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Forty-fifth annual report of the Wisconsin Dairymen's Association : held at Waupaca, Wis., December 5, 6, and 7, 1916. Abridged report of the proceedings, addresses and discussions. 1917

Wisconsin Dairymen's Association

Madison, Wisconsin: Democrat Printing Company, State Printer,
1917

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FORTY-FIFTH ANNUAL REPORT

OF THE

WISCONSIN
DAIRYMEN'S ASSOCIATION

HELD AT

Waupaca, Wis., December 5, 6, and 7, 1916

ABRIDGED REPORT OF THE PROCEEDINGS, ADDRESSES AND
DISCUSSIONS.

COMPILED JULY, 1917,

BY

PAUL C. BURCHARD, *Secretary.*

MRS. A. L. KELLY, *Stenographic Reporter.*

OFFICERS, 1916

PRESIDENT,
MATH. MICHELS,

PEEBLES, FOND DU LAC COUNTY,
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PAUL C. BURCHARD,
FORT ATKINSON, JEFFERSON COUNTY.

CHESTER HAZEN, RIPON, FOND DU LAC COUNTY,
President 1872-74. Died 1900.

HIRAM SMITH, SHEBOYGAN COUNTY,
President 1875-76. Died May 15, 1890.

A. H. DELAND, SHEBOYGAN COUNTY,
President 1877. Died April —, 1917.

H. F. DOUSMAN, WAUKESHA COUNTY,
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Z. G. SIMMONS, KENOSHA COUNTY,
President 1879.

STEPHEN FAVILL, DANE COUNTY,
President 1880. Died —, 1906.

C. R. BEACH, WALWORTH COUNTY,
President 1881-82. Died September 15, 1896.

W. H. MORRISON, WALWORTH COUNTY,
President 1883-86. Died December 15, 1893.

H. C. ADAMS, DANE COUNTY,
President 1887-89. Died July 7, 1906.

PROGRAM

TUESDAY, DECEMBER 5, 1916

First Session—10:00 A. M.

- 1.—Address of WelcomeMAYOR HOLLY, Waupaca
- 2.—Response....C. H. EVERETT, Racine, Editor Wisconsin Agriculturist
- 3.—President's Annual AddressMATH. MICHELS, Peebles
- 4.—Cow Testing Associations in Wisconsin....NOEL NEGLEY, Madison
- 5.—Lessons from the Waupaca and Butternut Ridge Cow Testing AssociationGEO. MOSS, Tester, Waupaca

Second Session—1:30 P. M.

- 1.—Health of the Herd.....HON. C. P. NOBGORD, Madison
Commissioner of Agriculture
- 2.—Making Clean MilkW. J. DOUGAN, Beloit
- 3.—Lessons from Waupaca Milk ContestC. E. LEE, Madison
Asst. State Dairy and Food Commissioner
- 4.—Announcement of Winners in Milk Contest

Third Session—8:00 P. M.

Entertainment by Waupaca High SchoolHigh School Building

WEDNESDAY, DECEMBER 6, 1916

First Session—10:00 A. M.

- 1.—Breeding Up the Dairy Herd.....A. J. McGUIRE, St. Paul, Minn.
Minnesota College of Agriculture
- 2.—Developing the Dairy HeiferW. H. CLARK, Rice Lake
- 3.—Care of the Dairy BullJOHN MICHELS, Peebles

Second Session—1:30 P. M.

- 1.—The Boy FarmerJ. G. POYNTON, Fort Atkinson
Editor Junior Department, Hoard's Dairyman
- 2.—Judging the Dairy CowGEO. MCKERROW, Pewaukee
- 3.—Men's and Boys' Judging Contest

Third Session 6:30 P. M.

BanquetOpera House

THURSDAY, DECEMBER 7, 1916

First Session—10:00 A. M.

- 1.—Keep the Good Cows in the Community ...J. Q. EMERY, Edgerton
- 2.—Potatoes and Cows.....F. G. SWOBODA, Antigo
County Agent Langlade County
- 3.—Power on the FarmF. M. WHITE, Madison
Wisconsin College of Agriculture

Second Session—1:30 P. M.

- 1.—How I Feed My Cows and Why.....F. R. CONSTANCE, Waupaca
- 2.—Feeding Dairy Cows for Profitable Production
A. J. GLOVER, Fort Atkinson

TRANSACTIONS
WITH
ACCOMPANYING PAPERS AND DISCUSSIONS
(Abridged)
OF THE
Wisconsin Dairymen's Association
AT THEIR
FORTY-FIFTH ANNUAL CONVENTION
Held in Waupaca, December 5, 6, 7, 1916.

PRESIDENT'S ANNUAL ADDRESS

MATH. MICHELS, Peebles

This is the forty-fifth annual meeting of this most important and most useful association. This association is the mother of the Wisconsin Dairy and Food Commission, the Wisconsin Dairy School, the Wisconsin Cheese Makers' association and the Wisconsin Butter Makers' association, and its late children are the Wisconsin Cow Testing associations. At each annual meeting since its organization it could truthfully say that it had accomplished more, had been of greater benefit than the year before. This certainly holds good for the past year.

A year ago we had 42 cow testing associations in operation in this state, today we have no less than 57 cow testing associations in operation and each and every one working to its full capacity. These associations are doing an untold amount of good not only to its members but to any community as a whole.

About ten years ago, when General George W. Burchard was secretary (father of our present secretary) and C. L. Hill president, this work of testing cows was first undertaken. The first

few years' work was hard and results slow but sure. Of late years this work has been growing steadily until the demand became so great that it became necessary, owing to lack of funds, that the Wisconsin College of Agriculture and the Federal government were called upon to help in carrying on this great work, and thanks are due them for the valuable assistance given in this work of testing cows for milk and butter fat production and the feeding and care of the cows under test.

The results obtained from this work of testing cows, go much farther, have much more meaning, and point out the way for more profitable and better dairying than is realized at the end of a few years testing.

It leads to higher and better ideals as is plainly shown today throughout the sections where some of the first cow testing associations were started. It leads to the culling out of the cow boarder; it leads to the introduction of pure bred sires, it leads to better care and more economical feeding. In fact, it gives the dairy farmer a solid, substantial foundation upon which to build his business. The result has been not alone the increased profits of the herds. Among the indirect results may be mentioned the impetus given to silo building; the general improvement of dairy barns; the introduction of new equipment making not only for the comfort and convenience of the dairyman and his help, but also adding to the comfort and health of all his stock.

The lessons learned from this association work are of more value and felt even more today than ever before, continually leading the way to better producing herds; teaching the dairymen to become better judges in selecting, breeding and caring for dairy stock. It has been a leading factor in arousing interest in dairy experiments conducted by agricultural colleges and dairy literature in general. In fact it has led directly in a number of cases to semi-official testing with records as high as 600 to 700 lbs. of butter fat.

In just the same proportion as the dairy knowledge has been increasing has there been an increase in production of butter fat, in uniformity of herds, trueness to breed, and better care of the cattle and the milk and cream produced. Besides the direct money received for the butter fat (which in a number of instances is crowding the \$100.00 mark per cow) there is an in-

crease in the sale and price of live stock from year to year. As soon as a community gets a cow testing association under way, just so soon will it attract buyers of dairy stock from various parts of the country. A community with a cow testing association has the further advantage of cooperating in disposing of their cream and milk and in buying their feed. The dairy farmers will soon learn what feeds they want and how to grow and put up such feeds as are wanted.

Wisconsin leads not only in the number of cow testing associations and cows under test by those associations, but also in the number of cows that are being officially tested and in the amount of butter and cheese made. Wisconsin leads in the production of butter fat per cow and Wisconsin produces about three-fourths of all pedigreed grains grown in this country. In order that we may continue to lead as a dairy and agricultural state, it will be necessary to keep up the good work of educating and applying business methods to Wisconsin farming.

I believe the day is not far distant when the testing of cows will be accepted as official by the various breed associations. Of course, to accomplish this it will be necessary to take preliminary milkings and the tester will have to stay longer at each farm. This would mean that the expense of carrying on the work would be higher, but as the value of this work is recognized more fully from year to year, I believe the dairyman who wants official work done will be willing to pay the difference.

LETTER FROM EX-GOVERNOR W. D. HOARD,
FT. ATKINSON

I regret that the infirmities of old age make it impossible for me to meet with you. If I did gather with you, there would not be one among you who were my comrades in those first days of sowing the seed of dairy ideas that has now grown to a wonderful harvest of results. None of us dreamed in those first days of seeing Wisconsin such a great and important dairy state. We only felt that we were dealing with a great and lasting principle which, when unfolded to its full working, would bring a new order of agriculture into being.

Those far-sighted men who showed their great faith and

toiled with me in the struggle to get the Wisconsin farmers to stop and listen to us in those days, how can I ever forget them!

The opening page of your program gives a short sketch of the feeble dawning of this light that has enlightened Wisconsin to her furthest borders and has swept on to the enlightenment of almost every state in this great Union.

All were farmers except W. S. Greene and myself. Mr. Greene was a large manufacturer of flour at Milford in Jefferson county, but he was a man of large vision and saw the necessity of a change from the plow to the cow more clearly than most of farmers. Afterward he became a member of the famous firm of Cornish & Curtis, manufacturers of the rectangular churn, who built up a vast trade in dairy implements that is now carried on by its successors, the Creamery Package Manufacturing Company.

One of the chief and most interesting features of this great dairy development has been the wide range taken by the invention of new dairy implements. The farm dairy of the early 70's had but few good utensils, and those often were crude in conception. The true philosophy of milk handling, cream separation, and butter making was but little understood by the average farmer. Neither did he understand the flavor and character of the best commercial butter. What was good enough for him on the farm, he thought, ought to be good enough for the city consumer. One of the first efforts we made was to get the farm butter makers to put their butter in eight-pound pails and consign it to commission merchants in Chicago.

That was necessary in order to educate them to understand what the standard of quality it was that brought the highest price. I remember holding a large dairy meeting at Lake Mills and sending to Smith & Dexter of Chicago for two eight-pound pails of the finest butter that they had. Mr. Dexter came up to the meeting and explained the price that butter sold for as against the common farm butter. A hundred or more farmers' wives attended that meeting and sampled that butter, and for the first time in their lives got an idea of what fine commercial butter was, with its difference of ten cents a pound. That was a great object lesson. In five years' time there were 1,500 farmers in Jefferson county shipping their butter by express to Chicago and getting the sharp, merciless education of the

market. The country store would not tell the wife of the faults of her butter, but the price it sold for in cash told her without fear or favor, and good butter making grew amazingly. Many times in later years I've wondered if we would not swing back again to the making of fine brands of farm butter. The market is here, the methods of distribution are cheap and ample, and the family demand would be enormous. Even now certain large creameries make butter for family supply and get good prices for it.

Standing where I do in these later years, I can see the broad panorama of dairy development in all lines spread out before me over these forty-five years of the life of the Wisconsin Dairymen's Association. Most of that noble band of workers who laid the foundation of Wisconsin's dairy prosperity have passed to their long rest. They were good men, every one of them, wonderfully unselfish, attending our conventions and farm institutes without pay and bearing their own expenses, with the sole object in view of getting the farmers to see the better way of doing things. Nearly all of our special features, such as the Dairy School at Madison, the farm institutes, the expansion of dairy husbandry, in many ways found their origin in the Wisconsin Dairymen's Association.

What a wonderful force it has been, working upon the minds of our farmers to the enlargement of their knowledge and judgment in the making of prosperous dairy farmers. My vision and memory of all these mighty results cannot last many years more, but I am glad I have lived amid these fruitful years, and I bid you be of good cheer. Keep your eyes to the front. Be forward looking. Have faith in the renovating power of sound knowledge and the stimulating effect of a broader intelligence.

Here is a simple question for every farmer to ask himself: Who are the most prosperous dairy farmers, the best representatives of this great industry? Are they the most intelligent and progressive or the most ignorant and unprogressive? Apply those questions as a touchstone to our own lives and you need not fear the results.

THE WISCONSIN DAIRYMEN'S ASSOCIATION IN RETROSPECT

GEN. GEO. W. BURCHARD, Fort Atkinson

The Wisconsin Dairymen's Association in retrospect presents to my mental vision a kaleidoscopic panorama, geographical as well as personal, with a record of achievement unsurpassed in industrial pursuits.

I see it holding its conventions all along the southern border of the state, in Kenosha, Walworth, Rock, Green, and Grant counties and criss-crossing the state from Lake Michigan to the Mississippi river through the interior counties, reaching as far north as Ashland on Lake Superior. Nor is this all. It has sent its officers and employees into the country, visiting cheese factories and creameries, holding meetings of patrons, and giving advice, instruction, and when deserved, commendation.

NOTABLE MEN FOUNDED THE ASSOCIATION

And when this special work of improving the quality of manufactured dairy products was taken up by others, much to its relief, it turned its attention almost exclusively to the problems which confront the individual milk producers. It is in these ways that I find the Wisconsin Dairymen's Association conspicuously in evidence in a geographical way practically all over the state in every section.

And what of the men and women who appear on this mental canvas as it passes before me? There are the seven men who met in Watertown 45 years ago, or it will be 45 years next February. They were strangers to me then, but in later years I came to know and love them all, especially Chester Hazen, Stephen Favill, and W. D. Hoard. Hazen was elected president, probably for the reason that he was proprietor of a large cheese factory in Fond du Lac county—a large factory it was in those days. Stephen Favill was perhaps the most fluent talker, but his kindly manner made him "Uncle Steve" to us for many years. And Hoard, the inspiring genius of the movement, and the subsequent prophet and seer of Wisconsin dairying—nay, of American dairying if not of world-wide dairying. Hazen

and Favill staid with the association as long as they lived, and Hoard, though unable to attend this convention and banquet on account of physical disability, but with heart as warm, and brain as keen as ever, is certainly with us in spirit.

A year or two later came Hiram Smith, the Nestor of Wisconsin dairymen,—white-haired, ruddy-faced, genial, lovable, and man of deeds but not without the gift of cogent speech when words were in demand. He was not a scholar in the academic sense, but he had been taught in the school of experience and gathered that practical wisdom about men and affairs which colleges and universities not infrequently fail to impart. If I never gave any other public service of benefit to Wisconsin, I think I may claim some credit for suggesting the name of Hiram Smith to the governor for appointment as a regent of the university. For to him we are largely indebted for the Dairy School and all that it stands for and is, and it is for this reason that the dairy building was named in his honor, Hiram Smith Hall.

MEN OF SPLENDID PERSONALITY AND HIGH ABILITY

And there is Charles R. Beach of Whitewater, a successful dairyman, with a countenance as rugged as the Berkshire hills, but his soul was full of poetry and he frequently recited to us his favorite selections from Burns. And White of Kenosha, who preached to us on kindness and consideration for the dairy cow, maintaining constantly that she should at all times be treated as a lady. And I see Henry, who came to Wisconsin as the first teacher in the agricultural school and was adopted by this association and loyally sustained and defended by it. To him in large measure we are indebted for what our agricultural college now is or may become in the future.

Among the many others there passes across my mental vision the face of D. W. Curtis, my neighbor, friend, and comrade in the Civil War. For 22 years he was the secretary of this association, than whom there never was a more efficient secretary and few, very few, his equals. He could not make a speech, but he had a way of drawing the best out of others. He it was who secured an appropriation from the legislature to enable the state to make an exhibit at the Centennial in Philadelphia after it had been once voted down, although personally championed

by Sam Fifield, then speaker of the Assembly. He more than once accomplished what seemed almost as impossible as drawing blood from a turnip.

