there was a tendency to limit the amount of grain fed, which had a tendency to decrease the average production.

BLOOMER AND EAGLE POINT COW TESTING ASSOCIATION.

Began test May 1st, 1909, and ended May 1st, 1911.
Summary giving average record of each herd.

	Milk lbs.	Fat, per cent.	Fat, lbs.	Gross re- turns.	Cost of feed.	Profit.	Returns for \$1.00 in feed.
First year's average of all herds.....	5,000	4.3	216	\$63 76	\$30 95	\$32 81	\$2 06
Second year's average of all herds.....	5,434	4.1	226	68 34	40 00	28.38	1 70
Gain.....	434		10				
First year's average of one herd.....	3,854	5.3	204	60 26	34 29	25 97	1 75
Second year's average of same herd.....	5,399	5.0	273	82 82	44 19	38 63	1 87
Gain.....	1,545		69				
First year's average of one herd.....	4,981	4.2	209	61 46	33 56	27 90	1 83
Second year's average of same herd.....	6,622	4.0	269	80 94	43 42	37 52	1.86
Gain.....	1,641		60				
Average amount of gain for all herds.....	434		10				
Average amount of gain for one herd.....	1,545		69				
Average amount of gain for one herd.....	1,641		60				

There were 72 unprofitable cows sold during first year before their year's work was completed; their records do not appear on our report, to lower the average of first year's work.

WEST SALEM COW TESTING ASSOCIATION.

Began test February 1st 1909, and ended February 1st, 1912.
Summary giving average record of each herd.

	Milk lbs.	Fat, per cent.	Fat, lbs.	Gross re- turns.	Cost of feed.	Profit.	Returns for \$1 in feed.
First year's average of all herds.....	5,232	4.3	228	\$66 40	\$30 50	\$35 90	\$2 17
Second year's average of all herds.....	5,085	4.6	233	70 60	30 77	39 92	2 29
Third year's average of all herds.....	5,935	4.5	269	84 00	33 50	50 50	2 50
Gain.....	703		41				
First year's average of one herd.....	5,287	4.8	253	77 76	40 28	37 48	1 93
Second year's average of one herd.....	6,172	4.6	286	89 97	36 98	52 99	2 43
Third year's average of one herd.....	6,381	4.6	297	82 18	38 38	43 80	2 14
Gain.....	1,094		44				
First year's average of one herd.....	3,547	4.3	152	40 71	26 68	13 73	1 50
Second year's average of same herd.....	4,539	4.3	195	58 40	29 60	28 80	1 97
Third year's average of same herd.....	6,165	4.3	265	82 61	35 85	46 76	2 30
Gain.....	2,618		113				
Average amount of gain for all herds.....	703		41				
Average amount of gain for one herd.....	1,094		44				
Average amount of gain for one herd.....	2,618		113				

A letter received from Mr. L. P. Martiny of Chippewa Falls in reply to my inquiry, reads as follows.

Chippewa Falls, Wis., December 3, 1912.

H. C. Searles,

Fond du Lac, Wis.

Dear Mr. Searles:

Your letter received, and in reply will say that after being a member of a cow testing association for over three years, I believe the cow testing association is the one practical way of determining—first, the productiveness of cows; second, teaching one how to care for, and feed cows; third, the value of dairy blood, and fourth, the great difference there is in cows.

There has been no single factor that has developed the dairy industry in this locality like the cow testing association.

The cow testing association has a good effect socially on a locality, for through their common interests, they are drawn together in farmers' clubs, neighborhood meetings, etc. Members of a cow testing association are always ready to discuss points of feeding, breeds of dairy cattle and anything pertaining to the dairy business. Without an association, each man is individualized and besides he does not even have enough knowledge of the productiveness of his own cows, the cost of their feed, etc., to talk intelligently about them.

I would say that in our cow testing association the man who is conducting the association is the best monthly newspaper one can get. Not that he goes gossiping about other people's affairs or business all over his route, but we hear what other herds are producing, how they are being fed, managed, etc., and we have a chance to compare our herd and methods of feeding with other men.

Our cow testing association has been the means of bringing into this locality at least a dozen pure-bred dairy bulls to take the place of scrub or beef bulls, and interest along this line has just nicely started to develop.

Our cow testing association has built more silos, ventilated more barns, put in more cement floors with improved cow fastenings, purchased more carloads of high protein feeds than would have been done in years without it.

Before a man has his cows tested for dairy production, he is usually willing to let a buyer go into his herd and pick cows

with a range in price from \$40. to \$50. if they are fairly good and uniform herd. After he has been in a cow testing Association he will usually price them to buyers quite differently, the price ranging from beef price for some that are simply boarders, up to \$60, \$75, \$100, \$125, and even higher for individuals that have returned him profits far above what he ever dreamed of. In other words, a man never knows his cows, or how to take care and feed them, until he keeps records of their production.

I believe the association is the most practical, cheapest and most efficient way of keeping these records, as the whole community has the same plan, is working for the same end and is in the same game. I remain,

Yours very truly,

L. P. Martiny.

The opinions of such men as Mr. L. P. Martiny, J. H. Kelly and W. H. Clark should carry great weight in the progress of testing associations in Wisconsin.

DISCUSSION.

The Chairman: We who have had experience with cow-testing associations believe in them. I belong to one of these associations. Right on my farm I have a creamery, a butter maker and all the facilities for testing milk; have had them for two years, and yet I am going to make a confession, and I believe there are a lot of other farmers just like me.

Most farmers are lazy when it comes to making figures; they work all right, but when it comes to using the pencil they are lazy. The trouble is we are busy people. For instance, at hay-time we work hard all day. We want to get the chores done in a hurry and we don't like to take the extra time to test the milk. We pass it by once and then we can't seem to catch up. It is not because we object to the extra expense, but as it is nobody's particular business, it does not get done at all.

But here we pay a dollar to have our cows tested for the year. We know it will be done, and that we will find out exactly what each cow produced for that year, what she has eaten, what it has cost,—it is all figured out for us. It is done

by a man that is paid to do it. It is his business to do it and he comes to the farm periodically to do it, and so the work goes on whether we are busy or not. We find we never spend a dollar that gives us any better interest than the dollar we pay to find out whether a certain cow is boarding with us or helping us to pay our board. Isn't it worth a dollar to find out whether a cow is running us in debt? I believe this is the most economical way we can gain this knowledge.

It is well if you do this work yourself; there is no criticism on your doing it if you will do it and keep it up, but we believe this is a very practical way of making sure it is actually done.

Secretary Glover: Notwithstanding all the benefits that come from the cow testing associations, few realize the difficulties under which they are organized and operated. A few years ago, we were trying to reorganize a cow testing association that had been in operation for two years. We got together what we thought were the leading men of the association and after discussing the value of these associations one man said, "I found out that my whole herd is not doing what it ought to do." He also said it was the most profitable thing he ever joined, yet when the paper was passed around for him to sign for another year he refused. Now, you can imagine the influence that man's actions had upon all the rest who had not had the opportunity of trying out the cow testing association. The point that man made for refusing to sign for another year was that he expected to dispose of all his cows on account of the record they had made, and put in a new herd, therefore it would not pay him to continue the work with his present animals.

I want to mention a few things that come before us in operating a cow testing association. One man approached me and said, "Glover, I can tell how much milk a cow gives when I milk her twice a day. I can see how much there is in the pail and I can estimate close enough for me as to the quality, therefore it would be unwise, unprofitable, and foolish to expend a dollar per cow per year for that purpose." I said to him "My friend, I don't believe that you can tell within five thousand pounds of how much milk a cow gives in a year." Perhaps an extravagant statement on my part, but I want to tell you why

I made that statement. Something like ten or twelve years ago I tested cows in Illinois. I was probably the first man in the United States that traveled from farm to farm with a tester under one arm and a pair of scales under the other to determine what every cow in a farmer's herd was doing.

Very often I used to put this question to the man whose farm I visited. "I want you to pick out of this herd before I begin the year's work the cows you think are the best and the ones you think are the poorest." And do you know that half of the time the ones they picked out for the best, would be at the tail end of the herd and what they considered their poorest cows would be at the top. There is one point very few farmers take into consideration in judging the value of a dairy cow, that is, her persistency. Many cows come in and give a large flow of milk for two, three, or perhaps four months, and the impression that that cow's production makes upon that man's mind when she is fresh is very vivid and you cannot change it afterwards, no matter what happens. The man's opinion regarding that cow is fixed, and nine times out of ten she turns out to be an unprofitable animal. Here comes another style of cow that may never give over twenty to twenty-five pounds of milk daily, but she persists in doing that for nine or even ten months in the year, and the result is she produces a good record. Her small yield and persistent flow of milk has made no impression on that man's mind and he takes no interest in her. The continued use of the scales and the Babcock test will tell accurately what such a cow is doing. There is another statement we often hear made by farmers. They will say "I can tell by the looks of a cow's milk how much it will test, and therefore why bother with the Babcock test." Just let me tell you, color is no indication of the quality of milk. Guernsey skim milk is a deeper shade of yellow than Holstein whole milk. If you were to select it by color you would select Guernsey skim milk in preference to Holstein whole milk, and would not you be making a mistake? When a man makes a statement to me that he can tell the richness of milk by its color, I feel like saying to him, "My friend, do you know that the buffalo produces the bluest milk on earth and that it tests more than any breed we have?" Buffalo milk is blue, speaking from the

standpoint of color comparisons of milk, and yet it tests between seven and eight per cent.

I can excuse men for refusing to look into this testing business whose judgment is distorted by a cow giving a large flow of milk in the beginning but not persisting in that flow, and I can forgive the man who wants to judge quality of milk by its color, but there is one class of men I cannot forgive and that is those who are breeding pure bred and do not want to know how much their cows are producing. Do you know that we have started in the testing of pure bred animals and have had the owners of those herds quit because the records of those animals for production were such that they would have to discontinue making sales to an unsuspecting public. We have had men who tried to substitute cows for their own cows in order to be able to show a high record, and could sell a bull calf from an animal at an advanced price, with the Dairymen's Association records back of them.

Now, this brings me to the point I want to make to you men who are thinking of going into the dairy business, and who, I hope are thinking of buying pure bred sires, at least, to head their herds. Because an animal has a pedigree is not necessarily any proof that he is any better than a scrub, and when a man refuses to have his herd tested because he cannot make good sales, if the real conditions are known, we are suspicious of that man.

We ought to protect buyers against subterfuge; we ought to have all animals sketched, and also have some means of identifying men who quit the association because their records of pure bred are not any better than common scrubs. In that case they could sell bulls for \$150.00 when the record of the mother did not show but 150 or 175 pounds of fat. I have no patience with those men. They are not only trying to deceive themselves, but are trying to deceive the people of this country, and they are a hindrance to the advancement of the dairy industry.

Now, the Dairymen's Association has been unearthing these things and showing them up for what they are so that dairy people who are following the business as a vocation will not be misled. There are plenty of honest people making honest records with herds, and I am offering this statement so that

when you come to the purchase of a pure bred sire you will hunt out those men who have had interest enough in breeding, who have integrity enough in dealing with their fellow-men, to give you the records of the mothers of the animals you are purchasing. It seems too bad that we must deal with dishonesty in our work; it has been a source of annoyance and it has been a menace to progress, and we hope that the time will come when no breeder will be able to sell a sire from his herd unless that sire has within his blood, records of animals capable of doing efficient work. It does not make very much difference, friends, the number of schools a man has graduated from. The test is what he can do when he gets out into the world, that is the thing that counts, and it does not make much difference how long an animal's pedigree is if he cannot transmit the ability to convert the feeds of your farm into profitable dairy products.

That is what we keep dairy cows for. We educate men to be more efficient; not to be loafers. We breed cattle in pure bred lines to be more efficient, and not beggar scrubs. Let us seek then, the animals that have ability to do things, and let us insist that the breeders furnish such animals to us.

Mr. Scribner:—He has pretty nearly said it all, still there is a little more to say. It has been my privilege for the last two or three years to carry on what we call a demonstration at the National and International Dairy Shows. We have kept records and tests of certain dairy cows so that people could see just what they were doing. At the last International Show at Milwaukee, I had ten cows brought in. We weighed and tested the milk from each cow and we weighed the feed each cow ate every day. In that way we got an exact record of what each cow should be credited and charged with.

