Wisconsin Farmers' Institutes : a hand-book of agriculture. A report of the twenty-sixth annual closing Farmers' Institute, held at Neenah, Wisconsin, March 12, 13, 14, 1912. Bulletin No. 26 1912

Wisconsin Farmers' Institutes
Madison, Wisconsin: Democrat Ptg. Co., State Printer, 1912

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AGRICULTURAL EDUCATION.

I teach
The earth and soil
To them that toil,
The hill and fen
To common men
That live right here;
The plants that grow
The winds that blow
The streams that run
In rain and sun
Throughout the year;
And then I lend,
Through wood and mead
Through mold and sod,
Out unto God,
With love and cheer
I teach.

—L. H. Bailey.

"The glory of the farmer is that in the division of labor, it is his part to create. All trade rests at last upon his primitive activity. He stands close to nature; he obtains from the earth the bread and the meat. The food which was not he causes to be. The first farmer was the first man, and all his historic nobility rests on possession and use of land. Men do not like hard work, but every man has an exceptional respect for tillage and a feeling that this is the original calling of his race; that he himself is only excused from it by some circumstances which made him delegate it for a time to other hands. If he has not some skill which recommends him to the farmer, some product for which the farmer will give him corn, he must himself return into his due place among the planters. And the profession has in all eyes its ancient charm, as standing nearest to God, the first cause."

—Ralph Waldo Emerson.

HON. W. A. JONES.

Chairman of Farm Committee of Board of Regents of University of Wisconsin 1895–1897. Died September 17, 1912.

WISCONSIN

Farmers' Institutes

A HAND-BOOK OF AGRICULTURE

BULLETIN No. 26

1912

A Report of the Twenty-Sixth Annual Closing Farmers' Institute, Held at Neenah, Wisconsin, March 12, 13, 14, 1912.

The wealth and strength of a country are its population, and the best part of that population are the cultivators of the soil. Independent farmers are everywhere the basis of society, and the true friends of liberty."

—ANDREW JACKSON.

EDITED BY

GEO. McKERROW

SUPERINTENDENT

FIFTY THOUSAND COPIES ISSUED

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STENOGRAPHIC REPORT BY MRS. A. L. KELLY Chicago, Ill.

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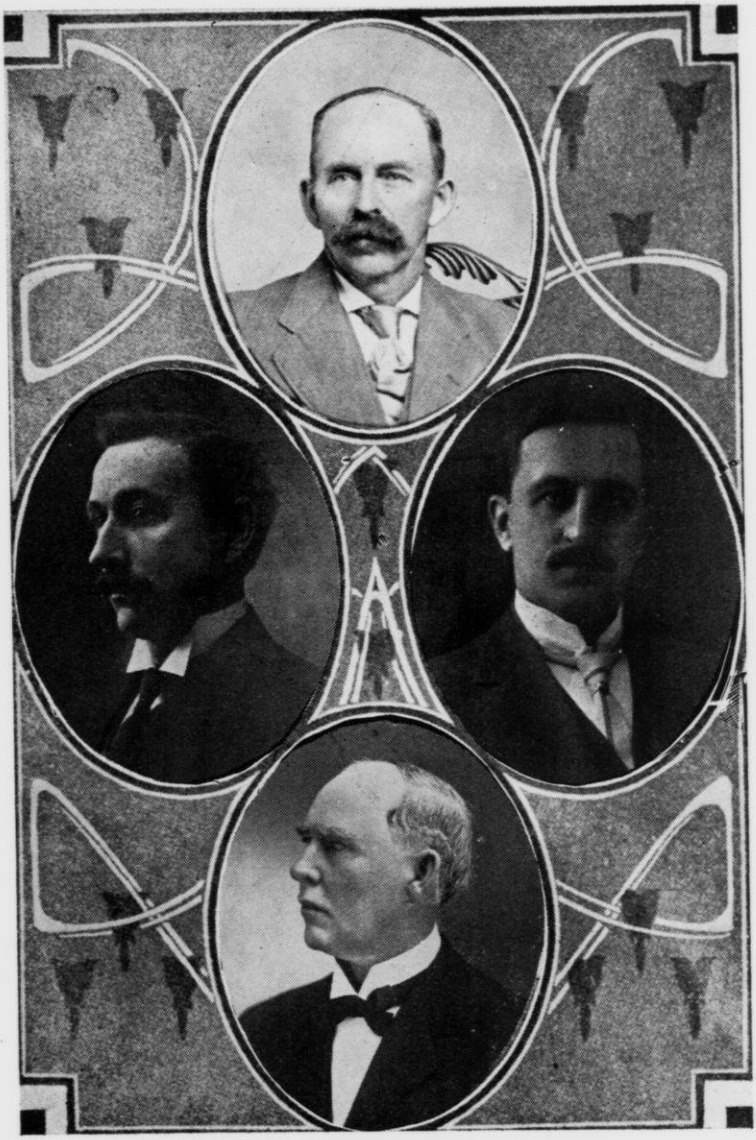


J. W. MARTIN

A. P. NELSON

A. J. HORLICK

D. O. MAHONEY

Four of the five members of the Committee of College of Agriculture of Board of Regents.

LETTER OF TRANSMITTAL

HON. JAMES F. TROTTMAN,

President of the Board of Regents, University of Wisconsin:

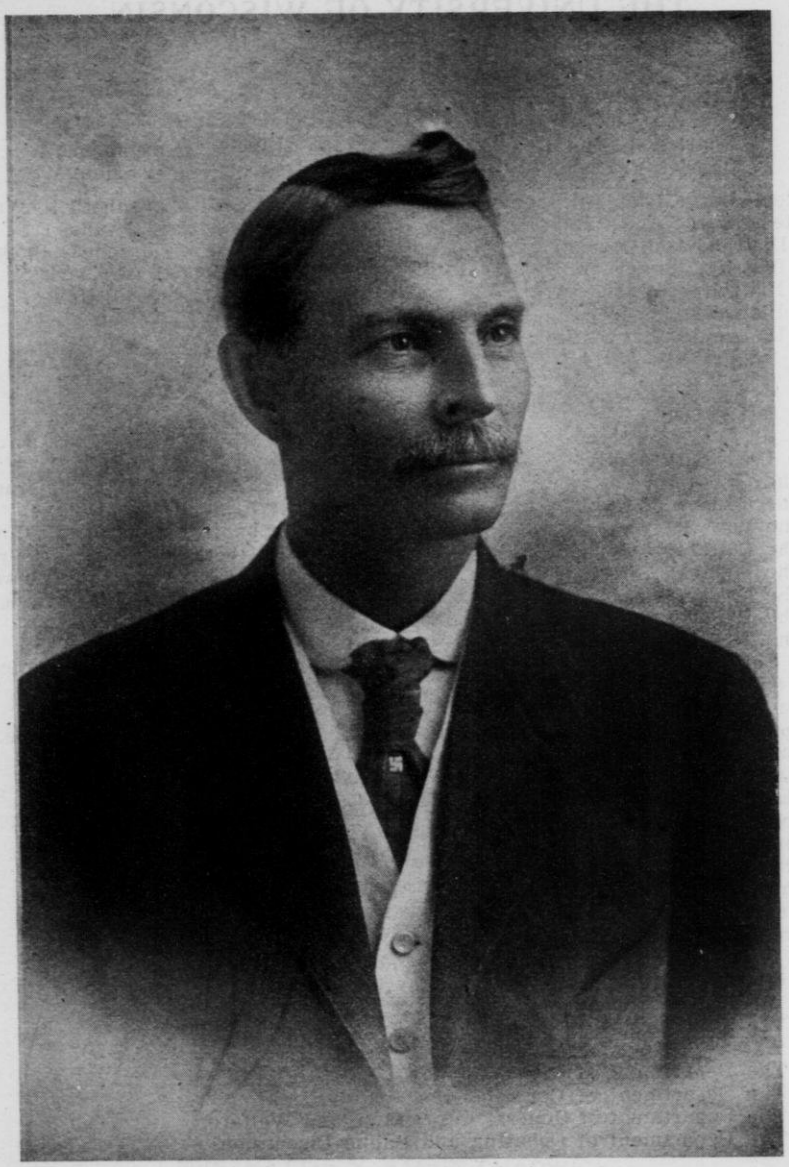
SIR:—I have the honor of herewith presenting to you Bulletin No. 26 of Wisconsin Farmers' Institutes.

Most respectfully yours,

GEORGE McKERROW,

Superintendent.

Madison, Wis., November, 1912.



R. E. ROBERTS.

Farmers' Institute Worker for 10 Years. Died Jan. 24, 1912.

THE UNIVERSITY OF WISCONSIN

Board of Regents.

Charles R. Van Hise, President of the University, ex-officio.
Charles P. Cary, State Supt. of Public Instruction, ex-officio.

State at Large, Gilbert E. Seaman.
State at Large, D. O. Mahoney.
1st District, A. J. Horlick.
2nd District,
3rd District, J. W. Martin.
4th District, Theodore M. Hammond.
5th District, James F. Trottman, Pres.
6th District, Miss Elizabeth F. Waters.
7th District, Edward Evans.
8th District, Mrs. Florence G. Buckstaff.
9th District, Orlando E. Clark.
10th District, Granville D. Jones.
11th District, A. P. Nelson.

M. E. McCaffrey, Secretary.

Organization.

The University embraces—
- The College of Letters and Science.
- The College of Engineering.
- The Law School.
- The College of Agriculture.
- The Medical School.
- The Graduate School.
- The Extension Division.
- The Summer Session.

The College of Letters and Science embraces—
- General Courses in Liberal Arts.
- Special Courses which include:
- Course for Normal School Graduates.
- Chemistry.
- Commerce.
- Journalism.
- Library Training Courses.
- Pharmacy.
- Music.
- Training of Teachers.

The College of Engineering embraces—
- The Civil Engineering Course.
- The Mechanical Engineering Course.
- The Electrical Engineering Course.
- The Chemical Engineering Course.
- The Mining Engineering Course.

The College of Agriculture embraces—
- The Experiment Station.
- The Long Agricultural Course.
- The Middle Agricultural Course.
- The Short Agricultural Course.
- The Dairy Course.
- The Farmers' Institutes.
- Home Economics.

The Law School embraces—
- A Three Years' Course.

The Summer Session embraces—
- Courses in the various colleges and schools in the University.

The Medical School embraces—
- The First Two Years of a Medical Course.

The Extension Division embraces—
- The Department of Instruction by Lectures.
- The Department of Correspondence-Study.
- The Department of General Information and Welfare.
- The Department of Debating and Public Discussion.

Branches of Study.

The University presents a wide range of study embracing more than three hundred subjects. Something of the extent and variety of these may be indicated by the following synopsis: Twelve languages are taught, viz.: Greek, Latin, Sanscrit, Hebrew, German, Russian, Norse, French, Italian,

MRS. HATTIE V. STOUT CHADWICK.

Clerk in Department of Farmers' Institutes from 1892 to 1902.
Died June 3, 1912.

Spanish, Anglo-Saxon and English. In Mathematics there are forty special courses. Under the Sciences there are a large number of courses in each of the following: Astronomy, Physics, Chemistry, Geology, Mineralogy, Zoology, Botany, Anatomy, Bacteriology, Pharmacy. In History there are fifty-three courses; in Political Economy, fifty-six; in Political Science, forty-five; in Mental Sciences there are fifty-five embracing Philosophy, Psychology, Ethics, Aesthetics, Logic and Education. There are nineteen courses in Music, and twenty courses in Physical Education.

Physical Culture:—The Armory and Gymnasium is one of the largest buildings for its purposes connected with any institution of learning in the country. It is provided with rooms for lectures on Physiology and Hygiene, and for class and individual exercise in all the forms of gymnastic practice. There are also the most abundant and approved facilities for shower, sponge and swimming baths.

Adequate accommodations are provided for the women's gymnastics by the completion of Lathrop Hall, which has been fully equipped and is now ready for occupancy. This furnishes ample facilities for systematic courses for young women, and is under the immediate direction of a trained instructor. This provides a new gymnasium for the exclusive use of women.

In Mechanics and Engineering:—Elementary Mechanics, Mechanics of Material, Dynamics, Mechanics of Machinery, Theory of Construction, Thermodynamics, Elementary Surveying, Railroad and Topographic Surveying. Geodesy, Sanitary, Hydraulic, Railroad, Electrical, Steam Engineering, Hydraulic Motors, Hoisting Machinery, Theory and Construction of Locomotives, Railway Locomotives, Railway Location, Railway Equipment, Construction and Maintenance of Way, Railroad Field Work.

In Electricity:—Electrical Testing, Electrical Plants, Electrical Construction, Electrochemistry, and various forms of drawing are given; also shop work in wood, iron, brass, both hand work and machine work, machine designing, construction and testing machines.

In Agriculture:—Various courses are given in agriculture, Animal Husbandry, Farm Management, Dairying, Agricultural Chemistry, Soils, Veterinary Science, Agricultural Physics, Agronomy, Horticulture and Economic Entomology, Bacteriology, etc.

In Law:—Courses in Equity, Jurisprudence, Real Property, Constitutional Law, Wills, Contracts, Torts, Practice and Pleading, Law of Evidence, Corporations, Domestic Relations, Admiralty, Insurance, Estoppel, Partnership, Taxation, Criminal Laws, Common Carriers, Medical Jurisprudence, Probate Law, Code Practice, Agency, etc.

In Pharmacy:—Courses in Practical Pharmacy, Pharmaeutical Chemistry, Materia Medica, Pharmaceutical Botany and Practical Laboratory Work.

General Facilities:—The faculty embraces five hundred and eighty-nine instructors. The laboratories are new, extensive and well equipped; embracing the Chemical, Physical, Metallurgical, Mineralogical, Geological, Zoological, Botanical, Bacteriological Civil, Electrical and Mechanical Engineering, Agricultural and Pharmaceutical Laboratories. Seminaries are held for advanced study in History, Language, Literature, Mathematics, and other branches.

The libraries accessible to students embrace that of the University, 185,000 volumes; of the State Historical Society, 424,000 volumes, including pamphlets; of the State Law Department, 51,000 volumes; of the city, 25,000 volumes, besides special professional and technical libraries, making in all more than 685,000 volumes, including pamphlets, thus affording very exceptional opportunities for reading and special research.

Any person who desires information in regard to any of the colleges or schools, should apply to

W. D. HIESTAND,
Registrar.

First Prize Northern County Exhibit at Wisconsin State Fair, 1912.

COURSES IN THE COLLEGE OF AGRICULTURE OF THE UNIVERSITY OF WISCONSIN MADISON

Summer Session. Last week in June to second week in August. This session includes 11 courses in agriculture, embracing agricultural bacteriology, agricultural chemistry, agricultural education, agricultural engineering, agronomy, animal husbandry, dairy husbandry, farm management, home economics, horticulture, and soils. In 1912, 253 students attended.

Short Course in Agriculture. A term of 14 weeks in each of two years. Registration, Saturday, Nov. 30. Work begins December 2 and includes lectures, demonstrations, and practice work for practical farmers. In 1911–12, 424 attended.

Farmers' Course. This is a ten-days' course of popular lectures, demonstrations and exercises in practical agricultural science, beginning early in February. It is open to farmers over 25 years old. In 1912, 1,208 attended.

Young People's Course. This is a one week course of lectures and demonstrations in agriculture for boys and girls who have taken part in the Young People's Grain Growing Contests. It generally begins early in February. In 1912, 55 attended.

Winter Dairy Course, a twelve-weeks' session beginning early in November, including lectures, laboratory and practice work in the manufacture of dairy products. It is designed especially for buttermakers and cheesemakers. In 1911–12, 133 attended.

Summer Dairy Course. This is a ten-weeks' training in dairy factory operations for beginners. Students are admitted any time during the spring and summer after March 1. In 1912, 9 attended.

Special Dairy Course. This is for creamery and cheese factory operators and managers and covers 10 days, including addresses and laboratory demonstrations. It is given at the time of the Farmers' Course. In 1912, 50 attended.

Women's Course. This is a one-week course of lectures and demonstrations on various phases of home economics, cooking, nursing, etc., and is given during the first week of the 10-day Farmers' Course. In 1912, 506 attended.

Women's One Week School. This is a laboratory course in cooking, given during the second week of the Farmers' Course. In 1912, 48 attended.