AND THERE WERE FAMOUS WOMEN

Nor is it to men alone that we are indebted for the success of this association. Mrs. Kelly, who sits here at my right, has reported the proceedings of every convention from and including the one held in 1880. The present makes up a total of 38, and for accuracy and completeness nothing has been wanting. More than this, at every convention she has proven herself a very present help in time of trouble, both to secretaries and to speakers.

There was also Fannie Morley of Baraboo, who forsook teaching school at 20 years of age to take charge of her father's dairy. She it was who personally made the butter which won the grand sweepstake prize of \$100 at the great International Dairy Show in New York in 1879, for the best butter made at any time in any place. She had abundant competition from several states and from Canada, and Europe, and to her is due no small credit for the advertisement of Wisconsin as a dairy state. And there was Mrs. Howie of Milwaukee county, who served with us, expounding her methods as a dairywoman in such eloquent and convincing manner that other states drew her away from us.

And there were others, many others, men and women, whose names and deeds I am loath to omit, but I must. Yet how can I omit such names as Goodrich, the most self-effacing man I ever knew and in many respects the most successful dairyman and dairy instructor at conventions Wisconsin has produced; and Everett, always on hand to fill any position assigned him, or others if they failed to connect; and Emery, you will hear him tomorrow, and you will then learn why his name cannot be omitted from the roll of honor.

This personal retrospect—alas that I must leave it, but what they did deserves mention, even though it appeals more to the head than the heart of the present generation, who may not personally know these noble men and women.

EARLY ACTIVITIES OF THE ASSOCIATION

First of all, in the activities of the association, it was found that dairy products, especially cheese, could not reach the eastern markets on account of the excessive charges for transportation. As a matter of fact, the output of cheese factories had to be, as it were, peddled out, a few here and a few there. Now and then a very few were sold in Minnesota, but as a rule, the sales were to the local merchants in cities and villages and the demand was necessarily limited. A wholesale market must be found.

This association, through its earliest secretary, W. D. Hoard, took the matter up personally with Mr. Chandler, then western manager of the Star Union Line, and after much persuasion he, not without considerable reluctance, sent a car to Watertown in the way of experiment. It proved successful, and very soon became regularly established, and the cheese makers of Wisconsin sent their cheese to New York at a mere fraction of a cent a pound above what it cost the factories in the great dairy center of York State. Naturally, this gave the cheese industry of Wisconsin a decided impetus.

THE MAKING OF A REPUTATION

But there was a prejudice in that great market against cheese and butter from the supposedly wild and wooly West. To get rid of this the association determined to make exhibits at the Centennial Exposition at Philadelphia in 1876. In all, 202 cheese from different Wisconsin factories were entered to compete with those from New York, other states, and Canada, and these received a larger percentage of medals than were awarded to any other state or country. There were but few entries of butter from Wisconsin, but such as were exhibited received unexpected attention and called forth most favorable comment.

Success at Philadelphia emboldened the association to enter into competition in butter and cheese with all comers at the great International Dairy Fair in New York and still further victories were won. Wisconsin then became acknowledged at home, and in the English markets as well, as a dairy state. Buyers came "West" for our products and paid full prices

for them, for we had successfully competed with the world, even to winning the grand sweepstake prize of \$100 for the best butter made at any time or in any place.

Similar results were obtained at the World's Fair in Chicago and at the Cotton Centennial at New Orleans.

There were the spectacular features, the advertising features, the publicity program,—but they did not interfere with the equally important duty of preaching and teaching the dairy gospel in our conventions.

DEDICATED TO THE PROBLEMS OF THE INDIVIDUAL MILK PRODUCER.

In those earlier days the dominant effort was to meet the individual butter and cheese makers and milk producers. But the Dairy School sent out many competent artisans, if not artists, and the technic of the dairy industry received less and less attention, with the natural result that as bees swarm and boys and girls marry and go for themselves, the butter and cheese makers, with the full approbation of the parent society, organized associations of their own. There has always been hearty good will between them and us, and no jealousy, for there still remains for this association all and even more than it could do in trying to make the individual milk producer a better and more prosperous dairyman.

And so in later years I had the privilege and honor as secretary to send out Mr. Searles to organize the first cow testing association. And he is still at it, efficiency assisted by Mr. Negley, doing most excellent service with 55 of these associations under the general direction of the officers of this great association.

Such in brief is a retrospect of the Wisconsin Dairymen's Association,—necessarily fragmentary and incomplete. I venture to say, however, that such as it is, those seven who organized it 45 years ago are like the architect who rounded Peter's dome,

“And groined the aisles of Ancient Rome,
Wrought in sad sincerity;
He builded better than he knew;
The conscious stone to beauty grew.”

It is alone almost recompense for having been born 81 years ago that I can say of the word and works of this association, as

Aeneas said to Dido when recounting the incidents of the siege of Troy: "All of which I have seen and a part of which I was."—

COW TESTING ASSOCIATIONS IN WISCONSIN

NOEL NEGLEY, Madison

Since Wisconsin now leads in the number of dairy cattle and the value of dairy products, we might justly expect her to lead in the number of cow testing associations. With 56 active associations, made up of 1681 members having 26,425 cows under test, we easily surpass the work of any other state. During the past year we have organized 29 new associations with 773 members entering 12,243 cows in the test. During this same period, for various reasons, we have been unable to reorganize thirteen associations. Some would view this with alarm, feeling that the movement was losing its value. Banks fail occasionally, yet we still regard them as necessary institutions. Churches occasionally have a squabble and discharge their pastors, yet the church is regarded as of great value to our civilization. Just so it is with the cow testing associations. For some reason or another a few members may drop out for a year or so, and it is impossible to get enough more to take their places and run for another year. But the seed has been sown, good has been done. The members have become acquainted with the work, and have a taste of its value, and in a year or so the majority of them will want to get back into the organization again. Many of our present associations are simply postponed reorganizations of former associations.

"By their fruits ye shall know them" is the test we want applied to the cow testing association movement in the state. It is because of the good fruits they are bearing that we are able to organize more associations so rapidly. Since a cow testing association is a cooperative, voluntary business institution supported solely by the members, it must be able "to deliver the goods" or it will not live. It is evident that it does "deliver the goods". One man told me recently: "I would give \$3

a cow a year if necessary to continue the association. That would be a 4% tax on each of my cows but would be the best investment I can make.

POOR COWS FOUND EVEN IN WISCONSIN

Because Wisconsin is recognized as the leading dairy state, one not intimately acquainted with dairy conditions here might think that we have few if any unprofitable cows. "The poor you have with you always" may be said of cows as well as of people, for we find the poor, unprofitable, and low producing cows in every section of the state. In fact, in many of the high producing herds we find one or more unprofitable cows, standing in some cases side by side with the cows making a profit of \$50 to \$100 a year. One of the first results of testing is to locate these low producing cows.

While it is not possible to determine exactly how many cows will be sold as unprofitable from our 56 associations this year, because some of them have run only a short time, reports received from the associations during the last month, stating the number of cows sold up to this time, indicate that when each has finished its year, at least 4,000 of the 27,000 cows under test will be sold as unprofitable. This represents the number that are unprofitable of themselves, and which, under good management, would not be able to make a satisfactory profit. There is probably an equal number that are unprofitable because of the poor care and feed given them. These our testers advise the farmer to retain and give a decent chance to make good. We sometimes find that because of sentiment or other reasons, cows are not sold even though they have been given good care and have been proved unprofitable.

When you consider that the men who are in the cow testing associations are the most progressive dairymen of the state, and as a class own better cattle and give them better care and feed than the average Wisconsin farmer, I believe I am safe in saying that at least one-fourth of the 1,800,000 cows in Wisconsin make no profit for their owners. One-half million cows to milk, to feed, and to care for every night and morning of the entire year, for the fun of it, if fun there be! One-half million cows to disgust men with dairy farming, to drive the boys and girls

from the farm, and to make dairying a disappointing drudgery! To detect and cause the sale of 4,000 robber cows may not seem a great accomplishment. But to the man who has been feeding, milking, and caring for two or three of these robbers for a year or more, it means not only more money, but more interest in the farm and an enthusiasm that cannot be measured in dollars and cents.

DETECTS INEFFICIENT MANAGEMENT

The cow testing association not only detects the inefficient cow, it also detects the inefficient management of the dairy. It is an efficiency promoter—a man tester, too! The increasing price of feedstuffs not only demands that the cow be an efficient machine in converting feed into fat, but that she be given a fair opportunity to make a profit by being fed and cared for by an efficient man. Feeding the cows an economical balanced ration, and according to production, have been the two best means of accomplishing as much or more good for the members, as the weeding out and sale of unprofitable cows.

The members pay for the associations, let them testify to its value:

Ira Farley, of the Waupaca Association, after belonging four years, says: "I have learned to feed more economical and better balanced rations and have raised my herd production each year with no more feed cost."

Wm. Rossey, also of the Waupaca Association, says: "I have saved one-third on the feed bill, and some of my cows will produce over 100 pounds more fat than they did last year."

H. Metzel of the Royalton Association writes: "I think it was worth at least \$50 per month to me on the feed question alone, and it cost me about \$2 per month."

G. J. Olstad, a member of the 8-month-old Rosholt association, says: "My creamery checks have been larger since the association started. September, 1915, my check was \$99.05. This September with the same price for fat, and only two more cows, my check was \$145.05. My feed bill was not any higher this year, either."

Fred Ziegler, Appleton, writes that by the changed method of feeding, he increased milk production without having any fresh cows, and saved \$95 in two months.

Julius Ausen, the tester at Ontario, says that two years ago when the association was first organized, only two farmers were keeping daily milk records. Now 44 members are weighing the milk every night and morning, and feeding for and according to production.

Chas. McCully of Reedsville, now in his second year of association work with registered Holsteins, says that he has not only raised his herd production by feeding a better ration, but has fed them more economically, and now has a greater interest in his herd than ever before.

Charles Achenbach, Manitowoc, writes: "I fed my cows at a much greater profit and raised the milk production 2,000 pounds per cow in one year. The record work has also raised the value of my cows and calves. Formerly I sold the calves to the butcher, but now I can sell them to other dairymen at a much better price, and I always have a buyer."

And so I could go on and on, and quote similar letters from all our associations, but I believe these are sufficient to show the value of the work.

BUYING FEED

Feed is probably 70% of the total cost of milk production, and it is therefore an important factor in profitable dairying. To make good profits we must have low feed costs, as well as good cow machines, good care, and good management. Cooperative feed buying in car lots during the summer cuts feed costs. In sixteen associations reporting feed buying, 51 carloads or approximately 1000 tons of concentrates have been bought. Every one of the sixteen associations reports that it is well pleased with the plan and expects to buy heavier next year. The difference between the delivered price and the retail price varied from 50 cents to \$5 per ton in favor of cooperative buying,—an immediate saving of about \$2,500. In a number of cases the local dealer did not or would not handle the feed desired, and in other cases the local dealer handled the order on a commission basis, the farmers paying cash and taking the feed from the car at time of arrival.

Will Himn, of the East Fond du Lac Association, writes that on his six and one-half tons of concentrates he saved \$64.30 over the retail price, or approximately \$10 a ton.

F. A. Gaiser of Wrightstown writes that by buying early and in car lots they got the feed at \$14 per ton less than they could get it now.

A study of the situation indicates that in spite of the opposition of some local dealers and certain feed manufacturers, the advantages of buying cooperatively in car lots, and early in the season, are becoming better known, and we may look for more of it in the future.

IT TESTS THE BULL

I have said that the cow testing association tests the cows and tests the men. It tests the bulls, too. It is said that the bull is half of the herd, *but a pure-bred bull in a herd of grade cows is more than half the herd*, and should be given more attention than he commonly receives. The sale to the butcher of the scrub bull and replacing him with a pure-bred has been pushed in the association work, with the result that from the 26 associations reporting on this, 107 pure-bred bulls have been bought to replace 107 scrub and grade bulls. Should the new associations replace as many in proportion as those that have reported, we can expect 200 more pure-bred bulls heading herds formerly headed by scrubs and grades. But it is not enough to say that the bull is a pure-bred animal. He must be tested also. The record of the daughter as compared with that of the dam, is the only test of the bull's value and should determine whether he remains at the head of a herd or goes to the block.

The kind of men who can tell by the looks of a cow how much fat she will give, are growing more scarce. In fact, it seems that many men cannot tell, without records, their best cows from their poorest. A member of the Empire Association writes that he thought his grade Jersey cow did not amount to much and was going to sell her just before the association started work this summer. Her 8-months record shows that she now leads his herds, and is one of the best cows in the association.

H. Voelker, Manitowoc Co., says that during the first month of the association he was offered a cow for sale because she was such a "hard keeper, always poor". But in the six months of association work this cow has produced more fat than any other in his herd of 18, and is not now for sale.

R. A. Boyd, tester at Eagle Point, says that a member wanted to sell a fresh heifer for \$40 but he persuaded him to give her a trial and during the six months just past she has made a profit of \$52.96.

TESTED COWS SELL FOR MORE

Not only have records been valuable in detecting profitable and unprofitable cows, but they have also raised the value of the cattle in the herds. A member of the Alto Association writes that the records for the 11 months since the association began work have increased the value of his herd \$500.

Commissioner of Agriculture Norgord says: "I feel that our herd is worth much more to us, and much more from the standpoint of a purchaser, than it would be without the records. I have recently bought a 300-lb. cow with the record for two years back to place my judgment of the animal upon. I would not buy a cow without a record. *I think there is no more progressive work being done for dairying interests in the state than the cow testing association movement.*"

There are other things done by the associations which I have not mentioned, such as the testing of cream, and of skim milk to detect losing separators, and in some communities the social meeting play an important part in the life of the association members and their families.

BETTER COWS, BETTER LIVING

It might seem that cow testing work is only to help the farmer make more money. That is not the purpose. The farmer must have more money as a means to an end. He wants to improve his living conditions. He often needs better lighting, heating, and water system. He wishes to give his children a better education and better opportunities in life, and he and his family deserve to have the modern necessities and at least a few of the pleasures and luxuries of life. When dairying is put on a business basis and provides these things for the farm home and family, it is bound to create more interest in the farm—an interest such as that of a 15-year-old boy in this association who walked home from school at noon each day the tester was there to see how much fat "Queen" made for the month.

THE FARMER PAYS SEVEN DOLLARS TO THE STATE'S ONE
DOLLAR

I believe one reason for the success of the cow testing association work in this state is, that the members join with the understanding that it is a business proposition,—an opportunity for a good investment, and not that they want to accommodate the organizer or wish to get something for nothing! That the farmers do consider it a good business proposition, is shown by the fact that they paid \$44,000 for the work this year. For every dollar that the Wisconsin Dairymen's Association and the United States Department of Agriculture put into the work, the farmers put in seven dollars.

The future of this work depends on the funds available for organization and supervision. Wisconsin, the greatest dairy state in the Union, having dairy cattle and property valued in the millions and annually producing dairy products to the value of over \$110,000,000, can well afford to invest more than \$4,500 in this, the only movement that is appreciably promoting the dairy farming interest of the state.