I imagine there is nobody here keeping cows for fun. If that is what you are after you can get more fun out of keeping a goat or a buffalo, and do it with less trouble and expense. I guess all of us are keeping cows for the money we can get out of them. The trouble is, we farmers have neglected the business side of farming, have neglected to use a lead pencil and that part of our heads above our ears. How can we tell how much we should get for a pound of butter

in order to make a profit on it if we don't know how much it cost to produce that article? I go to a store and I ask the merchant the price of a certain commodity. He says so much. I say "How can you afford to sell it for that price?" "Why, I know just what it cost me to a penny." I wonder how many men in this room can tell how much it costs to make a pound of butter on their farms. At Milwaukee we had a cow that, do the best we knew how with her, couldn't pay for the feed we gave her within five cents a day. Suppose you had a lot like that in your herd, could you buy your children Christmas presents? Then right in the same bunch was cow No. 5. She made us clear money every day. For every dollar's worth of feed we gave her she returned us \$2.45. The other cow I spoke of returned us .78 cts. for every dollars worth of feed we put in her, and couldn't do any better; it was not in her to do better. Which of these cows would you rather own? You would not know which until you had tested them both, would you? Now, these cow testing associations employ experts who bring these things before the farmer every month in the year, and at the end of the year you can see exactly what every cow has done. These continued tests show us one very important thing, and that is, it is not so much the amount of money we earn through our cows in the year, as it is the amount we save after paying expenses. If your old cow makes a thousand pounds of butter in a year and it costs as much as you get for the thousand pounds to produce it, you will not have much left; we have to take into consideration the question of economical feeding, and these experts sent out by the testing associations will help you a lot. So let's do more thinking; let's get rid of our unprofitable cows; let's get our dairy farming on a good, substantial foundation, and we will not only make more money but we will take much more interest in our dairy work.

A Member: I know there are farmers here who are thinking of going into the dairy business. They have the farms, they have or can easily get the feed, but they have no cows. Tell us the best way to proceed.

Mr. Goodrich: You want to know how to get into the dairy business? All right. I guess I can answer that question. Buy a cow.

The Chairman: I see Mr. Goodrich differs from another eminent authority in this association. He said "Buy a bull."

Mr. Goodrich: The best way is to start in and buy such cows as you can find, choosing them with your best judgment or asking somebody else with more experience to judge for you, and then gradually build up and improve your herd. I believe the best way to answer that question is to give you a little of my experience. I commenced in the dairy business a great many years ago, in fact perhaps my father was the first dairyman in southern Wisconsin that made a real business of dairying, and he commenced in 1847. After I got well into the dairy business, of course I tried to study my cows and I felt pretty sure some cows were doing better than others, but I had not the means of making sure about them. There was no Babcock test invented until long after, and we had no testing associations, so I did the best I could by setting aside the milk of each cow for a day or so to find out. It is easy enough to weigh milk, and I had been weighing every milking for many years. So in that way I got at some things I wanted to know in a crude way. After the Babcock test came out, I got one right away and for fifteen years I weighed the milk of every cow every day so I knew exactly how much she produced in a year, and every two weeks I tested it by taking a sample from four consecutive milkings. I had to do it myself because there were no cow testing associations. Any farmer can do it and if he has the proper implements and the proper ability to stick to it right through the year, he can do it as well and as cheaply as he could get it done in the cow testing association, but that last "if" is a big one.

I want to tell you some of the things testing did for me in fifteen years. I more than doubled the production of my herd, and I want to tell you one or two instances.

I had a big cow that we called Old Whitey, she had considerable short horn blood in her but she was an immense milker. I had a hired man that took a good deal of interest in the cows and when Old Whitey came in he would say to me, "Now if you only had a lot more like Old Whitey you could make a lot of money in the dairy business." He always milked her and liked to get a big pail full. I milked a cow that stood right beside her that we called Beauty. Old Whitey

used to give from fifty to sixty pounds of milk a day when she was at her best. Beauty never gave over 25 pounds but she never got below twenty pounds until six weeks before she was fresh.

After I got the Babcock tester, I tested the milk of Whitey and found that with all her great production for a time, she only gave about 6,000 pounds in the whole year, and the average test for the year was three per cent. That made 180 pounds of butter fat, and she was a big cow to feed. I did not keep an exact account of the feed but I know she ate considerable more than the others. Beauty gave a thousand pounds of milk less, 5,000 pounds, but the average test was six per cent during the year, which made 300 pounds of butter fat, nearly double what the other cow gave.

Mr. Gibbs: I would like to get Mr. Scribner's ideas about dehorning cattle.

Mr. Scribner: I think it is all right to dehorn cattle in the average dairyman's herd; they are handled a little bit better. The time to dehorn is in cool weather. I think the safer time is late fall or early winter season. I never dehorn my cattle because I rather like the looks of the horns. I sometimes think that if a man's cows gore each other and fight, it is because they are poorly taken care of, that if a man took care of them as he ought to they would not fight like steers.

A Member: The question I, as well as a good many others, came here to find out is this: The farmers in this country are slowly clearing their farms and they want to know the practical way to do things. You might buy a cow that cost \$150 or \$200 and stop with one cow, a good one. It would take a long time to build up a herd that way. Another way is to go to the stockyards in St. Paul and pick out several heifers and buy them for the same amount of money. You could pick them out, make a selection that might possibly do something in the way of a starter for a dairy herd. I want to know from you men of experience which would be the practical way. If you had a farm on which you could take care of fifty cows at once, would it be proper to go to St. Paul and buy heifers for a very small amount of money and then develop them, weeding out those that proved worthless

and keeping those that proved to be good, and get a pure-bred sire and build up a dairy in that way? I want to find out if that is a good plan to work on.

The Chairman: I am going to take the liberty to answer that question myself. From my experience, and judging from some things I have seen others do,—I would rather take my chances with the heifers. When you come to buy a bunch of heifers from me, we are pretty near on a level, because I can't tell any better than you can which are going to be the best cows. I would say to you people first make up your mind what breed of dairy cattle you want to develop, then try to buy some grade heifers of that breed and buy a good sire to put with them. Then as they come along develop them, eliminate the poorer producers, and in a little while—it won't be but a short time—you will have a herd of cows that will be to all intents and purposes, the equal of a pure-bred herd.

Mr. Hill: I want to add a word of caution. One of the troubles in buying at the stockyards is that that is the dumping ground for tubercular animals. You certainly do not want to buy at the stockyards or anywhere else without their being tested. If there is an opportunity to buy heifers cheap that way, I would not hesitate to do it, but you will find a lot you don't want if they are tested, and you can't afford to buy them without test. Even if they are tested at the place you buy them I would not rely on that, I would have them tested again after getting them home.

Secy. Glover: I fully agree that it is a good thing to buy heifers, and I also believe they should be tuberculin tested, but I want to bring home one point that is too often missed. There is a statement that is very common among breeders that a dairy sire is half the herd. If he has good breeding and your heifers common breeding he is more than half the herd. Buy moderately good heifers and breed them to the best dairy sire of the breed to which they belong. The first generation those heifers have half the blood of the sire. There is no reason why a good sire, well cared for, should not bring you annually twenty to twenty-five good heifers. Just think what a long step you have already taken in getting half the blood of the sire in the first cross. Then I would go

again and buy another good sire with the idea it is not going to make very much difference whether you pay two, or three, or five hundred dollars for that sire, because what does it amount to?

Think what the interest would be on a sire that cost you \$500 if he increased the value of each heifer but \$5.00. Breed the second sire upon these half-bloods, and what follows? You have three-quarters of the best blood in the veins of the breed that you have chosen. Cross again and you have got 87 1-2 per cent. See how quickly you can bring up your herd with the right kind of a sire. But the sire must prove himself a getter, a good stock, just as much as the dairy cow must prove herself a capable animal at the pail. When you purchase a bull you are taking a certain chance, even if he has within his veins the blood of the best of the breed.

Mr. Hill owns five or six bulls at the present time that he is lending his neighbors as a test upon their grade cows. He goes to the farms and looks over the progeny of the different sires before he selects one of them to head his herd.

VALUE OF SILAGE AND ROOTS.

L. P. MARTINY, Chippewa Falls, Wis.

In treating this subject, what I shall have to say will be more applicable to the northern half of the state and the conditions as we find them.

I do not wish to quote a lot of statistics or analyses to prove my points, for I do not think the chemist has ever given us the value of a succulent feed as compared with dry feed. The old cow herself is the best guide we have to go by in determining the value of roots or silage.

The real intrinsic feeding value of corn silage depends on the maturity of the corn put into the silo, the efficiency of the silo itself and the variety of the corn.

I will take it for granted that the silo is a good one, with straight, smooth perpendicular walls that are perfectly rigid and perfectly air tight. The next thing will be the selection

of the variety of corn. Right here is where many dairymen make a mistake. In some way they labor under the delusion that when they put up a silo, they must at the same time get a new variety of corn, and usually their idea is to get corn that will make a bigger growth than the variety they are in the habit of growing which is a serious mistake right at the outset because it means a sour and watery silage that has a tendency to produce indigestion. Select the variety of corn that has given best results for you before you had a silo.

If you do not already have a variety that is suitable to your locality and is sure to ripen, I would recommend the flint corn or some of the very earliest types of dent, such as Wisconsin No. 8, or Minnesota No. 13, which are supposed to be the same thing.

If land is comparatively free from weeds, one will get a little larger yield by planting in drills; on the other hand, if weeds and grasses are going to bother, it had better be planted in checks so it can be cultivated both ways.

The next consideration will be the time to put it in the silo. Here again the beginner usually makes a mistake by putting the corn into the silo too green. He intuitively thinks that if green undried corn makes silage, the greener the corn the better. To make the best silage, corn should be fully matured, corn well dented and some leaves beginning to dry up at the bottom of the stalks. Silage made from well matured corn will not be so sour, will be drier, can be fed in larger quantities, and will give better results. Don't be afraid to let your corn mature in the northern half of the state, as there will be no danger of its not having enough moisture to make good silage.

In regard to growing roots, would say that it is much easier and simpler than most people are aware and the yields in the northern half of the state are enormous, ranging from ten to fifty tons per acre, depending on the stand, fertility of land, etc. For roots to grow, I would recommend first, the rutabaga; second, the different varieties of beets; and third, carrots.

Perhaps the simplest way to grow rutabagas is to sow one-fourth to one-half pound of seed per acre on new breaking, from the middle of June to the first of July, at the same time

the breaking is being done. In a good year this will give a good crop without any cultivation or attention whatever.

Another way that involves more work, but gives larger returns, is to prepare a piece of old ground, having it very fertile. Keep the land well disked up to the last of May to the 20th of June when the soil should be "fine as a garden". Sow the seed with a hand garden seeder in rows about two to two and one-half feet apart. After the plants come up, start cultivation. When the plants are two to four inches high, thin them to at least one foot apart in the row. Keep the cultivator going until the tops prevent further cultivation.

In case one has land that is wet, or there is some other reason that it cannot be worked, rutabagas or beets may be planted in rows in the garden and later transplanted, just like cabbage, pinching off some of the outside leaves at the time of transplanting. This method insures a perfect stand, less labor, hoeing and cultivating, but requires the extra labor of transplanting.

Now as to the feeding value of silage and roots, will say they compare very favorably with good pasture grass.

We all know how stock that has been wintered on dry feed begins to thrive; cows increase their milk flow and shed their hair and take on new life and vigor when turned out to grass. The chemist would tell us there is not as much feeding value in grass as there is in hay but the old cow gives more milk on the grass, and as dollars and cents are what we are after, we will go by the cow. When a dairyman provides silage or roots for his stock during the long winter months, he is giving them pasture conditions so far as feed is concerned.

Stock of all kinds not only relishes silage and roots, but it will eat more other feed, will have a slick, short coat of hair and a nice loose skin all through the winter, providing it is properly housed in a good, clean, well lighted and well ventilated barn.

For the new settler starting in to open up a farm I would say, grow some roots to feed the first cow you have. Depend on roots instead of silage until you get five or six milch cows and some young stock. Then if you are financially able and can hire a cutting outfit quite conveniently you are ready for a silo.

Right here some will want to defer building the silo until after they build that big barn they are dreaming of some time in the future. Don't let that excuse defer the silo. Your first silo may be quite crude. Haul pine or hemlock logs and have them sawed into 2x6's. Have your blacksmith make some hoops and then for a very small outlay of labor and money, one can have a silo that will give very good service for a few years and will pay for itself many times over.

The silo is not such an expensive, mysterious, complicated monster, whose building and using is to be dreaded, as some people think it is.

Make up your mind to build a silo if you need one. Build it and when you see the results you get, you will be surprised how easily and cheaply it all came about.

Afternoon Session, Dec. 11, 1912.

President Jacobs in the Chair.

Secy. Glover: I want to say in addition to what Mr. Martiny has said that the best dairy farmers of the country have learned that the more nearly the dairy cow can be supplied with feed such as she gets from June pasture the better are the results. The cow's digestive organs are such that she requires a large amount of bulky feed. In that respect she differs from the horse and the hog, both of which have small stomachs in comparison with the paunch of the cow. There is something about the succulent feeds as Mr. Martiny says, which seems to make it possible for the dairy cow to consume a larger amount of fodder corn, for instance, in the form of ensilage, so as to give a better result for all she consumes.

Mr. Gibbs: How much should a cow produce and what should the milk test before she should be discarded as not being on a paying basis?

Mr. Glover: That question cannot be answered definitely because sometimes a man may be so situated that though he knows his results are poor, yet he must get along until he can do better. It is pretty well established that at the present price of feed and butter fat, a cow must produce about 150 pounds of butter fat in order to pay for the feed she eats.