Long Course in Agriculture. A four-year course in agriculture, including scientific reasons for modern farm practices. Students may specialize in any line after the second year. In 1912, 508 registered.

Middle Course in Agriculture. A two-year course of agriculture. In 1912, 101 registered.

Home Economics. A four-year course in home economics and general Letters and Science, leading to the degree of Bachelor of Science. This is a general culture course. If students desire to become teachers they must take 12 credits in the department of education. In 1912, 134 registered.

Farmers' Institutes.

George McKerrow, Superintendent — Nellie E. Griffiths, Clerk

THE FARMERS' INSTITUTES DEPARTMENT conducts 133 meetings in various sections of the state where practical lectures and conferences on subjects pertaining to farm life and operations are presented. Forty-one Cooking Schools are conducted for the women. The Farmers' Institute Bulletin is issued annually in an edition of 50,000 copies, and distributed at Institutes and by mail; also 10,000 copies of the Farmers' Institute Cookbook. Any community can secure an Institute upon proper application to the Superintendent. For further information address Supt. George McKerrow, Madison, Wis.

Part of Fruit Exhibit at Wisconsin State Fair, 1912.

WISCONSIN FARMERS' INSTITUTES FOR 1912-13.

ARRANGED BY COUNTIES.

County		County	
Adams	Brooks, Friendship.	Manitowoc	Larrabee, Meeme, Reedsville, Valders.
Ashland	Butternut, Mellen.	Marathon	Edgar, Elderon, Cherokee Hall Town of Hull.
Barron	Barronett, Campia.	Marinette	Amberg, Coleman, Wausaukee.
Bayfield	Port Wing.	Marquette	Endeavor.
Brown	Champion, Wrightstown.	Milwaukee	Kipper's Park Brown Deer.
Buffalo	Gilmanton, Waumandee.	Monroe	Kendall, Norwalk, Valley Jct.
Burnett	Coomer, Danbury.	Oconto	Mosling, Pensaukee, Stiles.
Calumet	Dundas.	Outagamie	Welcome.
Chippewa	Albertville, Bloomer, Cornell.	Ozaukee	Cedarburg, Fredonia Station.
Clark	Abbotsford, Greenwood, Town of Washburn, Withee.	Pierce	Elmwood, Plum City, River Falls.
Columbia	Kilbourn, Rio.	Polk	Amery, Centuria, Frederic.
Crawford	Eastman, Towerville.	Portage	Amherst, Bancroft, Stockton.
Dane	Dane, Deerfield, Mt. Vernon.	Price	Ogema.
Dodge	Clyman, Iron Ridge, Kekoskee.	Racine	Franksville.
Door	Fish Creek, Forestville, Sturgeon Bay.	Richland	Boaz, Gotham, Hub City, Viola.
Douglas	Poplar.	Rock	Magnolia.
Dunn	Red Cedar.	Rusk	Bruce.
Eau Claire	Fairchild.	St. Croix	Hersey, Star Prairie.
Florence	Homestead.	Sauk	Lime Ridge, Prairie du Sac.
Fond du Lac	Mt. Calvary, Oakfield.	Sawyer	Stone Lake, Winter.
Forest	Crandon.	Shawano	Birnamwood, Green Valley, Pulaski.
Grant	Hazel Green, Lancaster, Muscoda, North Andover.	Sheboygan	Cedar Grove, Johnsonville.
Green	Browntown, New Glarus.	Taylor	Gilman, Medford.
Green Lake	Dalton.	Trempealeau	Blair, Pigeon Falls, Strum.
Iowa	Barneveld.	Vernon	Coon Valley, Rockton.
Iron	Hurley.	Vilas	Eagle River.
Jackson	Hixton, North Bend.	Walworth	Honey Creek.
Jefferson	Palmyra.	Washburn	Sarona, Trego.
Juneau	Hustler.	Washington	Hartford, West Bend.
Kenosha	Pleasant Prairie, Salem.	Waukesha	Nashotah, Wales.
Kewaunee	Algoma, Norman.	Waupaca	Clintonville, (Round-up), Iola, Waupaca.
La Crosse	Rockland.	Waushara	Pine River, Plainfield.
Lafayette	Belmont.	Winnebago	Omro.
Langlade	Antigo.	Wood	Milladore, Nekoosa.

INSTITUTES WITH DATES AND CONDUCTORS.

Dates.	L. E. Scott, Conductor.	David Imrie, Conductor.	H. D. Griswold, Conductor.	L. P. Martiny, Conductor.	E. C. Jacobs, Conductor.	Fred Stubley, Conductor.
1912. December.						
10–11	Hersey	Centuria*	Sarona	Star Prairie	Coomer	Poplar
12–13	Elmwood	Frederic*	Winter	River Falls	Danbury	Port Wing
17–18	Amery*	Stone Lake	Trego	Hurley	Bloomer†	Campia
19–20	Butternut	Gilman	Bruce†	Mellen*	Cornell	Barronett
1913. January.						
7– 8	Wausaukee†	Amberg	Antigo	Eagle River	Mosling	Birnamwood*
9–10	Homestead	Coleman†	Edgar	Crandon	Green Valley	Elderon*
14–15	Albertville	Hixton‡	Valley Jct	Fairchild	Gilmanton*	Plum City
16–17	Red Cedar	Pigeon Falls	Town of Washburn	Blair‡	Strum*	Waumandee
21–22	Amherst	Medford	Greenwood*	Waupaca‡	Milladore	Abbotsford
23–24	Bancroft	Town of Hull	Nekoosa*	Stockton‡	Withee	Ogema
28–29	Sturgeon Bay*	Forestville	Norman	Iola	Pensaukee	Stiles‡
30–31	Algoma*	Fish Creek	Larrabee	Welcome	Champion	Pulaski‡
February.						
11–12	Rockland	Eastman	Norwalk	Reedsville*	Rio‡	Towerville
13–14	North Bend	Viola	Coon Valley	Wrightstown*	Kilbourn‡	Rockton
18–19	Mt. Vernon	Muscoda‡	Lancaster*	Belmont	New Glarus	Prairie du Sac
20–21	Magnolia	North Andover‡	Barneveld*	Hazel Green	Browntown	Hub City
25–26	Deerfield*	Gotham	Nashotah	Pleasant Prairie	Honey Creek‡	Lime Ridge
27–28	Wales	Boaz	Iron Ridge	Salem	Franksville‡	Dane*
March.						
4– 5	Endeavor‡	Friendship*	Brown Deer	Hartford	Pine River	Dalton
6– 7	Plainfield‡	Oakfield*	Fredonia Sta	Kekoskee	Clyman	Brooks
11–12	Hustler	Omro	Cedarburg‡	Johnsonville	Dundas	Palmyra*
13–14	Kendall	Meeme	Cedar Grove‡	Mt. Calvary	Valders	West Bend*

Twenty-seventh Annual Closing Institute and Cooking School, Clintonville, Waupaca Co., Wis., March 18, 19, 20, 1913.
All inquiries relative to Farmers' Institutes will be answered promptly.

GEO. McKERROW, Supt.,
Madison, Wis.

Cooking Schools conducted by Miss Nellie Maxwell (*)
Cooking Schools conducted by Miss Edith L. Clift (†)
Cooking Schools conducted by Miss Laura Breese (‡)

"More and Better Live Stock" Demonstration Train of Wisconsin Live Stock Breeders' Association at Livingston, Wis., March 27, 1912.

PROCEEDINGS

OF THE

TWENTY-SIXTH ANNUAL

CLOSING FARMERS' INSTITUTE

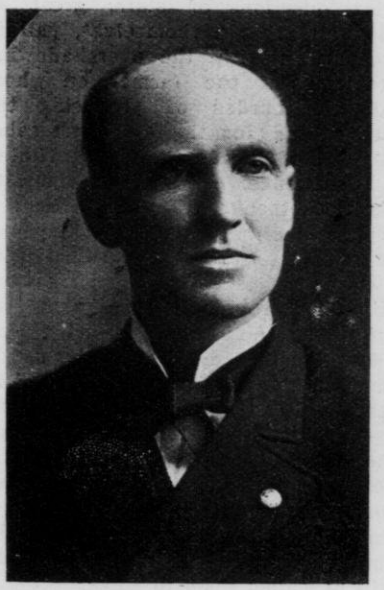
HELD AT

NEENAH, WIS., MARCH 12, 13, 14,

1912

Mr. Defnet, charman of the local committee, called the meeting to order and introduced Superintendent McKerrow.

Prayer by Rev. J. L. Marquis.



Mr. Campbell

ADDRESS OF WELCOME.

Hon. M. L. Campbell, Neenah, Wis.

It is a matter of more than passing moment when men and women engaged in the most important business in this great commonwealth gather to confer with one another and to receive from specialists instructions appertaining to that business. In view of the high character of your calling and of its direct bearing on the prosperity and happiness of all other persons, it gives me great pleasure, at the request of our mayor, Captain J. N. Stone, and on behalf of the entire citizenship of our city, to extend to you a most cordial greeting.

It is quite proper that we should be honored by having your Closing Institute of the year held in our city. Neenah is an agricultural center. I think this was the first place in the State of Wisconsin where scientific agriculture was taught. More than three-quarters of a century ago, way

back in 1835, the United States Government made an appropriation and employed four competent men to come to Neenah to give instruction in the science of agriculture. From that time to the present, the business of agriculture and the success of those engaged therein, has received due consideration from the citizenship of Neenah and vicinity.

Mayor J. N. Stone, who, by the way, won the title of Captain by honorable service for his country during that trying period when the question of preserving intact for all time the union of the states composing this glorious country of ours was being determined, for many years has been the editor and publisher of the Neenah "Times," and has always stood for the interests of the great common people. He has always had a good word to say for the farmer.

It is with no little pride that we call your attention to the fact that the passage of the "Filled Cheese Bill," and other legislation directly benefiting the dairymen, was secured through the untiring efforts of our esteemed townsman, Honorable S. A. Cook.

These are but examples of the broad and general interest of our citizenship in your welfare which lend a peculiar and distinctive emphasis to the hearty welcome we extend to you today.

I said that Neenah is an agricultural center. It is also headquarters for dairy products. We have here a large creamery, two modern cold storage plants and three wholesale cheese establishments. To give you some idea of the wealth producing power of the herds of milch cows owned by the farmers of this vicinity, I call your attention to the fact that nearly eight million pounds of cheese were handled by our cheese merchants last year, valued at over a million dollars—an immense amount of money, representing but one of the many products of the farm in this locality.

The other day, in conversation with a retail merchant in a city not far from here, I was asked why the State should spend so much money in helping the farmer. "Why not send specialists in our line to help us?" I replied: "Without reflection upon the convenience and utility of your business to the people, we can live without it, but none of us can exist without the products of the soil. Everything we eat, everything we wear, our homes and the contents thereof, in the last analysis, come from the ground—the farmer virtually feeds and clothes the world." How important, then, to all of us are these meetings of yours, whereby you learn to increase the quantity and improve the quality of your output.

No class of men have greater problems to solve than the tiller of the soil. Political questions, economic questions, as applied to other industries, questions of state, great as they all are in themselves, pall in comparison with the overshadowing problems of the farmer, on whom falls the burden of producing the food stuffs for the ever increasing millions of people. It is not vital to our existence, or even seriously to our pocketbooks, whether we have a system of direct taxation or a system of income taxation. The principle of reciprocity certainly challenges our attention; the manner of selecting political, administrative and judicial officers, the tenure of office, the recall, the initiative, the referendum, and all other similar and kindred subjects are worthy of our most serious thought; but as time rolls on, it will be more conclusively demonstrated than ever before that all together they are of less importance than the one great problem which the farmers will be called upon to solve.

The available fertile land for agricultural purposes is limited. The rec-

City Hall, Neenah, where Round-up Farmers' Institute was held

lamation service of the United States government, and of several of the states, has reclaimed hundreds of thousands of acres of land, and may yet be expected to add some to that already reclaimed. Yet, withal, the land that can thus be brought under profitable cultivation is restricted to the available water supply, which cannot be increased. Low lands and marsh lands are rapidly being drained and placed under cultivation, but that there is a limit to such land is even within the comprehension and knowledge of ordinary people. The population of the world is constantly increasing. When practically all fertile land is occupied, the value thereof will be greatly increased. When demand for food stuffs exceeds the supply, prices go up accordingly. How to furnish food at a reasonable price to the increasing millions of hungry mouths and yet yield a fair profit to the producer, involves some of the problems for the farmers to solve that have to do with life itself. If any of you think that these statements are over strong, reflect for a moment upon the ever recurring famines in foreign lands, with the attendant death of thousands upon thousands of men, women and children, for want of bread, coupled with a lack of a large surplus crop in this country, and you will find significant proof of the verity of these statements.

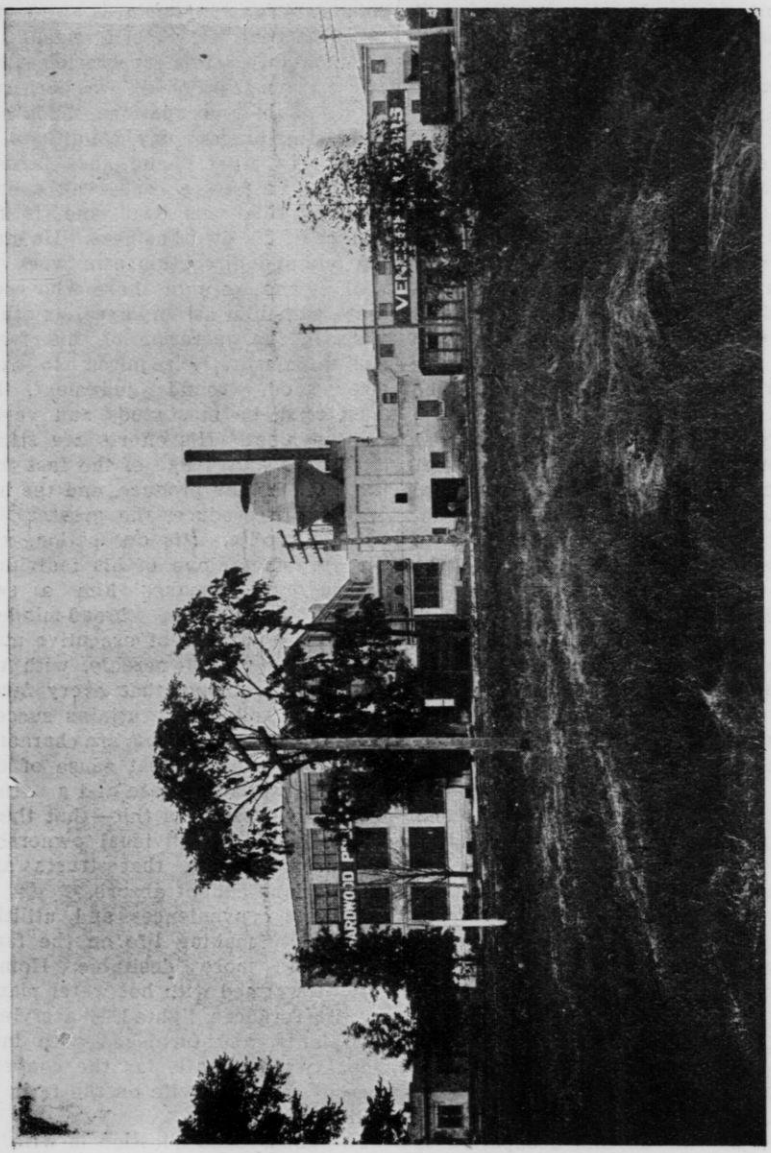
For many years past the average wheat yield in one of the wheat producing states of our union has been less than fifteen bushels per acre. Most certainly this yield can be increased to thirty bushels per acre by the continued application of the principles of scientific agriculture. With twice the yield, even though wheat be sold at seventy-five cents per bushel instead of one dollar, the farmer would receive a larger income and all the people would have cheaper bread.

I am told upon good authority that the average production, in value, of milk from the number of cows owned in Winnebago county can be increased fully fifty per cent within four years' time. What an opportunity the farmers have to materially add to their annual income, and what a benefit awaits the consumer, who, in time, will have a better product at a more moderate price.