The cow testing association is the best "tonic" that the dairymen of the state can give themselves,—and a good observer can easily see that one is needed. That an association is an effective "tonic" and can put ginger into a community, is easily seen in a "before and after taking" exhibit. Before taking, there is a hit and miss, haphazard dairying without interest in cows, feeds, or profits, and no community or cooperative enterprise. After taking, we find a real community, like this one, that knows and loves its cows, studies its feeding and breeding problems, cooperates in its activities, builds community spirit, and makes dairying an interesting and profitable business.

DISCUSSION

GEN. BURCHARD: I want to call very special attention to one thing in this excellent report of Mr. Negley's, and that is that for every dollar of public money, whether it comes from the state or the United States, or the University of Wisconsin, the farmers in these test associations have contributed seven dollars for their own benefit. Can that be said of any other institution in the state of Wisconsin? No, it cannot. And I believe that

very fact is one of the big reasons why these cow testing associations have become so valuable. I believe strongly in this, that that which costs nothing is not of very much value. If a man pays two dollars or ten dollars or fifteen dollars for something, he begins to appreciate that it is a thing of value. I trust that this association working through these cow testing associations, will never reduce the price that the farmer has to pay for joining and getting the benefits of the cow testing association, for in my judgment that is the surest way for bringing profit to the man himself who is paying out money.

MR. GLOVER: These cow testing associations are not charitable associations, they are not uplifting associations, they are simply true cooperations between our state and the farmer, and that is the way it should be. This state contributing to one class of people will never bring the result that we desire in the state of Wisconsin. We can always and only grow through our own efforts. You never saw a boy made strong by sitting on the front porch, he must get out and work. You never saw a man with a strong intellect that never used it. And that kind of thing can't be bought. A lady was once told her son lacked in mentality, but having plenty of money, she said, "Let's buy him one." You can't buy intellect, neither can you hire a man to come out to your farm and solve your problems; they must be solved by you yourself; every farmer must solve his own problems upon the farm, and these cow testing associations are simply to help him in solving his own problems. They are carrying information which has been gathered to each farmer, working with the farmer, giving him a chance to do a large share of the work himself.

MR. BLACK: Before we get farther into this discussion I want to make a motion. I am sure we will all be glad to have an opportunity to send the greetings of this meeting to Ex-Governor Hoard, and I move that that be done.

Motion seconded and carried unanimously.

PROF. HAECKER: The point was brought out that for every dollar contributed by the government, the farmer has contributed seven. According to that chart, for every dollar contributed there has been created more than about ten times the wealth that would have been created and contributed to the state if this work had not been carried on.

The Chairman: And that would mean that there was something considerable for the farmer to tax himself for before he would let the idea go.

LESSONS FROM THE WAUPACA AND BUTTERNUT RIDGE COW TESTING ASSOCIATION

GEORGE MOSS, *Tester*, Waupaca

I feel rather embarrassed to be following these good speakers, because they have a state-wide reputation. I have just a little community reputation, but just the same I like to talk to these farmers, I like to have them bring out their wives to our meetings. I drive around the country a good deal among the farmers and I know very well that their wives help a good deal in their work on the farms; I know they are responsible for a good many good things on the farm and that many farmers could not accomplish the great things they are doing without their wives taking hold and helping. So bring out your wives and daughters and sons, let them see and hear the different people we have with us during this convention, it is a great chance for all of us. There are many ladies who go out to the barns and help milk the cows and take a great interest in the cows, and they should be considered just as much in this audience as the men we have here.

It is up to you to get out of the cow testing associations all that you can, and that is a good deal. The tester is with you just one day. He is the guide, he tells you what he can while he is with you and he makes a great many figures. Unless you study those figures from the time he leaves until he comes again, the association isn't going to be nearly so valuable to you as if you did study them.

There are a good many farmers who say, "What do we want of a tester to figure out these things? Why can't we figure it ourselves?" There are many farmers who could perhaps do it, but they do not take the time and trouble to do it, and there are a good many farmers who simply do not know how a cow should be fed and do it right. It isn't their fault, many of these farmers never had the opportunity when they were

young of learning how to do these things right, the opportunities that we have today. We have many wonderful opportunities to study the dairy cow, and the more we study her the more we realize what a great animal she is and what an important part she plays in this state of Wisconsin.

I was talking with a buyer a few days ago, and he said he could do more business to his own profit with farmers who were not in the association. I told him I had found a hundred and twenty cows in the association that were not paying their way. He said to me, "That's nothing, I could go out and find five hundred cows in Waupaca county that are not paying their way." He told me he went to one place where there were thirty cows and he picked out six from that thirty and—he said, "They were not cows. I asked the man what he was keeping them for, they are not cows and they are not bulls, though they might as well be bulls for all the profit you will get out of them. What are you keeping them for anyway?" Well, the man said, "I have thirty stalls, I have got some marsh hay and I want to use it up."

I hear some farmers say, "Why should we have these young fellows come clear out from Madison and tell us what to do?" Let me tell you: these chaps are not that kind of fellows; they are farm boys, they have studied cows; they have studied the practical feeding and care of cows and they come simply to try to better the conditions of your farmers. There was a man not far from here who had a loss on one cow of \$27.18, yes, he averaged that on several cows, and he worked all summer and fed those cows. Then he joined the association and he fed them under my direction a balanced ration. The feed that he had to buy cost \$13 more, and the first month he still had a loss of \$17.17. It is really terrible to see farmers working hard every day, night and day, and still have such losses. That farmer is making a profit this year; he stuck to his work. I am sure he will average 250 pounds of fat, whereas he only got 166 pounds last year. He has sold some of the poor cows and has replaced them with one or two better ones. Now, was it not worth while to have that difference in production, raising it that much? Isn't it worth what it has cost him just to know what his cows are doing? Before he joined the association, every cow was on an equal footing. He had three or four boys, they didn't take

much to farm work, they knew nothing about caring for a cow, but they are learning now how to feed a cow more economically and at the same time, studying feeding for production. They are weighing the milk and weighing the feed and getting up a real interest in their work.

Through the cow testing associations we have tested Waupaca dairy cows. Recently a County Agent visited this county to buy up some live stock, but I do hope the farmers will not sell off their best cows. I know it is a great temptation when they are offered a good price, but don't let's sell our good cows. I would give \$150 for a cow that produces 300 pounds of fat. She is worth that anywhere, and how much more time does it take to care for her, to feed her, to keep her comfortable, how much more time than to do the same thing for a 175 pound cow that brings about \$8.00 profit per year? As a rule it takes very little more to feed a 300-pound cow than a 175-pound cow. At present prices, no farmer can afford to go on feeding cows in the dark, not knowing what she is producing, and I think it is a fine idea for every farmer, whether he is in the association or not, to keep a general record of every cow in the barn. Then if you have a daily milk sheet and keep close track, you will know what your cows are doing. Some farmers think that is all that is necessary though, and that they will keep track of every cow's production by keeping a milk sheet. You must have a test, though, besides.

There are many lessons to be learned from our association work. I know myself a good deal more about a cow today than I did when I began this work. No farmer is so well posted but that he can learn many things. The tester goes around from one place to another, and he picks up many good things, and then he will pass them along in the next place he comes to. Some farmers will go and buy feed without thinking much about it, they will pay a big price. I know of farmers who have paid \$30 a ton for ten per cent dairy feed. I would rather pay a good deal less for a good home-grown ration. There was a certain farmer who had been paying too much and I figured out a ration for him that cost him about \$60. I figured out oats and bran and some Ajax, and it was a better milk-producing ration than the ration he was feeding before that cost so much. We must find out what the cow requires. We must

have food for her own maintenance, food to meet the wants of her own body and food for her calf. We must take all these things into consideration. It takes as much business capacity to run a dairy herd today as any business man in the city puts into his business. The business man realizes that he must be up-to-date and thoroughly posted on his own business, and the successful farmer must have the same practical ideas.

So, let us try to run our farms in the way they should be run. It doesn't pay to pay the high prices that we have to for land and farm equipment and then keep a bunch of boarder cows on that land. Is there anything finer than to go into a herd where all the cows are looking well, producing well, are fed well? The farmer needs all the encouraging things he can get, and when he joins the testing association, I believe he is much more likely to take a deep interest in his work, I believe he will give his cows better care, will equip his barns better and will take care of the product of his cows better after he gets it. The farmers who are today doing well many of them realize and are grateful for the work that has been done by the cow testing associations. There are now fifty-five associations. Wisconsin ought to have double that in number. We ought to have more than we have in Waupaca county. There are only two here now, and there is room for five.

FEEDING DAIRY COWS FOR PROFITABLE PRODUCTION

A. J. GLOVER, Associate Editor *Hoard's Dairyman*,
Ft. Atkinson

It is important to know how to feed dairy cows. Much has been written and spoken pertaining to balanced rations and at times I feel that the word "balanced" throws a mystery around the feeding of dairy cows and makes too many feel that they are unable to understand the subject of feeding. There is nothing mystical about a balanced ration for it simply means feeding a combination of feeds containing sufficient nutrients to supply the animal's bodily wants and to do its work for 24 hours. It is possible, of course, to make a balanced ration and

yet have it unsuitable for nourishing the animal properly. There are certain combinations of feeds that work together more harmoniously than other combinations.

The providing of balanced rations for dairy cows is a rather modern method of feeding. There was no such thing, or at least it was not talked about, in the early days of dairying. Cows gave milk through the summer and went dry in the winter. Grass furnished a balanced ration and provided all the nutrients the cow needed for keeping her body in good repair and provided for production of milk. In winter it was only necessary to feed enough to keep her in reasonably good physical condition. This, however, was not always done, but in most cases she managed to live through the winter and when grass came she would soon be restored to normal conditions. The older members of this audience can well remember the tailing-up of cows in the spring that were fed nothing but straw in the winter.

It dawned upon the advanced thinker that it would be well to provide a ration throughout the year that would keep the animal in good physical condition and provide her with enough nutrients for doing work, whether it be in winter or in summer. Winter dairying came and this made it all the more important that a ration be provided that would produce as good results, if not better, than grass.

It may be said there are many combinations of feeds which may be made and it would be impossible in a short talk to cite all the various combinations that may be made. In general, it may be said that the cow's ration should be bulky for she is so made that she requires a large amount of roughage. For all general feeding two-thirds of the cow's ration should be of roughage; that is, hay, silage, roots, or all three, and one-third concentrates which include meals and by-products of various kinds. Experience has taught that a cow weighing 1,000 pounds will consume about thirty pounds of silage and ten pounds of hay daily. The amount of grain or concentrates should be varied according to her milk production. Some cows will use but six to eight pounds of grain economically, while some of the larger milkers will use from twelve to twenty pounds. It is self-evident that if a cow has a capacity to handle six to eight pounds of grain, feeding her more will be wasteful.

The person who desires to be accurate in the preparation of his rations for cows must provide himself with a table, giving the analyses of the common food stuffs. I will not discuss this part of ration making here, but will suggest a few rations, not taking into consideration the cost of the feeds which is, of course, important in compounding rations for cows.

A very good ration can be made by feeding each cow daily 30 pounds of silage. Some cows will consume more than this, others less. In connection with the silage let the animal have all the alfalfa hay she will consume. It will be in the neighborhood of eight to ten pounds. The alfalfa and silage form what is termed the roughage of the ration. There are times when the prices of grains are so high that the feeder can omit the grain. This will mean feeding more silage and alfalfa hay. A mixture of grain that will go well with alfalfa hay and corn silage is as follows: Ground corn or barley 400 pounds, 200 pounds bran and 200 pounds ground oats. Cows producing milk testing 4 per cent require about one pound of this mixture for every $3\frac{1}{2}$ to 4 pounds of milk produced. Cows testing more than this would require a little more and to those testing less not quite so much need be fed. It can be said, however, that if it is desirable to get all the work out of a cow that is in her, grain may be fed more liberally than I have suggested.

Alfalfa is one of our best hays. There are a number of sections in this country where cows are fed nothing else but alfalfa during the winter and they produce very good flows of milk. Better results are obtained, however, in most cases when some grain is fed. Since alfalfa is rich in protein, the natural grains to select are those rich in carbohydrates. Ground corn with alfalfa provides a satisfactory ration, or a mixture of corn and ground barley equal parts by weight. A better ration is provided for a cow if she is fed oil meal in connection with the corn, one-half to one pound per day. Corn silage and roots are succulent feed that not only provide nourishment for the cow but tend to keep her digestive tract in good condition. The same may be said of oil meal. It is, therefore, a good practice to feed a cow a little oil meal when there are no succulent feeds to give her. In sections where dried beet pulp may be obtained, it is an excellent complement to alfalfa hay. By soaking it with water 12 to 24 hours before feeding, using about 3 pounds of wa-

ter to each pound of pulp, provides a feed that goes especially well with alfalfa hay. In the absence of alfalfa, clover may take its place. It is not quite as rich a feed in protein and cows should be fed a little more grain when clover is used. Nevertheless, splendid results will be obtained with the system of feeding suggested, where alfalfa is used, if clover is substituted in place of it.

The rations which have been mentioned so far have most excellent roughages which are not always found on farms where dairy cows are kept. It is to be regretted that farmers do not supply their animals with either corn silage or roots or both, and a good quality of some legume hay. When the poorer quality of roughage is used, like corn fodder or timothy and millet hay, it means the feeding of more grain and a mixture richer in protein. When timothy hay is used in a ration and there is corn silage, I would suggest the feeding of 30 pounds of corn silage to an animal weighing 1000 pounds and all the timothy hay she will consume. I would suggest a grain mixture of 200 pounds Distillers dried grains, 200 pounds ground corn or barley, 200 pounds bran, 100 pounds gluten feed or Brewers grains, and 100 pounds of oil meal, to be fed at the rate of one pound for every three pounds of milk produced. If oil meal is more expensive than cottonseed meal, cottonseed meal may be substituted in its place. If there is no silage the cows may then be fed all the hay they will consume and the same grain mixture, except I would not use cottonseed meal instead of oil meal, even though the oil meal cost a little more. The oil meal would be advisable to use when timothy is fed alone because of its laxative effect. In the ration of timothy hay, dried beet pulp may be used instead of corn, but as stated, the dairy farmer who desires to get the greatest returns from his herd, should provide his cows with succulent feeds in such forms as silage or roots. Since it is important that some dry roughage be fed, some good legume hay should be provided. With silage and good legume hay it is rather difficult for a person to make a mixture that will not give fairly good results.

It is well to bear in mind that two or three kinds of feeds should be fed as this insures a proper amount of the various kinds of nutrients necessary to nourish the animal properly. These rations which have been suggested are not for exception-

ally well producing animals, but for those giving moderate flows of milk.

MAKING CLEAN MILK

W. J. DOUGAN, Beloit

There are two fundamental economic principles underlying the clean milk industry. The first of these is that the selling price must be within the reach of the family with a moderate income and low enough so that clean milk may be classed as an economical food. The second principle is that the selling price must be high enough to compensate the dairy farmer and the distributor for their labor.

It seems at first thought that here are two directly opposing tendencies in the clean milk industry—cheap to the consumer and a high price for the producer. A comprehension of the essentials in clean milk production on the one hand and an appreciation of the relative value of clean milk as a food on the other, brings these two apparently opposing tendencies into a harmonious relation where both consumer and producer may have their just due.

We will pass over the question of the food value of clean milk with this statement. Dirty milk is dear at any price, and clean, wholesome milk is a relatively cheap food at eight to twelve cents per quart.

SUPPLYING CLEAN MILK AT REASONABLE PRICE

The purpose of this article is to show how a satisfactory, high class milk may be supplied at these prices. We propose to point out logically the essentials in producing clean milk and to enforce our argument that these are the essentials by example and experiences in the actual work.