The Chairman: Let us not get away from the silo question.

A Member: How many cows should a man have before he can afford to build a silo?

Secretary Glover: I say twelve to fifteen; some say six to ten.

The Chairman: I should say if you have ten cows and are working into the dairy business build a silo and you will soon have fifteen cows. I notice this paper says, if you are financially able build a silo. That does not strike me as right because I had to do it before I was financially able, or I never would have built one. I built one without being financially able, and on account of building it I now have two. I do not know of anything I would feel more like putting a mortgage on my farm for, than to raise the money to build a silo.

Mr. Gibbs: We could not expect people to patronize a store until there is a store to patronize, and we could not expect the cows to patronize a silo until there is a silo. I believe in building the silo first; then we will get the cows later to patronize the silo. That is right, isn't it?

Secretary Glover: To a certain extent. You would not build the store until there were people to purchase goods.

Mr. Gibbs: You will get the patrons if you build the store.

A Member: I am feeding seven cows from a small silo.

Secretary Glover: I am very much in favor of the silo, but in my experience I have seen some bad mistakes made in building silos, and such mistakes always create a prejudice against them. I know of communities to-day where you can't get them to build silos because somebody made a mistake.

The Chairman: There is one thing we are losing sight of. There are some principles involved in the building of silos and feeding out of them not involved in the building of barns and granaries. In building a silo build it in height according to the time you are going to feed the silage, and in diameter according to the size of the herd to be fed. Whether you are going to feed three cows or thirty you want it about thirty to thirty-five feet deep, because any number will feed for the same length of time. Now, a silo that is thirty feet deep and only broad enough to feed three cows a day, taking off enough so the rest of it will not spoil, is not of proper proportions. If you are going to have a silo at all you want it during the feeding season. After you have it a year or two, you will want to have that feeding season last the entire twelve months, as most of us have, and we have found it necessary to build another silo.

Mr. Gibbs: Where a silo is sixteen feet across and thirty feet high, how much is it necessary to feed off a day in order that we may maintain the real value of what is left in the silo?

The Chairman: It does not make any difference how wide it is. You have to feed from an inch to two inches a day. One inch a day in a winter like this would be enough, about 2½ inches in the summer time.

A Member: It has been suggested that the machinery necessary to fill a silo costs in the neighborhood of \$500. Of course that is a great expense and would be as great for a small silo as for a large one. Our way of getting around that is, that the machinery is bought coöperatively, and rented to each man for six dollars a day. A man goes along and tends the engine. That makes it reasonable for each man.

Mr. Gibbs: That is one of the questions bothering the farmers in our neighborhood. Can we better ourselves by coöperating or can we go about this thing individually and thereby get along just as well?

Mr. Glover: You can do better by coöperation, of course.

THE IMPORTANCE OF A PURE BRED SIRE.

C. L. HILL, Rosendale.

While the average production of the cows in our Wisconsin herds is increasing each year, there is still such a wide margin between this average and the results obtained in herds that are bred and fed right, that there will be chance for improvement in most of our herds for an indefinite period. I say herds that are bred and fed right, for while you will find some cows of nondescript breeding that are doing well at the pail, you will find that all of the herds in the vanguard are the result of careful breeding along strictly dairy lines. Along dairy lines, because the question of dual-purpose vs. strictly dairy breeding is now so well settled that it does not need our attention, more than to remark in passing that the effort now being put forth to turn some of the so-called dual-purpose breeds into special dairy breeds is not deserving the attention it is re-

ceiving in some agricultural papers. Why any man should in this day wish to start on a line of breeding 50 or 100 years behind another man is hard to comprehend.

The term pure bred is now generally used to mean an animal recorded in any recognized herd book. I take a pure bred dairy sire to mean one of the four great dairy breeds, for they so far excel any others in dairy production that they are the only breeds we need to consider in this talk.

The question of breed is very important and needs our careful attention. The men having in hand the breeding and development of the different breeds once seemed to think they could best accomplish their purpose by defaming the other breeds, but we are now glad to see that most of the leading breeders and dairymen concede that there is great merit in all of the dairy breeds, and that our battle should not be against one another, but against the scrub cow.

While personally I am a friend of the Guernsey, you will find my neighbor Scribner equally as partial to the Jersey, and neighbor Gillett to the Holstein, and they are both better dairymen than I am. Study your conditions carefully and see herds of all breeds before you decide which breed you will keep, and have, or think you have, a reason for deciding as you do, but having decided stick to that line of breeding regardless of the blandishments of the men who are partial to one of the breeds you did not accept.

In selecting your bull, after the breed is decided on, remember the common saying, "The bull is half the herd", does not at all express the whole truth, as it would be nearer the truth to say he is three-fourths or seven-eighths of the herd. Five to ten years from now, from half to all of your herd will be daughters of the bull you are to buy now, and the matter of \$50 or \$100 should not stand in your way at all if you are sure one bull is better than another. But there is the sticking point. I am sorry to say it is very unusual that one can be sure any particular bull will excel another as a sire, for while it stands to reason and usually proves true, that the bull with the best line of maternal ancestors will prove to be the best sire, it is never-the-less true that often a bull that is bred right and a fine individual will prove a total failure as a sire. I once used such a bull in my herd that never sired a daughter as good as her dam, while on the other hand another bull

I used never sired a cow but that was better than her dam. This matter of the selection of a bull is to my mind the greatest problem that faces us as dairymen to-day. The only safe way for any breeder or dairyman to do, is to hunt around and find a bull that has proved to be a good sire in some neighbors herd, and then buy him regardless of price.

Only the other day a friend of mine visited a grade herd, and wrote me about a line of cows he saw all sired by one bull, and the bull still on the farm. Look up that sort of bull, eliminate the uncertainties of the game, and start now where the other man left off, but way in advance of him, for perhaps he, in finding this bull, tried two or three others that did not raise the production of his herd at all.

One of the best dairymen in Wisconsin testifies that a certain bull used in his herd damaged it more than any other two bulls did it good. Therefore I repeat, buy a tried sire. There is a great and, I think, unfounded prejudice against old bulls. Most dairymen seem to think a bull has outlived his usefulness when he is three or four years old. I have kept a bull until he was 15 years old, and it is said that the Jersey bull Mercury was struck by lightning when he was 21 years old.

Probably a large part of this prejudice comes because most men seem to be afraid of a bull, and rather handle a yearling than an older bull. Do not forget it is the kind bull, that is trusted because it is kind, that kills men, and if you will only learn to trust a kind bull as you would a lion then you will not give even the vicious bull a chance to get at you.

A few years ago my neighbor, Mr. Welles, bought a bull that had just killed a man; he was nervous and excited, and was indeed a dangerous animal. He was at once put to work in a tread power, and now after four or five years more of life is kind and easily handled but nevertheless always watched. He is proving a wonderful sire and it would have been a crime to have slaughtered him just because a man knew no better than to go in a stone fenced barnyard with a strange bull.

The first Guernsey bull I ever owned was one of the very quiet sort, and he taught me a lesson when he was about two years old. He caught and pinched me till I could scarcely take a long breath for two weeks, and it was a miracle I escaped so easily. I sold this bull to a man who said he was

not afraid of a cross bull. He worked him in a tread power and used him for years.

If you must buy a young bull, be sure, no matter what breed he is, that he is backed up with a long line of cows that have produced good official yearly fat records. You can find plenty of this sort of bulls in any of the breeds.

No matter what the age of the bull you buy, keep him, if possible, in sight of the herd of cows, and do not imprison him in some dark, damp, dirty stall where every association will help to make him vicious. If you have no tread power, fix a yard in which he can exercise, hang a stump or block about two feet from the ground in his yard and he will take exercise enough to keep him quiet.

Do not commence to use the bull too young. Many persons write to me asking for a bull to serve 20 to 50 cows, and say that one 12 to 14 months old will suit them. A bull should be two years old before he has heavy service, and more than 14 months old before he is used at all.

The Wisconsin Dairy Cow Competition carried on by the Wisconsin College of Agriculture in 1909, 1910, and 1911, brought out some records of grade cows that may well be studied with care and profit, and should prove to the most skeptical the benefits to be derived from the use of the pure bred sire.

The 11053 Grade Guernsey cow, Jerry, made the following semi-official record in the Wisconsin Dairy Cow Competition, was 10 years old at the time of the test and was sired by King of Ellington 11096. She was only a half blood Guernsey.

Month.	Lbs. milk.	Per cent fat.	Lbs. fat.
1910			
May.....	1,005.8	4.91	49.68
June.....	1,695.0	3.74	63.39
July.....	1,755.3	3.95	65.38
August.....	1,603.0	4.39	70.37
September.....	1,465.9	4.45	65.23
October.....	1,429.3	4.29	61.31
November.....	1,233.9	5.34	65.89
December.....	1,173.4	5.40	63.36
1911			
January.....	945.1	5.73	54.15
February.....	663.4	5.82	38.61
March.....	926.6	5.00	46.30
April.....	1,462.0	4.65	67.98
May.....	485.3	3.74	18.17
Totals.....	15,744.0	4.63	729.87

This is the largest record ever made by a grade cow of any breed, and I think the largest record made by any cow, pure bred or grade, that calved again during the year of her test.

Her feed for the year consisted of 1911 lbs. of Ajax flakes, 639 lbs. wheat bran, 80 lbs. gluten feed, 243 lbs. ground oats, 682 lbs. corn meal, 960 lbs. soiling crops, 8332 lbs. corn silage, 1374 lbs. alfalfa hay, 164 lbs. oil meal, 704 lbs. ground barley, 604 lbs. mixed hay, 1191 lbs. unicorn dairy ration, 750 lbs. beets, 20 lbs. peas, 53 lbs. corn stover.

Value of butter fat	\$229.55
Cost of feed	99.20
	<hr/>
Profit	\$130.35

Record made by A. N. Schmit, Appleton, Wisconsin. Owner Charles L. Hill, Rosendale, Wis.

The Holstein grade cow, Madge, produced 20,541 lbs. milk and 644.4 lbs. fat, at a profit of \$97.48.

The Jersey grade, Lily, gave 9,889 lbs. milk and 554 lbs. fat at a profit of \$96.47, while other grade Guernsey cows gave profits of \$128.79, \$101.35, and \$100.08.

The average net profits of the 5 Holstein grades in that competition were \$81.14, of the 24 grade Guernseys \$78.00, and of the 21 grade Jerseys, \$50.62. These figures were not obtained by valuing the product for any more than any of you farmers obtain for it at your local creameries.

Compare these results with the cow that produces 150 lbs. of fat in a year, that just pays for her feed, and the owner cares for, as a pastime.

Another reason that should appeal to every farmer in Wisconsin in favor of using a pure bred dairy bull at this time, is the price commanded by good grade cows. Buyers are scouring the state looking for good grade cows and as high as \$150 and \$160 each have been paid for car loads of the best grades.

I met a breeder from the south in New York recently and he said if he could find a carload of grades such as he wanted he would pay \$200 to \$300 each for them if necessary.

One breeder in Iowa sold six grade cows, the pick of his herd, for \$200 each, and the next twelve at \$150 each.

Just let it be known that any community can supply a carload at \$100 each, and buyers will be there within a week. A man came to Rosendale only last week and offered as high as \$125 for cows but went away without any.

Why the farmers of Wisconsin are content to use a scrub bull in the light of such facts, is beyond comprehension, but I am sure the farmers of Ashland county will not be willing to do it.

(Continuing.) I had a letter from former Governor Hoard lately, in which he said that in spite of all the preaching in this convention and in Hoard's Dairyman, and every other influence that had been at work all these years, that the increase of the use of the pure bred bull had been very slight in this state, but that the present price of grade cows was having more influence on those farmers who were buying pure bred cows than anything that had ever been done. You can't afford to do anything else than to buy a bull and a good one.

Mr. Gibbs: By special request of some of the people in my vicinity I submit this question once more; they want to know just how much a cow is required to produce before she is discarded, whether she be a grade cow or a pure bred.

Mr. Hill: Don't you see so many other things enter into that question that it could not be answered directly, in one word as you are asking for. A farmer must know the conditions of his particular cows; the price of feed on his farm, what he does with his products. If he knows all those things the question might be answered.

There are any number of herds in which cows would not be kept—the owners could not afford to keep them if they did not make two hundred,—sometimes even three hundred pounds of butter fat in a year. Sometimes a cow will pay for her feed if she produces 150 pounds. In some instances a man might not be able to get enough for the butter fat so that he could afford to keep her even at 150 pounds. Then, another thing, suppose I answered your question and told you that you could afford to keep a cow for 150 pounds of butter fat. Can you afford to keep her when you can get another cow to take her place that can make 200 pounds? The question must be qualified every time you try to answer it.

The Chairman: I made some investigations last winter in regard to the number of pure bred individuals of the different dairy breeds in the state, and drawing an average of their production of calves, I found that to supply each herd of cows in Wisconsin with a pure bred bull, it would take thirty years.