The intrinsic value of land lies in its fertility. Increased fertility means larger crops and greater profits. One with scant mentality can plow and sow and reap, but to attain the rich rewards of success, one must use his brains in agricultural, as in other pursuits. A young student of a noted landscape artist, being greatly desirous to discern the secret of his master's ability to put views of landscapes upon the canvas with lifelike accuracy, timidly asked, "What do you mix with your paints?" To which the great artist replied, "Brains, brains, sir!" So if one inquires what do you mix with the soil to produce such wonderful crops,—what do you mix with the feed that your cows yield rich milk in such abundance, you can truthfully say, "Brains, brains, sir."

Side by side with the importance of the production of food, comes the necessary and ever increasing knowledge of the art and science of the preparation of food for consumption. The women of our city are deeply interested in this branch of your program, while it goes without saying that we men are prepared at any and all times to demonstrate our approval of the net results. In our high school is maintained a domestic science department to which the visiting ladies are most cordially invited. We shall be pleased to have you give careful attention to this branch of instruction in our public schools and favor us with such practical suggestions for our profit as you may have to offer.

But there is a phase of your occu-



Hardwood Products Co. Plant, Neenah, Wis.

pation which has an influence upon the body politic, not always rated at its full worth. In view of the rapidly changing conditions in this country, I believe your occupation has an increasingly potent bearing upon the quality of the citizenship of our State and of our nation. Particularly during the last twenty-five years we have to a very large extent witnessed the passing from the business world for all time of the individual proprietor.

Years ago, every community had its miller. Now the major portion of the wheat is ground in mammoth mills in the big cities. The country miller that we used to know is no more.

Formerly, our sleighs, our wagons and our buggies were made in a countless number of small shops scattered throughout the country. A wagon factory was as familiar a sight as a blacksmith shop. One by one the small vehicle factory has given up the fight. The combination of millions of capital has absorbed this business as well as others.

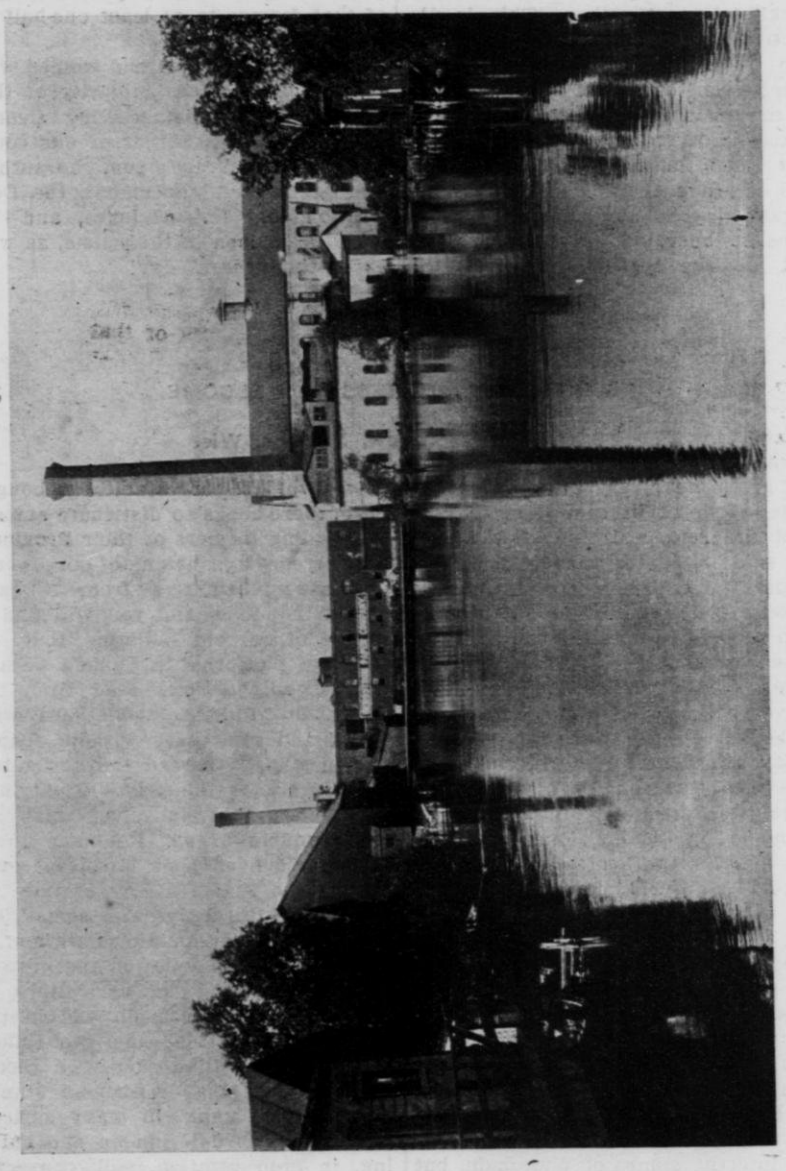
These illustrations might be multiplied to show that one by one the individual proprietor has fast been passing out of existence. Partnership followed individual ownership and corporations have superseded the partnerships. A few executive officers of the present day represent the many individual proprietors of twenty-five years ago.

Activity of body produces physical strength. Likewise, constant exercise of the various functions of the brain produces mental power and vigor. The man, for instance, in a mammoth steel and iron plant, who tends a machine, or threads nuts and bolts all day long every day, has no opportunity, so far as his occupation is concerned, to grow into a broad man of affairs. He is never required to take the initiative in anything—never called upon to exercise his judgment. So it is with thousands upon thousands of men who cannot now be sole owners of a business, who cannot be executives, superintendents, or foremen in a large corporation. They are circumscribed by the environments of their occupations, made necessary by present day conditions.

On the other hand, the farmer, whether he pays a cash rent, a crop rent, or tills his own land, is the master of his own business. He must lay out and direct his own work, as well as the work of those who cooperate with him as employes, or otherwise, in the operation of his farm. He is constantly required to exercise good, sound judgment. He must read, he must study, and verify his judgment. His efforts are stimulated by a knowledge of the fact that the more he can produce, and the better he can produce, the greater will be his profits. His occupation, yes, the very fact alone of his individual proprietorship, makes him a self-reliant, resourceful, broad-minded, man. The burdens of executive management and of ownership, with the attendant problems that every farmer has to solve if he attains success in his chosen vocation, are character builders in the highest sense of the word. So we, as a State and a nation are richly blessed in this—that there is one class of individual ownership and proprietorship that trusts and corporations cannot absorb.

Modern conveniences and utilities are rapidly making life on the farm more and more desirable. Homes may be warmed with hot water plants or with furnaces, lighted by acetylene gas plants, and furnished with individual water plants, for the convenience of the housewife on the farm as well as in the city.

The good roads question is with us to stay. The building of permanent public highways under government supervision, and partly at least, at the general expense of the State, may



Water-power View, Neenah, Wis.

be accepted as an established fact. Good roads bring the farmer and the market closer together. This is distinctively to the advantage of one who owns land somewhat remote from his central market point. I see, in the near future, a sturdy farmer seated high on a sixty-horse power auto truck, loaded down with four tons of produce, going to town over a macadam road at ten or twelve miles an hour, and I venture to say that no one speeding through the country with a four to seven passenger touring car will dispute the right of that farmer to at least one-half of the highway.

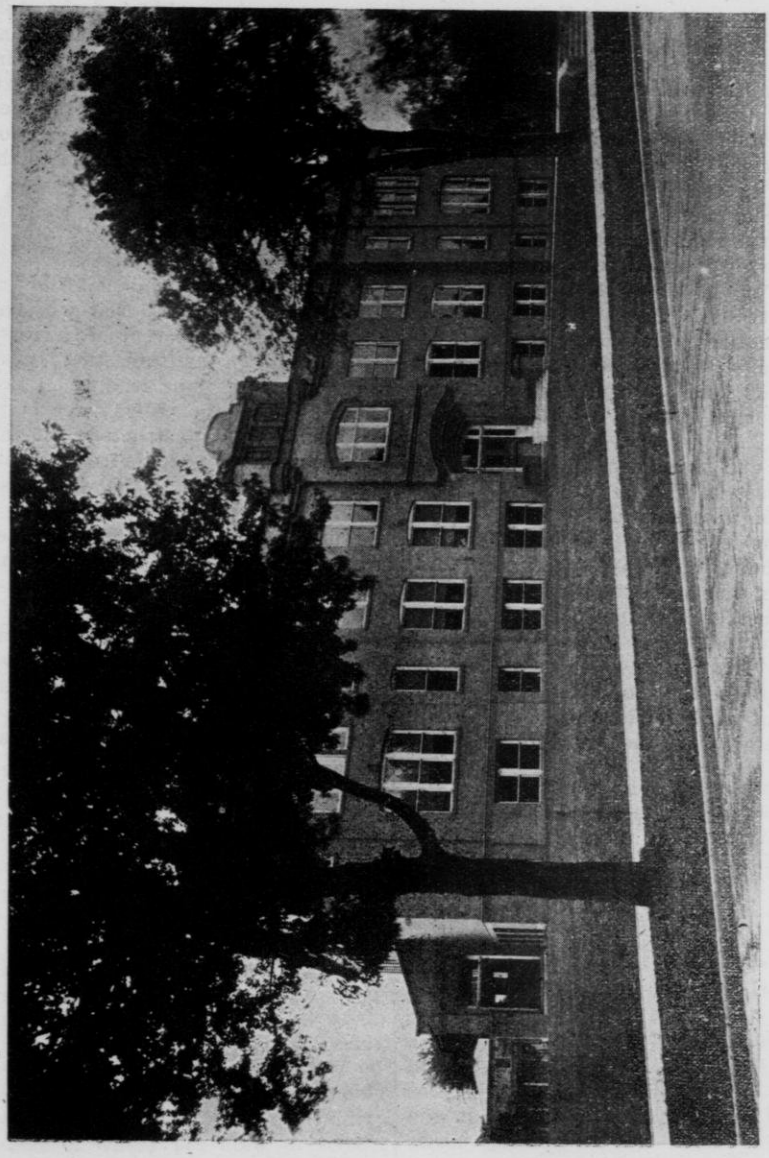
All hail to the men and women who are maintaining the integrity of that great business, honored by George Washington, the Father of our country, by Thomas Jefferson, the author of that immortal document, the Declaration of Independence, and by other great men of their time, as well as of the present day!

RESPONSE TO ADDRESS OF WELCOME.

Supt. Geo. McKerrow, Madison, Wis.

It gives me pleasure to respond to these words of welcome and to note what the representative of this city has said in regard to our calling as farmers and our responsibilities as citizens and as the world's feeders. I am pleased to note that he has welcomed us all here. We feel this welcome and have felt it in the hand-clasp of everybody we have met here since we began to come into your city yesterday afternoon. We are glad to be here. As we look back twenty-six years, we remember that the first Round-up or Closing Farmers' Institute held in the State of Wisconsin, or held the world for that matter, was held in the Fox River Valley, up here at Green Bay. Each year since that time the farmers of Wisconsin have met at some point within the State to hold these Round-ups; for twenty-five years the experiences that have been gleaned in these meetings have been brought together in the Wisconsin Farmers' Institute Bulletin, and this Bulletin has found its way not only into the homes of Wisconsin, but into the homes of every State in this American Union, into the Provinces of Canada—only a few years ago the new Province of Manitoba bought 500 of these books to distribute among the leading farmers of their Province. A few years ago, at one of our Round-ups, a representative from Canada stated in public, and you will find it in one of our old Bulletins, that on Institute platforms in Canada he had heard whole articles read from the Wisconsin Bulletin, sometimes with credit and sometimes without. Those of you who have read the agricultural papers for the last twenty-five years know that many, very many of the products of our Round-up Institutes have been sent broadcast over the United States in the columns of the agricultural press, sometimes with credit and sometimes without.

You who have followed the growth and development of agriculture in the State of Wisconsin and in the other States of the American Union, without my telling you will recognize the fact that Wisconsin stands in the front rank in many agricultural lines; in dairying, in silo building, in crop rotation, soil conservation; in farm homes we stand first. Now, we do not claim all these results as having sprung from the



Kimberly High School

Farmers' Institutes alone, but we do claim that Wisconsin put into the field the first system of State organized Farmers' Institutes, and that every other State in the American Union has followed her example and every Province in Canada has come into line. We do claim that the Wisconsin Institutes were the basis of State systems of agricultural education that have been made into extension courses for the farmer.

Now, we are here today again in the Fox River Valley to hold the Twenty-Sixth Closing Institute. You will notice from your program that we have very many subjects to handle, some of them practical for this locality and some not so practical. But let me explain to you, ladies and gentlemen, that one of the purposes of the Round-up Institute is to bring together just as much knowledge as possible on our business and to send it out to the farmers of Wisconsin who are not able to attend the Institute on account of distance from the central point where it is being held. That knowledge, after being put into the shape of a Bulletin, is sent out as a handbook of agriculture. Therefore in the conduct of this meeting and in following out the program, you will note that one of the purposes is the making of the Bulletin, and on that account I want to ask you all to take part in the meeting, to draw out from the speakers, who are only given a limited time to speak on the main points, your questions and suggestions of those things that you think will be of most value to the farmers who are in attendance, and therefore of the most value to all the farmers of the State.

I will say for the benefit of the ladies and gentlemen that we have brought in here, as representatives of the Farmers' Institute, that I was told by one of your leading citizens last night that the police force of the city had been instructed to take good care of you people from the outside. Now, a word to the wise is sufficient, and I think, sir, that some of the people who have come in here from the outside are fairly wise and therefore I trust that your lock-up will not be overcrowded.

Thanking you again for your wise and kind words of welcome, we will attend strictly to business from now on.

Mr. W. F. Stiles called to the chair.

OUR SOILS

Prof. J. C. McDowell, U. S. Department of Agriculture.

Prof. McDowell

The soil is not a dead, cold mass of matter that can profitably be studied only in the chemical laboratory, or by consulting the dry pages of the numerous text books that have been written on the subject. No, our fertile soils are full of life and energy and they demand the constant, thoughtful care of the intelligent farmer as much as does the spirited horse, or the best cow in the barn. To be careless in our treatment of the soil is as fatal to profitable agriculture as to be indifferent in the treatment of our live stock. No one would expect much work from the shivering horse that is too thin to cast a respectable shadow, then why should anybody expect to harvest thirty bushels of wheat per acre, or expect his soil to yield eighty bushels of corn when the land has been poorly plowed, carelessly cultivated, and when it is literally starving for lack of plant food and for want of humus?

The roots of corn, wheat, oats and barley may penetrate the soil to a depth of three or four feet, and clover and alfalfa extend much deeper, yet the fact remains that nearly all the food of plants is gathered in by the great net-work of roots that forage in the surface six inches, or at most in the surface foot of soil. Remove from this old earth its outer twelve-inch layer, or destroy this foot of surface soil in any way, and all the riches of the world would be forgotten in the cry for bread. Knowing that the natural process of soil building is very slow, and that it has required many thousands of years to make this thin soil blanket for the earth, knowing also that our soils are already badly worn in places, and that they are the final source of all our food and clothing, is it not worth while to pause a little in our rush for wealth and consider how best the fertility of these soils may be preserved?

Should our gold mines ever become exhausted, some other metal would doubtless take the place of gold; long before the coal mines yield up their last ton of coal our scientists and investigators will have harnessed the rivers, the tides and the heat rays of the sun, and from these sources we will receive power, heat and light; but when the law of diminishing returns causes our soils to respond feebly to the labor of the farmer, and the cost of living becomes unendurable, we must learn how to manage our farms so as to increase production and at the same time maintain fertility. The so-called abandoned farms of the east, the worn-out cotton lands of the

south, and the decreasing yields of wheat lands of the middle west, are object lessons from which we all may learn.

I wish you could have been with me in the summer of 1910 as I traveled through parts of New York and the New England states. While inspecting the so-called abandoned farms of New York State, I drove by team for three days, and during that time I saw only two men at work in the fields. I asked, where are the farmers? and was told that they were in town working for a dollar and a half a day. This was in the central part of the State where the soils at one time were good and were the railroad facilities are among the best in the United States. Many of these farms can be bought now for one-half what it would cost to put up the buildings. Some of them are hilly and stony and in other ways unsatisfactory, but I saw a great number of abandoned farms that were not at all undesirable.

I remember one farm in particular, only two and a half miles from De Ruyter, New York. The farm consisted of five hundred acres of comparatively heavy land. Four hundred acres were under the plow, gently rolling and not very stony. The remaining hundred acres were hilly, stony, in timber and unfit for cultivation. There was a good house and two good, large barns. We estimated the value of the buildings at six thousand dollars. Here was a farm of five hundred acres, four hundred under cultivation, six thousand dollars' worth of buildings, two and a half miles from a good town and railroad station. We inquired the price and were informed that we could close the deal for three thousand dollars, part cash. This is only one of many such instances that I might relate.