It is universally agreed that the bacterial test is the most accurate and critical test of clean milk. Therefore, when we used the term, clean milk, in this article we shall always mean bacterially clean, or milk with a low bacterial count.

ESSENTIALS IN PRODUCING CLEAN MILK

It is generally accepted that there are just two essentials in producing clean milk, namely, clean and cool. We might close this article with this statement if there was not such a wide variation of opinion as to the meaning of these terms. Some would carry the idea of clean to an extreme and sterilize the cow, the stable, the feed, the milker, and the whole world about. Then they would immediately freeze the whole into a solid mass. Speaking seriously, some contend for a surgically clean stable, like an operating room and all the operating of the dairy on the surgically clean basis, and a cooling temperature close to freezing in order to produce a clean milk. No one who knows the conditions of bacterial growth but appreciates that these methods will get the results. These methods so increase the cost of production that the possible consumers are limited and also the chance of profit to the producer is scant.

Our contention is that with less expensive methods and with the stress put upon the essential points, an entirely satisfactory milk can be produced and sold at a price within the reach of the laboring man.

CLEANLINESS IN THE DAIRY

There are three things about the dairy that must be clean. The cow, the utensils, and the dairyman. We mean by a clean cow first of all a healthy, thrifty, uplooking cow, well fed and well groomed. To this end it is essential to apply the tuberculin test regularly and to discard all suspicious animals. However, too much confidence cannot be placed in the test alone. A careful physical examination should be made frequently by a good veterinarian. The dairyman himself should always be on the alert to detect any off condition in the herd. Especially should he guard against any udder troubles. This essential in producing clean milk does not add to the cost of producing but rather lessens it. The sick cow, the gargetty cow, and the three- or two-teater are seldom profitable producers. Weeding them out in the interest of clean milk lessens the cost of producing milk.

GROOMING THE COW

The grooming of the cow is a process that, if improperly done, thwarts all other precautions for clean milk; or, if too much expense is put into it, will throw the balance on the wrong side of the ledger. In fancy stables, we have seen the cows washed and swashed, and yet the points from which the most of the dirt gets into the milk never touched. In these stables the clean milk is due to precautions other than all of this expensive and disagreeable washing. In our own work we follow the principle of keeping the dirt off of the cows by good bedding and close attention, rather than getting it off after it has been allowed to get on.

The necessary grooming of a cow that has been well bedded and kept normally clean in an ordinary barn is a simple and inexpensive process. With card and a good brush loosen and brush off coarse dirt and hairs from shoulders, back, flanks, hips, legs, and tail. Give careful attention to all regions of the udder and especially that soil and bacteria fertile little pocket between the four teats. Then with a pail of clean water and a sponge to fit the hand wet the udder and wash carefully each teat, then rinse and squeeze out the sponge and wipe each teat, the udder, flank, and the escutcheon. That cow is clean unless she has been allowed to wallow in filth. In that case no amount of grooming can put her in proper shape to milk that day.

This method of grooming is not an expensive process, nor is it injurious to the cows as is too much wetting. One man can groom twenty properly kept cows in an hour. This essential in producing clean milk cannot all be added to the selling price. The cows largely pay for this grooming in a better flow of milk.

CARE OF THE MILK UTENSILS

Probably the most important factor in the process of getting clean milk is the utensils that come into direct contact with the milk. Dr. C. E. North, as a pioneer advocate of clean milk, secured wonderful results by having all utensils, as cans and pails, washed and sterilized at a central plant and sent out to the various farms supplying his milk. In our own practices we have always put great emphasis on this point. Our methods are to

brush each piece clean in an abundance of cold water; wash in hot water containing a cleansing solution; rinse in hot water; and sterilize with live steam. We use the covered pail with the small opening covered with sterilized gauze and absorbent cotton. The purpose of these strainer cloths is not to take the dirt out of the milk but to detect if any has gotten into it. If we find these cloths dirty we tighten up on the grooming of the cows and handling of utensils.

THE CLEAN DAIRYMAN

Overshadowing all the other essentials, and without which all rules and regulations are futile, is the clean dairyman. Quoting Rosenau in this respect: "If a dairyman has an inborn capacity or instinct to be clean, a little instruction will enable him to do satisfactory work, but if he is lacking in this quality, it is very difficult to change his methods by any amount of instruction and public regulations."

For the dairyman to be clean in person does not imply the necessity of a dress suit and patent leather shoes, nor even the proverbial white suit. A pair of blue overalls can be just as clean as white ones. To the end of our help keeping clean about the dairy work, we urge reasonably clean clothing and provide milking aprons that are washed twice each week. We insist on clean hands. We keep soap, water, and towels in the weighing room and each man is expected to keep his hands clean and dry. He may wash after milking each cow or he may milk three or four before washing, but whenever his hands become damp or soiled he must wash and dry them.

The dairyman must be clean, not only in appearance, but he must have a clean, conscientious mind. His every act should be governed by the thought that the consumer of his product expects him to do his best. If he wilfully or carelessly neglects, he is morally responsible for the health, aye! even the lives of his patrons.

This conscientious cleanliness will hold him up to the stress and strain of the hard work and his efforts will be the more efficient in producing clean milk.

KEEPING THE MILK COOL

What about the other word in producing bacterially clean milk, namely,—cool. There is no doubt regarding the efficiency in cooling the milk to nearly the freezing point. This is expensive and we doubt that it is essential. In our section deep well water is about 51° F. Water pumped direct from the well through an efficient cooler to the stock tank will cool the milk quickly to 52° F. This process costs nothing to speak of. The question is, will this do? Not in the judgment of most boards of health and inspectors, yet in actual practice it secures the results. For ten years we have followed this practice and have produced a milk with a low bacterial count and of perfect satisfaction to our trade.

Notice, in our discussion of essentials, we have said nothing regarding stables, floors, dust at milking time, and of all the environment of the dairy. We have not mentioned these because they are not the essentials. Good milk can be produced in ordinary or even shabby surroundings, while poor milk is often produced with the most expensive equipment. It is the things that come into direct contact with the milk, the cow, the utensils, and the men that determine its quality of cleanliness. In substantiation of this view, let me quote Dr. G. L. A. Ruehle and Dr. W. L. Kulp of the New York Experiment Station. In 1915 these experts conducted a series of observations to determine the efficiency of the dairy score in procuring a bacterially clean milk. Their conclusions are: "The results of the comparisons show no relationship between the dairy scores and the bacterial count. The lowest count brought in under these tests came from a farm scoring so low that its products would have been refused admittance to the New York City Market.

"On the other hand, the dairy which received the highest score on all of the cards, a dairy which in appearance and equipment would be placed among the best in the state, was bringing in milk which invariably had a bacterial count into the millions." Herbert Quick puts the situation in this terse conclusion: "The whole colossal blunder lies in making a fetish of the barn instead of requiring clean and sanitary methods".

EXPERIENCE OF MR. DOUGAN

In our own experience we have found that we could produce a high class milk under most unfavorable conditions. We started in the dairy business handicapped for capital. Therefore, we must use the buildings and equipment we had. Our barn was an old style basement. It had small windows and no ventilating system. There was a board floor, under which water often stood. The floor above was not tight so more or less dust worked through. Our milk house was a back room of the dwelling fitted and pressed into service as a milk room. In this barn and under these conditions we endeavored to produce a high grade of market milk by following the essentials of clean and cool as outlined above.

Each month for two years we sent samples of our milk to the experiment station at Madison to be tested for bacteria. These samples were taken from the regular cases as the wagon was ready to start on the route. The result of the test was encouraging. The highest count was 33,600 bacteria per c. c.; the lowest count was 800 bacteria per c. c. Only 12.6 per cent of the samples contained over 10,000 per c. c.; 22.5 per cent of the samples were between 5000 and 10,000 per c. c.; and 64.9 per cent were below 5000 bacteria per c. c. The table below shows these results on our farm in comparison with two farms with every facility that the most fastidious board of health could require. Both farms, No. 2 and No. 3, were producing certified milk. Farm No. 1, our own, was producing a guaranteed market milk.

	Farm No. 1	Farm No. 2	Farm No. 3
Per cent of samples containing over 10,000 bacteria per c. c.	12.6	20.6	41.4
Between 5,000 and 10,000 per c. c.	22.5	55.7	33.3
Less than 5,000 per c. c.	64.9	23.5	24.8

We give this comparison to enforce the truth that the essentials of clean milk production are simple and attainable by those who are willing to do the work. Since these tests we have built barns and improved equipment. However, we do not put our

trust in these to the lessening of vigilance regarding the essentials.

Emphasis is generally placed upon bacterially clean milk for direct consumption. It is as important that milk should be produced cleanly for creamery and factory. The cry is that we cannot afford to go to all this expense for the ordinary market. We answer this by a resume of the foregoing. It pays, from the increase in production, to keep healthy cows, to keep them reasonably clean, and to groom them. The better equipment necessary to keep the utensils clean pays in time saved in caring for the utensils; cooling is inexpensive. A dairyman that has a pride in the cleanliness of his dairy will look after all details so much better that the system and spirit put into the dairy work will make the whole place more efficient. Then, let any factory or creamery get a uniformly clean milk and it can manufacture a product that will be far famed and sell at the top price.

Back of these material rewards is the consciousness, to the dairyman, of performing a high service to humanity.

DEVELOPING THE DAIRY HEIFER

W. H. CLARK, Rice Lake, Wis.

So much is expected of the dairy cow nowadays, that she has a right to be well born. Produced by healthy, strong, vigorous parents, well kept and well fed; and her sire especially should be from a long line of producing ancestry.

THE DELICATE AGE

She should be born in a good, clean box stall. As we find her, she is a crooked-legged, lop-eared, homely looking thing. Anything but pretty. We can't judge by the looks of her if she will grow up to a cow that is worth fifty, five hundred, or five thousand dollars. Let us take good care of this calf and develop her well, so that if she don't make the five hundred or five-thousand-dollar-cow it won't be our fault.

This is the delicate age in the life of the calf. If we can keep this calf doing well the first four or five weeks there is not much danger of trouble later.

I emphasize the word "cleanliness." "Born in a clean, roomy stall"—one in which disinfectant is used frequently to kill germs that may be lurking to infect the body of the little calf; germs that cause serious trouble and sometimes death; clean, dry straw or bedding; clean pails, a clean body, clean of vermin at all times.

In most cases we allow the calf to remain with the dam for a few days, or until the milk is good. Then we teach the calf to drink, feeding it its mother's milk three times a day. At this time be careful not to overfeed the calf. Most calves are overfed when young and most cows are underfed. We feed the calf whole milk till it gets to eating grain well, which is usually at about four weeks, then we gradually change from whole to skim milk.

I don't know how I could feed calves without a milk scale. The milk of each cow on the farm is weighed and the milk fed to each calf is weighed. We feed each calf as an individual. We find that some calves will assimilate more than others. We feed the amount the calf will take care of well. Then if we overfeed, we decrease the amount at once, and as the calf recovers, gradually increase the feed again. By weighing each time and watching results, we can judge very accurately what we are doing.

At this time the calf should have all the grain she will eat. Also nice, bright hay or cut grass to nibble at. She is going to nibble at something so she had much better have good digestible feed than straw or some other hard, indigestible substance.

From the time the calf is taught to drink she is stanchioned when fed and dry grain is given immediately after drinking milk. In this manner we know just what each calf is taking and can increase or decrease the feed as required. Another very important thing. Being stanchioned, the calf forgets about sucking by the time the grain is eaten. If she should be mindful of this thing, we would feed a little hay and keep her there till she does forget, thus avoiding the very bad habit of sucking each other, causing unshapely udders and teats and at times the loss of a quarter.

Don't feed from a dirty, sour pail. Don't feed cold milk to a young calf. Be regular at feeding time and don't feed by guess. Don't get in a hurry and neglect this young animal.

Such neglect or carelessness may cause indigestion, which at times becomes chronic, and frequently the calf dies. If this happens we grab the calf by the hind leg and drag it from the barn, thinking, "it's only a calf." But it may have been one of the great cows of the world if we had developed it properly. All the great record cows once looked just like this little calf, and we can't tell what they are till we develop them and try them out.

SKIM MILK AGE

From the age of one to six months, feed the calf all the good roughage it will eat, such as good, bright clover or alfalfa hay, silage, or green grass. In addition feed skim milk and about all the grain it will clean up. I like a feed of a bulky nature so that the calf may eat large quantities of it; selecting such feeds as will develop a large, strong frame, strong in bone and muscle, and developing a large capacity. We are now building a machine that must take later large quantities of feed and convert it into milk and butter fat. Keep water and salt accessible at all times.

NEGLECTED TIME

The sorry, discouraging, most neglected time of a heifer's life, the time she wonders why she was ever born, is from weaning time (usually about six months) and extending many times to the day she is expected to become a cow and give an "abundance" of milk.

Is it any wonder she fails? At weaning time she is turned into the hog pasture or some like place, so she won't suck the cows. She is usually fed some oats in a trough, a most excellent feed, but the hogs soon find it. Everything she has to eat or drink is nosed over by the hogs. In the fall she goes into winter quarters but little or no heavier than she went into the hog pasture. She is fed largely on hay during the winter and in the spring she is kicked out on some back pasture as soon as the fields begin to show a green shade. She can live on short feed, she has nothing else to do. We must have the good pasture for the cows that are giving milk.

Is it any wonder she longs for the time she is to become a cow and is allowed in the field of plenty? Is it any wonder she fails to make but little profit for a year or two of her young life as a cow?

At this, the neglected age, she should be kept in the barn during the summer where there is plenty of sunlight, good ventilation, and roomy stalls. She should have skim milk to about a year old, with plenty of good bright roughage and grain enough and of such a nature as will develop a large, strong frame, bright eyes, soft skin, soft, silky hair that lays down, and not excessive fat but a blooming condition.

BREEDING AGE

From the time she is a yearling to time she becomes a cow she should be kept in the same healthy, vigorous condition. Give her a good pasture. If the pasture is not good, supplement it with other feed. Keep her growing from the time she is a calf till she is a cow.

As the time approaches that she is to enter the working herd, which should be from two to two and a half years of age, she should be in splendid physical condition. She is now called upon to put these organs that we have been building up into actual operation and to further develop them. At this particular time she should also be fed liberally for she has not only milk to produce but her own body to grow and further develop.

Now comes the most interesting part of the whole program. We should test her to see how successful we have been in our work.

With every heifer that is born a certain standard or capacity is fixed in that particular individual. It's our business to develop the individual and bring her to her standard. It may be one of little or no profit, or it may be one of exceptional merit.

With the former we should acknowledge our failure of trying to make a cow of something the Lord never intended for one and sell her to the butcher. With the latter we should work her and reap the reward of our efforts.

DISCUSSION

A Member: How do you develop those dairy calves in order to put such udders as you have on your cows? Is there any special secret about it? I want to say I visited Mr. Clark's herd a year ago and I saw him milking Jerseys that gave 60 pounds a day.

Mr. CLARK: I am sorry I can't tell you, I don't know.

Mr. MCGUIRE: You haven't put any artificial udders on them?

Mr. CLARK: No. They look as though they might have been made in a factory, some of them; but I can't tell you how it is done. I wish I knew how, I would keep right on doing it. Heredity is one of the strong features. The individuality of the sire, I believe, is a great thing. When you get a sire that is putting udders like that on your heifers, keep him just as long as you can, and you can keep a sire to a good old age. We have sold two at ten years of age, and one of them lived on, in fact, both of them would have been thirteen years old now. One choked to death—I don't know how long he would have lived; the other is still living, giving good service at thirteen years old.