Mr. Hill: Less than two per cent of the farmers of Wisconsin have a pure bred bull at the head of their herds.

Mr. Everett: This question stirs me up. It is a very important one to you farmers of Ashland county, more important than you know because you have not had experience as practical dairy-men, such as some of the rest of us have had in years gone by, and some are having to-day. You have not had the experience which will teach you, impress upon you the value of the pure bred sire. In northern Wisconsin, the farmers as a rule are not wealthy. Many of them are fairly well to do, but a great many of them, hundreds and thousands, are struggling to pay for the home, to pay for a little land. They have the meagre equipment, and not an over supply of funds. Now, pure bred sires, while they are almost an absolute necessity, cost a good deal of money. That you have learned in this convention. I often advise northern Wisconsin farmers to coöperate in many ways and one of them is in the purchase of a pure bred sire. Two or three neighbors can buy a good, pure bred dairy bull from a reliable breeder—and we have them plenty,—at a fair, reasonable price. They will get value received for their money and they can use him a certain length of time and then dispose of him. In that way a pure bred sire can be introduced into this north land much faster than if each one waits until he feels he can pay from one to two hundred dollars for such an animal. You can easily get as much or more for him when you are through with him as you paid for him. That is often a practical solution of the problem.

Mr. Hill: Mr. Scribner has been interested in an association they call the Four Square Association in Minnesota. Four groups of farmers each buy a pure bred bull and when they want a new bull in a certain group, they exchange. They call it rotation in bulls, and it works well.

ANNOUNCEMENT OF RESULTS IN BOY'S AND MEN'S
JUDGING CONTESTS.

F. H. SCRIBNER.

A boys' and men's judging contest was held wherein both the men and the boys had an opportunity to judge cattle. It was unfortunate that the kind of cows brought in for this judging contest could scarcely be considered good dairy animals.

Mr. F. H. Scribner lectured on the subject of judging dairy cattle before the contest started. After he had described what might be termed the "fundamental points" to be considered in selecting a dairy cow, those who desired to participate in the judging contest went to a nearby stable and passed upon several animals.

The object and purpose of such a test as this is to call the attention of those interested to the fundamental points to be considered and to teach them to see those points.

The following is a discussion which took place after the contest was over.

DISCUSSION.

A Member: Why do you suppose the boys beat the men?

Mr. Scribner: Because they know more; the result of good breeding, you know.

Mr. Hill: The boys of this country are having advantages their fathers did not have, and they ought to be thankful.

A Member: What about the question of inbreeding?

Mr. Hill: I never have practiced it in my pure bred cattle. I would rather trade bulls, but if I could not find one that I liked and the daughters were an improvement on their mothers,—good, strong vigorous cows,—I would not hesitate to breed them back to their sire. I would rather trade with my neighbor. Of course, a lot of developing of live stock has been done by inbreeding, but it requires the weeding out of lots and lots of animals.

Mr. Everett: For the benefit of the farmers here present I would like to say that if Mr. Hill, one of the best breeders of dairy cattle that we have in the country, says he cannot afford and does not dare to inbreed, don't you consider it for one moment.

A Member: I wish we could hear from Mr. Goodrich on that question.

Mr. Goodrich: I have not had much experience with this question being discussed. I have bred heifers back to their own sires, and it is a fact that the best cow I ever raised came that way. But I had some that were not so good as the mother and I feel a good deal as Mr. Hill does, that it is not a safe thing to do. You may blunder into something excellent, but the bigger part of the time you blunder into something pretty bad.

Mr. Gibbs: Is it advisable for people living in a new country where it is hard to get bedding to use sawdust rather than no bedding at all.

Mr. Glover: Yes, either sawdust or shavings.

Mr. Hill: Hard wood sawdust is a good deal the best, or better yet, basswood, not pine.

Adjourned to ten o'clock next day.

MORNING SESSION, December 12, 1912.

President Jacobs in the chair.

SILO CONSTRUCTION.

C. A. Ocock, Madison.

That a silo has come to stay in Wisconsin is a surety, and a matter which is of vital importance to the dairymen of this state. Frequently we get reports that Wisconsin is discontinuing the use of silos, but if such parties making these inquiries could step into our state for a few days, they would have an opportunity to change their minds concerning this matter. The silo has proved itself an important factor in the storage of feed; under some conditions it is equal to June grass. In some localities we find dairymen availing themselves of this opportunity and doing away with nearly all their pasture; reserving only a small area for exercising grounds for their herds. This feature of the silo is of great importance as it makes possible the operating of an extensive dairy on a very small farm. The feeding value of silage as compared with hay is a matter which many dairymen overlook, two to three tons of silage being equal to one ton of best hay, and occupies about one-third the space. Silage is worth about \$4 per ton, while our best hay is worth from \$12 to \$20, depending upon the season of the year. A little mathematical calculation will soon show the advantage of having a silo. From ten to fifteen tons of silage can be raised upon one acre, while two tons of hay per acre is a good crop. Under these conditions it will be possible for a farmer to keep three times as many cows as when farming without a silo. In the past, many objections have arisen relative to the silo, and we find that many of them are entirely erroneous.

The principal objection at the present time seems to be the freezing of silage. The farmer will say that he would build a silo if he could build one which would be frost proof. Now

this is an absolute impossibility under ordinary conditions and economic construction for this section of the state. We find that the best method of preventing freezing is to build a silo as nearly air-tight as possible. The secret of the prevention of freezing is to prevent evaporation, as evaporation carries off heat and permits the entrance of cold to take its place. This rapid movement of the air currents caused by evaporation also generates a certain degree of cold which added to the cold zero weather outside of the silo causes rapid freezing in many instances. Frozen silage should not be fed to cows, but should be allowed to thaw, which can be brought about by throwing the frozen silage either on top of the warm silage or down at the foot of the chute. Silage should not be fed during milking time, but after the milk is carried from the barn; this will prevent any tainting of milk.

As to the kind of silo to build, is a very difficult question to answer as prices vary in different localities. We find the best silo to build is the one which is most suited to the locality in which the work is carried on, and also the one which mostly fits the pocketbook. Of course, the best silo in the end is the one which is the most permanent, and this naturally rests with the individual who is interested in the construction of silos.

In the matter of location for a silo, it is essential that it is placed where it will be best protected. If it can be placed on the south side of the barn, it will be found more satisfactory than on the north. In the northern part of the state, it is undoubtedly better to build silos inside the barn. There should be no objection to this, as a ton of silage occupies about one-third as much space as a ton of hay. Care should be taken in preparing the foundation to see that it is far enough below the frost line so that it will not be effected by freezing and thawing. Whatever superstructure is placed upon the wall, whether it be stave, brick, tile, or cement, it should be well selected and properly reinforced. From time to time, we hear many criticisms relative to different kinds of silos, but if the proper precautions are taken in constructing any silo, the silage will keep providing the silage is put up under proper conditions.

DISCUSSION.

A Member: In using the forms for the concrete silo, could you put in stone?

Mr. Ocock: You can put in stone up to a size that they will not project outside and come in contact with the form on each side. I should not use stone larger than my fist. If you do you can add it with your gravel in laying it in. The best way is to mix them right into the concrete itself, and be careful when you pour it in so it does not come in contact with the silo frame on the outside or the inside, and also be careful that those large stones do not drop and get outside the shape.

A Member. How far apart should the reinforcements be?

Mr. Ocock: If you have a silo 36 feet high and 14 feet in diameter, or even 12 feet, put the reinforcement rods six inches apart for the first five feet above the ground; then eight inches apart for the next five feet and ten inches apart for the next five feet, twelve inches for the next five feet, and so on. Use one-quarter inch mild steel rods. That is published in Bulletin 214 of the Wisconsin Experiment Station. If you haven't it, send for it. The reinforcement should be looped together, whether it be stone or whatever it may be. If you have a continuous doorway put rods across three-quarter inches in diameter, and hook the rods each across to the rods running up and down in the wall. Then bring in the reinforcement rods from the outside and hook them on the up-and-down rods any where you are a mind to.

A Member: Would you recommend tramping the silage while you are filling the silo?

Mr. Ocock: Yes, as hard as you can.

Mr. Scribner: How do you prevent the absorption of moisture into a concrete wall?

Mr. Ocock: If you make your concrete as it should be made and satisfy the demands of the cement, the cement will never demand any moisture from the silage.

Secy. Glover: Don't you recommend washing the inside of the silo with a mixture of cement and water?

Mr. Ocock: Yes, always. Finish off the inside with cement and water. If it be a block silo or a solid wall, a concrete, or a hollow tile silo, finish the inside of the tile silo

with plaster and wash all three with this mixture,—cement mixed with water to about the thickness of good cream. It may be put on to the wall with the stub of whitewash brush. You may have to do that every two or three years.

Mr. Delwiche: We have kept close accounting on our experimental farms. We find we can grow a crop of corn up to the time of harvesting without any interest on the investment and if we get a yield of fifteen tons per acre it will cost \$15, that is, the preparing of the land and all up to harvest.

W. E. Tupp: Mr. Chairman, I want to take a moment to give figures on the cost of raising an acre of corn under Wisconsin conditions. The items are as follows:

Plowing	\$4.00
Manure, 8 loads with spreader.....	4.00
Disking	2.00
Harrowing	1.00
Planting with machine.....	.50
Cultivating, five times	2.00
Cutting with binder and shocking.....	1.00
Interest and wear of machinery.....	3.30
	<hr/>
	\$17.80

COST OF MACHINERY.

Spreader	\$45.00
Disk	38.00
Harrow	15.00
Planter	50.00
Binder	125.00
	<hr/>
	\$273.00
Ten per cent for interest and wear.....	27.30
	<hr/>
Total	\$300.30

CO-OPERATION AMONG FARMERS.

A. W. SANBORN, Ashland, Wis.

Every manufacturing business consists of two distinct parts;

First: The production of the finished article. In order to produce the best article for the least money, the proprietor carefully looks after the several departments through which the product must go; installs an efficiency department by which careful account is kept of the exact cost of each article so the proprietor can determine whether he is producing his finished product at the lowest possible cost.

Second: The Sales Department. This is the marketing of the goods after they are produced and is a very important part of the business. No matter how efficient and well managed the manufacturing end, and no matter how cheaply the goods are produced, if they are not sold to people who want them and at a fair price he can not succeed. Therefore, the manufacturer employs the best man he can find to take charge of this department. The best market for his particular class of goods is found, and in such market the best prices and customers are obtained. The market is studied, and every effort made to please the customers by having the goods put up in the condition that will satisfy the customers.

Every farmer is a manufacturer; his business also consists of the two distinct parts, the producing and selling departments. The production part of the farmers' business requires practically all the time of the farmer, for as a rule, he is proprietor, manager, superintendent and laborer, all combined in one. The sales department of the farmers' business is sadly neglected, although very important. The farmer feels he has no time to look up the market conditions, to find the best market for a small lot of hogs, or cattle, or butter. He simply loads on to the wagon what he has to sell and starts out saying how much will you give me. Or, he goes to the city where he has heard there are several buyers, and expects to find competition, but, alas, he finds the buyers have an understanding with one another, and he can take what they offer or haul his stuff back home. If

any of our business men or manufacturers would load their goods on to wagons and start out saying, "How much will you give me," they would soon be in the hands of the bankruptcy court. Farming is the only manufacturing business that can stand that selling method and allow the proprietor to survive as a business man. How serious is the loss to the farmers each year, brought about by this selling method, or rather a lack of good selling methods. It is very hard to estimate, yet we know it is a very large amount. Hon. James Wilson, U. S. Secretary of Agriculture, estimates that only 46 per cent of what the consumer paid ever reached the farmers' pocket. This means that of every dollar the consumer pays, it takes 54 cents to carry that article from the farmer to the consumer. The farmer gets 46 cents for producing it and some one else gets 54 cents for carrying it to the man who uses it. Benjamin F. Yoakum, the railroad president, after a careful investigation estimated that the consumer paid about 14 billion dollars for the crop of 1910 and the farmer got about eight billion dollars of this amount. James J. Hill, president of the Great Northern railroad, reached about the same conclusion. It is not very far from the fact when we fix the amount at fifty cents, that is out of every dollar the consumer pays, the farmer gets fifty cents and the man who takes the goods from the farmer to the consumer gets fifty cents. The consumer paid about 10 billion dollars for last year's crop and it gave the farmer about 5 billion for producing it, and the other man about 5 billion for taking the product from the farmer to the consumer. This is too much. The farmer should get part of that fifty cents and the consumer should get part and still leave enough to carry the goods from the farmer to the consumer.

How can this condition be remedied?

By better sales methods on the part of the farmer.

How can the farmer reach better sales methods?