What is the trouble? What has brought about this condition of affairs? I do not know what is the trouble in every case, but in the great majority of them the present conditions have been brought about by bad systems of farming.

Mr. Monroe, of our Department, is doing what he can to bring back the old-time fertility to these soils, and he is making great progress, but how much better it would have been if the fertility had never been allowed to run low. After adding lime to correct the acidity of these soils, Mr. Monroe is able to grow a fair crop of buckwheat which he plows under as a green manure. This adds humus to the soil and brings it into better physical condition. Next he grows legumes and cultivated crops, and gradually puts the land on a paying basis. All this takes time and capital, and the solution of the problem requires all the knowledge and skill of this man who has made it a study for years.

My trip through the east was for the purpose of gaining information that would assist us in improving our western agriculture, and I learned much that will be of use to me in my wok, but the most impressive thing I saw was the deplorable condition in which I found some of these abandoned farms. I realized the danger into which we are drifting if we are to go on cropping our western soils in the careless way in which we have started. But if the farmer of the present will do his duty by his soil and his country, we need have no fear concerning the prosperity of the generation that is to follow us.

What are we to do? We are not farming for the fun of it, neither are we managing our farms to demonstrate some pet theory of conservation. To be sure, we all want conservation of resources, but what we desire most of all on every farm and in every occupation is utility and efficiency. We must not and cannot conserve our soils by letting them lie

idle. They must be made to give us the maximum of crop, and in return they must receive the best of care at our hands.

The soils of this State differ greatly in chemical composition, and every farmer should know something of the food requirements of the crops he is producing. Without this information, how is he to know what products can safely be sold from the farm? The farmer who goes ahead blindly, and freely sells the article that will bring the greatest immediate financial returns, regardless of effect on the soil, may make money for a time, and I know it is possible for us to rob our richest soils and pile up big bank accounts at the expense of the succeeding generation. This is the system that has been followed constantly by the pioneer in this country. Westerners speak of it as mining the soil. That is, the readily available plant food is taken from the virgin soil in the easiest way possible and sold on the nearest or most convenient market for what it will bring. As soon as the yield runs low, Mr. Farmer, or Mr. Soil Robber, whichever you please to call him, sells his farm, packs his goods into a wagon, and on he goes to exploit newer lands farther west. Why, it is related of a South Dakota farmer that he had moved so many times that when his chickens saw a covered wagon stop at the door they would flop over on their backs and stick up their feet in order to be tied and thrown in.

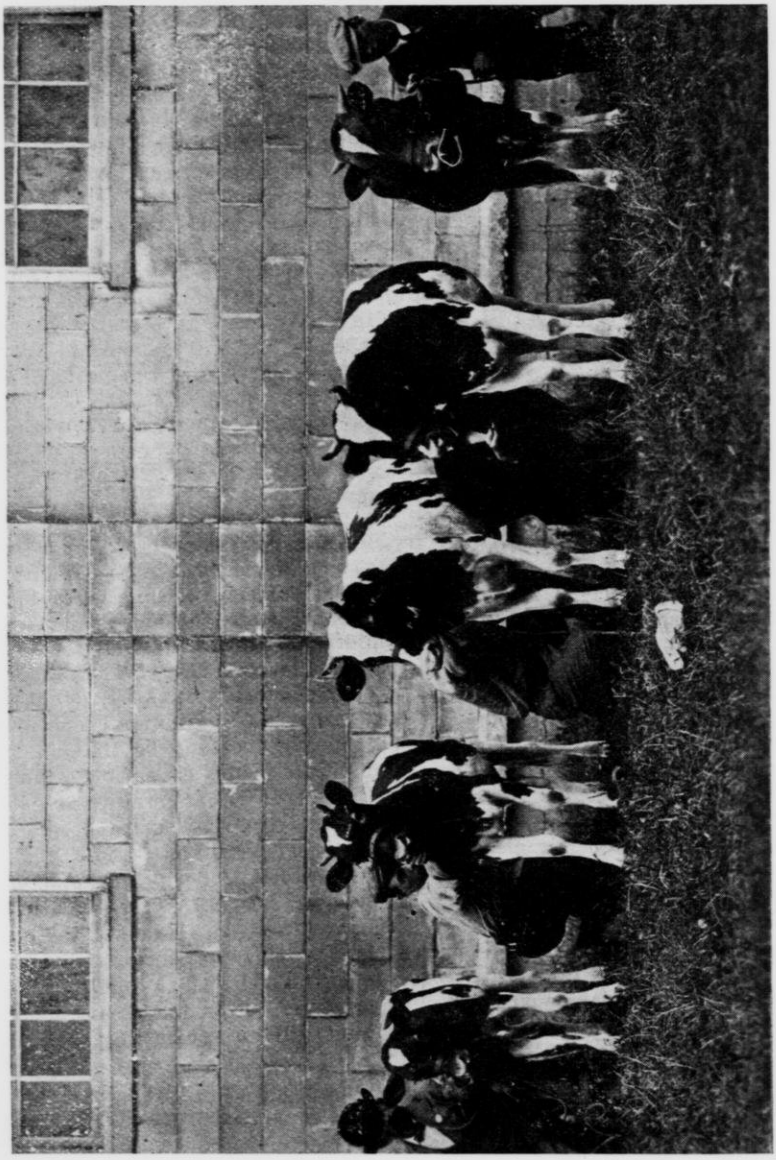
What Is Good Soil Management?

What constitutes good soil management? Hopkins says that we must maintain and improve the chemical composition of soils and that we must guard especially against the loss of phosphates. Whitney and Cameron have advanced the idea that each crop poisons the soil against itself, and that this is the chief reason why rotation of crop gives such striking results. King emphasizes the physical condition of soils, Cates the destruction of weeds, Campbell the conservation of moisture and Bolley the tremendous losses due to plant diseases that are transmitted through infected soil. Alkali soils are common in the west, acid soils are of frequent occurrence in the central and eastern states, and the maintenance of humus is a great problem everywhere. To discuss any of these nine topics in detail would require much more time than I have at my disposal, therefore it will be best to confine my remarks to a brief consideration of two or three of these problems, though others are doubtless fully as important.

Some Ways of Conserving Fertility.

How can we raise crops and live stock and sell enough from our farms to net us sufficient income with which to support ourselves and families in comfort and still maintain our soils in their original fertility? This is not an easy question to answer, but it is not impossible of solution. The answer must of necessity be different for each locality, and as a rule it must vary to some extent for each individual farm. The city demands milk, butter, meat, grain, hay, and also the raw materials for the manufacture of clothing; and all of these must be furnished from the farm. If the city demanded dairy products only, the problem of plant food would be easy to solve, as butter and cream do not draw heavily on soil fertility.

Crops, live stock or live stock products must be sold from the farm; and each carries with it a certain amount of plant food. When plant food is sold from the fields faster than natural processes and skillful farming make it available, we must determine as to the advisability of re-



Breeder's young herd, all sired by Rhea's King of the May, No. 14368, owned by John H. Williams, Park Farm, Waukesha, Wis. First at Iowa, Minnesota and Wisconsin State Fairs, 1912.

turning to the soil as much as the crops remove.

It is fortunate that most of the elements required to produce plants are always in the soil in such large quantities that they may be disregarded, and it is also of fully as much importance that some of the elements are supplied from the air and water. If all these elements had to be purchased on the market in large enough quantity to supply our crops in full, we would soon reach the end of agriculture in this country; but luckily such is not the case. Of the many elements needed in plant growth, we may usually disregard all except four; nitrogen, phosphorous, potassium and calcium. Many of our soils are well supplied with calcium and potassium, and clover, alfalfa and other legumes are able to make the nitrogen of the air available in our soils for all plants. This means that the problem of supplying phosphorous for our crops is one of the greatest problems connected with permanent systems of agriculture.

As each product of the farm contains all these elements, there is no system of farming that will enable us to sell anything from our farms without using up at least a small amount of the phosphates of the soil, but every farmer should know to what extent his present system of farming is using up plant food, and he should adopt a system that will at least replace the phosphates that are being used. It requires about two dollars to buy the amount of phosphorous and potassium in a ton of clover hay, and about the same amount for that in a ton of clover seed. The ton of clover hay sells for perhaps twenty dollars, while the ton of clover seed may sell for three hundred dollars, or for fifteen times as much as the clover hay. On light soil we may be able to buy fertilizers for such crops as clover seed, while it would be out of the question for us to buy fertilizers for clover hay, unless we feed all the hay on the farm. I wish I had time to develop this phase of my subject, but these figures give us some idea as to why so few farmers can afford to sell hay on the market. If time permitted, we might carry this idea a little farther and see how much more you get for phosphorous and potassium when you sell them in the form of beef and pork than when they are sold in the form of hay. If you will investigate a little, you will find that butter, being composed largely of carbon, hydrogen and oxygen, which are supplied entirely from air and water, takes little plant food from the soil. With butter at thirty-five cents a pound, the phosphorous and potassium in seven thousand dollars' worth costs but one dollar.

Being a westerner and having lived in the west and middle west all my life, I am inclined to believe in those systems of farming that include little or no commercial fertilizer. By following systems of farming that include much live stock, by the careful preservation and intelligent application of barnyard manures, by the plowing under of hairy vetch or some other legume as green manure on those fields at a distance from the barnyard, and by the practice of a rotation of crops in which grain, legumes and cultivated crops follow each other in logical order, I believe we can maintain permanently the fertility of the soil with the minimum of commercial fertilizer.

Undoubtedly there are many of our western soils from which the net financial returns can be much increased by the use of potash and phosphate fertilizers. To show what is being done with fertilizers by some of our enterprising farmers, let me relate an incident that came under my observation a short time ago.

It was with pleasure that I noted the remarkable results obtained this season by the use of rock phosphate

and muriate of potash on the farm of G. R. Rice, near the village of Genesee, Waukesha Co., Wisconsin. I had heard of the work that Mr. Rice is doing, but was unable to visit his farm until early in September.

Mr. Rice is using commercial fertilizers carefully and economically and he is working for financial gain on each acre fertilized. From the appearance of his corn fields, he is certainly getting his money back many times over in this one crop, though the yields are not phenomenal. Mr. Rice this year applied two hundred pounds of muriate of potash per acre for corn on marsh soil, and on other parts of the same field he used eight hundred pounds of ground rock phosphate per acre with ten tons of barnyard manure. When the fertilizer was applied, the corn yielded about ten to twelve tons of ensilage per acre and on those parts of the field where fertilizer was not used the corn was worthless. The results this year were about equal from the potash without manure and the larger amount of phosphate rock with the manure. It is to be expected, however, that the latter will be much more lasting and that the phosphate, which in this form is slowly available, will continue to give increased yields for a number of years. On many of our low lands in southern Wisconsin, corn has failed this summer. How much the crop could have been improved by fertilizers no one can say, but the object lesson on the Rice farm was very interesting and instructive. It is well known that many marsh soils are low in potash. Fertilizer trials on reasonably small plots are inexpensive, and frequently they indicate exactly what is needed to make our soils productive.

In Michigan, Wisconsin and Minnesota, systems of farming are sometimes unsuccessful on account of sour soils. After having tested with blue litmus paper several thousand samples of soil in this area and having found about seventy-five per cent of those tested to be sour, I am of the opinion that there are large areas in these states where the application of a moderate quantity of lime in some form will greatly increase the profits, and that failure may be changed to success with little effort and at small expense. It is probable that the percentage of sour soils mentioned is much above the average for the total area considered, because most of the tests were made on soils that were thought to be acid. It is also possible that the litmus paper test is not always to be depended upon.

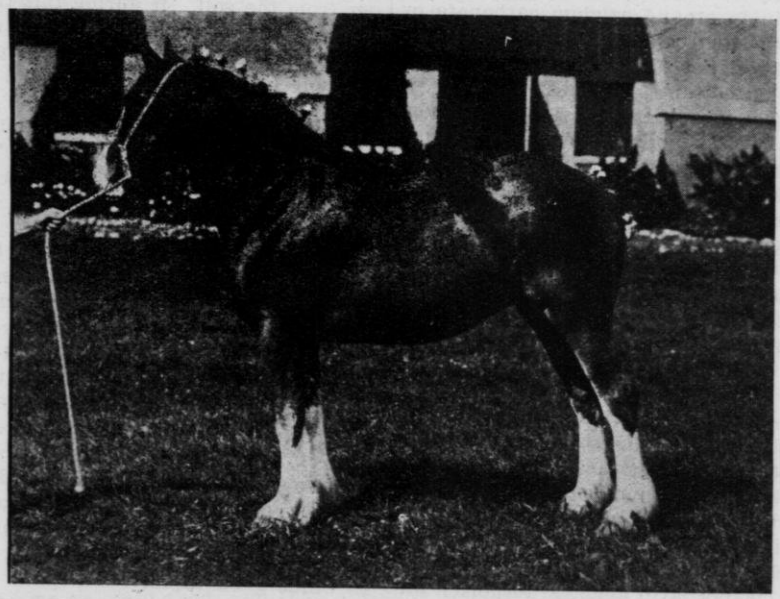
No matter what the system of farming, whether it be the production of live stock or the growing of grains, potatoes, hay, or clover for hay or seed, success must depend primarily upon the condition of the soil. If the soil is poorly drained, lacks plant food, is in bad physical condition, or sour, no system of farming can ever become highly successful under such conditions or until such conditions have been removed. Successful dairying depends largely on corn, clover, and alfalfa. Clover and alfalfa require a soil that is free from acid and rich in lime, while corn and many other general farm crops never reach their highest development on sour soils. While lime is not a universal remedy for soils under all circumstances, there can be no question but what the sweetening of sour soils is essential to successful farming on these soils.

The Liming of Soils.

Lime improves the physical condition of clay soils by uniting the soil grains, thus giving them greater size and causing the soil to become more open and porous. On sandy soils lime has the effect of partially cementing the particles, thus making these soils

more compact. In this way lime improves the physical condition of our heavy soils and also of our sandy soils. To sweeten the soil is by far the most important agricultural use of lime, yet as calcium is an essential plant food, the addition of lime in any form to our soils increases this element of soil fertility. Clover, alfalfa and other legumes contain much calcium and consequently require that the soil be rich in lime. As all farm crops require a certain amount of calcium, soils that are extremely low in lime produce maximum growth in but few crops.

Lime may be applied in several different forms, and the form in which it should be applied will depend largely upon the cost. Calcium oxide, or quick lime, is the most effective pound for pound if carefuly applied, but throughout the middle west this form of lime is too expensive for our use. In using quick lime, it is necessary to be particularly careful in its application, because its action is caustic and lime in this form will burn vegetation and destroy all kinds of organic matter with which it comes in contact. If quick lime is to be used, it must be applied to the surface of the soil and at a time of year when no crop is growing on the soil.



Graceful Lady, 14854, 3 years old, bred and owned by McLay Bros., Janesville, Wis. First and Grand Champion at Wisconsin State Fair, 1912; Champion at Minnesota and Iowa State Fairs, 1912; First at International Live Stock Show, Chicago, 3 years.

When quick lime is slakened with water, it forms hydrate of lime, or calcium hydroxide. Lime is often used in this form in the east. Water slaked lime has most of the objections of quick lime. As it is manufactured from quick lime, it is expensive and its chemical action makes it

caustic to vegetation and to organic matter. The only reason why any one in the middle west should use burned lime or water slaked lime is to save freight. I am informed, however, that the freight rates are higher on the caustic lime than on marl and ground limestone, and therefore that there is no opportunity to save much on the freight.

Finely ground calcium carbonate or magnesium calcium carbonate are the cheapest form in which to buy lime for agricultural purposes. Marl is, as a rule, nearly pure calcium carbonate, while ground limestone may be calcium carbonate or magnesium calcium carbonate. As a plant food, calcium carbonate is richer than magnesium calcium carbonate, but for the purpose of sweetening soils there is little difference, and that difference is in favor of magnesium calcium carbonate, though its action may be a little slower. As a rule, the best of the marls contain about ninety-five per cent calcium carbonate, and the dolomitic limestones about fifty-three per cent of calcium carbonate and forty-two per cent of magnesium carbonate. For correcting acid in soils, dolomite or calcium magnesium carbonate is to pure calcium carbonate as 109 is to 100. As authority for this, I wish to refer you to page 169 in Hopkins' "Soil Fertility and Permanent Agriculture."