We are doing something in inbreeding. We keep two sires and we have had some excellent results in inbreeding; that is, we have had some good results, but I would not advise it generally through the country. I think the best way of producing high testing cows is through inbreeding, the quickest and best way. And you can tear down your herd just as fast if it happens to be the wrong way.

A Member: How far out do you consider it safe?

Mr. CLARK: I don't know. I wouldn't go any farther than one cross, not direct. That is a thing we have to try out and watch the results. It has to be done carefully, and I would not advise you to do it unless you have an exceptional sire in your herd. In that case, I would try it by all means and get all the benefit you can from this sire.

Mr. MCKERROW: Do you think that the placing and size of the sire's rudimentaries cuts any figure with the kind of udders his offspring will have?

Mr. CLARK: I think it has a good deal to do with it. I judge cattle sometimes at exhibits and I know that thing cuts a good deal of figure. In the matter of this particular sire

that I spoke of, his rudimentaries were very pronounced, they are half as long as my little finger and as large and well placed. Every one of his heifers has good, large teats, splendid udders and the teats well placed. A number of years ago I had a cow, one of the most miserable things ever born. It had a double teat and when you squeezed, it sort of cross-fired and went all over, maybe a stream would go up your elbow. Such teats are very mean things to handle on a cow. This particular heifer had a bull calf. I did not notice the rudimentaries until I got an opportunity to sell it, and got it in the car, and it was up high where I could see it and there was a double rudimentary, just like that cow's teat. I wouldn't give two cents for that bull.

DISINFECTING THE BULL

JOHN MICHELS, Peebles

Thorough and frequent disinfection of the bull is undoubtedly one of the greatest weapons against the spread of contagious abortion in dairy herds. Some bulls submit to this treatment readily, others do not. For a number of years I have disinfected bulls in a breeding pen. The dimensions given here are those for an average sized bull. For large Holstein bulls a pen somewhat larger will give better results. The pen is built by nailing boards vertically to 4x4s fastened to good, strong posts. It will be noticed that the gate which closes the 50 ft. by 50 ft. bull paddock or yard also closes the breeding pen when the bull is admitted to this. Safety and convenience are afforded by this method of construction.

When the bull enters the breeding pen, he naturally goes to the manger at the front end and is thus easily locked in the stanchion provided there. Once secured in the stanchion, he is tied short to the front end of the manger by means of a rope attached to the ring in his nose. With the bull thus secured, it only remains to hold his hind legs so that he can not kick the operator. This, in my experience, is best accomplished by running a ten-inch board directly in front of the hind legs and supporting the same on the lower 4x4s to which the boards are nailed.

In constructing the breeding pen, the lower 4x4s are placed high enough from the floor of the pen so that the ten-inch board, when placed on edge, will touch the belly of the bull just in front of the hind legs. A crack between the vertical boards, just large enough to admit the ten-inch board, will hold the latter from slipping forward or backward.

When properly secured, inject into the sheath of the bull about two quarts of creolin solution prepared by using two parts commercial creolin and 98 parts of warm water. It is important to get the best grade of creolin. This can be bought for about one dollar per gallon and will turn white or milky when mixed with water.

The creolin solution may be injected with a syringe. This method applies especially where one person does the disinfecting. When two persons are available, I prefer to use a 4-foot rubber tube, connecting one end to a nozzle, about 8 inches long, and the other to a vessel large enough to hold the disinfecting solution. When the nozzle here suggested, or that of the syringe, has been inserted into the sheath of the bull, the skin should be pressed tight around the nozzle with one hand while the disinfectant is worked way up into the sheath with the other hand.

A breeding pen will pay for itself in a short time, because of the great convenience it affords. But what is still more important, it makes breeding cows an absolutely safe thing regardless of how vicious the bull may be.

Report of nominating committee.

The nominating committee, through its chairman, Mr. Everett, made its report placing in nomination for president Mr. Mathew Michels; for secretary, Mr. Paul C. Burchard.

On motion, duly seconded and put by Mr. Everett, the report of the committee was adopted, and the gentlemen named therein declared the duly elected officers of the association for the coming year.

THE BOY FARMER

J. G. POYNTON, Editor Junior Department Hoard's Dairyman,
Ft. Atkinson

A dairyman and stock breeder takes particularly good care of his pure-bred cattle because of their present or prospective value. From the time it is born, the calf is given every advantage that may add to its usefulness and consequent worth. Experience has taught that certain feeds are valuable for growth and that exercise is essential for the calf's best development; the breeder takes advantage of these teachings. He has learned that a long lactation period following the first freshening tends to establish the habit of persistent milking and accordingly the heifer is perhaps milked even after the product will not pay for the labor involved. In short, the breeder of dairy cattle, if he is the right sort, does his best to increase the value of the breed in which he is interested, and this is as it should be, since without this spirit continued progress is impossible.

This improvement of dairy cattle is of extreme importance to the dairy industry. In fact, so great is its importance that it would be impossible to estimate its value in dollars and cents. There is, however, another improvement of much greater importance, both to the dairy industry and the country in general, that is receiving some attention at present, but which is worthy of much more consideration than it is now getting, and that is the improvement of the dairyman. This statement should not be misunderstood. The men now on dairy farms and those engaged in the breeding of dairy cattle are doing good work; work which is certainly a great improvement over that done previously, but there is yet great possibility of advancement.

BUILDING SOUND FOUNDATIONS FOR OUR SONS

Many of the men now engaged in dairying started with small foundations both of knowledge and capital. Experience has supplied the one, hard work and economy the other. They have succeeded and all honor to them for it, but in most cases their success has necessarily been slow because the foundation was small. Many of them have built or are building a business in

which they want their sons to be interested and of which they want them some day to assume the management. They have prepared a business so that their sons can begin where they leave off. Now, are the sons being prepared for the business so that in point of knowledge they can begin at or near where the father's knowledge ceases? On such a foundation their opportunities are infinite; without it they are limited by the necessity of acquiring, through experience and study, the same knowledge and training which he possesses before they can progress beyond the high mark already set.

Right here it would seem is the greatest opportunity for improvement. Is it possible to more thoroughly prepare the boy for the business of dairying and the business of life so that he can in truth begin at or near the point where his father leaves off? If it is, there is a mine of improvement which has as yet scarcely been opened. The big question is, how best to go about the development of this mine so that it will yield the greatest possible returns in advanced dairymen of tomorrow.

SUCCESS PROPORTIONAL TO INTEREST

Undoubtedly there are many methods which can be successfully used in the solution of this problem. In fact, this must of necessity be the case since no one method can be devised that will successfully appeal to every boy. But every method that is to be at all satisfactory must have its foundation on interest. In other words, it must be one that will interest the junior dairyman, the boy of 10 as well as the young man of 16 or 18, in the dairy business, its difficulties, and its possibilities. It is out of the question to expect success in anything of anyone, boy or man, unless he is particularly interested in it. Success in work or play is directly proportional to interest. Therefore, if you wish your son to be a successful farmer, dairyman, and breeder of dairy cattle, you must gain and hold his interest. Once this is accomplished the rest is easy.

It is not enough that you teach a boy how to till the soil, to milk, or to feed balanced rations. These things in themselves are nothing more or less than plain, every day, hard work, something that will interest neither boy nor man. You are successful dairymen and have done a great deal of hard work, but did

you do it merely because you like to work? Not at all. Work unless it leads to a desired end, is drudgery. All business is a game and you have played the dairy game because you liked it better than some of the others, or because it offered you a better chance of winning success and the fruits of success.

Now, the point we wish to make is this. If the boy is to be interested in the dairy business, he must be shown that it is something else besides hard work. Let him see that it is a game worth winning and help him to play it on a small scale while he is yet a boy. Then, once he gets a taste of success and the fruit it brings, even though he has had to work hard for it, he will put forth every effort to learn more about the game, unless, of course, his natural bent leads him elsewhere.

THE BIG PROBLEM IS "TOMORROW," NOT "TODAY"

All this being true, the question naturally arises, "How can I best interest this boy in the dairy farming game?" Before considering this question, let us see what has been attempted along this line by those who are not themselves dairy farmers, that is, teachers, extension workers, government officials, and the like.

Eight or ten years ago these people were, as now, doing what they could to improve farm conditions, but at that time they were directing all of their energy to influence the farmer himself. The sons and daughters, farmers, and farmers' wives of tomorrow received comparatively little attention until 1910 or 1911. About that time some of those teachers and extension workers began to realize that the big problem in agriculture was not today, but tomorrow. The cityward trend of many of the farm boys and girls began to alarm them. It was apparent that with the better class of these young people going elsewhere, the farms were bound to suffer. So they reasoned, and rightly so, that if they could interest the boy or girl in the farm and in improved farming methods progress was inevitable.

WAYS AND MEANS OF AROUSING INTEREST

Their attempt at the solution of this problem was based on two things, ownership and competition. For example, in some communities, they organized calf clubs among the boys and

girls, each club member to have a calf, a prize being offered to the one that would develop the best calf at perhaps the least expense. Different kinds of clubs were started in different communities, the idea being to fit the club to the locality, but always those two principles, competition and ownership, were kept in mind. The result has been that many boys and girls have taken a great interest in the farm and, through their desire to excel in this work, have learned much regarding practical farming.

Nor is this all that has been done. Banks, commercial firms, and farm papers have entered the field in behalf of the junior farmers. Many of the banks throughout the country are establishing boy and girl clubs to introduce better stock into the community; other banks and commercial firms are offering prizes to clubs already established. They are all awake to the fact that the farm boys and girls are of extreme importance to them and that it is to their advantage to aid where they can.

OWNERSHIP AND COMPETITION DOMINANT FACTORS

Now to get back to the individual question, "How can I best interest this boy in the dairy farming game?" It would seem that the answer lies in those two principles employed by the organizers of boys' and girls' clubs, namely, ownership and competition.

The spirit of ownership is more or less dominant in every boy. He wants something that he can call his own, and naturally to the farm boy some farm animal is most desirable. It may be a calf, a pig, a colt, or a lamb, but it is sure to be something, and right here is the opportunity to begin interesting that boy in the farming game.

To be specific, let us take the boy living on a dairy farm; on your farm, if you will. From his earliest recollections he has heard you talk of cows, why this one was better than another, and so on. As soon as he is old enough to help with the chores, he doubtless helps to take care of the calves and before long he will have one singled out that he likes better than the rest. He calls that one his and perhaps gives it a little extra feed and care. Right there, is your opportunity. Give that calf to him, or, better still, let it be understood that he gets it in return for the help he gives you. Then you take notice of the kind of care

that calf gets. Make it a point to be around once in a while when the boy is feeding and compare his calf with the rest. Is it doing as well as it should? Is there any reason to believe that that calf will develop into a very good cow? If there is, say so. Show that boy that you are interested in what he is doing and wherever he has shown good judgment or done his work particularly well, compliment him on it. If he stumbles and gets discouraged with the work, as he sometimes will, encourage him. When he meets with difficulties, help him out. Possibly one of the yearlings from last year's calf crop is coming on particularly well, or it may be a two-year-old from the previous year. If there is such a one, call the boy's attention to it. He will remember that as a calf that one was no better than his is now and the desire to do as well or better than you have done will spur him on.

ADVICE AND ENCOURAGEMENT NECESSARY

There is no hard and fast rule that can be followed in this work of boy development nor is it a case that will take care of itself. You can't simply say, "Here, son, is a calf. Develop it into a cow and yourself into a dairyman." You have got to be on hand to advise and encourage and sometimes to reprimand. When and how to do it is your particular problem and a great deal depends on how you solve it.

After a few months the boy will have developed a heifer, and you and the calf will have done much toward the development of the boy. He will have learned to be patient and to be kind, both virtues well worth cultivating. Moreover, if your advice has been good he will have mastered some of the first principles of dairy husbandry and of business, and will have met and overcome some of the most common difficulties which confront every dairyman. There is still another thing that you and this calf should have accomplished or at least should be on the high road toward accomplishing. That boy should be learning that dairying is a game and that to be a winner, one must know the science of the game. Finally, as time goes on and his heifer calf becomes a producer, he will or should have an opportunity to enjoy financial returns that are forthcoming.

PUT THE AFFAIR ON A BUSINESS BASIS

Now there are doubtless several don't's that might be mentioned. One is of special importance. Don't give the boy a calf and expect it back after it has developed into a promising young heifer unless you buy it back at a fair price. If this work is to be worth anything, it will teach your son business principles, and certainly it would hardly be good business to give something away and after someone else has increased its value, to expect it back. That is exactly where the trouble often comes. A farmer will give his son a pig, a calf, or a colt and the youngster naturally takes great pains to develop his stock. Later, some buyer makes a good offer for the animal, father sells it, pockets the money, and son is not even consulted. No wonder he is not very keen about the farm. His father, the farmer in his mind, has not been on the level with him. If you want your son to be a player in the dairy game, play it with him and play it square.

We see no reason why this association of the boy and his calf or whatever he has should not be put on a business basis at the beginning and carried on along the same line. After the youngster has earned the calf by helping with some of the chores, let him have it. Then, let him pay for that calf's feed by continuing to help you. Then, when the heifer freshens, don't take all the milk she produces to pay for her feed. That would not be fair to the boy if she is a profitable producer. He should milk her, keep a record of her production, and know in a general way at least, the amount of feed she gets.

Then turn over to him his share of the monthly milk or cream check and let him pay for her feed out of that. As we see it, there is no better way to teach a boy business principles and dairying. Moreover, it gives him an opportunity to earn at least part of his pocket money, thus making him, in a sense, independent.

ARE THE BOYS INTERESTED?

But, you ask, can you get a 12- or 13-year-old boy to do all this; will he be interested? Of course he will. Did you ever find a real, live, American boy that didn't want to be a business man, at least while he was yet a boy? Once your boy gets a

taste of the financial returns he won't need much encouragement to continue the work.

Now, there are many who would object to such a plan of junior farmer development for one reason or another. One man will say, "I have three boys and I'm sure at least one of them will make a better engineer than farmer." Then by all means don't try to make a farmer of him. Perhaps all three of those boys will do better in other lines of work. If so, well and good. It would be an injustice to try to force them to be farmers. But this plan would still be serviceable because it would teach kindness, business, and self-reliance—all elements of success, regardless of the work a man does. Moreover, if put up in the right way, this plan or a similar one should be interesting to many farm boys who never will be farmers.

Another objection which some men might raise to a plan like this is that it required too much time and attention from them. It is true that time and attention are required, and perhaps some money, but what of that. Is there anything on the farm more important than a boy or girl?

JUDGING THE DAIRY COW

GEO. MCKERROW, Pewaukee

Cow Judging is our topic, how to tell a good cow without the scale and a Babcock test and the work of milking. How are you going to do it? That great wise dairyman who has done more for the advancement along practical lines for the dairy in this country as well as in the world in the last twenty years than any other man, said once in my hearing that the inside of a cow where she did her work was a very dark place. He couldn't see into it; neither can I nor can you. That was our honored Ex-Gov. W. D. Hoard.