The answer unquestionably is, by coöperation. This has been demonstrated in several European countries. For forty years coöperation has been successfully practiced in all lines. The fundamental principles on which it rests have been firmly established. The farmers of Europe were driven to coöperation by the conditions that existed. It was, in many cases, coöpera-

tion or starvation. Such conditions have not yet existed in this country, yet it might be wise for the farmers of this country not to wait until the conditions mentioned arrive. Although driven to coöperation by such conditions, marvelous results have been accomplished. To arrive at the best methods for coöperative selling, Denmark is the country we should study carefully. Greater progress has been made there than elsewhere. Remember always that an efficient coöperative selling organization must be built from the bottom up and not from the top down. In this country we are apt to forget this fundamental principle, and try to start out with some great central organization, which for want of proper and reliable support must necessarily fail. Denmark is about one-fourth the size of Wisconsin with about ten million acres of land, about the same acreage Wisconsin has in the north part, undeveloped. Much of Denmark's ten million acres was formerly a bleak waste.

Agricultural coöperation began in Denmark in 1882, about forty years ago, with the establishment of one coöperative creamery. In 1908 there were 1108 coöperative creameries, handling practically all the milk produced for sale in the country. At present this little country ships about one million dollars worth of butter to England each week, and, as Sir Horace Plunkett stated recently in an address to the Wisconsin legislature, controls the price of butter in London. This little ten-million-acre country exported to England about fifty million dollars worth of butter; while Wisconsin, the great butter state of the Union sold only about 35 million dollars worth of butter in 1909. All of this butter exported by Denmark is sold at the top price. How is it done? By a successful coöperative system of producing and selling. People are thoroughly educated in the coöperative idea. Coöperative creameries were organized wherein each member contracted to deliver or furnish to the creamery for a fixed term, usually ten or fifteen years, the entire product of his herd of cows, under such rules and regulations as might from time to time be prescribed in order to secure uniformly good, clean product in the best shape for the market. The general policy is controlled by a committee or board of directors elected from time to time by the members, one man one vote instead of each share of stock one vote. The directors select the officers and appoint a competent butter

maker. Here we have the small unit, which is the foundation, firmly organized together by contract under penalties for failure to deliver their entire product to their society, each member knowing the other and all understanding what coöperation means and imbued with the coöperative spirit. When several of these coöperative societies are fully organized and in good working order, they combine and form a central body which has for its members each of these coöperative creameries, the president and secretary of each creamery forming the directors of the central body which elects the officers and selects the salesman and employees necessary to successfully inspect, grade and put into first class condition the product of the creameries who are members. Each member of this body agrees to furnish for a stated period, its entire product to the central organization to be placed on the market.

In Denmark there are six of these export associations, of which about eleven hundred coöperative creameries are members, the output of which in 1908 was about forty million dollars. Denmark also has 34 coöperative bacon factories with a membership of ninety-three thousand farmers, with a central coöperative selling society, all organized upon the same principles. In 1908, \$1,545,000 worth of hogs were slaughtered to meet this trade. Denmark also has a Coöperative Egg Export Society made up of 550 central groups, each central group or society having as its members a large number of local organizations each of which contains at least ten members. In 1908, this Egg Export Society did a business of more than six million six hundred thousand dollars in eggs alone. Danish eggs bring fancy prices because they are always fresh, well sorted, well packed and guaranteed.

All of these societies are built up in the same manner, each unit first firmly organized, each member contracting his entire output for a fixed period under penalties which are enforceable and enforced; one man, one vote, profits divided according to product after paying on capital invested a fixed rate of interest.

Some of the essentials for the organization: First; a complete contract with each member for his entire product for a fixed period. Regular support is needed and is essential. You must know what you can depend upon each day. A large

product one day and small the next can not be economically handled.

Upon the organization of any coöperative society, those who are interested in making it a failure, immediately get busy. They approach each member trying to start dissension, offer him higher prices for his product than the society pays or can pay, or the market warrants, until member after member, through one means or another, is induced to desert, the society so crippled that failure for want of support is inevitable. Then the victims are left to be preyed upon as before. This has caused many failures and experience has taught that in self preservation, it is necessary to hold the members together by a complete contract to furnish their entire product for a fixed period, which period should be of sufficient duration to enable the society to demonstrate its usefulness to the members and defeat the efforts of its enemies to destroy it.

Second: In coöperative societies, that each member shall have an equal voice in the management. The holder of one share should have the same force as the holder of many shares. The control must not be in the large shareholder. Otherwise the large shareholders in a successful plant may be able to see more profit to themselves as individuals by turning over to themselves as private owners and manage with that end in view.

Third: Profits must be divided according to product furnished and not according to the money invested or number of shares of stock held by each.

In business corporations, profits are divided upon the basis of the amount of capital invested. If a corporation with a paid up capital stock of \$10,000 makes a profit of \$2,000 that is 20%—a dividend of 20% is declared and paid to the shareholders. If Jones has \$100 worth of stock he gets \$20 and if Smith has \$1,000, he gets \$200. This is considered fair as the money invested made the profit. In coöperation this method is considered unfair. To illustrate, in a coöperative creamery with \$10,000 capital, Jones has \$100 in stock and furnishes the product of 100 cows; Smith has \$1,000 in stock and furnishes the product of 10 cows, quantity and quality from each cow being practically equal; \$2,000 profit is made. This profit is made out of the cream furnished. Jones with his \$100 in stock and

100 cows would receive only one-tenth of the profit that Smith would with \$1,000 of stock and only ten cows. This is not fair but it took many years of bitter experience to learn this one lesson. Many societies failed by making this fatal mistake.

That \$2,000 should be divided as follows: First, pay a fair rate of interest on the money invested by the stockholders, say 6%, which on \$10,000 would be \$600. This would leave \$1400 to be divided among the members according to the value of the cream furnished by each, and of this \$1400, Jones with 100 cows would get 10 times as much as Smith with 10 cows.

Fourth: Simple, plain, accurate accounts open to all at all times, with prompt, clear statements of each consignment or at short intervals, and prompt cash settlements at regular stated intervals. Books should be audited at regular periods.

Fifth: Capable management. Here is where the farmer is liable to fall down. He has not been educated to pay the price which commands the best ability in any line. For example, one butter maker may be very dear at fifty dollars a month, while another is cheap at a hundred dollars. You may lose money by employing a salesman at \$1000 a year, and a man at \$2000 a year may earn large profits for the society. You must have good capable men and in order to secure such it is necessary to pay what others are willing to pay for equal ability and responsibility. Usually officers and directors are paid no salaries in coöperative societies.

In Wisconsin we have one very successful coöperative society organized strictly upon the principles here presented. The Wisconsin Cranberry Sales Company is a coöperative society organized seven years ago with headquarters at Grand Rapids, Wisconsin, for the purpose of grading, sorting and marketing the cranberries raised by its members. This society united with the New England Cranberry Sales Company and New Jersey Cranberry Sales Company and formed the American Cranberry Company, with a capital of \$9000 and managed by 9 directors, 4 selected by the New England Company, 3 by the New Jersey Company and 2 by the Wisconsin Company. All sales business is handled through the Central Exchange which remits 80 per cent of sales to local company, balance 20 per cent is kept until the end of the season when it is properly divided after deducting expenses and placing a

small per cent in the sinking fund. The Wisconsin Company handled 90 per cent of the cranberries of this state; 33,000 barrels were marketed in 1911 returning to the 40 growers a little better than \$6 a barrel. A little more than \$200,000 was divided among 40 men in cranberry producing business in Wisconsin, making an average of a little over \$5000 to each man. Ashland has come to the point where its citizens realize that their betterment and their advancement lie with the country, and you, brothers from the country do not think for a moment you can get along without the help of the city. Our fortunes are tied together, and these business men in the city of Ashland are working just as hard,—yes, harder than you farmers are doing. There has been in the past more or less a lack of the spirit of appreciation on the part of our farmers; and I say that as a farmer myself, but I rejoice to say I have been brought up on a farm and lived there all my life, and I will say to you farmers, it is up to you now to make good on this proposition, to get right out in this spirit and help things along. You are not going to be lifted all the while and these people are not going to banquet you all the time; it is up to you to show the goods, to organize, to work for your own betterment. That is the only way you will ever attain the high ideals we have in mind.

AFTERNOON SESSION, Dec. 12, 1912.

President Jacobs in the Chair.

Reports of Committees called for.

The Committee on Resolutions reported as follows:

Believing that the tuberculin testing of cattle in the state has been of great value in the improvement of her dairy conditions, as well as giving her an enviable reputation among the other states, as a state from which healthy animals can be purchased, and believing that the remuneration given by the state in helping to pay for animals reacting to the tuberculin test has been of great value in bringing about this condition, and

Whereas, the present law regarding any part of payment of animals by the state for animals reacting to the test will cease on July, 1913, therefore, be it

Resolved, that the Wisconsin State Dairymen's Association, in forty-first annual convention assembled recommend to the coming legislature that the time limit be extended two years, believing it to be for the best interests of the dairy business of the state.

Resolved, that the Wisconsin Dairymen's Association assembled in its 41st annual convention respectfully represents to the Congress of the United States its profound conviction that in the interest of honesty and commercial morality there can be no honorable compromise between the advocates of pure dairy products and the manufacturers and sellers of oleomargarine until it is made difficult if not impossible for oleomargarine to masquerade as butter. The dairymen of the United States are willing to accept all the results of honest competition, but they protest that a substitute for butter so cunningly devised and colored that its true origin and composition cannot be detected except by scientific experts, cannot be considered as honest competition. They therefore respectfully petition Congress to enact legislation that shall effectually safeguard the public and especially those of limited means from imposition, either by totally prohibiting the manufacture of oleomargarine in any shade of yellow resembling butter, or by placing such a tax upon the colored article as shall make its manufacture unprofitable.

Whereas, coöperation among the dairymen, both in method of production and the selling of the product, would be of mutual benefit, both to the producer and consumer, by causing a better article to be furnished at a more reasonable and uniform price, and

Whereas, the work of educating the dairyman along proper coöperative lines may well be intrusted by the state to an agency in which the dairyman has confidence as practical. Therefore,

Resolved, that we urge upon the legislature of the state of Wisconsin the urgent necessity of practical teaching of coöperative methods, that the appropriation to the Wisconsin Dairymen's Association be increased to such an amount as will enable this association to carry on such work in addition to the work now being carried on.

For the Committee on Nominations Mr. Goodrich reported as follows:

Mr. Goodrich: Your Committee on Nominations has had the subject under consideration and we place in nomination and ask the election of the present officers for the next year, viz: President, E. C. Jacobs; secretary, A. J. Glover; treasurer, H. K. Loomis.

On motion, duly seconded and put by Mr. Goodrich, the recommendations of the committee were adopted and the officers therein named declared the duly elected officers of the association for the ensuing year.

AGRICULTURAL PROBLEMS OF THE LAKE SUPERIOR REGION.

E. J. DELWICHE, Ashland.

The Lake Superior region in common with other new or partly developed agricultural sections has certain problems waiting for solution. Some of them are peculiar to the section itself. The purpose of this paper is to discuss a few of the more pressing of these problems without attempting to cover the entire field.

No matter so vitally concerns the new settler in this region as the clearing of the land so as to make it produce crops. How to cheapen the cost of clearing, render the labor of it less arduous, and do the work more rapidly, are problems well worthy of serious thought and effort. I do not propose to solve all of these. I only wish to offer some suggestions regarding them. In the first place, it seems to me that the farmer on cut-over land in the clay belt which extends along Lake Superior from Michigan to Minnesota, should attempt to get rid of the brush first and get pasturage to take its place. This brushing need not necessarily cost much money but subsequent sprouting of the brush should be checked immediately. This can best be done by grazing closely with sheep and other animals. Goats have been found effective for this purpose but I think in the long run it is preferable to use sheep. Cattle also do well but are not so effective in keeping down the willows and poplars as sheep are. Some settlers will clear and

stump all the land their resources will allow without paying any attention to brushing ahead. I think this is a mistake as much good can be gotten out of the land before the stumps are entirely removed. From what has been said before, it must not be inferred that the removal of stumps should be deferred any longer than necessary. On the contrary, it is next to impossible to work the ground properly before the stumps have been removed.

CHEAP EXPLOSIVE NEEDED.

The problem is now "How can we get rid of the stumps most cheaply"? In clearing our new Experimental Farm at Ashland Jct., we have come to the conclusion that blasting with dynamite or the use of dynamite in conjunction with a good stump puller gives best results. Thus the problem resolves itself largely in working out means of getting a cheap explosive. Farmers ought to be able to get dynamite at considerably lower prices than is true at the present time. The retail price for dynamite in lots of 500 pounds or less is \$14 per hundred pounds. The wholesale price in carload lots is \$10.50 approximately. There seems to be a rather large difference between the retail and the wholesale prices. Of course, handling dynamite is rather expensive. It seems to me that right here is a splendid chance to cooperate and buy in carloads. Already there is a nucleus for such cooperative associations in a good many sections. The Bayfield Fruit Growers' Association buys dynamite for its members and sells at 11c from the car and 11½c from the magazine.