The waste lime from sugar beet factories though caustic often gives good results. If wet it may be difficult to spread. Frequently it can be attained at low cost.

Gypsum or land plaster is sometimes spoken of as lime. This idea is somewhat misleading, though land plaster is rich in calcium. It probably has no power to correct the sourness of soils. The great value of land plaster is that it furnishes calcium and sulphur as plant food and that it liberates potash in the soil. Ground limestone and marl also have the power to make some of the potash of the soil more available.

The Litmus Paper Test for Acid Soils.

To test soils for acidity, pack moist soil about a sheet of sensitive blue litmus paper, have it there for about five minutes, then remove the paper from the soil. If during this time the blue litmus paper has turned red, or become dotted with little red spots the soil is considered to be acid or sour. The degree to which the litmus paper turns red is some indication of the sourness of the soil. The growth of sorrel generally is an indication that soils are acid, but not an absolute proof that they are acid.

It is a difficult matter to say how much ground limestone or marl should be applied per acre, but where lime is needed at all it is usually advisable to apply at least two tons. Some soils may not need more than one ton, while other soils require as high as five or six tons per acre to correct the acidity. I have seen soils so sour that they would produce no crop of any kind. When ground limestone was added in large quantities to these soils, crops of all kinds grew rapidly.

I recently observed a field of alfalfa on which ground limestone was applied last spring. This soil was decidedly sour before the limestone was applied and the ground limestone was used at the rate of four tons per acre. As the farmer did not have enough ground limestone to cover the whole field, there was a small area on which no limestone was applied. Where ground limestone was used the alfalfa was large, dark green in color and thoroughly inoculated, and where limestone was not applied the crop was worthless. In order to determine more certainly that the use of lime was the cause of the successful stand of alfalfa and

that the lack of lime was the cause of failure, I tested with litmus paper the soil in various parts of this field. Where the alfalfa was vigorous the moist soil did not change the color of the blue litmus paper, and where the alfalfa was poor the blue litmus paper was turned a decided red. This is only one of the many striking cases that have come under my observation this year that show decided benefits from the use of ground limestone. While letters that I am receiving daily on this subject do not indicate that ground limestone and marl are giving marked results universally, many of these letters indicate that the use of lime has often brought success where otherwise there would have been failure.

In many sections of the middle west, clover, alfalfa and other legumes are not doing well. In some cases the cause of this is undoubtedly lack of fertility, in others lack of moisture, and frequently the cause of failure is lack of inoculation, but I have noticed that where all conditions were ideal, except that the soil was acid, no amount of plant food, moisture or inoculation caused the successful production of any of these crops. The legumes use much lime as plant food, and they absolutely require a sweet soil in order that their nitrogen gathering bacteria may develop. There is no use in inoculating soil with clover or alfalfa bacteria unless the soil is sweet, because these bacteria do not develop rapidly in sour soils. If clover or alfalfa fail to catch, grow slowly, or become yellow in color the indications are that there is a lack of inoculation, and the probabilities are that the lack of inoculation is due to a deficiency of carbonates.

Besides the bacteria that live in the nodules of clover, alfalfa and other legumes, good soil contains other nitrogen fixing forms of bacteria. These increase rapidly in sweet soils, and are sometimes wholly wanting in soils that are sour. It is also true that denitrifying or nitrate destroying bacteria flourish in sour soils.

We are at present collecting much data concerning the use of ground limestone and marl in various parts of Michigan and Wisconsin. From the data in my office, it would seem that at least five thousand tons of ground limestone and marl have been used this year for agricultural purposes in Wisconsin, and that the farmers of Michigan have used fully as much. We are trying to get in touch with all of this kind of work that is being done in these two States and would be pleased to hear from farmers everywhere who are using lime in any form. It has been my observation that the farmers whose soils need lime the most are the last to use it. They say they cannot afford to buy it. The sourness of their soils has caused poor crops, the poor crops have cut down their income, and they do not feel that they can afford to risk even a small amount of money where the results are not absolutely certain. To such I would advise the purchase of a small quantity of finely ground limestone or marl, just enough to make a thorough test on a small area. Instead of applying a small amount to a large area, I would apply a large amount to a small area while making the trial. This is because it is much better to correct the acidity than to decrease it. An experiment of this kind is inexpensive to anyone and should be made on every farm where the litmus paper test indicates that the soil is deficient in carbonates.

The addition of humus to the soil helps to keep it in good physical condition, and adds considerably to its fertility. The chemical action due to the decay of organic matter has the power to make available large quantities of plant food that were previously

stored in the soil in a form unavailable to the plant roots. Humus is itself a plant food and furnishes a suitable medium in which beneficial soil bacteria increase in numbers. Looked at from any view point, there is hardly a more important problem connected with soil management than the maintenance of the supply of humus.

Some Lessons From the Drouth.

From observations made this year in the drouth stricken areas of the middle west, I feel that our systems of farming that allow the humus of the soil to run low are, in large measure, responsible for the injurious effects of the drouth. From experimental data along this line collected by some of our experiment stations, it is definitely settled that soil humus helps greatly in the conservation of soil moisture. It is unfortunate that we have not yet been able to get more absolute figures concerning the conservation of soil moisture, but we do know that moisture can be conserved by the addition of well rotted manure, by deep plowing at the right time, by packing the subsurface, by frequent surface cultivation, and by top-dressing with manure.

Three years ago last summer I traveled over the central part of North Dakota, making a preliminary agricultural survey of that section for the United States Department of Agriculture. I gave special attention to the moisture holding capacity of the soils. Early in July of that year, the crops all looked well and appeared to have plenty of moisture, but by the middle of the month there were large areas where the dry weather and the hot winds had taken almost all the moisture out of the soil. As I drove along one day during this drouth, I noticed that the wheat, corn, potatoes and all other crops were withering rapidly under the sorching heat of the sun and the hot, drying wind. For miles and miles in every direction it appeared as though there was no chance for any of the crops to recover. Imagine my surprise as one day I passed a well kept farm on which all the crops were green, and on which even the pastures seemed to have plenty of moisture. I was so surprised and pleased with what I saw that I drove in to meet that farmer and to study his system of farming that had brought such results. I wanted to find out what this farmer was doing that his neighbors were not doing. His solution of the problem was very simple. On a farm of moderate size, he kept over a hundred head of live stock and by so doing he was able to keep his soil rich in humus. He went all over the farm with me and we examined the soil in all the different fields. Everywhere the soil was full of organic matter and everywhere it was well supplied with moisture. On close examination I could not discover that any of his crops were suffering in the least from drouth, and I afterward learned that he harvested a big crop that fall.

Just before I left his farm he said to me, "You know the farmers all over this western country say that you must not manure the soil because if you do you will dry it out. I am putting into my soil all the manure I can get hold of, and you notice the results." I noted the results on his farm and I have seen similar results since as I have traveled over North Dakota and other states, but I do not know that I have ever seen the contrast quite so marked as on that hot day in July in 1908.

Here was intelligent and successful farming in the semi-arid west. Such work is an inspiration to us all. It is a pity that there are still large areas in this great country where skillful farming is the exception rather than the rule. I have actually

seen many western wheat growers trying to produce wheat on land that had been cropped to wheat year after year for forty years in succession without rest, fertilization or rotation, yet these men were sure they would get bumper crops of wheat if only they could have back again the old-time season of thirty years ago. The land was plowed to a depth of about three and one-half inches, it was almost exhausted of humus, it was compact and hard, and there was no more chance that it would yield thirty bushels of wheat per acre than that the great dairy cow, Colantha 4th's Johanna, would break a world's record while living on a ration of rye straw.

Agricultural Success Dependent on Soil Management.

To the owner of good horses, to the breeder of dairy cattle, to the producer of fat hogs, and to all other live stock men, I wish to say: Your success will be in direct proportion to the ability with which you manage your soils. To be sure, the feeding, the housing, the breeding and the marketing of the live stock and live stock products are all of great importance, but if all these phases of the live stock business are handled intelligently, the extent of your business will be limited only by the crops you can produce. If your quarter section is carrying twenty cows, why not double the production of each acre and make it carry forty? Would not this be better and easier than to buy another quarter section? To be sure it will require more labor to produce eighty bushels of corn on an acre than to produce forty, but will it require more labor to produce eighty bushels of corn on one acre than on two? Is it not better to let land lie idle than to work it at a loss? The unprofitable acre is like the unprofitable dairy cow, the fewer of them in your possession the better you are off. Did you ever stop and figure out what portion of your farm was yielding a satisfactory net profit? It is remarkable how fast the dollars pile up when there is a substantial margin of profit from every acre. There are many acres of naturally good land in this state that are producing no profit at all. While land is advancing rapidly in price, there is great temptation to secure and hold as many acres as possible, yet its ability to produce and the market value of farm products must determine the final price of land. One of the strangest things I have seen in all my travels is the narrow range in the price of land regardless of its quality or location. This will change rapidly when our motto becomes maximum profit instead of maximum acreage.

While our knowledge of soil management is yet in its infancy, we have already learned a few things about the soil that are of great value. In visiting various sections in connection with my work in farm management, I find much careless, shiftless farming, but, on the other hand, I see a higher average intelligence among farmers generally. Financially agriculture is on the up-grade, and the advance is largely due to a more thorough knowledge of the soil. I have seen farmers living in comfort on the swamp lands of northern Minnesota, I have seen luxurious homes among the stumps of central and northern Wisconsin, I have seen men making money on the jack pine, sandy lands of central Michigan, and I have finally become convinced that the ability to farm successfully on almost any type of soil depends primarily on knowing how.

DISCUSSION.

Mr. Imrie—Is five minutes long enough in all cases to leave the litmus paper in the ground?

Prof. McDowell—No, it is not. It would sometimes be well to leave it longer. If you have a very sensitive litmus paper, it usually turns red, if it is going to turn, in five minutes. If it does turn at all, the soil must have lime.

Mr. Imrie—I think the Professor said that either the ground limestone or marl would be all right, one is as good as the other. Would you figure that as to the percentage of carbonate of lime, or does either have the same effect on acidity as the carbonate?

Prof. McDowell—There is quite a conflict of opinion on that subject between the Waukesha Stone Company and the Eagle Lime Products Company. As near as we know, the magnesium calcium carbonate is just as good for correcting the acidity as the caicium carbonate. Authorities say the magnesium calcium carbonate is to the calcium carbonate as 109 is to 100, but I do not know that that has been thoroughly proved. I have an idea that the marl, being a finer product and a softer product, will correct the acidity a little quicker. That may offset the theoretical advantage that the ground limestone has over the marl.

A Member—How does the Winona product, or the Western product, compare with the Waukesha product?

Prof. McDowell—I have not the analysis from the Winona, but I understand their product has given very satisfactory results to Wisconsin farmers. The Wisconsin lime, as you know, is magnesium calcium carbonate, while the Michigan lime is largely the calcium carbonate and the marl is always calcium carbonate.

Mr. Utter—The first price should not be considered, because the freight is the largest cost.

Prof. McDowell—Yes, the lime that is closest to you would often be the best to buy, because, in many cases, the freight is as much as the original cost of the lime.

Chairman Stiles—You would advise any one who has lime quarries to have the stone analyzed before using it, would you?

Prof. McDowell—Yes, the Experiment Stations will analyze samples sent them, or our Department will do it. I have sent in a good many samples and they have always examined them free of cost. It is a very simple matter to anaylze for carbonate.

A Member—Can you use the lime that is in rock phosphate to correct acidity?

Prof. McDowell—We put that problem up to the Department in Washington about two months ago and they answered by saying it was possible. I think it would be necessary to modify their answer somewhat and say it would depend upon the form in which the lime exists.

Mr. Bradley—How about the Tennessee rock? Does it contain much lime?

Prof. McDowell—I do not believe it would contain much lime in the form in which it would correct acidity. We have been told that it would, but there is a big chance for us to misunderstand what has been said. It would be my opinion that the calcium that is in the compound in the rock phosphate would have little or no effect in correcting the acidity of the soil, but it is quite possible that Mr. Richards, who is here and who is a chemist, could give us some further information on that point.

Mr. Utter—I should think the amount per acre would be so small in using rock phosphate that it would hardly be counted.

Prof. McDowell—There is another point, and that is, the calcium is already satisfied. I took that point up with the professors in chemistry at the Rhode Island Station, and they said if it does correct any acidity that

it would only be temporary in its action. Of course, if there is any lime in the form of carbonate, that would have the same power that any other carbonate of lime has.

Supt. McKerrow—Then, on general principles, you would advise the farmer to go a little slow in using rock phosphate in place of lime to correct acidity?

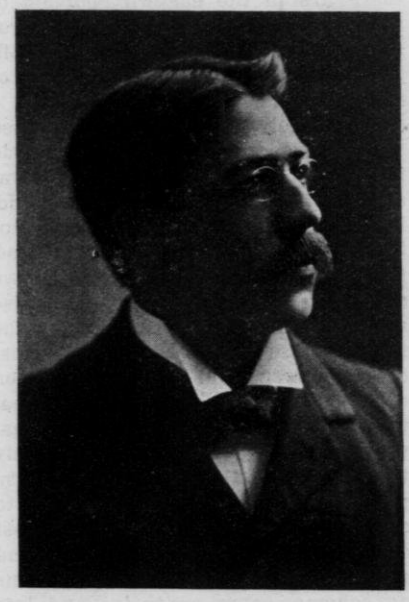
Prof. McDowell—Yes, but the phosphate rock has its place.

A Member—How would you use the rock phosphate?

Prof. McDowell—Always in connection with organic matter, either in the gutter or in the manure, or apply it with your green manure. I would always bring it in touch with organic matter of some kind. I know some who are applying it with green manure and getting very good results.

MARSH SOIL.

H. M. Jones, Auburndale, Wis.



Mr. Jones

"Their hoofs are shod with gold," exclaimed a Montana sheep man to his table companion in the dining room of an eastern summer resort hotel. He was a sheep enthusiast and did not care who knew it, even if all the guests in that part of the room turned to listen to his loud eulogy on sheep. I am a marsh enthusiast, Mr. Chairman, and do not care who knows it.

I want to make but two points in my short talk, namely, the extent and the worth of Wisconsin marshes. Others will tell you better than I can the best way to handle marsh soils. Wisconsin has great wealth under water. Our marshes are better than gold mines if we but knew it. By marsh I do not refer to cold, wet, sour, clay lands, so flat that tile drainage is needed; but to the swamp and over-flowed lands for the most part of muck or peat formation.

The Extent of Wisconsin Marsh Lands.

In round numbers, we have 2,500,000 acres. In fact, the United States Government by the acts of 1849 and 1850 ceded to this State the swamp and over-flowed lands in it, some 4,800,000 acres. By the same act Michigan got over 7,000,000 and Minnesota over 5,000,000 acres. In these three states alone an empire under

water of more than 17,000,000 acres. To date they have produced for the most part mosquitoes, cat-tails, willows, malaria and taxes.