This talk about the boy, getting him interested in the farm and the live stock, carried me back to my boyhood days, and I believe if I am anything of a stockman, it was largely due to the fact that my people interested me in live sock when I was a boy, a small boy. I can remember our old brindle cow, the only cow we had, that sometimes when my good stepfather was helping the neighbors I had to milk. And later I remem-

ber her sons and her daughters that were raised on that farm. But the greatest interest came to me when I was given first an interest in one of her sons, to feed him and raise him and make baby beef of him, and then I was given one-third of the \$66 that he brought before he was two years old. But I was also interested in old Brindle a great deal, because from the milk that that cow and her daughters produced my mother got me interested in making some butter that she was going to show at the Fair, and as a boy I represented the family at that Fair showing the butter, and I won the prize, and the next year we grew bold enough to make a venture at the State Fair and won the first prize for June butter and the first prize for September butter and the special prize offered by that new hotel just built then in Milwaukee, the Plankinton House; that came back to the little farm in Waukesha County and I think helped to put better ideals into my head more than any other one thing that ever happened in my history.

Now, in cow judging, whether judging cows at a big show or with a bunch of men and boys, as I expect to do today, or in buying cattle on the Channel Islands or in Great Britain, the picture of that old brindle cow comes back to me many a time when I am looking at what I think is a good cow. As Gov. Hoard said, I can't see the inside of them, but I am looking at the outside and what the outside indicates to me, and if that outside indicates that the chances are that they are producers, then I immediately remember some of the things that stood out prominently in that old brindle cow, because she was a producer.

Here on your chart you have an outline, not just like old Brindle altogether, but some parts of it are like old Brindle. Now, when I go out to look for a cow, of course many of these points I can see in the heifer and many of them in the sire. But where do I look first? Where would you look first? Well, I think a good place to look first is right into the eyes. When I meet a man and am introduced to him, that is the first place I look at, right into his eyes, and I usually see something in the eyes of these great men that tells me why they are great, or part of the story at least.

I look at the conformation of the head. We are disappointed in that sometimes, but as a rule there is something about the

head of man or beast that tells part of the story of success. And so the first place I look when I am ready to judge an animal is at the head. I want to see width between these eyes, making plenty of room for brains. I want to see a large, bright, bold, lustrous eye that shows life and vigor and at the same time I want to see a mild eye. You meet a man and he is mad and cross and his eyes are snapping, you feel like backing up sometimes. If I am looking at a cow or a heifer or a bull and there is a wild, fiery look in the eye, I stand back and I discount him. I want a large, bold, bright, eye, I do not want a dull, dead, heavy eye that looks like the animal was dead and didn't know it, and I don't want a fiery eye that shows a rattle-brain condition of the nervous system of that animal either.

Then I drop my eyes a little lower down. I like to see nice broad horns, but still I never have found a cow giving milk out of her horns, so I do not put so much stress on that as some do. I like to see the width carried down well at the nose, some width, and I want great big nostrils, because a little later on I want to see a great depth of heart girth, lots of room for lungs, and so I want a big opening into them because the air cuts a big figure in production.

Then I look at the neck. Now, the neck of the cow and the heifer I want rather trim. I don't want a bull's neck on the cow, or a cow's neck on the bull. I have found in my experience in breeding all kinds of live stock and in watching them in different parts of the world and in discussing this problem of breeding with the best of the world's breeders, that as a rule, they want a sire that is very strong, muscular and masculine in the neck and head, in good proportion. But then again, naturally, I don't want too much meatiness in the neck, because that is an indication of a fleshy tendency of putting on beef fat.

When I get back to these shoulders, I like them smooth and narrow, because we talk about the wedge-shape in the cow, and it is a pretty good idea for you boys to start in with that wedge-shape idea, a wedge growing wider as you go down till there is good width at the heart. Just the same I would not turn down a cow that has all the other indications of good production because she happens to be a little thick in the shoulder. But I would prefer to have her smooth there, the withers well

brought out, like a trotting horse, and the shoulders well closed up to the back bone, which stands just slightly above the shoulders.

Then as I pass along I want the abdominal capacity good and large. I want to see room for this machine, for lots of machinery to grind up and take care of the feed of this animal. So they must have good abdominal capacity. But I don't want to see too much of that development, especially if the muscles holding up that abdomen are loose and flabby; I want them firm and strong below.

Now, we want the wedge-shape coming the other way, too, starting in from the top down and also running back wider. We want her good and deep behind, so that she has not only the wedge-shape from the shoulders down, but from the front and gets wider as we go back and also deeper. Of course the last part of the depth has to be made up of this big udder. The pelvic arch must be wide and I like to see that pretty straight, although there is many a good cow that is fairly droopy at the rump. Then we say a straight back—I want a strong back. Sometimes we get a back that is slightly swaying, and yet have a remarkably good business cow, but I never yet saw a cow that did not have a strong back that did well. Sometimes the back is a little crooked, but yet it is strong, the good Lord has just made a little curve downward. I would rather have it straight, but I am not going to condemn her if it is a little bit curved but is strong. The vertebra wants to be strong, in a sense open and yet locked enough so that the pressure is not going to drop it down, so that she can easily carry this machinery and carry it strong and true.

I haven't said anything about breeds. Most of you Jersey people would say this good cow is a Jersey. If I could change the color so I could get some fawn and white then the Guernsey people would say it is a Guernsey. If I could color it black and white, the Holstein fellows would be claiming it. Good cows of every breed are built on the same plan.

Now, why did I take old Brindle as an ideal dairy cow? Just because I knew she would milk twelve months in the year, and it was hard to dry her up. That is something you can't tell very much about when you simply look at a cow, how long she is going to produce milk. Some of the old brindles

are remarkable milkers in the quality of their production and particularly in keeping at it persistently, while some of the best looking ones will milk only a few months, and at ten months will dry up. That question of persistency in milking is a pretty hard one to see in the individual cow when you are judging her. That takes the scale and the Babcock test and the record sheet and the good long time to carry it out. As one of the speakers said here this morning, I hope to live to see the day when at our dairy shows and State Fairs a demand will be made for the record of each animal to be published in the catalogue and be considered in the points of excellence in the cow; but we haven't got to that yet. We are judging without records, because the great majority, even in the pure breeds of dairy cattle, haven't had a chance to make a record yet.

The udder should not be lost sight of, of course, because that is the place where the manufactured product is turned over to us. We want a large udder. The udder on this cow we have been looking at might run a little farther forward, and still it is a good udder, it comes up well behind, as we want it to do, and we want it to go forward, too. This cow may be one of those fresh heifers that have been spoken about here with a good deal of beef on her, showing she makes good use of her feed. In fact I like to see a heifer carrying a good deal of bulk, it shows she is thrifty, like the Scotchman who keeps the Sabbath Day and everything else he can lay his hands on. So I like to see them look pretty well filled out, but I don't want to see them keep it there and keep putting more on while they are working. But this udder we want large, and we want it a good quality, indeed, to my mind that is more important than the size of the udder. We don't want it meaty, not hard. Of course, in judging I would like to see that udder full and then see her milked out, you can tell better then about the quality.

I used to be a crank on the subject of milk veins, because old Brindle had wonderful milk veins and wells, yet we have a cow now in our barn which probably will give on official test this year over 700 pounds of butter, and when I brought her home, my boys criticized this particular heifer and proposed to sell her at a low price. She had good blood lines, we knew that. She had the outlines I have talked about here, she had

the quality of the udder, although it was rather small; but she had very small milk veins. She had been raised under poor conditions and she did very poorly the first year we milked her, and we thought of selling her, but I said to wait another year. She was fed pretty well. The milk veins never grew, but last year we put her under the official test and she went along clear through and came out with 625 pounds to her credit, and this year she is well along and probably will run over 700 pounds, at least it looks that way now, although she certainly lacks in milk veins. She has developed considerable of an udder, not a big udder, but it is nicely placed, and it has quality; when she is milked, there is nothing but silk left. And so I am not as big a crank as I used to be on milk veins, though I like to see them yet.

Some old Scotchmen came to this country to exhibit their working sheep dogs at State Fairs a few years ago and one day at the Iowa State Fair these Scotchmen came up by the sheep barn and I inquired for Robert Taylor. He had been a man on a farm I had visited in Scotland. After a while I inquired about the dogs and they said, "Yes, they are working, come and see them." One of them asked me, "Do you use a dog among your sheep, Mr. McKerrow?" I said, "Yes, we have a Collie, he is the grandson of a dog that belonged to Pierpont Morgan, our New York banker and he has won many blue ribbons at the bench shows. He asked me, "Is your dog any good, will he work?" I said, "Yes, he works, I have seen dogs that worked better, but he is very intelligent and good. Why do you ask that?" "Oh, well," he says, "those bench Collies are so high bred they are no much guid for work."

Now, we are possibly running to that extreme of refinement and beauty which pleases the city man and the high toned buyer who likes to see a few pretty Guernseys or Jerseys out on his lawn when he gets back from the city to his farm. I think some of our judges are catering a little too much to that idea of refinement, yet some of our Jersey breeders will come up here to admire Friend Clark's cows that grow 60-pound udders.

HEALTH OF THE HERD

C. P. NORGORD, *State Agricultural Commissioner, Madison*

I feel that it is a high honor to have the opportunity to appear on the program of this association, because this association, I believe, was the fundamental association and organization that has fathered most all of the agricultural and educational improvements in Wisconsin that have taken place in the state. I think that this chart over here, which I noticed as I came in, shows that a pretty big percentage of all of the great improvement movements that have taken place in the state grew out of this association, and I am sure there is no other organization in the state that has been father of so many good things as this organization has. I also like to look at these sentiments which are expressed here—"Beauty is only skin deep"; "Handsome is as handsome does." A good deal of emphasis is put on the doing rather than on the appearance,—on the real dollars and cents that the cow can produce. "Do your cows give you three dollars for every dollar you invest in feed, or do they give you one dollar's worth for every dollar's investment in feed?" and "Are you working on cows just for the fun of keeping them?" That is a question that every one can ask himself, and must ask himself, because that is a question that is pretty vital to him and his interests, and there is no association, there is no movement in the state that permits you to answer that question like the Cooperative Cow Testing Associations that this Dairymen's Association has fostered, and now has, I believe, fifty-five of such associations in the state. I have a herd that belongs to an association and as a consequence of that work of testing we have sold ten of the fifteen cows that we had five years ago, and we have greatly improved the ones that are left. Now, that means a great deal to me, and I would not give up that association and the work it is doing for my herd for \$10 a head. I believe it has been worth that to me, and I think it is worth the same to anybody, and worth more to the man who lives right on the farm and who cannot get that kind of work done nearly as cheaply in any other way.

I am not here to talk about testing associations, but on the health of the herd. That is fundamental also; that is fundamental to high production and big profits. You can not make big profits on a sick cow.

There is no problem before the cattle breeders and the cattle industry of the state of Wisconsin more needy of solution than the eradication of bovine tuberculosis from the herds of the state. Its eradication is demanded from a financial, moral, and health standpoint. That the disease has spread in this state is shown from the figures of the state veterinarian's office of the State Department of Agriculture. On tests made in the western and southern parts of the state in 1906, 16,400 cattle were tested, 2.4 per cent showing tubercular lesions; of tests in 1916 in this section, where 48,236 cattle were tested, 9 per cent of them reacted. The state veterinarian's office of the Department of Agriculture is charged with the control of this disease, and realizes the necessity for taking more effective measures to eradicate this disease than has been used in the past.

The creameries and cheese factories have been the most active agencies in the spread of the disease. Tubercular milk and cream brought into the factories from one or more tubercular herds have been distributed through the skim milk, the whey, and the buttermilk to all of the herds within these districts. To overcome this danger, we should have a law passed requiring the pasteurization of all by-products of creameries and cheese factories before they are taken from the factories to the farms. This same end could also be accomplished by pasteurizing the products as they come to the factories, thereby the products sold and consumed from these factories would likewise be made safer for human consumption than at present.

The live stock sales in the state, likewise, have spread the disease with tremendous rapidity. A law should be prepared, making it possible to prevent such sales. The spread of this disease in a herd by the introduction of one or more infected animals proceeds with great rapidity. Many instances are on record in the office of the state veterinarian, where in a few months large herds have become infected by a single animal. It is to the interest of all dairymen that their herds are tested and cleaned up. It is to the interest of all farmers starting new herds or buying new animals to see that the animals purchased are free from this disease.

CLEAN HERDS FOR UPPER WISCONSIN

The Department of Agriculture looks with special apprehension upon the many new herds now being formed in the great new areas of upper Wisconsin and the large shipment of dairy cattle which are made from the southern part of the state to upper Wisconsin to form the foundation stock for these new herds. Just as sure as a tubercular animal is introduced into one of these new herds as foundation stock will the future herd built up by the meagre funds and the persistent years of labor of these farmers become tubercular herds, which in the end will have to be destroyed and cause the loss of the investment and years of labor on the part of these new settlers.

LOCALLY TESTED CLEAN HERDS

A careful study has been made of the records in the office of the state veterinarian, and a large number of herds have been found which have been tested locally and by the inspectors of the state veterinarian's office for a number of years. These herds are known to be clean as far as the tuberculin test can show it. These lists will be published in a few weeks by the Department of Agriculture, and will be available for future purchasers of dairy cattle.

Experience shows that a test of a single animal from a herd cannot be depended upon as showing that it does not have the germs of tuberculosis. The only test which is safe is a test of the whole herd from which an animal has come, and a yearly test for several years back is the safest test. With these lists it will be possible for anyone wishing to purchase clean animals to secure them from herds tested for a number of years. Wisconsin probably has more clean herds, herds that have been tested for years, than any other state in the Union.

INTER-STATE SHIPMENT

Aside from the sale and transfer of cattle within the state, the state of Wisconsin has a large trade in animals going to other states. During the year 1914-15, 9,297 cattle and during the year 1915-16, 28,232 cattle were tested by the veterinary division of the Department of Agriculture and sent to 41 states

in the Union. At \$100 per head, the probable value of cattle shipped was \$2,823,200. This is a great trade, bringing large revenues to Wisconsin. It is important that we keep up this trade, and keep our reputation for clean animals perfect.

ACCREDITED TUBERCULIN TESTED HERDS

Already nearly all of the states in the Union have enacted laws making necessary the testing of all animals for inter-state shipment by veterinarians recognized by the Department of Agriculture. To meet this demand the State Department of Agriculture is establishing what is known as State Accredited Tuberculin Tested Herds. These herds are tested by the assistant veterinarians of this department. No herd is admitted to this list unless it has been declared clean and safe and up to the high standard set by the department for this type of herd. Herds on this list are rapidly being recognized by all the states in the Union, as the safest herds from which to buy animals. An arrangement has been made by the Department of Agriculture with all the states whereby shipment can be made into these states without previous test other than the regular tests made by the state to admit the herd on the accredited list.

TEST ENTIRE HERD

It is the policy of the Department of Agriculture to get all farmers in this state to test their entire herd for tuberculosis, for it is only by testing the entire herd and by the purchase of animals from herds that are tested year after year that clean herds can be secured. The state is annually spending large sums of money to pay for condemned tubercular animals. It cannot long continue to do this except where the whole herd has been tested and cleaned up in a manner satisfactory to the Live Stock Sanitary Board. It will be the policy to have money paid out by the state for animals condemned only where the whole herd test has been made and inspection properly carried out.

In view of this future growth and attainment, we of the present generation cannot permit our herds to stand without being sure that this scourge of the dairy business and of humanity is eradicated within our borders. The tuberculin test is the surest and most effective means available to us. The tests of the office

of the state veterinarian show that 96 per cent of all animals which have reacted within the last five years have shown clear tubercular lesions. Plenty of experiments show that the remainder of the animals also have lesions though inspectors did not find them. Let us have confidence in this test and apply it without fear or favor. Let us work together in the eradication of this disease and have greater health, wealth, and happiness for the whole state.