LAND CLEARING COMPANIES.

Another need with respect to this matter of land clearing is competent land clearing companies who will contract for clearing at a certain rate per acre. While a majority of farmers will prefer to do their own clearing and hiring help as they see fit, there are also a number of people who would be glad of the opportunity to let out blocks for clearing each year. There is no question but that a well trained gang with the proper outfit can work more effectively than the ordinary farmer can. During the last few weeks the writer has re-

ceived many letters asking for just this kind of help. I hope the day is coming when land clearing companies will be just as easy to get as those for buildings or other work.

CHEAP MONEY FOR FARMERS.

Closely connected with the problem of land clearing is that of borrowing money for farm improvement. At the present time farmers in this section seldom can get money for as low a rate as 6%—oftener they have to pay 8% or even 10%, and yet there are millions of dollars deposited in Northern Wisconsin banks at low rates of interest. It seems very peculiar that such good security as improved farm lands has to pay such exorbitant rates for money. Nothing would be of greater value to the development of the unimproved land of Wisconsin than cheap money. There is no reason why farmers could not borrow money on as good terms as can be gotten for other industries. I think it is high time that some system was in vogue similar in effect to those in operation in Germany and other European countries whereby farmers can get money at a low rate of interest and on long-term payments. Steps towards those ends are now being taken up by both state and federal governments. Cheaper money for developing farms is one of the things most sorely needed at the present time and it is sincerely to be hoped that laws be enacted and organizations formed whereby farmers can borrow money on the right terms.

LAND SPECULATION A BAD THING.

Another problem of an economical nature which confronts the Lake Superior region, as well as other sections in Northern Wisconsin, is the holding of large tracts of land by speculators at prices out of proportion to the actual value of the land. A large amount of land through this region is being so held and it will be a great boon to the country when our taxation systems are so arranged as to discourage the holding of large tracts for future rise in value. The system which taxes the developed land at a higher rate than the undeveloped land adjoining it works against a rapid settlement of the country.

GOOD COUNTRY ROADS.

The development of the country is to quite an extent effected by the quality of its roads. It will be of the greatest help to the opening up of this region if good systems of roads leading into new settlements are established. It does not seem feasible to establish macadamized roads in all cases, but rather, for quite awhile we will have to depend on good dirt roads—these to be properly constructed and under the guidance of men who understand the work. State aid should be forthcoming for the building of these by-ways as well as for main roads between cities and towns. There are many sections in the northern counties which are well adapted to farming but which, owing to lack of proper roads, are not attractive to settlers. There is a difference to be recognized in lending state aid to roads in the north as compared with the developed sections in the southern part of the state. Good automobile roads connecting the principal towns are a fine thing but a good dirt road leading out into new settlements is of greater importance in helping the development of the region.

SOIL MANAGEMENT.

The things discussed previously were largely economical in their nature although intimately connected with the agricultural development of the region. Of the strictly agricultural problems, soil management occupies first rank. The red clay soils of this section are naturally very fertile when properly handled, but in different systems of farming they cannot be classed as very productive. One of the first things to be considered in the development of level red clay soil is drainage. The problem would be a serious one if it were not for the fact that good outlets can be found in almost all localities. It is necessary to open up and maintain surface ditches. The permanent ditches can usually be laid out on the margins of land descriptions and thus not interfere with farm operations to any extent. Then the land should be plowed in narrow lands, say two rods wide, with straight open dead furrows in the center. By applying such a system it is believed that practically all the red clay lands can be put in ordinary farm

crops. Tiling would undoubtedly be resorted to in special cases. It is quite probable that ultimately, as the land gets more valuable, it will be found profitable to tile much of the area in question, but for the present I think it will be found more economical to rely on well laid out systems of surface ditches.

CROPS TO GROW.

The one great drawback to productivity with a good many farms in this region is leaving the land in timothy hay for long periods of time. As a result the land becomes hard; dandelions, buttercups and wild grasses gradually take the place of the hay and yields become low and unprofitable. For instance, at Superior last spring the state experiment station started a new demonstration farm on land which has been in hay for seventeen years. This land produced less than one-half a ton of hay under natural conditions. When plowed up in spring and put into oats and peas, a yield of nearly two tons per acre was obtained. Similar results were obtained at Ashland on the old substation farm. Two things in which these soils are naturally deficient are humus and nitrogen. Fortunately these two elements of soil fertility can be restored by the growing of clover and leguminous crops (and certainly no section grows these crops more successfully). Clover pays well here both when grown for forage and for seed.

CROPS FOR NEW LAND.

New settlers are often at a loss as to what to put on new land as a first crop. We have found flax a good cash crop for that purpose and have obtained yields of from eight to fifteen bushels per acre on new breaking. Where feed is desired oats and peas are excellent. If the ground has been burned over severely, and consequently, is low in nitrogen content, it may be advisable to give the oat and pea crop a light dressing of sodium nitrate, using, say 100 and 150 pounds per acre. This will cost from \$2.75 to \$4.50 per acre.

FALL PLOWING ADVOCATED.

Fall plowing is by all means to be recommended; in fact nothing else is equal to it in normal seasons. As for the rotation to follow we suggest a three or four-year rotation to consist of small grain seeded to clover one year, clover one or two years, cultivated crops such as corn, rutabagas, potatoes, cabbage, one year, and then repeat.

STATION BRED VARIETIES OF GRAIN AVAILABLE.

The problem of varieties of grain and forage crops to be grown in this region is being solved through the experiment station work at the different stations. Experiments are in progress with all the different classes of farm crops and at the present writing we feel able to advise intelligently. The station is now breeding up varieties of grain and forage crops with special reference to this region and dissemination of these new strains is already begun. We invite correspondence from interested parties with respect to this and other agricultural problems.

FEEDING PROBLEMS.

So far as the problem of feed for stock is concerned, it is not hard to solve since we can grow all the roots and small crops to perfection. While corn is not a sure crop when grown for grain on the heavy soils, on land in good state of cultivation there is no trouble in growing first-class corn for silage. We have had yields as high as eighteen tons of silage corn per acre. Root crops can be grown abundantly and we urge every dairyman and stock raiser to grow roots. Yields of over 800 bushels of roots per acre have been obtained.

COMMUNITY BREEDERS' ASSOCIATIONS.

Nothing has been said with reference to coöperative breeders' associations and other agencies which have to do with the betterment of live stock conditions, as these matters have been thoroughly discussed by other speakers. We believe that live stock farming is one which it is necessary to follow for best results in most sections of the state, and we cannot

urge too strongly that right methods be followed in regard to this important branch of agricultural industry.

CONCLUDING REMARKS.

The Lake Superior region has its own problems to meet, none of which are insuperable. Most of them are in the course of solution at the present time. The interest manifested by all classes of people in the development of the agricultural resources is now great and is growing rapidly. We urge the coöperation of farmers and city people in the solution of some of the problems discussed. We respectfully want to call the attention of our state and national governments to the opportunities for constructive legislation to hasten the development of the millions of acres in the Lake Superior and other upper Wisconsin regions. When this undeveloped region is once made into farms it will mean the addition of untold wealth to the state tax roll. This in turn will help to lessen the burdens of taxation on the older regions. For every dollar spent in developing this region, a hundred-fold will be returned in the future.

DISCUSSION.

A Member: Would there not be some way for the state to take hold of the dynamite question? It seems to me the hardest the settler has to contend with.

Mr. Delwiche: You are right. There is a movement on foot now to form a company which will manufacture dynamite along the lines I have spoken of. They are looking for information. The only information I could get we had to pay a fabulous price for. I believe the obtaining of cheap dynamite is one of the first and biggest problems we have to meet. It has been suggested by some one that the convicts at Wau-pun be put to work to dig out the Niagara limestone for the farmers. We ought to have a factory in northern Wisconsin to manufacture it and sell it to the farmers at cost price.

A Member: Is it a fact that dynamite is sold to the mining companies of the west 25 per cent cheaper than they sell to dealers here?

Mr. Delwiche: That is what is claimed, and I have good reason for believing it is true.

A Member: Isn't there some way that can be remedied?

Mr. Delwiche: I believe there ought to be.

A Member: I say let the state of Wisconsin take hold of this dynamite question so we can get hold of cheap dynamite. Can you tell us if the Bayfield Association sells dynamite to the mining companies of the west cheaper than we are getting it?

Mr. Delwiche: No, I do not think so, I have quoted the price they will give us. The Bayfield Association sells at cost price to other people. It is selling at ten and a half from the car, and eleven cents from the magazine, as I understand it. It is certainly worth investigation.

Mr. Sanborn: When I was in the General Assembly in Madison, I tried to find some way by which the state could furnish cheap dynamite to the farmers in the northwest and northern part of the state. I ran against a mining man of high station in life and business and I considered his word perfectly reliable. He told me he could buy dynamite as a mining man, from 8½ to 9 cents a pound in 500 pound lots, if necessary. I asked him if he would put that in writing, so I could use it. I knew his situation and he was perfectly honest about it,—but he said his situation was such he could not do that, but if it ever came to the test he could get the bills showing he could buy dynamite at that time at from eight to nine cents in 500 pound lots, only he had to do it in the name of the mining company. Now, if that is the status of our dynamite trust, that they are selling cheaper to one man than to another, I think it is a crime and should be taken in hand by the state. The authorities should be able to get at that thing and root it out, and know for certain that that is the state of affairs, and if so, punish it. At that time we farmers were paying thirteen and one-half and fourteen cents for dynamite and we could not get it for less unless we bought a carload at twelve and a half cents. The dealers had to have their rake-off and in many cases they were in the combine with the manufacturers against the consumers. It is a fact with most all manufacturing institutions that the consumer as an individual cannot buy any wholesale lots at all; they will not sell to you. I know this to be a fact from individual experience. You must buy through the dealer, the jobber. They protect their jobbers and dealers all through the country and give them a rake-off in every way. We tried to buy in wholesale lots

and at wholesale prices, but that was impossible. Now, it seems to me that the manufacturer stands very much in his own light not to sell to the farmers as cheaply as any other man; that the development and the increase of business will not only develop the country but it will increase the business of the manufacturer of the dynamite, because there will be so much more of it used. I have cleared about 150 acres of land in the last few years and the cheapest way in the world is with dynamite if you can get the dynamite at a fair price. If I could buy dynamite at eight or nine cents a pound, I would sooner use it than any machinery that has ever been invented yet. I have seen steam power work in our district and it is a good machine, does the work, but it is not the thing for the small farmers to use unless they combine and buy one and use it in partnership, because they are too expensive. They cost from \$2000 to \$2500 a piece. Then again, after you get your stumps cleared with that kind of a machine, you have more work to get rid of these stumps and clean up than you have to pull them. You can pull stumps with fair expedition with an ordinary stump puller but you can't get rid of the stumps after you pull them. Now, with dynamite the stumps are blown into pieces and you can handle them with men and horses easily. Another very important proposition is the tax question that Mr. Delwiche touched upon. The tax assessor comes along and he thinks that land is worth more than land with stumps and brush on,—and it is no doubt. But is it fair for the man who has done that work, to pay two or three times the amount of taxes that the man right alongside of him pays? Sometimes it simply puts him out of business. I believe cleared land should be taxed no more than uncleared land. In that way the taxes can be equalized, and each man, the one who owns the cleared land and the one who owns the stump land, can get along all right.

A Member: I suggest it would be a good plan to instruct our assemblyman, who is present, and our state senator, when they go to Madison, to use their influence in this dynamite matter, either by investigating the trust business or by voting to establish a dynamite plant the same as they do in some other places. I move that we instruct our assemblyman and senator to that effect. Motion seconded, put and carried.

The Chairman: I am not going to make a speech, but I want to thank the good citizens of Ashland first for writing us and asking us to come up here. I was not very highly impressed with the idea when I first got the letter, but it grew upon me, and it has been growing upon me so fast that I don't know that I want to go home at all. In behalf of myself and my coworkers, I want to say that we are highly pleased and gratified that we came to Ashland, and with the results of this meeting, and we shall go away feeling that we have done a little good,—at least hoping so.

THE FARMER AS A BUSINESS MANAGER.

D. H. OTIS, Madison, Wis.

To be successful the farm must be properly equipped and properly organized and managed. It is not possible to systematize farm operations as completely and thoroughly as is possible with manufacturing enterprises. The farmer must necessarily deal with many forces and conditions over which he has no or only partial control. Nevertheless, the farm offers a big, broad and promising field for the man who will use his skill, judgment, and executive ability in studying and organizing his farm according to business practices.

At the present time, very few who engage in farming have a comprehension of the business side of the industry. For instance, how much capital does it take to run a farm, and how much of this capital is invested in land, in buildings, and other equipment. Is there any danger of putting too much capital into buildings or equipment, and if so, what is the limit? On the other hand, is there any danger of a man being unsuccessful in the handling of a farm because of lack of capital? Will it pay him to borrow at a fair rate of interest in order to increase the efficiency of his efforts on the farm? What distinction should be made between the borrowing of capital for production purposes as compared with borrowing for personal expenses?