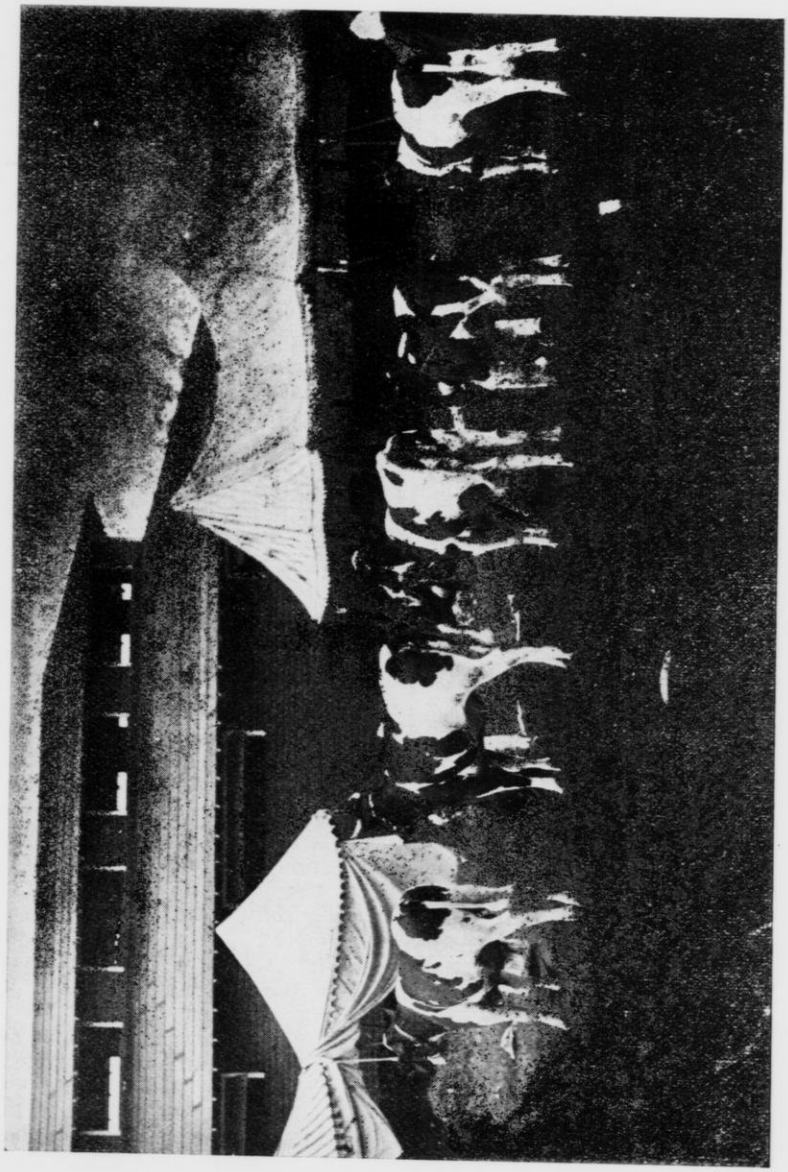
The joke has been on the fellow who has got saddled with a piece of marsh land. Its only by-product was a little swamp hay in a dry season when tame hay was short. The marsh men have seen a great light lately. These marshes are scattered over our fair State, near to good markets, schools and great cities, unlike the lands of the Canadian northwest, where 700,000 Americans have been stampeded in the last few years, mostly doomed to a bitter disappointment.

One hundred acres makes a good farm. Handled right it means a good living for a large family. Drain our marshes and cut them into hundred acre farms and there would be 25,000 of them. What a hubbub there would be if Wisconsin had a dessert that could be reclaimed as cheaply as our marsh land can be and large enough to plant on it 25,000 new homes. The irrigation men have been making all the noise. Now let the marsh men have a turn. Little Holland, two-fifths lying below sea level, so brave and sagacious, had to dike the ocean and then pump out the tide flats. Our steam dredges have a cheap and easy job in comparison. Our population has been railroaded to the great American dessert on "Irrigation schemes" innumerable, who at a tithe of the expense could have drained a good farm right at home worth all the advantages of good roads, schools, churches, markets and railroads, had it but been known. "Reclamation" is a sounding word and we have let the irrigation men monopolize it. Reclamation can mean getting water off the land just as well as getting water onto the land. Already the drainage men have awakened to the fact that while drainage costs less than irrigation, and many of the marshes are better located, the people in general have not known it. The great drainage convention in Chicago last fall, national in scope and character, will do much to arouse popular interest and to enlist capital in the development of one of the nation's very greatest resources.

"Conservation" is another great word that the marsh men have let the other fellows monopolize too long. The fertility of the high lands has been washing down into our marsh lands for millions of years, there to be "conserved" for our generation. Mr. J. O. Wright, Supervising Drainage Engineer for the United States, says, "Not all swamp land is suited for agriculture, but from data collected by this office it is certain that there are in the eastern portion of the United States 77,000,000 acres that can be reclaimed and made fit for cultivation by the building of simple engineering structures."

Fortunately we Badgers are blessed with a generous rainfall. Gigantic irrigation projects, invoking federal aid, costing fabulous amounts, bonding the coming generation, do not trouble us. Our State is so good that we have gone to sleep. Had we shown a fraction of the enterprise and spent the money that many of the new western states have done, most of our marsh land would have been drained long ago and an additional farming population of 100,000 at least provided for. We have sat supinely by and seen the Canadian Government and the Canadian railroads, to say nothing of the states to the west of us, come right into Wisconsin and get away from us our fellow citizens on schemes more expensive and less practical than the State drainage of our marsh lands.

I am not talking about individual drainage—that is about done. The farmer who can take his spade and in a few hours or days drain out that low corner of the pasture has for the



First prize young Holstein herd at Wisconsin State Fair, 1912, bred and exhibited by S. A. Baird & Son, Waukesha, Wis.

most part done it. I am talking of our great marshes, in some cases containing as much as 40,000 acres. Here co-operation and a great outlay, not per acre, but in the aggregate, must be made.

A drainage district has to be organized under the State law, taxes levied and bonds sold. Several years must elapse before the old swamp will become a fine timothy meadow or a highly productive celery or onion patch. All this can happen only after an election has been carried by the abutting property owners. Here prejudice, ignorance and natural contrariness get in their work. We have the marshes and we have the men and we have the money to reclaim them, but have we the motive? Whether you personally own marsh land or not, I want you to help educate and agitate for the development of wealth lying under water in the Wisconsin marshes. This leads me to the second point I want to make, namely, the worth of our marshes.

The Worth of Our Marshes.

What is a bog worth? An English farmer thinks it is a mine for nitrogen. He hauls it onto his land as we do manure onto our fields. One of my neighbors went down onto his marsh and hauled up some muck and put it on one part of his garden, and on the other he put barnyard manure. The muck brought the best vegetables. Nitrogen is the expensive and the difficult element to get in balancing up our ration of plant food. That is why the farm papers and these Institute workers are always preaching clover and alfalfa. They put nitrogen into the soil. The minerals, lime, potash, phosphorous, can be bought commercially at a relatively low cost, but nitrogen is another story. For a million years the Almighty has been storing available nitrogen in our Wisconsin marshes. We need it right now and we can get it, at a very low figure too.

Marsh soils are very deficient in minerals. Some of them are good for a crop or two and then they are done. Burning over a marsh will give enough potash in the ashes for a crop or two and there is limitless nitrogen, so a bumper crop is taken off, but soon "the marsh is played out." The fact that there was any crop at all before the soil had been analyzed and specifically treated may be due to an accident. Perhaps the Indians burned that particular part of the marsh over fifty years ago; marsh adjoining, just as rich in nitrogen, but lacking potash, brings no crop. Sooner or later both will have to be treated with potash, may be lime, too, before a crop can be grown; however, I do not want to go into that. Write to the University and get Prof. Whitson's bulletin No. 205 on "The Development of Marsh Soils," and while you are about it, get Prof. Jones' bulletin No. 199, "The Principles and Practice of Land Drainage."

My point is the worth of our marshes. They must be drained, they must be treated in many, perhaps most cases, but they pay. Do you realize that in the first eight inches of an acre of good, sandy loam there is not 2,000 pounds of nitrogen, in the first eight inches of an acre of clay loam only 2,800 pounds, while marsh soil has 10,000 pounds of nitrogen? Why do we not cash in on it? I know a Wisconsin marsh that in the old days was used only for duck hunting. It sold for the taxes. The old farmer who later sold it to a "tender-foot" from Illinois, at a nominal figure, could hardly keep his face straight while he signed the deed. That marsh has since brought as high as 30 bushes of wheat and 90 bushels of oats. The timothy grown on it was magnificent. Right in our own State there is a marsh that,

treated to five dollars' worth of phosphorus and potash fertilizers in the grain crop, brought the next year a crop of good hay at the rate of four and one-half tons to the acre. I used to live in Kalamazoo, Michigan. I saw the thrifty Hollander selling out of that little valley $2,000,000 worth of celery a year. An acre of that marsh, once absolutely worthless, has rented as high as sixty dollars cash rent, though of course that day has gone by, for celery culture is too general now.

But in conclusion, on the potential worth of marsh soil (Wisconsin is blessed with a lot of it), let me quote again Mr. J. O. Wright, Supervising Drainage Engineer of the United States Department of Agriculture: "Swamp lands when drained are extremely fertile, requiring but little commercial fertilizer and yield abundant crops. They are adapted to a wide range of products, and in most instances are convenient to good markets."

I hope you will all go home ready to help push when they try to organize a drainage district in your neighborhood.

DISCUSSION.

Supt. McKerrow—We would like to know something about your experience with marsh soil.

Mr. Jones—Some draining done on my father's farm in Ohio set me to thinking of the possibilities of reclamation of our marsh lands. Then down in Kentucky I got interested with Professor Mason, now in the Bureau of Forestry in Washington, D. C., in some marsh so sour nothing would grow on it. We tiled it and drained it and limed it. When we were working on it one of the natives came along and said, "See here, Strangers, I give you'ans jest three year to get out of here—we'ans have all tried these glades and we'ans know there is nothing in 'em." We sowed rye and when we hitched the mules onto the binder all you could see was their ears. Before that "glade land" would not sell for a song. After that demonstration it went off the market. Then I lived six years in the Kalamazoo Valley and watched the Hollanders getting rich raising celery on lands that their Yankee neighbors had thought would never grow anything but wild ducks.

Be careful, though, about trying crops on a marsh. Most marsh soils lack some of the essential elements. You must know what mineral is lacking and supply it. In the first eight inches of an acre of marsh soil there are 10,000 pounds of nitrogen; good clay loam has but 2,800 pounds. But what good is all that precious nitrogen without potash? Pull the linch pin out of your wagon and you can't go, but linch pins are cheap. So with potash. Put in, say, four or five dollars' worth to the acre and you can grow an astonishing crop. That has been demonstrated in various parts of the country. Out in California they are working on the tule lands; here in the north most of the states are developing drainage systems—the State of Minnesota is doing a great deal.

Supt. McKerrow—Yes, they are all waking up. Don't you believe, though, there is a great difference in marsh lands in Wisconsin? Some of them are full of vegetable matter and others with sand; that is, there is a great difference between peat marshes and sand marshes with only a little peat on top.

Mr. Jones—Yes, there is as much difference between marshes as between high lands. Some peat is so raw and tough it is about like excelsior. Last fall I plowed a piece that shook when I walked on it. That must be disintegrated, rotted down into black muck; however, raw peat

will do very well with certain crops. I wish Mr. Van Ostrand were here to tell what he has done in subduing moss and peat. Mr. Coddington, over on the Buena Vista marsh, was the original concrete roller man. This kind of soil is very loose, dries out easily, and therefore rots very slowly. Mr. Coddington hitches his big roller to a steam tractor and puts the peat down. It does the business. He raises big crops. I have a hollow steam roller that I filled with concrete. It is hard work for four horses to handle it, but it works well. It is the quickest way to subdue marsh sod.

Supt. McKerrow—We find in some parts of Wisconsin marsh lands that have been drained and are exceedingly valuable and we find others that actually dry out.

Mr. Jones—There are marshes and marshes. If you have coarse sand below and a very thin layer of vegetable matter above, it is an easy matter to wear it out or to dry it out altogether. There is too much under drainage. On the Buena Vista marsh they have talked of daming the ditches in a very dry time for a little sub-irrigation to prevent excessive drying. On a clay bottom you would have less trouble.

Mr. Bradley—The open spaces on a tamarack marsh would be preferable to the uncovered marsh with only a little soil on top, wouldn't they?

Mr. Jones—Probably there were tamaracks on what is now open marsh, but at some time they were burned off. When you come to plow you may find there is more tamarack underground than you ever dreamed of. They never rot under water.

A Member—Do you think it possible to tile a marsh, raise a fine crop of corn one year and the next get nothing?

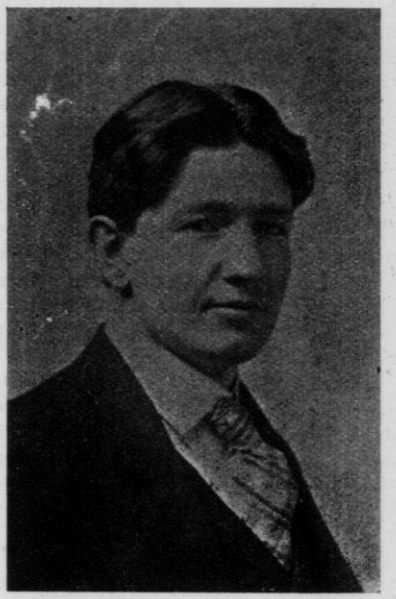
Mr. Jones—Yes, that very thing has happened. There may have been ashes there furnishing enough potash for only a crop or two. Last fall I plowed some marsh land that had never seen a plow before. Down eight inches under very heavy sod and black soil I found a streak of ashes. For all we know a stroke of lightning may have set that fire on the marsh in pre-historic times.

A Member—What would that marsh need to bear a crop a second year?

Mr. Jones—When the potash got low I would put on potash. Most marshes, unless receiving seepage from a limestone soil, are acid and you must put on lime.

IMPROVING MARSH SOILS.

F. S. Richards, Dousman, Wis.



Mr. Richards.

The success of the American nation is dependent upon the success of its agriculture. This is not only the case with us, but has been the story of all nations; we have only to go back through the centuries, even as we have them recorded, and the more accurate record of recent years.

In looking over the history of the nations, our own included, we begin to realize that there must be some fundamental principle underlying the success and failure of these peoples. and that this failure, for in most cases it has been failure, has been not due to "An Act of God," but to a lack of insight into the theory of plant growth.

A few years ago we began to realize that our stock must be fed, not by rule of thumb or on whatever the farm might produce, but upon a balanced ration—briefly, " a mixture of feeding materials which would have in their make-up a proportion of about one to six between the protein and carbohydrates."

What the result of carrying out such a theory of feeding means is probably best evidenced by the development of the dairy industry in many of our states. Wisconsin alone, it is said, and with good foundation for the claim, benefits over ten million dollars annually by the application of this one new principle.

In reality we are working our problem backward, just as we are called upon to do so often in life. We studied and solved the feeding problem before we began really to study the production of feed for the feeding.

Today we are beginning along that line and as before the question has had to be put to the chemist, "What does the plant demand?" just as we asked years ago, "What does the animal demand?" and the answer is coming back to us slowly and one which is going to take as much careful thought and work in handling as did the feeding problem.

Nowhere are we brought face to face with this fact more forcibly than in the instance of our attempts to succeed with our marsh soils. Now, there are two real essentials in handling marsh soils. First, drainage, second, fertility.

Drainage.

Let us consider first the drainage, which we may take up under three steps. First, removal of surface water and subsurface water to a normal depth; we are finding from three to

seven feet to be plenty. This is usually done by wide, well sloped ditches made by a dredge or ditching machine. Into this we run laterals with a horse-power ditcher at intervals to suit the subsoil and water to be handled, cutting the land into plats anywhere from a fraction of an acre to fifteen or twenty acres. In most cases these can be tiled after a year or so, if not at first. We do not make these laterals more than three feet deep, though we can conceive of places where they can be made deeper. We do this in order to remove rapidly the excess surface moisture primarily, but with our second step in mind—that of retention of necessary moisture.

To do this it is necessary to have the water in the main ditches under control, through weirs or gates, so that it may be held in check in dry seasons, and especially on new land. The reason for this is two-fold. First, as expressed for the dry season benefits; secondly, but most principally, for assisting in rapid preparation of the soil for cropping. And the reason you can see, when I ask, "How much value will your straw stack be for fertilizer if you leave it stacked perfectly?" Your marsh wil be the same way. I have often seen deep drained marshes rendered almost worthless for years by that drainage. What I consider as essential as the drainage is the retention of the moisture by water controls in the ditches, which will always keep the soil moist.

Lastly, we must in many of our marshes, compact the soil by means of rollers to assist in the more rapid decay of the fibrous vegetable matter; light rollers at first, then heavier ones, as the soil becomes solid enough to handle them.

The Second Essential—Fertility

We are working marsh lands of several types and are finding the big cut-away disk harrow, built in four sections, to be one of the most valuable tools, using it both before and after planting.

For scores of years, almost centuries, it was thought that only two or three mineral elements went to make up a plant, that nature provided them abundantly everywhere and that plant life would grow as desired if we only had the season. For some time we have known that to succeed with plant growth, we must have "humus," variously described as "plant food", "decayed organic matter", or probably more properly, "assimilatable plant food", which contained nitrogen, phosphorous and potash as essential elements, and that these three controlled the production.