KEEP THE GOOD COWS IN THE COMMUNITY

J. Q. EMERY, Edgerton

The proposition contained in my subject seems almost so nearly axiomatic as not to need debate. Nevertheless, the acceptance and practice of this precept is far from general.

One of the noted fables of Aesop, as literally translated from the Greek, is as follows: A cottager and his wife had a hen, which laid every day a golden egg. They supposed that it must contain a great lump of gold in its inside, and killed it in order that they might get it. When to their surprise they found that the Hen differed in no respect from their other hens. The foolish pair, thus hoping to become rich all at once, deprived themselves of the gain of which they were day by day assured.

That dairyman who sells his good cows and retains the poor ones, thus depriving himself of a sure and profitable income, day by day, may well be likened to the foolish cottager and his wife, who killed the hen that, day by day, laid the golden egg. And the same remark seems applicable to the community that disposes of its "good cows" and retains the poor ones for its own use.

Such a dairyman or such a community might well consider the fable of the Two Frogs:

"Two frogs dwelt in the same pool. The pool being dried up under the summer's heat, they left it, and set out together for another home. As they went along, they chanced to pass a deep well amply filled with water; on seeing it one of the frogs said to the other, 'Let us descend and make our abode in

the well; it will furnish us with shelter and food.' The other replied with greater caution, 'But suppose the water should fail us, how can we get out again from so great a depth?'

Moral: Do nothing without regard to the consequences.

If the dairymen of a community sell their good cows and retain the poor ones for their own use, how can they get out again from so deep a well of folly into which they have descended?

For the dairyman or the community to dispose of the good cows may be likened to the farmer who would dispose of the good plow and retain the poor one for his own use; or to dispose of the good reaper or mower, or corn or potato cultivator and use the poor one. Such a course of action would be akin to that of the farmer who should sell his good seed wheat, or corn, or potatoes, or oats, or barley or rye, and himself use poor seed of these various kinds. No intelligent person will adopt such courses of action unless compelled to do so by the most dire necessity. Better in these times of high priced labor to pay a reasonable rate of interest on an investment in good tools, good cows. Because good cows are profitable cows, they are the ones the dairyman or the community should keep.

Thus far, I have considered this subject from the point of view of the direct daily or yearly income derived from the individual cow. But there is another point of view to be considered by the enterprising dairyman or community, and that is the relation of the individual cow to the character of her progeny. This involves the principles of breeding. It is not the function of this paper to elaborate the principles of breeding. That subject was involved in the paper of Prof. McGuire on the subject of "Breeding Up the Herd." But this subject is so intimately related to and involved in my own, as to require the recognition of certain well established facts or principles of breeding.

"It has long been known," says Miles, in his book on "Principles of Breeding," "that the characteristics of parents were transmitted to their offspring, and the results of observation were tersely expressed in the familiar aphorism, 'like produces like.' As a natural corollary of this generally accepted law of animal organization, the rule, breed from the best, early found a place among the approved maxims of the art."

Under the subject "Management of Stock," in his book entitled "Principles of Agriculture," Prof. Bailey states, "every farmer can greatly improve his stock, if he starts with good native animals, by constantly selling off the poorest and breeding from the best." In other words, for the purpose of improving the herd, through the influence of the dam on her progeny, he would keep the good cows, even the best ones, and sell off the poor ones. The shambles seem to be the most fitting place for poor cows, that is, for cows, that under intelligent handling will not return to their owner a fair profit over and above the cost of their maintenance. Such disposition of the poor cows tends to an increase of the net profits of the dairy herd. Of course, this sort of procedure implies that the dairyman has gained adequate knowledge of which is the good cow and which is the poor one. Weed out the poor cows from the herd, not the good ones, is a dairy maxim that has been many times repeated and contains so much of wisdom and good common sense, that is, an instinctive appreciation of the fitness of things, as to entitle it to more general application.

Breeding of stock implies that the stockman or breeder selects animals possessing certain attributes or characteristics that will render their offspring desirable and valuable. Whoever heard of any intelligent stockman or breeder selecting a poor cow as the means of securing good cows from her progeny. I am not saying that the progeny of a poor dairy cow may not be made to show improvement by placing and keeping at the head of the dairy herd a pure-bred, prepotent dairy sire. But if the good cows and not the poor ones are kept in the herd or in the community, the improvement will be so much surer, greater, and faster as to make such practice very much more profitable. This is the course of action that the enterprising dairyman or community pursues.

To be a successful dairyman requires a certain liberal amount of enterprise, a certain breadth of vision. His business is not merely for a day, a month, or a year, but for a series of years, for a life time. He chooses this business as a means of supporting his family in a comfortable home and educating his children in accordance with the needs of the times in which he lives. The enterprising dairyman does not regard his business as any mere makeshift. Having devoted his entire farm or some por-

tion of it to the dairy business, he constructs buildings necessary for the proper care of the herd, and their product, and devotes his fields and his labor to the raising of suitable feeds. But what avails all this, if then he stakes his all on poor cows, and benevolently lets some other fellow, wiser than he, have his good cows, his profit makers? Deluded man! Why can he not see that all his efforts center on having good cows, that is, cows inherently capable, when intelligently handled; of returning him a profit on all his hard work and undertakings.

Naturally an intelligent buyer of dairy cows will seek good ones. He shows himself enterprising by so doing. But it cannot be truthfully asserted that a dairyman is enterprising who disposes of his good cows, unless he has enough good ones for his own use and a surplus for sale. And this remark is applicable to the community that disposes of its good cows and retains poor ones for its own use.

It may seem that I have presented this subject in apparent forgetfulness of the maxim, that there are exceptions to all rules.

It is conceded that when a dairyman rigidly practices for a series of years, the keeping of the good cows and the weeding out of the poor ones, the time will arrive when all his cows will be good ones; when he has no poor ones; when if he sells any cows, they will be good ones. There are communities in this state that have arrived at such a gratifying and fortunate condition that they have not only all the good cows they need for themselves, but some to spare. And such communities find the sale of their surplus good cows a very profitable business. But under such conditions, while selling only good cows, they will not of course make it their rule of practice to sell their best ones.

I can say of a truth, that after nearly twenty years experience in breeding pure-bred dairy cows, we have not today a poor cow in our herd. All but two have qualified for the Register of Merit and those two bid fair to reach within a few weeks that goal for which they are now striving. But this is not saying that we have not some cows that are better than other cows, for we have. It is also conceded that a dairyman or professional breeder may develop a cow of such unusual merit and value, that he can not afford to carry the risk of retaining an animal

of such great value. She may have won world-wide fame in the show ring or as a producer of dairy products. All of you can doubtless recall instances of this kind. But it is safe to assert that no dairyman or breeder, whose rule of practice has been to dispose of his good cows and retain the poor ones in his herd, has ever had such experience.

It may also be conceded that some cows that may be classed as "good" ones under my definition may nevertheless possess such characteristics that their owners would for personal reasons prefer to dispose of them. They may be hard or unpleasant milkers. They may be of an undesirable breed or type. Or they may possess other characteristics which neither an enterprising dairyman nor a professional breeder would care to perpetuate in his herd. Or, they may be lacking in one or more certain desirable dairy characteristics. They may be deficient "in digestive capacity, temperament, milk secretion, constitution, former breed characteristics, or qualities which please the eye."

In every business, there are times when men are forced to make pecuniary sacrifices; when perhaps obligations must be met or unforeseen circumstances make it necessary to manage the business in a losing way for the present, that losses in the end may not be greater. This may happen in the dairy business as well as in other lines of business. But if the dairyman thus finds himself confronted with what seems to be a necessity to realize at once on his best stock, because the demand is temporarily for that and no other, let him do it understandingly and with full realization of the fact that he has called a halt on progress and must again go over the long road of careful selection and development, with more or less loss of time and present income.

Good cows have always been one of the essential factors in successful dairying. But owing to the exceedingly high price of labor and the soaring prices of feeds of all kinds, there has never been a time in the history of the Wisconsin Dairymen's Association, when it was so imperative as now, that the cow possess the ability to respond profitably to her feed and care and that the good cows be kept in the community.

POWER ON THE DAIRY FARM

PROFESSOR F. M. WHITE, Wisconsin College of Agriculture

We are living in the leading dairy state of the Union. Our farmers have made Wisconsin famous as the result of specialization. The dairy industry is one in which specialization is better adapted than perhaps any other branch of the farming industry. A dairy farm can be more nearly placed on a factory basis which tends to develop efficiency than any other method of farming. Certainly, agriculture ought to be placed on an efficiency basis if it is to develop as rapidly as other lines of industry.

The present day methods of manufacture in which "production" makes or breaks a manufacturing concern, can easily be applied to the dairy farm. Production has come to be the byword of the manufacturing industry. Companies which cannot produce a product in large quantities, cannot hope to compete with a concern who manufactures on a quantity basis. For example, in the building of the automobile, which is the greatest of all manufacturing enterprises, the low price and quality has been accomplished by large production methods. Even the manufacturers of automobiles do not attempt to make every single part of their machine. Other concerns have specialized on certain parts and can manufacture them in large numbers very cheaply. For example, practically every manufacturer of an automobile buys his carburetors from a concern specializing in this one line. This shows that cooperation of large industries has resulted in the manufacturer of the automobile being able to make his product at a comparatively low price. The dairy farmer must be a manufacturer and also be willing to cooperate if he is to make his business a success. Cow testing associations have, undoubtedly, stimulated a great deal of interest in improving the dairy herd, because it is possible to sort out the good individuals and not keep loafers on the job. The expert cow tester plays a very important part in increasing the production of the dairy herd and at a lower cost. Cooperative cheese factories and creameries are other methods of in-

creasing the production of the farm factory. From these very important cooperative industries we have all realized the necessity of saving time and labor, which are the items that govern the price of the finished product.

Help is getting to be a scarce article on the farm. The demand is for a better help than formerly. Only a few years ago \$20 a month was a good price for labor; now, \$30 and \$40, and even \$50 is a common price. It is therefore, quite evident that it is necessary for the farmer to have skilled labor and he must compete with the manufacturer for his labor. The country is losing out in this competition and it therefore, behooves us to arrive at some kind of scheme to reduce the amount of help required and to make farm work more attractive. There seems to be but one way of accomplishing these results and that is by the more general introduction of mechanical power.

Statistics show that the average Wisconsin farm contains 118 acres and that four horses are required to furnish the power for the field operations. Figures show that these horses only work on an average of three hours a day or 1,000 hours a year, or a total of 10,000 hours' work for the average life of the horse. The value of the horse at present prices ranges from \$150 to \$200. Therefore, the average investment for horse power in this state is between \$600 and \$1,000. The horse is not satisfied with only eating when he works, but must have feed for 365 days of the year at an annual cost of \$90 a year. This makes a total cost of \$360 for the horse power required on the average Wisconsin farm.

This is quite an outlay for power required to produce the crops necessary on the dairy farm. From statistics which have been gathered the only item which will reduce the expense of crop production is by the reduction of horse and man labor. The following figures illustrate the various items of labor charged to the production of different crops: 26.9 per cent of the cost of producing corn is charged to horse labor; 18.8 per cent for wheat; 12.3 per cent for oats; 18.8 per cent for cowpeas; 28.5 per cent for soy beans; and 13.5 per cent for clover. These percentages, in all cases except clover, is the most expensive part of the charge for producing the crops.

In the case of man labor, 18.1 per cent of the total cost of producing crops is for this one item. The total cost of man

and horse labor for producing these crops per acre is as follows: corn, \$13.52; wheat, \$12.30; oats, \$10.80; clover, \$8.10; cowpeas, \$13.60; and soy beans, \$13.50.

The average percentage of the total cost of horse labor for producing the above named crops was 26 per cent. We can easily see that if the man and horse labor which amounts to 44.1 per cent of the cost of producing crops can be cut down that the profits of the farm will be materially increased. It is quite essential, therefore, that some means be employed whereby the cost may be reduced.

There are numerous small jobs on the farm which take a lot of time, which are more or less unpleasant, and which are well adapted to the use of mechanical power. As an example, it is necessary to pump water on the majority of our farms. The dairy cow consumes, on an average, 10 gallons a day; a horse 12 gallons; sheep and hogs 2 gallons; and for household use 25 gallons per person per day is the usual requirement. Assuming an average dairy farm as having 4 horses, 20 cows, and 10 hogs, and a family of 5 required for its operation, there will be consumed practically 500 gallons of water a day. It will require with the best type of pump at least an hour to pump this amount of water. Figuring labor at 25 cents per hour, the yearly cost of pumping water on this farm would be \$91.25.

A small gas engine will do the same job for 2.25 cents a day, or \$8.22 a year with gasoline costing 18 cents a gallon. By using mechanical power in this one operation, we would save \$83.03 in one year, or easily the cost of the engine. With reasonable care such a machine ought to give at least 10 years of service. It will, of course, require some time of the operator to start and stop the engine and to keep it in good working order. Without question, however, we would be able to save at least half of the time of the operator which would result in a net saving of \$39.40 a year, or enough to buy the engine in two years.

There are many other jobs about the farm which a small engine will perform more economically and with a great deal less kicking than the average hired man. Twenty per cent of the farms of Wisconsin sell butter and another 25 per cent sell fat. The gasoline engine will turn the separator as economically and with as great a proportional saving as it will operate a

pump. Other machines found on the average farm which can be operated by mechanical power are: the washing machine, grindstone, churn, and also a number of larger machines which many farmers need, such as corn shellers, feed grinders, grain graders, root cutters, and silage cutters. Most of these machines can be secured in sizes which will require from 1 to 8 H. P.

Mechanical power is expensive if you don't know how to use it economically. Every farm ought to have a well built building conveniently arranged, a building which will be used for a farm power plant. If the pump is at the well, the feed grinder at the barn, the separator and churn in the cellar, the grindstone out under a big shade tree, it would be impractical to apply power to them. The usual result is that the engine will be placed at the well and used for pumping water only. This is certainly not making the most of a profitable "hired man". If all these machines were assembled at one place and the power of the engine applied to them by means of a line shaft, there would be a big saving of time in their operation and at the same time more use would be made of the engine. This centralized plant ought to be housed in a building about 24x30 feet, so arranged that one room would be devoted to the dairy and laundry, one to a shop, and another to feed grinding, corn shelling, etc. Such a building could be built for \$300 to \$350. Most farmers already have the machines and even the gas engine, so that it would not require much money to equip a farm power plant with the necessary pulleys, shafting, and belting. There are several very successful plants on Wisconsin farms and their owners are most enthusiastic about the amount of labor saved.

In such a power plant there might be located the farm lighting plant. Electricity is a very safe and convenient light, and now that the storage battery has been so nearly perfected, such a system is easy to install and is as satisfactory in the country as it is in the city. The cost is not exorbitant for the average charge for wiring and installing lamps in farm buildings is approximately \$2.00 per outlet. Electricity can be used in the farm home for other things besides lighting. A cent's worth of electricity will operate a flatiron for 15 minutes, run a sewing machine for two hours, run an electric fan for two hours, and

will operate the washing machine for less than half what it can be done for by hand.