The young man who enters into farming as a business should have some conception of what are the necessary expenses in running the farm, and what he may reasonably expect in receipts. Also what are the opportunities for growth and expansion and is his land and his live stock likely to increase in value?

In connection with the work in Farm Management at the University of Wisconsin, an effort is being made to answer some of these questions that come to the man who wishes to engage in farming. We have been visiting a number of Wisconsin farms and have gathered data from the actual conditions as to how much capital is invested in various phases of farm business and also the receipts and expenditures for one year. The work thus far performed has been with two sets of farmers; one with taking the farmers as they come regardless of any reputation that they have made in their business. The other has been by taking some of the best farmers that we could find anywhere in the state. The tables that follow give some of the results that we have found in connection with our investigations.

SERIES A. TABLE I.

FARM CAPITAL ON DAIRY FARMS TAKEN AT RANDOM.

FARM.		CAPITAL INVESTED IN					
No.	Acres.	Land.	Improvements.	Equip-ment.	Livestock.	Cash.	Total.
1.....	160	\$8,895	\$2,105	\$500	\$1,497	\$0	\$13,047
2.....	240	19,000	5,525	1,128	2,158	50	27,901
9.....	160	11,910	4,090	860	2,104	50	19,014
10.....	140	8,350	1,883	445	1,090	25	11,793
12.....	160	11,500	4,500	774	2,145	100	19,019
13.....	300	18,000	3,000	1,778.50	4,580	200	27,658.5
14.....	320	25,610	6,390	1,238	4,455	100	37,793
15.....	120	9,000	3,500	600	1,545.50	50	14,695.5
16.....	120	9,000	3,500	600	1,545.50	50	14,695.5
20.....	160	10,760	5,240	820	1,192	50	18,062
21.....	80	5,825	4,175	550	1,266	25	11,841
Average....	184	\$12,885	\$4,040.80	\$869.35	\$2,267.25	\$80	\$20,082.4

SERIES B. TABLE II.

FARM CAPITAL ON SPECIAL DAIRY FARMS TAKEN AT RANDOM.

FARM.		CAPITAL INVESTED IN					
No.	Acres.	Land.	Improvements.	Equip-ment.	Livestock.	Cash.	Total.
1.004.....	115	\$11,845	\$5,405	\$1,255	\$2,760	\$300	\$21,565
1.006.....	244	21,200	8,800	3,190	17,925	400	51,515
1.007.....	160	10,400	9,600	1,090	11,225	400	32,715
1.008.....	89	12,075	4,925	900	7,655	200	25,755
1.011.....	253	24,470	13,480	1,405	12,510	2,000	54,385
1.012.....	163	11,590	5,410	875	11,863	350	30,088
1.015.....	143	8,800	5,700	652	10,340	500	25,992
1.017.....	160	12,750	7,250	800	5,694	1,500	27,994
1.018.....	158	13,161	3,839	530	7,137	100	24,767
1.020.....	87.5	7,670	5,455	425	7,815	200	21,565
Average....	157.25	13,396.10	6,986.40	1,162.20	9,492.40	595	31,632.10

SERIES A. TABLE III.

FARM EXPENSES ON DAIRY FARMS TAKEN AT RANDOM.

FARM.		EXPENSES FOR								
No.	Acres.	Stock purchased	Feed.	Sup-plies.	Im-provements and re-pairs.	Rent, taxes and in-surance.	Labor.	Inter-est.	Miscel-lane-ous.	Total ex-penses.
1.....	160	.....	.....	\$43	\$39	\$115	\$85	\$652	\$182	21,116
2.....	240	2	.....	93	104	150	640	1,395	168	2,552
9.....	160	.....	590	107	486	108	381	951	84	2,707
10.....	140	11	50	41	443	71	136	588	.....	1,345
12.....	160	15	66	53	251	68	260	951	.....	1,669
13.....	300	70	130	558	165	110	1,561	1,383	527	4,504
14.....	320	120	200	490	115	182	1,051	1,890	15	4,027
16.....	120	8	273	167	68	75	318	735	212	1,856
20.....	160	532	.....	252	892	88	674	903	50	3,391
21.....	80	10	75	176	95	51	165	592	148	1,312
Aver'ge	184	76.8	138.4	198.5	266.3	101.8	523.5	1,004	138.6	2,447.9

SERIES B. TABLE IV.

FARM EXPENSES ON SPECIAL DAIRY FARMS.

FARM.		EXPENSES FOR								
No.	Acres	Stock purchased	Feed.	Suppl-ies.	Im-prove-ments and re-pairs.	Rent, taxes and in-sur-ance.	Labor.	Inter-est.	Miscel-lane-ous.	Total ex-penses.
1004.....	115	\$755	\$75	\$257	\$663	\$252	\$1,520	\$1,078	\$50	\$4,650
1006.....	244	300	381	1,080	280	175	2,186	2,591	300	7,293
1007.....	160	425	600	189	1,096	140	1,150	1,636	200	5,436
1008.....	89	350	500	113	105	240	785	1,288	190	3,571
1011.....	253	.....	933	730	597	477	2,497	2,718	318	8,270
1012.....	163	955	556	117	428	193	1,024	1,504	298	5,075
1015.....	143	1,315	550	126	395	105	1,274	1,300	100	5,165
1017.....	160	3,028	600	130	71	130	1,114	1,400	.....	6,478
1018.....	158	1,257	292	270	145	175	1,479	1,238	.....	4,856
1020.....	87.5	.....	408	121	103	119	845	1,078	338	3,012
Average	157.5	838.5	489.5	313.3	388.3	200.6	1,387.1	1,583.1	179.4	5,380.1

SERIES A. TABLE V.

FARM RECEIPTS ON DAIRY FARMS TAKEN AT RANDOM.

FARM.		RECEIPTS FROM						
No.	Acres.	Crops sold.	Live stock sold.	Live stock products	In-creased inven-tory.	Other sources.	Total receipts.	Net profits.
1	160	\$112	\$770	\$305	.....	.....	\$1,187	\$71 00
2	240	474	1,084	1,625	24	.....	3,207	655 00
9	160	.....	1,086	1,250	461	100	2,897	190 00
10	140	200	491	675	539	.....	1,905	560 00
12	160	.....	1,511	1,329	530	.....	3,370	1,701 00
13	300	570	1,198	2,476	458	10	4,712	208 00
14	320	48	2,444	1,930	1,500	.....	5,922	1,895 00
16	120	.....	1,259	850	150	45	2,504	448 00
20	160	.....	520	901	1,632	.....	3,053	-338 00
21	80	.....	776	257	221	.....	1,254	-58 00
Average	184	\$140.4	\$1,113.9	\$1,159.8	\$551.5	\$15.5	\$2,981.1	\$532.8

SERIES B. TABLE VI.

FARM RECEIPTS ON SPECIAL DAIRY FARMS.

FARM.		RECEIPTS FROM						
No.	Acres.	Crops sold.	Live stock sold.	Live stock products	In-creased inven-tory.	Other sources.	Total receipts.	Net profits.
1004	115	\$140	\$498	\$3,925	\$1,089	\$135	\$5,787	\$1,137 00
1006	244	.....	4,580	3,200	580	.....	8,360	1,067 00
1007	160	502	3,230	2,167	1,141	650	7,690	2,254 00
1008	89	270	2,929	2,500	695	.....	6,394	2,804 00
1011	253	1,249	5,155	5,546	1,042	137	13,129	4,859 00
1012	163	420	4,050	2,800	325	.....	7,595	2,520 00
1015	143	.....	4,672	3,200	3,175	.....	11,047	5,882 00
1017	160	115	3,435	2,403	4,092	.....	10,045	3,572 00
1018	158	605	2,519	4,006	605	10	7,745	2,889 00
1020	87.5	94	2,150	2,080	53	.....	4,377	1,305 00
Average	157.5	\$339.5	\$3,321 8	\$3,182.7	\$1,279.7	\$93.2	8,216.9	2,834 90

In Series A the farms vary in size from 80 to 320 acres. It is interesting to note the amount and the distribution of capital on these farms.

CAPITAL INVESTED IN LAND.

This varies considerably with the amount and character of the land. Comparing the capital invested in land as recorded in Series A, Table 1, with the same items in Series B, Table II, it will be noticed that the value of the land is on the average, slightly higher in Series B, although the average difference is only about \$11 per acre. The acreage, however, is some greater in Series B, the average difference being about 12 acres per farm and may be accounted for by the tendency of some farmers to buy larger areas of land and farm it perhaps less extensively.

CAPITAL INVESTED IN IMPROVEMENTS.

Under this head are included buildings, fences, and water systems. It will be noted that in Series A, the smallest amount invested in equipment is the same farm that has the smallest amount invested in land, viz. No. 10, 140 acres. The largest amount invested in improvements is also the farm that had the largest amount invested in land, viz. No. 14, a farm of

320 acres. There are several other farms as Nos. 2, 9, 12, 20 and 21, that have comparatively large amounts invested in improvements. By comparing these farms with the net profits obtained from them, Table III, it will be seen that large profits are not necessarily associated with those of the largest capital invested in improvements.

Comparing the capital invested in improvements, Series B has a much larger amount than Series A. The average for the ten farms being \$6,986.40 as compared with \$4,040.80 in Series A. In Series B as well as in Series A, the largest net profits are not necessarily associated with the largest investment in improvements, although the farm (No. 1011) showing next to the largest net profits is the farm that has \$13,480 invested in improvements. The farm that gives the largest net profits (No. 1015) has only \$5,700 invested in improvements. It will also be noticed that farm No. 1008 containing only 89 acres has an investment of only \$4,925 in improvements and yet has a net income of \$2,804, while the largest amount of capital invested in improvements is not necessarily associated with the largest net profit. It is interesting to note that those who have a large investment in improvements, are, as a rule, not only paying a good interest on that investment but they are also receiving good net returns from their farms.

INVESTMENT IN EQUIPMENT.

Under this head is included dairy supplies and utensils, farm machinery, tools, wagons, carriages, etc., harness and office equipment. From Series A. we notice that this equipment varies from \$445 with farm No. 10, to \$1,778.50 with farm No. 13. Here again it is impossible to associate the largest equipment with the largest net profits, (Table III) although the farm having next to the largest equipment (No. 14) is the farm that has the largest net profit. Farm No. 12 with a net profit of \$1,701 has an equipment valued at \$774. Farm No. 13, with an equipment of \$1,778.50 shows a net profit of only \$208. In comparing the two series, it will be noticed that the investment in equipment is considerably larger in Series B, the average investment being \$1,162.20 against \$369.35 or a difference of \$2.65 per acre.

Farm No. 1006, with an equipment valued at \$3,190 has a net profit of \$1,067. The next largest farm in equipment is No. 1011 with an equipment of \$1,905 with a handsome income of \$4,859. Farm No. 1015, however, has an investment of only \$652 in equipment and yet has an income of \$5,882. In general, it will be noticed that the farms with a large amount of equipment are also farms that are producing good net profits.

INVESTMENT IN LIVE STOCK.

In Series A, this varies from 1090 with Farm No. 10 to \$4,580 with Farm 13. In this instance the farm with the smaller equipment in live stock shows the larger net returns. A study of the factors entering into this show that Farm No. 13 this year had a large expense in the way of labor, supplies, and decreased inventory besides the rather large annual expense for interest on a comparatively large investment. Farm No. 14 with an investment of \$4,455 in live stock shows a net profit of \$1,895, the largest profit of any farm listed in Table I. It is also noticeable that Farm No. 1, with an investment of only \$1,497 in live stock had a net profit of only \$71.00 and that Farm No. 20 with an investment of only \$1,192 in live stock fell behind after paying interest \$338, and that Farm No. 21 with \$1,266 invested in live stock, fell behind \$58.00 after paying interest.

In comparing Table II, it will be noticed that the largest investment in live stock has the lowest returns for net profit. On the other hand, Farm 1008 has only 89 acres and yet has a total of \$7,655 invested in live stock and has a net profit of \$2,804. It will also be noted that Farm 1011 has a large capitalization in live stock and likewise has a large net profit. Farm 1015, however, has 10,340 invested in live stock and has the largest profit of any of those listed, viz. \$5,882. It should be stated, however, in connection with this farm that this was an exceptionally good year and in running over the results with owner, he stated that he had a large crop of excellent calves and all did well and that his sales from live stock and his increase in inventory accounts for the large income, and it is a question whether he can keep up this record for the coming year. In spite of the exceptions mentioned the table seems to show that the large investments in cattle are associated with the large net profits.

CASH RESERVE.

Under this head is included the cash that is needed to meet any emergencies that may arise from the first of one month to the first of another month, such as buying a new cow or paying off a hired man. It is the amount that the farmer feels he must have in the bank after paying his monthly bills in order to meet any sudden and possibly unexpected bills that may arise. It really amounts to idle capital in the bank for which the farm should pay interest.