Recent years are teaching us that we must go deeper and learn more definitely what this so-called humus is, and what it must contain to produce the desired plant growth, whether the "cure-all" type of fertilization of the past is the proper method.

We can go back to ancient Egypt to get our original answer, for there they supplemented the fertility left by the Nile with mineral element, mainly lime so far as we know. Sections of Europe have for years, even centuries, added mineral element to the fertility returned to the soil in the form of gypsum (land plaster), marl or chalk, potash salts, etc., and from these years of experiment, and from our more recent knowledge of analysis of the plant itself, we are learning that there is just as great yes, greater, problem underlying the feeding of the plant as there was in problem of stock feeding.

While I cannot discuss the probably thirty, if not more, essential elements that are found in our average farm crops and do even a few of them justice, I would like to show how this question of lack of knowledge on this problem is affecting the desired production of our farms, sug-

Keeping the water under control. Main ditch, Eagle Lime Products Co. Farm, Dousman, Wis.

gesting some instances possibly and assisting in giving an impetus to closer study along this line of work.

Geological Formation of Soils.

If you will take a map of the Northwest territory showing its geological formation, you soon realize that the surface soils are largely of but two types, sand and clay, from which loams of various types have been formed, and in some cases have been covered by peat. I might add that about one-seventh of this territory is covered with peat, or commonly termed marsh land.

If we examine these soils chemically, we soon realize that they are of probably similar formation to a large extent, eroded from the granite ledges of the north. The following analysis will cover most of the average soil of the various states in the district.

Potash—5,000 to 45,000 lbs. per acre (1st 8 in. of soil).

Phosphate—1,000 to 2,500 lbs. per acre (1st 8 in. of soil).

Nitrogen—500 to 2,500 lbs. per acre (1st 8 in. of soil).

While the peat soils will show from 5,000 to 30,000 pounds of nitrogen per acre and extremely small amounts of potash and phosphate, greater lack is shown with the increasing acidity.

Now, while I have said that these elements are present, do not mistake me in the thought that they are available for immediate use. This is one of the greatest problems, and the one which was solved years ago to a large extent, but the solution of the problem, like many other good things, was abused and with the resulting disuse—and that solution of so vital a question was the use of lime and the resulting growth of legume plants.

The Legumes as Soil Builders.

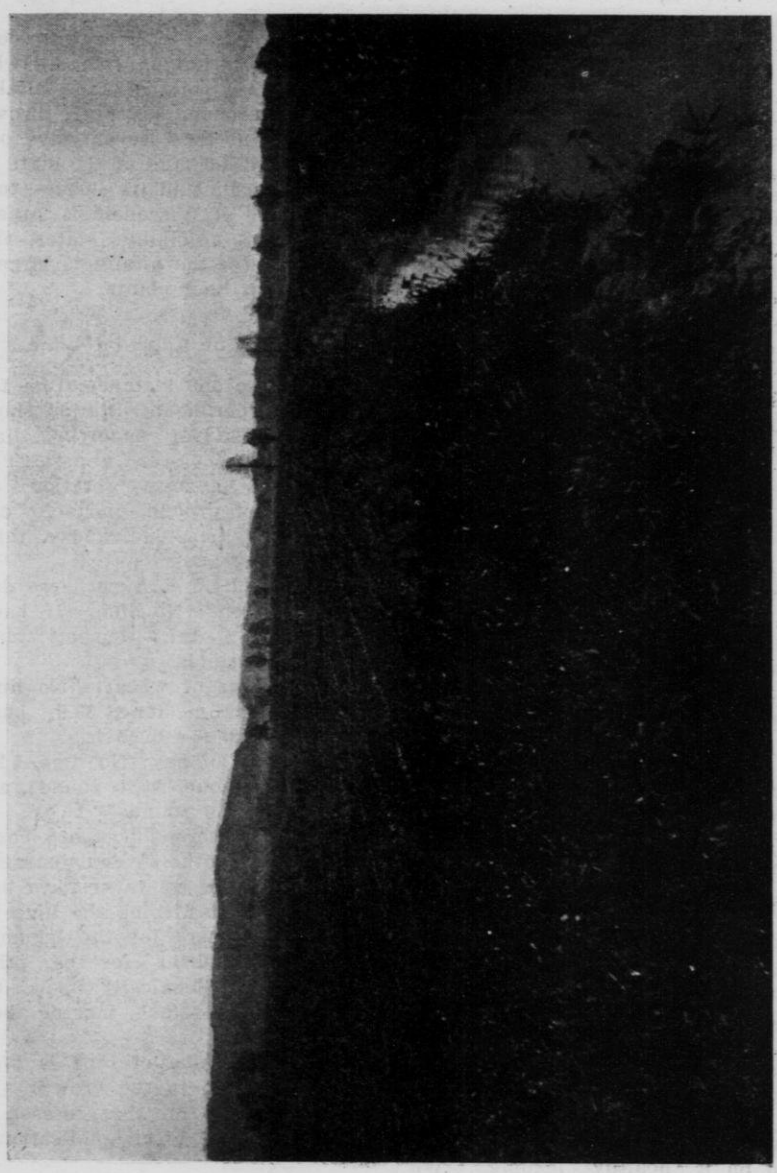
Now these three elements are essentials for crop production and must be present in available form and quantity, as the various types of plants may demand. That this is true, we have but to note the excellent growth of many plants on marsh soil (which contains from 5,000 to 45,000 pounds of nitrogen per acre, with only a small amount of phosphate and potash), and then to note the inability of this rank growth of straw or vine to produce a mature grain or vegetable.

This study of a balanced plant food is being made by many, and I hope that I may assist others in starting to study the same thing, for we realize that the cost of living is increasing annually and that the only real solution of the cost is one of lower and better production cost.

With the best dairy farms, at least fifteen per cent of the crop is a loss to the farm yearly and must be replaced. In this case the potash need not be worried about, as we have a large supply granted us by nature. In many cases it is profitable to replace it by use of sulphate or muriate of potash. Kainite may be used, but while lower in cost per ton, it is not lower in price per unit of potash.

There is no question but that it is essential in most marshes to use some form of potash from the start, as only a few have enough potash for the first few years even. From fifty to two hundred pounds per year will be required per acre.

The phosphate we must keep up, either by use of concentrated feeds purchased and fed, or by the use of raw or acidulated phosphate rock. The former method is now advisable, but is only a case of robbing the soil of another district to replenish ours and must soon be abandoned. Many



Keeping the water under control—Laterals. Test plots also shown at left. Celery and lettuce making a good start on fresh broken land. Eagle Lime Products Co. Farm, Dousman, Wis.

higher forms of phosphate must be had for farming other than the dairy, and most as yet are at a reasonable price. So far, I believe, the acid phosphate is the best for our marsh soils.

The nitrogen is not a material we should purchase when nature has provided us with the element in abundance, and the factory for producing it—the legume. You say that your soil will not produce the legume. Why not? There must be a reason, and there is.

Many of our most valued legumes are found wild, almost, if not a pest, in other parts of the country. I stood the other day on an old quarry floor strewn with broken limestone, seemingly a solid stone floor, and had to part the sweet clover with my hands in order to see even a few feet, yet how many of our farms today will grow sweet clover, or any of the clovers, without extraordinary care to secure a catch, if they will grow it at all?

Since seeing this growth of sweet clover, I have looked over a field of alfalfa, the legume that has given us the most trouble to grow. This field had been tried without treatment and resulted in failure. With treatment the growth of this valuable plant will make close to, if not above, four tons of hay per acre.

The reason for this growth is answered by the analysis of the plant. The alfalfa, like the sweet clover, demands that about twenty-five per cent of its mineral ash be lime.

Now, the legume is a valuable soil builder, as well as feed. An acre of alfalfa will store up 375 pounds of nitrogen in the soil in the course of three to five years, but to do this the nitrogen forming algae must be present and form the nodules always noted on a healthy legume. We have also learned that this algae refuses to thrive in an acid or neutral soil, or serum, for we are finding it profitable to inoculate many of this type of seed with the nitrogen forming algae before sowing.

Taking these two facts into consideration, it is not hard to see why ninety-five per cent of the alfalfa sown in Wisconsin has been thrown away, when at least seventy-five per cent of the tilled land of the state is acid—has no lime in its surface soil. What is true of Wisconsin is largely true of many adjoining states, and what is true of the alfalfa is largely true of many other plants.

The Effect of Applying Lime.

Let me cite one instance from the Maryland Experimental Station showing the effect of supplying lime to an acid soil over a period of eleven years of crop rotation on three plots of ground, one acid, one treated with limestone, and a third treated with marl.

"Total yield of corn per acre during four seasons: No lime, 97.5 bushels; limestone, 127.7 bushels; shell marl, 154.0 bushels.

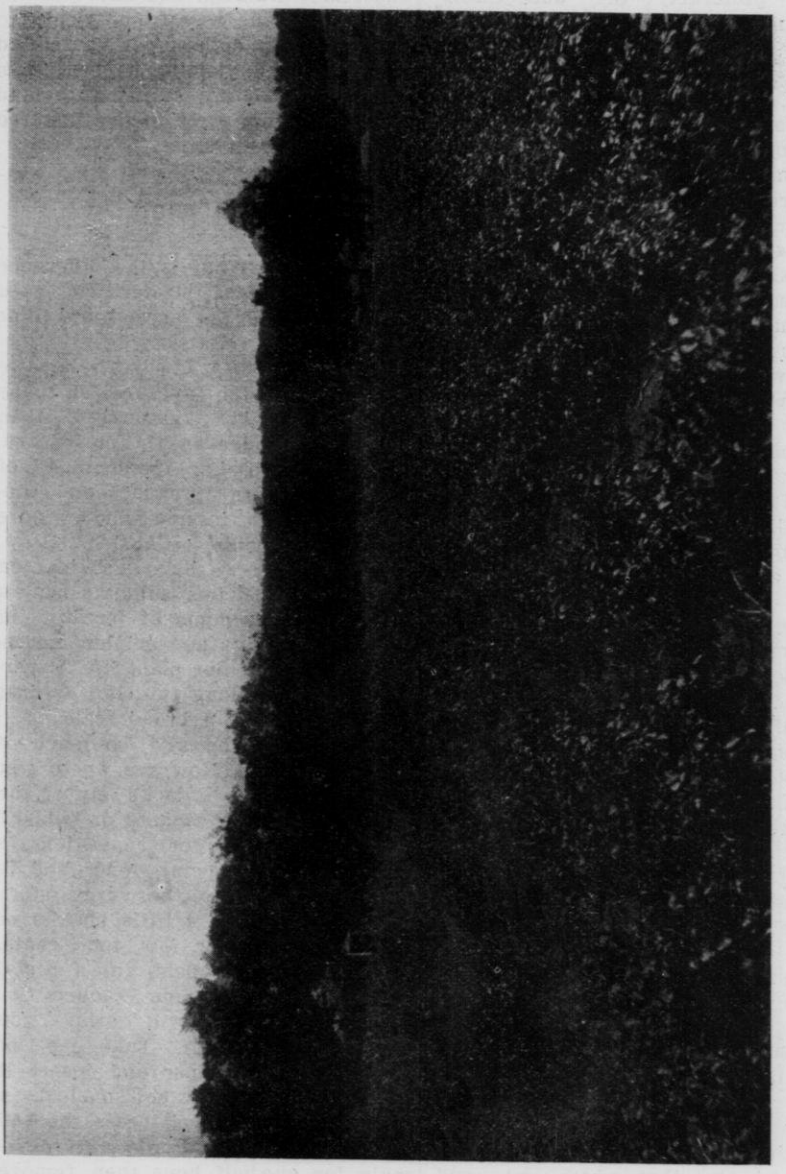
"Three crops of wheat: No lime, 31.9 bushels; limestone, 33.6 bushels; shell marl, 43.4 bushels.

"Four crops of hay: No lime, 5,200 pounds; limestone, 6,760 pounds, and shell marl, 8,580 pounds."

The results here shown are borne out by many others, demonstrating that the lime in whatever form supplied, besides furnishing the lime for a direct fertilizer for the legumes, acts as a stimulizer for the other plants, acting chemically upon the phosphates and potash, making them more available.

This latter value of lime is probably best shown in the growth of corn on marsh soil that refused to produce previous to an application of lime.

Having used the term lime repeatedly, I should like to define lime for agricultural purposes as "Lime as



Potatoes and corn growing on land drained in May, plowed and treated in June, planted July 1st. Photo Sept. 1st. Eagle Lime Products Co. Farm, Dousman, Wis.

nature provides it" in the carbonate form, preferably the pure $CaCO_3$. This material may be had in three forms in the middle west, in marl, which is as a rule ninety-five per cent $CaCO_3$; ground limestone, which to a large extent is dolamite, a combination of calcium and magnesium carbonates, and in sugar beet factory refuse lime, which is slightly caustic but not seriously so.

Caustic, hydrated or air slacked lime should be rarely used, because, as you will remember, a ton of caustic lime in slacking gives off nearly as much heat as a ton of soft coal does when burned, so that the loss of humus through the destructive action of this class of material is prohibitive and is largely due to the ill-repute that liming of soils received years ago.

Ex-Gov. Hoard says: "All of the grains, corn and blue grass, the apple and other fruits, and lastly alfalfa, come to their best estate on soil strongly impregnated with lime. The wonderful blue grass pastures of Kentucky, the Middle Basin of Tennessee, the splendid apple region of central New York, and that wonderful tongue of land in northeastern Wisconsin, lying between Green Bay and Lake Michigan, called Door county, where the apple, the plum and the cherry grow marvelously, are all based on lime rock. These are things we should not forget. Wherever the lime rock abounds, there alfalfa responds."

To sum up then, we must drain the marsh, not too deep; control the water, compact the soil, usually after breaking it, and then balance the high nitrogen ration nature has given us with application of lime to neutralize the acid and make available the potash and phosphate present, and also that which you will add.

And finally, you may ask, does it pay? And I can certainly answer you in the affirmative. I have seen successful drainage and improvement done at all the way from twenty to one hundred dollars per acre and seen the land yielding at best two tons of marsh hay turned into land producing from forty to five hundred dollars' worth of crops.

DISCUSSION.

A Member—What is the difference between the land plaster we used years ago and the agricultural lime you use?

Mr. Richards—A few years ago we used land plaster (gypsum) on many of our farms, but gradually abandoned the use, due, as we now learn, to the decreasing percentage of $CaCO_3$ which the product now contains. Gypsum is now almost pure calcium sulphate ($CaSO_4$ $2(H_2O)$). And with this we have also learned that a little calcium sulphate has a place in our scheme of fertility in order to supply the sulphur necessary to some of our plant life. Experimental work along this line is just being started on a broad scale.

A Member—You say so much of our soil is acid. How are we to test it, or know how it lacks any of the elements, lime, phosphate or potash?

Mr. Richards—Your question is certainly to the point. Acid soil is readily tested. At your drug store you may purchase a little booklet of blue litmus paper for ten cents, enough to test a field, (or a postal card to the Eagle Lime Products Co., of Dousman, Wis., will bring you some by mail, free). Take one of these strips of paper and insert it in a slit in the moist soil, made by a clean knife or shovel, press the soil back against it and allow it to remain for one-half hour then remove the paper carefully (with hands that are not sweaty, for sweat is acid) and if the soil is acid it will be spot-

Does it pay to keep land producing like this when it can be made to produce from $40 to $500 per acre by proper drainage and fertilization? Photo taken on farm of Eagle Lime Products Co., Dousman, Wis.

ted with pink spots, or even turned to pink, and sometimes in very acid soils almost a brick red color. Nature provides us also a good indication in the growth of sorrel—both varieties grow wild only on acid soil.

Potash and phosphates must be tested for in the laboratory or in field trial tests. Marsh land is the only land in this state lacking originally in potash where you may feel pure applications will bring results. Available phosphates are low originally in most of our soils and the best plats soon show whether your soils will be improved by its use. I believe it is essential to use phosphate, either rock or acidulated, on our alfalfa fields along with the lime.

A Member—What about cost of treatment with lime, marl and beet factory refuse lime?

Mr. Richards—Prof. McDowell gave you the cost figures per ton at the various plants. The freight rate is twenty cents per ton more on marl than on limestone. Marl is shipped dry, pulverized as fine as flour, and sacked, in closed cars. Limestone is shipped in open cars, is not always dry and is about like fine corn meal.