That electricity is a practical farm power and a labor saver, is shown in the following statement by a man who has owned a plant for four years:

"My electric light outfit was installed in the spring of 1912. The light plant and the engine was placed in a room by themselves adjoining the barn. The engine connects with a line shaft leading to the main barn. From this line a grist mill, flour mill, cream separator, milking machine, and grinding stone are run. When the engine is being used for milking and separating, it also is charging the storage battery, thus making the lighting inexpensive.

"All the outbuildings are thoroughly lighted. Two feed wires run from the barn to the house, lighting the house and furnishing current for an electric washing machine, flatiron, and fan."

Selecting a power which will prove to be practical governs, to a certain extent, the amount of labor saved. In some instances, the power selected has been a labor maker instead of labor saver. Too many times the first consideration in selecting a gas engine is the first cost. Many times too small an engine is purchased because the first cost is low and there is supposed to be a saving in the operation of the engine. The small engine always gives more trouble than a larger one, because all parts are smaller and more delicate, and the adjustments more sensitive. And it only furnishes enough power to do one job at a time. The reason for selecting a small engine is that the first job which the engine has to do is to pump water. As this only requires about one H. P., one naturally expects that that size will be large enough. The smallest engine to be considered as practical for the average Wisconsin farm should be not less than 3 H. P., and six would be better. The following statement made by some manufacturers is quite significant in regard to the size of engine which many purchasers think they want and what they eventually find they really need:

"We have to make one and one and one-half horse power engines because there is a demand, but we would not send a salesman out to make a sale because there is more trouble with the small machines and eventually the farmer wants a larger engine and, of course, expects us to trade for it."

The cost of operating a 4 or 6 H. P. engine, so far as fuel is concerned, is no greater than the cost of running a 2 or 3 H. P. motor, both developing the same power. That is, a 6 H. P. motor will develop 3 H. P. on practically the same amount of fuel as well as 3 H. P. engine develop 3 H. P.

The combination of a gas engine which furnishes the major part of the farm power, the electric lighting plant furnishing light and relative small amount of power from the storage batteries, the farm tractor reducing the power cost of field operations, and the automobile for both pleasure and business, is a hard combination to beat for reducing the cost of production on the average Wisconsin dairy farm.

DISCUSSION

A Member: Mr. White, we have an engine that we run on kerosene. We have no trouble in starting after the first few puffs, started with gasoline. What about that?

MR. WHITE: I do not believe from the present trend of the development of gas and kerosene engines that it is going to be possible to get away from that difficulty. Practically all engines are being equipped to burn kerosene, but they must be started on gasoline. There is a group of engineers who are working on the development of kerosene with the automatic idea. In fact, I have seen automobiles run on kerosene and doing quite well. Of course we have all got to understand that it will not be quite as convenient, that we are bound to have a little more trouble. I would not be surprised if in a few years automobiles will be burning kerosene.

MR. EMERY: What about the ability to use the tractor on stony land?

MR. WHITE: I believe at the present time that as built you will have trouble on stony land, not only with the tractor, but with the plow. We have been running a tractor on stony land, and we find that we have some trouble. We find on marshy land that we are able to get it under cultivation where we never had been able to do it with a horse. This year we put quite a bit of marsh under cultivation.

A Member: Is it feasible to plow with profit by the tractor in twenty-acre fields?

MR. WHITE: I should say that in fields of twenty acres it would be practical and profitable. I do not believe it would be profitable in ten- or fifteen-acre fields.

A Member: Are there any tractors made to handle five or six plows when it would be practical to handle them in those smaller fields?

MR. WHITE: I don't think so. There are lots of tractors built to pull five or six plows, and of course it is more economical to have the larger machines, but, on the other hand, you have such a big weight to move which requires so much power in harvesting that it is not practical. That is one reason why the small tractor, which is adapted to a number of jobs, is more practical than the large tractors, the weight is against them.

A Member: I have in mind a group of farmers that are talking about investing in a tractor where one has a 40-acre farm and none of them over 80. Those men are figuring on buying a tractor and using it among them.

MR. WHITE: I should say that was a very fine thing to do. I look to see the time when in farming operations we will have a farmer who will furnish the power for a number of small farms. There are two or three such cases in Illinois now, where one fellow makes it his business to plow, to prepare the soil for the seed, and then he cultivates and takes care of their crops, in fact, furnishes all the power for a number of small farmers, and it is working out very well.

FEED INSPECTION AND THE FARMERS

PROFESSOR W. H. STROWD, Wisconsin College of Agriculture

It is a great pleasure to be with you today, and as a representative of the feed inspection service I am glad to have this opportunity to discuss with you some of the problems connected with the feed inspection work.

Most of you are doubtless familiar in a general way with the provisions of the state law, but to refresh your memories I shall cite some of its chief provisions. Before a manufacturer offers his feeds for sale in this state, they must be registered with the

feed inspection service and each manufacturer must pay a license fee of \$25.00 per calendar year to defray the cost of inspection. Each bag or other container of feed sold must be labeled with the following information: Name of feed, name of manufacturer, net weight of feed, guaranteed analysis—showing per cent of protein, fat, and fiber.

We have a traveling representative who is on the road practically the entire year, visiting retail stores throughout the state, inspecting stocks of feed, and collecting samples for analysis. These samples are analyzed in the inspection laboratory and the results published annually, as you know, in our inspection bulletin, which is distributed among the farmers and dealers of the state. Now the state feed law has supervision only over those feeds sold by a party in Wisconsin to a party in Wisconsin. For example, if a dealer or farmer in Waupaca buys feed from a broker or manufacturer in Milwaukee, or if a farmer in Waupaca buys a feed from a local dealer the sale in either case is under the jurisdiction of the state law. On the other hand, if a farmer or dealer in Wisconsin buys a feed from outside of the state, say from a manufacturer in Minneapolis or Chicago, then that manufacturer is not responsible under the Wisconsin law, but only under the federal law. We can bring prosecutions under that law also. Now unfortunately the federal law does not require any label whatever. It only requires that any statement which appears to be true to fact. Therefore a manufacturer who ships feed into Wisconsin from outside the state is liable only if he makes a misstatement on the label as to the quality, origin or net weight of the feed. For that reason alone, and there are others, it is highly important that consumers should insist on feeds being branded with the information required by the state law.

Take the case of cottonseed meal. Now the trade and the Association of Feed Control Officials recognizes three kinds of cottonseed meal: choice, prime, and good, containing at least 41, 38.6, and 36 per cent protein respectively. Last spring we found several shipments of a so-called cottonseed meal. I have a sample of this product with me, and also for comparison with some samples of high grade meal. You will note that some of the higher grade samples contain apparently more hulls than the low grade cottonseed feed. This feed contains 21 per cent

protein and 25 per cent fiber, or less than half as much digestible protein as a high grade cottonseed meal. If a farmer had fed this feed in a balanced ration, on the assumption that it was an average meal, he would naturally have gotten very different results from what he would have expected.

Some time ago in two instances we found that a group of farmers had ordered some gluten feed for their own use from a manufacturer outside the state. Instead they received corn and cob meal, a very different kind of feed. It happened that these men, or some of them, were not familiar with the appearance of gluten feed and had accepted it as such, since the product was not branded. In a case of this kind, although a rank deception is committed, it is difficult to prosecute the manufacturer under any law. If the material had been tagged as gluten feed a conviction would have been easy to obtain.

These instances emphasize the great importance of insisting that all feed be branded so as to comply fully with the state law.

Another important point is to become familiar with the definitions of the different feeds, know their approximate analysis, and then to utilize this knowledge in reading the label carefully. I have before me a feed which is sold in Wisconsin under two names. One of these names is "Old Process Cake Meal." Now the name and appearances of this feed would cause the casual observer to think it a straight oil meal, or linseed cake. The other firm selling this feed labels it in bold letters "Old Process Oil Meal" and then in microscopic characters, "with ground flaxseed and screenings." But you will note that the guarantee is 25 per cent whereby a straight oil meal will run in the neighborhood of 33 per cent to 36 per cent. The above mentioned feed contains a very large amount of weed seeds, or their residues. Now the composition of pure feeding stuffs varies considerably in some cases, but when the average composition of oil meal is 33 per cent to 36 per cent and a product contains 25 per cent it is safe to assume it is not pure oil meal.

Now our law does not require that compounded feeds or ready mixed rations contain a statement of ingredients of which they are composed. Feeds of this class vary considerably as to their value. Some of them are composed of high grade materials and are offered at a fair price as compared with that of

the straight feeds on the market. On the other hand some are composed of low grade materials and are unprofitable at any price. Therefore mixed or compounded feeds should not be used unless the consumer is familiar not only with the guaranteed analysis, but with the ingredients of which they are composed.

I have with me a sample of a feed sent us by two different farmers within the past month. These gentlemen had been offered this feed at the attractive price of \$23.50 per ton in carload lots. It looks good and smells good. But a microscopic examination and chemical analysis showed that it consisted principally of peanut hulls with about 8 per cent oil, and contained 56 per cent fiber. It, therefore, probably has fewer pounds of digestible nutrients than wheat straw. You would hardly wish to pay \$23.50 a ton in carload lots for wheat straw even at present prices, would you?

Now if we had not been able to give these farmers the information desired and if they had not availed themselves of it, they would probably have paid out over \$400 a piece for a product that was practically worthless. This feed is not exposed for sale at any of the stores, so far as we have been able to discover, and therefore we could have learned of this feed only through the farmers themselves. It has been our experience of recent years that such deceptions are usually practiced by direct shipments from manufacturer to consumer. The manufacturers realize that our inspector is likely to visit any store in the state at any time. On the other hand, when the shipment is made direct to consumers we are not likely to know of it except through the farmers themselves.

Last, but not least, let us consider the important question—What feeds are most economical to buy? It is clear from what has already been said that the cheapest is not necessarily by any means the most economical. Now just what rations are best for your purposes I cannot nor will I attempt to say. That is a matter for your practical judgment and for the specialists in animal husbandry and nutrition. Professor Humphrey of the University has written a Farmer-Banker bulletin on the subject. This excellent little circular suggests a number of rations which have been used successfully. As suggested therein, it is best to consider a number of satisfactory rations and use that

one which can be made up most cheaply at the prevailing market prices. In each ration suggested in this bulletin one or more feeds are required other than home grown grains and which the farmer must buy. Now to put the whole thing in a nutshell, what the feed inspection service is trying to do and what it can and is doing, provided you are doing your part, is to see to it that when buying feed you get just what you ask for and not something else. For instance, when you ask for choice cottonseed meal we, with your help, will see to it that you get choice cottonseed meal and not a mixture containing half as much digestible protein as the product desired.

I do not wish to convey the impression from the experiences which I have related that all manufacturers are continually waiting for an opportunity to thrust some worthless material upon the unexpecting farmer at an exorbitant price. On the contrary, the large majority of the manufacturers endeavor to give consumers full value for their money. On the whole both they and the dealers cooperate with us as heartily as do consumers. The number of low grade and misbranded feeds have been gradually decreasing since the enactment of the feed law. The feed law tends to cause feeds to be sold on their merits. This, together with an increasing discrimination on the part of the buyer is gradually forcing the dishonest manufacturer either to go out of business or sell feeds strictly for what they are and not by false claims. However, despite these greatly improved conditions there still is and will continue to be some deception and misrepresentation. Therefore an alert watchfulness on the part of both inspector and farmer is an ever present necessity.

The duties of the farmer in this connection are:

- 1st. To see that the feed is licensed and branded with all the information required by the state law.
- 2nd. To know the kinds and composition of feeds; then to read the label carefully.
- 3rd. In buying compounded feeds to know not only the guaranteed analysis, but the ingredients of which they are composed.
- 4th. Bearing the above in mind, to use the ration which can be obtained at the least cost at the prevailing market prices.

RESOLUTIONS ADOPTED.

Resolved, That we favor the enactment and enforcement of just and effective laws and regulations for the shipment of cattle in interstate commerce.

Resolved, That we favor a national law providing for the like kind of assistance in controlling the spread of tuberculosis as is now extended by the national government in the case of foot and mouth disease, with provision made for the reasonable compensation of the owners of slaughtered cattle.

Resolved, That we favor the re-enactment of the state law requiring that the tuberculin test shall be applied to all cattle offered for sale as breeding stock or milk animals.

Resolved, That we earnestly recommend to the members of the state legislature that the annual appropriation to the Wisconsin Dairymen's Association be fixed at not less than \$6,000 in order that it may meet the increasing demands upon it for efficient work in the supervision of cow testing associations. We make this recommendation because it is our opinion that the cow testing associations present one of the greatest movements for the advancement of dairy farming that is in existence today.

Resolved, That we approve the oleomargarine law proposed by the National Dairy Union and that we commend to dairymen everywhere, the active and intelligent support of this measure, and that we urge upon our representatives in Congress to work for the early passage of this law as a measure of great importance alike to the dairy industry of the state and to all consumers of dairy products.

Resolved, That we favor the adoption of reasonable national standards for all dairy products, and the enactment of suitable legislation by Congress for their effective enforcement.

Resolved, That the thanks of this association be and they are hereby extended to the people of the city of Waupaca and the surrounding country for the intelligent and generous hospitality which has made this convention one of the most successful and enjoyable in its history.

G. W. BURCHARD.

J. Q. EMERY,

JOHN KNEIP,

Committee.

REPORT OF SECRETARY

Inasmuch as our funds are now disbursed through the Secretary of State, it has seemed wise to your secretary to have his report cover the fiscal year. The following is a statement of receipts and disbursements for the fiscal year ending June 30, 1916:

Receipts

July 1, 1915—Balance with State Treasurer-----	\$549 96
July 1, 1915—State appropriation -----	4,500 00
Total-----	\$5,049 96

Expenditures

H. C. Searles, salary and expense-----	\$2,557 41
R. C. McMullen, salary and expense-----	212 90
N. A. Negley, salary and expense-----	879 41
A. J. Glover, salary and expense-----	261 59
Creamery Pkg. Mfg. Co., supplies-----	227 23
W. D. Hoard & Co., printing and blank books-----	243 22
Sundry expense -----	54 90
Convention expense -----	275 13
Total-----	\$4,711 79
July 1, 1916—Balance with State Treasurer-----	338 17
	\$5,049 96

Since July 1, 1916, to present date, I have approved vouchers totaling \$1,038.12, and our account with the State Treasurer has been credited with the annual appropriation of \$4,500.00, making the balance on hand December 1, 1916, \$3,800.05.

I wish at this time to draw your attention to that fact that of the \$4,711.79 spent during the past fiscal year, all but \$536.72 was spent directly in the promotion of cow testing associations—and 50 per cent of this latter amount can well be charged to this account. Owing to a fortunate arrangement made by my predecessor, Mr. A. J. Glover, we secured during the past year, assistance from the United States Dairy Division to the extent of \$1,200.00 and the Wisconsin Experiment Station has fur-

nished office room and stenographic service for one of our field men. During the current year in addition to our own funds, the University of Wisconsin will contribute \$450.00 and the United States Dairy Division, \$1,300.00 to the promotion of cow testing associations in this state. The Dairy Division also supplies all the blank books for the keeping of records and we are therefore relieved of a part of our printing expense, which we have had to pay heretofore.

During the fiscal year, 32 associations were reorganized or combined, 20 new associations were formed and 10 associations died, or, rather, we hope only went to sleep for a time. In order to give greater efficiency to our work and to provide for a larger per cent of reorganizations, I have asked for a further appropriation of \$1,500.00 from the state legislature, which, with further aid promised by the University, will enable us to put another man in the field.

PAUL C. BURCHARD, *Secretary.*



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