It will be noticed that in Series A, this amount varies from \$25 to \$300, the average being \$80. In Series B, it will be noticed that the amount varies from \$100 to \$2,000. The average in this instance being \$595. Eliminating No. 1011 which is exceptionally large, the average would be \$405. It will be noticed that those farms with the largest investment in live stock, which are also the farms that usually have pure bred live stock, require a larger cash reserve. This is a factor of considerable importance. Not infrequently an opportunity presents itself to make purchases of live stock, feed and other things needed by the farm, at a bargain, provided a man has or can obtain the necessary cash to complete the deal. In some instances the farmers report that rather than keep a large cash balance they would prefer borrowing at the bank when needed, and perhaps make an arrangement with the banker whereby he can overdraw his account, but either cash or credit is almost as necessary in the conduct of the farm, the same as in other business enterprises.

TOTAL CAPITALIZATION.

In Series A, this varies from \$11,793 to \$37,793 with an average of \$20,082.40 and in Series B it varies from \$21,565 to \$54,365 with an average of \$1,632.10. We find here the same variation that we have found in land, improvements, equipment and in live stock. It is interesting, however, to see that as the farms improve and as the capital increases, as shown in Series B, the farms are not only able to pay for the increased investment in the form of interest but they are also able to return to the owner, handsome profits for his ability as a business manager.

In Series A, Table III, it will be noted that the expenses are comparatively small with the exception of Farms 13, 14, and 20. With the exception of Farm 20 very little was spent for live stock. Of what this farm spent, \$200 was for a work horse. Only four of the ten farms spent over \$100 for feed. When it comes to labor only two farms ran over \$1,000, while the expense for interest, was of course, proportionate to the capital invested.

In Series B, Table IV, it will be noted that the expenses run much higher than in Table III. The average expense for the ten farms is \$839 against \$768 for stock. \$490 against \$138 for feed, \$313 against \$198.5 for supplies, \$388 against \$266 for improvements and repairs, \$201 against \$101 for rent, taxes and insurance, etc., \$1,387 against \$523 for labor and \$1,583 against \$1,004 for interest. The total expense per farm amounts to \$5,380 against \$2,448. This it will be seen is an expense of \$3,201 more than the average expense recorded in Table III.

As the equipment increases, the volume of business also increases or vice versa, and this necessarily increases the items of expense, but it is gratifying to know that the farms are able to meet this expense and still make as much and in most cases more money than where the equipment is small. The total expenses do not vary exactly with the net profit, but it will be noted in most cases where there is a large expense, there is likewise a large net profit. There are some notable exceptions to this, however, particularly with Farm 1008, where the total expenses amount to \$3,571 while the net income very nearly reaches this figure, viz. \$2,804. In Table III, Farm No. 13 spent \$4,504 while the net returns Table III, were \$208. In a similar manner, Farm No. 20 spent \$3,391 and showed a net loss of \$338. While there is no question but that money wisely spent for productive property will, under good management, bring excellent results, it is also true that one must carefully consider the various items for which he is spending his money and satisfy his own mind that the conditions as they exist on his farm will justify the expenditures. Many a man with ample capital has jumped into farming and in order to get things started quickly has not hesitated to spend large sums of money, with the result that the farm is

either over-capitalized or not capitalized in the right direction and it is impossible for the owner and probably for anyone else to make the farm a paying proposition.

FARM RECEIPTS.

The receipts from the farm are grouped under: crops sold, live stock sold, live stock products sold, increased inventory, and other sources.

In Series A, Table V, it will be noticed that about one half of the farmers have an income from the sale of crops, while, in Series B, Table VI, it will be noted that all but two of the ten have an income from the sale of crops. All the farms in both series have considerable income from the sale of live stock. In both instances this amounts to about the same as was received for live stock products. In Series A, the live stock products slightly exceed and in Series B, the sales of live stock are a little more than live stock products. Of course, the amount received varies considerably; those in Series B, Table VI, receiving nearly three times as much from the sale of live stock as those in Series A, Table V.

Nearly every farm shows an increased inventory and here the amount varies greatly. On an average the farms in Series B, Table VI, show nearly two and a half times as much as those in Table V, Series A.

As is naturally to be expected, there is a great variation in the total receipts in both series. In Series B, Table VI the average is nearly three times greater than in Series A, Table V.

NET PROFITS OR LABOR INCOME.

In figuring the net profit, the farm has been charged with all the labor put on it except that of the farmer himself. It includes the work performed by other members of the family and also includes the board of the laborers. The net profits can very properly be called the labor income which goes to pay for the farmer's time and for his ability as a manager.

In Series A, Table V, it will be noted that the profits vary from a loss of \$338 to a profit of \$1,895. In Series B, Table VI, the net profits vary from \$1,067 to \$5,882; the average for

the ten being \$2,835. In Series A, Table V, the average was only \$533. In other words, those in Series B, made nearly six times as much net profit as those in Series A.

WHY THE DIFFERENCE?

When one undertakes to study the farm as a whole, he realizes that there are many factors that enter into the problem of why the farm pays or why it does not pay. And it is difficult if not impossible for anyone to point out all the causes that may contribute to the result.

One of the most prominent factors is the man himself, or what we sometimes call the personal equation. This is something that is difficult to measure and still harder to express. It is, however, indicated by the general appearance of the farm, the character of the live stock, and in the financial results that he obtains in handling the farm as a business proposition. But more than this, it is expressed particularly in the comprehension that the man himself has as to the possibilities that lie inherent in his soil, in his crops and in his live stock. If the man realizes what it means to maintain and even increase the fertility of his soil; if he understands how to select his seed; how to prepare the seed bed and cultivate his crops so as to get the largest yields; if he understands how to handle his cattle, whether pure bred or grades, so as to get the largest returns for feed and labor expended and at the same time so manages his herd that it is constantly increasing in quality as well as quantity, if his vision is broad enough so that he can comprehend all of these problems and coördinate them and bring them together so as to get the largest net results, though not necessarily financial results, we believe that he is to be considered as an up-to-date, thorough-going, progressive farmer.

In looking at the results obtained in these investigations one is struck first of all with the lack of appreciation of soil preservation or conservation. This is fundamental to all other farm operations.

The next factor that impresses one is the lack of ability or knowledge of how to select and improve the seeds used on the farm. By the proper selection of seed, it is possible to mater-

ially increase the yield of crops without adding any extra expense to the preparation of the soil, or the work in planting, cultivating and very little to the expense of harvesting.

Another potent cause of poor results is that of poor cows. And this point I wish to emphasize at this time. The results of carefully planned experiments as well as the experience of nearly every dairyman show that there are a large number of cows numbering perhaps 30 per cent with our average or common cows that do not respond to good feed and care sufficiently to pay expenses as milch cows. These cows are not only a drag to the dairyman but they are a hardship in that they make the good cows appear as though they also were not profitable animals.

These figures emphasize strongly the need of better cows, especially when we reflect that the average cow in the United States is producing less than 150 pounds of butter fat. All students of dairy husbandry recognize that if our dairy cattle are to be permanently improved it must come by good feeding and grading up with improved breeds that have had their dairy qualities fixed by long years of persistent breeding for dairy production.

By rising vote the Secretary was directed to send a telegram expressing the affection and great respect of the members of the association to Ex-Gov. W. D. Hoard.

Hon. A. W. Sanborn: I wish to speak in behalf of the farmers of this community and express our thanks to the Wisconsin Dairymen's Association for coming up here and holding this meeting for us. I feel, and I know they feel that you have done some good and we hope you will see some returns from this work.

A vote of thanks to the association was unanimously passed.

SECRETARY'S REPORT FOR 1912.

To the President and Members of the Wisconsin Dairymen's Association:

I have the honor to submit the following report of the expenditures concerning the period from the period of adjournment of our convention at Beloit in November to the present time.

Convention expenses, Beloit.....		\$368.86
H. C. Searles, Supt. Cow Testing Ass'ns, salary	\$1,300.00	
Expenses	970.00	2,270.13
Creamery Package Mfg. Co., supplies.....		69.52
Postage stamps		40.00
Miscellaneous		6.54
W. D. Hoard Sons Co., printing.....		51.65
Secretary, salary	\$250.00	
Office, expenses	33.76	283.76
Total expenses for 13 months		\$3,090.46

Respectfully submitted,

A. J. GLOVER.

TREASURER'S REPORT FOR 1912.

Mr. President and Members of the Association:

The following itemized report is made showing the source from which all monies paid into the treasurer's hands were received and the disbursements made on orders from the secretary which I hold as vouchers.

1911			
Nov. 20.	Balance in hands of treasurer...	\$440	31
	Memberships	27	00
Dec. 15.	From State Treasurer.....	1,000	00
1912			
May 12.	From Secretary Glover, sale of books		90
May 15.	From State Treasurer.....	1,000	00
Nov. 21.	From State Treasurer.....	1,000	00
			\$3,468 21

Disbursements.

Nov. 23.	Wm. Kammer, convention expenses	5	87
Nov. 23.	Waynes & Connonny, convention expenses	5	00
Nov. 23.	A. J. Glover, convention expenses	3	97
Nov. 23.	C. P. Goodrich, convention expenses		1.87
Nov. 23.	H. K. Loomis, convention expenses	110	26
Nov. 23.	J. G. Westphal, convention expenses	2	20
Nov. 23.	Frank Eddy, boys judging contest	15	00
Nov. 23.	Robert Plumb, boys judging contest	10	00
Nov. 23.	Henry Bird, boys judging contest	5	00
Nov. 23.	Phillip Bredson, boys judging contest	3	00
Dec. 4.	H. C. Searles, November, salary and expenses	168	84
Dec. 4.	F. W. Woll, convention expenses	3	22
Dec. 4.	H. D. Griswold, convention expenses	9	28
Dec. 4.	E. G. Hastings, convention expenses	3	00
1912			
Jan. 4.	H. C. Searles, December, salary and expenses	164	04
Jan. 22.	Mrs. A. L. Kelly, reporting convention	124	00
Feb. 2.	H. C. Searles, January, salary and expenses	175	28
Feb. 12.	A. J. Glover, stamps	40	00
Feb. 12.	Harold Alrich, conducting	7	50

Feb. 12.	Creamery Package Mfg. Co., supplies	4 22	
Feb. 27.	William Essmann, freight and express	5 39	
Mar. 5.	H. C. Searles, February, salary and expenses	183 80	
Mar. 5.	Jenkin Lloyd Jones, services rendered	50 00	
Apr. 3.	H. C. Searles, March, salary and expenses	172 11	
Apr. 17.	W. H. Clark, convention expenses	6 69	
Apr. 17.	Creamery Package Mfg. supplies	2 55	
Apr. 17.	Creamery Package Mfg. Co., supplies	7 05	
May 3.	H. C. Searles, April, salary and expenses	169 68	
May 3.	Creamery Package Mfg. Co., supplies	8 85	
June 4.	H. C. Searles, May, salary and expenses	173 45	
July 4.	H. C. Searles, June, salary and expenses	181 60	
July 4.	Creamery Package Mfg. Co., supplies	2 60	
Aug. 3.	H. C. Searles, July, salary and expenses	167 41	
Sept. 6.	H. C. Searles, August, salary and expenses	174 37	
Sept. 6.	Creamery Package Mfg. Co., supplies	8 61	
Oct. 3.	H. C. Searles, September, salary and expenses	175 01	
Oct. 3.	Creamery Package Mfg. Co., supplies	12 35	
Nov. 5.	H. C. Searles, October, salary and expenses	185 13	
Dec. 3.	Creamery Package Mfg. Co., supplies	23 29	
Dec. 3.	H. C. Searles, November, salary and expenses	179 41	
Dec. 3.	W. D. Hoard Sons Co., printing ..	51 65	
Dec. 21.	H. K. Loomis, postage stamps and exchange on draft	1 15	
Dec. 21.	A. D. De Land, expenses, Neenah convention	3 00	
Dec. 21.	A. J. Glover, salary and office expenses	283 76	
Dec. 21.	Balance in hands of treasurer...	377 75	\$3,468 21

H. K. LOOMIS.



M. L. WELLES, PRESIDENT
ROSENDALE

A. J. GLOVER, SECRETARY-TREASURER
FORT ATKINSON

H. C. SEARLES, SUP'T COW TESTING ASS'NS
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N. A. NEGLEY, ASSISTANT, FORT ATKINSON

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Co-operating with the Wisconsin College of Agriculture and
the Dairy Division * * * Organized February 15, 1872



OCTOBER 29th,
1915

Mr. Clarence S. Hean, Librarian,
College of Agriculture,
Madison, Wis.

Dear Sir:

In reply to your letter of October
27th beg to say that the Wisconsin Dairymen's
Association does not expect to publish any more
reports of the meetings held by this Association.
If in the future any of these reports are pub-
lished we will be glad to send you a copy of
them.

Yours truly,

A. J. Glover
Per M. D.

MD:MH

WISCONSIN
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ANNUAL REPORT
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