I have quoted you the Maryland Station, showing you that marl gives the best results ton for ton and I believe I am correct in saying that for equal cost to you, you will get equal returns. This State, the United States Department and several private concerns are now testing out this idea, and so far this is the conclusion reached.

MANURES.

W. F. Stiles, Lake Mills, Wis.

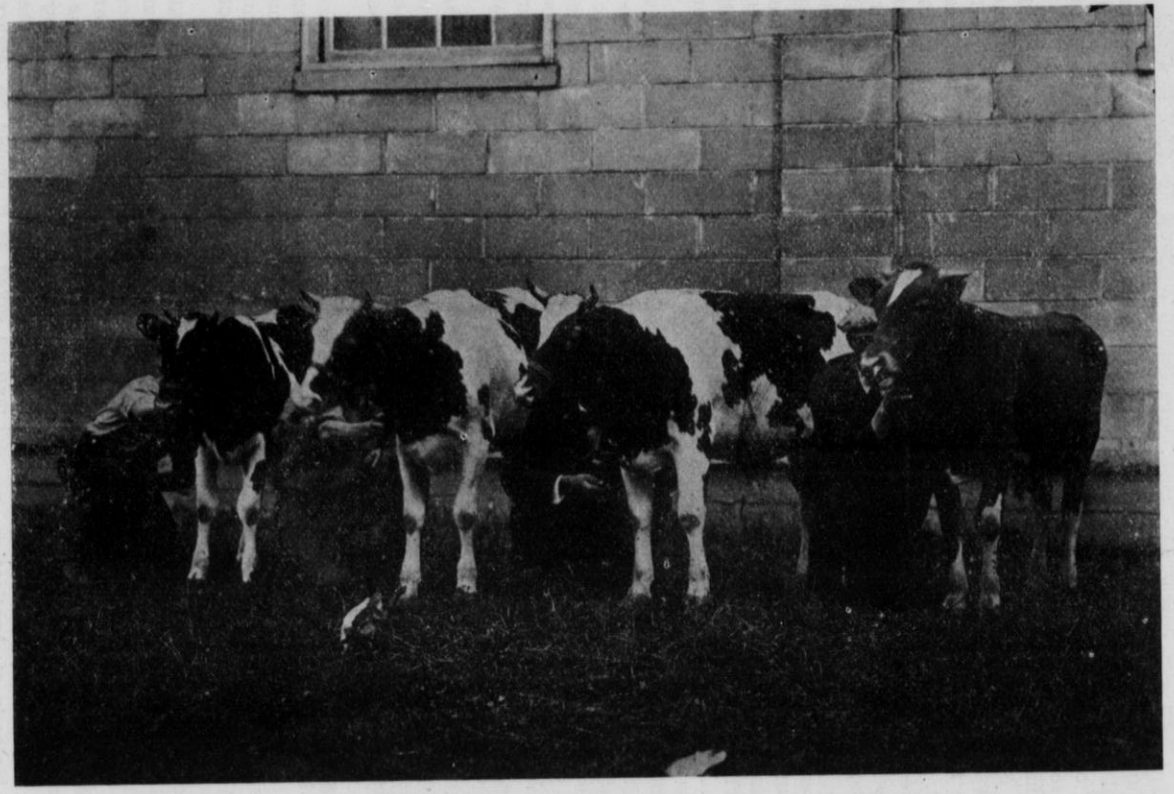
The value of manure depends upon two factors, namely, the amount and kinds of chemical elements it contains, and the composition of the coarse material of which it is composed. The amount and kinds of chemical elements farm manure contains, depends upon three conditions; first, the quality or kinds of feed the stock is fed; second, the class of material used for bedding or absorbents, and last, the kinds of animals fed. Of the three, the first is by far the most important. The last affects the quality to such a small extent as to be hardly worth mentioning. As a rule, manure from aged animals or stock in the final period of fattening contains a higher percentage of chemical fertility than that from young animals or from dairy cows that are producing milk; however, when we consider that young stock and dairy cows are usually fed a better class of food than the others, it is usually a fact that the manure from the latter class is the better.

The Quality of the Feed.

A farmer in purchasing feed, or even in selecting the feeds he produces upon his own farm, should first consider the value of the feed from a feeder's standpoint, as a bird in the hand is usually worth two in the bush, but as a secondary consideration he is a wise farmer who is guided in his purchase of feeds by their manurial value as well.

The Benefit of Manures to the Soil.

Manures are beneficial to the soil chiefly in two ways; in the chemical and mechanical effects they have upon



Four young animals sired by Rhea's King of the May, 14368. First prize Get of Sire at Iowa, Minnesota and Wisconsin State Fairs, 1912. Owned by John H. Williams, Park Farm, Waukesha, Wis.

the soil. Purely from a plant-food standpoint, the former is the more important, but the mechanical effect of manure upon soil is a matter of no small consequence. The decomposition of the litter or bedding and of the solid portion of the manure, adds humus to the soil and this is a property of soil which every good farmer knows he must maintain if he would keep his land in a good state of fertility.

The power of land to produce good crops in those sections where it is not economical to irrigate depends to quite an extent upon its water-holding capacity. Humus in soil makes it more sponge-like, thus in case of excessive moisture it is capable of absorbing water and in times of deficient rain-fall it yields this water to the growing crop. Soil that is well supplied with humus is also more easily tilled, thus decreasing the expense of cultivation.

Another factor which is of great importance to the farmer is that the soil which is well supplied with humus caused by the decay of vegetable matter in it permits the air to enter it more readily, thus allowing aeration of the root growth, which is so essential to plant life.

This fact of keeping the soil well filled with decaying vegetable material by the liberal application of farm or animal manure is a point that the users of commercial fertilizers often lose sight of.

Shavings and sawdust that farmers are sometimes obliged to resort to are not nearly as valuable from a manurial point of view as such material as shredded corn fodder, straw or swale hay. Where shavings are used, care should be exercised to apply the manure as thinly as possible.

Methods of Application.

From a chemical standpoint, most authorities agree that manure is the most valuable the day it is made. Whatever way it is handled, there is always some loss. Which method will enable the farmer to get the greatest benefit from the manure, with the least expense of handling, is the question for us to determine.

The method I have followed for the past twenty years is to take the manure from the barn each day directly to the field and spread it broadcast upon the land. The manure from the horses is first put on the wagon or sled and that from the cows, dairy cows in my case, loaded on top, and thus when it is spread in the field the two kinds of manure are well mixed. In most cases I consider spreading directly from the barn is the best method. There are conditions where other methods are preferable.

The best results are usually obtained where the manure is applied to land which has grown a crop of hay the previous season and is either intended for corn or some cultivated crop, or in some cases, as in a four-year rotation, is to be left one year for pasture.

In applying manure, better results can usually be secured where it is spread thin and covers as much of the farm as possible each year, rather than to apply it too thickly.

In regard to the manure which accumulates about the barns during the summer, it should be spread on the pasture, as the rest of the farm has a growing crop which will not admit of being covered.

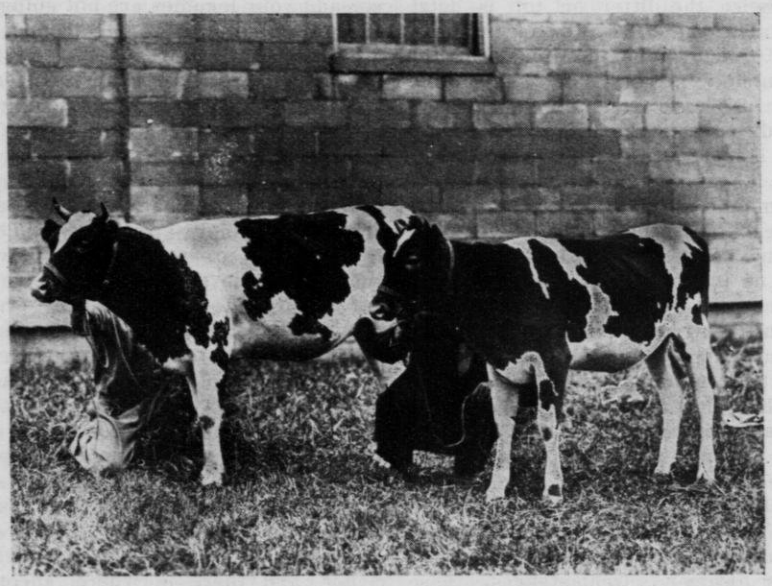
When we as farmers realize that when our crops are sold direct from the farm, either as grain, hay, tobacco, beets, etc., that all of the plant food which they have taken from the soil is lost to the farm, but when they are fed to stock on the farm and the manure saved as it should be, eighty per cent of the chemical elements they took from the soil are retained on the farm, then we will see the

reason why those farms upon which stock is kept, or where a liberal supply of stable manure is purchased, are continually growing richer and richer, while those farms where the raw crops are sold the yield is growing less and less.

In regard to the yearly profits from the two kinds of farming, I would say that the farmer must either be a poor feeder or keep an inferior class of stock, who cannot feed out his farm crops and make more money from the sale of animals or their products than by selling the crops direct.

I do not wish to say that the farmer should never sell any of his farm crops direct, but what I do maintain is that we should keep posted on the market price of our various farm crops, and also the price of the commercial feeds of the trade, and knowing the relative feeding value of these and also their manurial value as well, when the prices are right sell the high-priced farm crops of low feeding value and replace them with some of the so-called by-products of the mills.

The farm manure, disagreeable as it is to some to handle, is one of the richest assets of the farm. However rich our farms may have been or are, none of them can continually stand cropping and have nothing put back upon them but the roots of the plants. Even commercial fertilizers will avail but little in the long run if the humus content of the soil is exhausted.



Daughters of Rhea's King of May, 14368. First prize Produce of Dam at Iowa, Minnesota and Wisconsin State Fairs, 1912. Owned by John H. Williams, Park Farm, Waukesha, Wis.

DISCUSSION.

Mr. Imrie—Mr. Stiles, do you believe in applying manure as a top dressing on fall plowing through the winter?

Mr. Stiles—Yes, that is a good plan. With me, however, in southern Wisconsin, I prefer not to plow, but rather to spread the manure on the land and allow it to lie there and plow in the spring. There may be some cases farther north where it is better to plow in the fall and then top dress. Of course in those cases you have to disk it well in the spring, otherwise the litter on top is detrimental to the cultivation of the crop.

Mr. Imrie—What do you do in the spring if it is very soft?

Mr. Stiles—I said we haul every day directly to the field. Of course that is not quite true. There is one time, about the middle of April until the middle of May, when the frost is going out of the ground, when the ground will be injured by hauling manure on it. At that time we haul the manure out and put it in a large pile, mixing the horse manure and cow manure, and let it stay there until after the first crop of clover is taken off, then plow and plant corn, or sometimes take a second crop of clover.

Mr. Jacobs—I think you stated there was about eighty per cent of fertility of the crop returned to the soil, when it was fed to animals, in the manure if properly saved, and that under proper circumstances these farms were continually growing richer. If there is only eighty per cent returned, how does it keep getting richer?

Mr. Stiles—By growing some leguminous crop in a rotation, we will see that the nitrate contents of the soil ought to be increased and by proper cultivation of the soil we ought to get great benefit. Then again, if we keep special stock, dairy cows, and purchase wheat bran and such feed as that rich in phosphates, I thoroughly believe we are bringing our soils into better condition each year. Even at the eighty per cent, I believe our soils are getting into better condition by the process of working them up and allowing the action of nature help to make the mineral content of the soil more easily available for plant growth.

Mr. Jacobs—Yes, by working it up you are making it more available, that simply helps to exhaust it sooner. Of course if you are purchasing bran from some other farm, you are going to keep up this element, but your clover and your legumes are not going to add any mineral to your soil, and unless you bring in these minerals in the shape of fertilizers or green feeds I do not see where they are going to get in.

Supt. McKerrow—You have got to theorizing, but on a very important question. Now, what was this soil originally? Simply ground rock. Then it began to grow vegetation, which went back into the soil, and began to put humus into it, and I am crude enough to believe that as this vegetation accumulates and the bacteria which keep up the rotting processes work and the forces of nature in frost, moisture and air work on, they are still grinding down and naturally making the soil better. If the soil is naturally growing better and in a more refined condition for the growth of plants, to my mind it is growing richer, and there is where, theoretically, we lose sight of the real workings of the laws of nature. We argue, as Mr. Jacobs does, that unless we put all back the soil must be growing poorer, but I have come to the conclusion that we are making a little mistake with that argument; that we have the same original rock that was there to begin with, and as that rock is ground down and the mineral elements are released and made available, so our soils grow richer and I am not so fearful of the losses that we talk about as some people are. Now, if you will turn back to the rotation of crops, the manure experiments carried on at Worcester, Ohio, and some other places, for fifteen

years, I think I have proof of my statement.

Mr. Jacobs—Admitting that that theory is right, that this grinding and weathering is making the soil better, why are those farms in New York, that certainly have had a lot of grinding and weathering, now in shape that they can be purchased so cheaply? If that is the fact, why not weather them a little more and make good farms of them?

Supt. McKerrow—The answer is simply because they have not been handled by good Wisconsin farmers.

Mr. Stiles—They lack men and they lack the stock that should have been kept on the farm.

Supt. McKerrow—I can take you to farms in the southern part of Wisconsin that were supposed to be run out forty to fifty years ago and they are growing bigger crops, if you figure all classes of crops in rotation, than they grew when they had only been cropped five years.

Mr. Scott—The good Wisconsin farmer will buy bran and oil meal and feed them upon his farm.

Mr. Richards—Do we not lose sight of the fact that the available fertility in this type of farm is increasing annually and that the crop production is increasing? In view of that fact, if we go back over the centuries and consider the crop production, are we not going a little out of the way if we are going to continue to make available the work that Mr. McKerrow speaks of? In the face of the work that is done in Europe in the old grain field, where we find the grain production under ideal conditions according to our idea, but we find the mineral elements in those soils are limited to the amount put back every year and the amount of fertilizers put on the soils. I have those chemical reports showing the result of continually relying upon the manure. The manure is all right, the tilth is all right, but we must feed our farm a certain amount of fertilizers, just the same as a cow must have what she needs to put into her product. If your cow is going to be a long lived animal, she must be fed accordingly.

Supt. McKerrow—I am not objecting to that, only I do not want to frighten these good folks with theories that we have to go right out and buy all the time. With a good system of farming, a good many acres have been farmed in the United States and in Wisconsin without the results pointed to on those farms in New York, and for that reason I think we do not need to be frightened. However, we should aim to keep the fertility, and wherever we can feed these fields the by-products of the fields of other states and buy them for that purpose, I would be glad to do that. But, at the same time, nature has been breaking down, and is breaking down continually, many, many acres of Wisconsin land, so that they have produced magnificent forest growth, for instance. Now in those cases, there is something in those soils that will stand a good deal of cropping if it is in rotation and if the manures are put back that are produced, and the deep rooting legumes, such as clovers and alfalfa, are grown in the rotation. We do not put back everything, but we do not need to be frightened very badly about that. That is the only point I wish to make.

Mr. Nordman—In Mr. Stiles' statement in regard to the eighty per cent of the manure being saved in handling, he does not have reference to mineral elements, as I understand it. The twenty per cent that is lost is the nitrogen. When a farmer produces milk and cream and butter, that does not apply to the mineral elements as I see it. But here is another matter: where you grow clover and alfalfa, the roots of these plants go down deeply, they do not take their whole sustenance from the surface of the

soil, they go down at any rate below the eight inches of surface, and get a larger proportion of the mineral elements from down there, and utilize them. We can farm for a long time on eight inches of the surface without any fear of exhausting the mineral elements in our soil, but when you come to consider that down below that there is a long way yet to be drawn on, I think you can conclude that the time is far distant where we need worry.

Mr. Stiles—Mr. Nordman is right, most of the twenty per cent that is lost is nitrogen. We do not lose hardly any of the potash and phosphates.

Prof. McDowell—Mr. Vivian, the chemist of the Ohio Station, in speaking on this twenty per cent loss says that after having made a life study of the chemistry of the soil he is of the opinion that good farming and natural processes will restore that twenty per cent that is lost in feeding the products of our farm to our live stock.

Mr. John Imrie—We know by handling our manures carefully and rotating our crops that our farms can produce better year by year, and that is the evidence we are looking for. It may be we are destroying or using up some of the elements in the soil, but we are certainly apparently improving our soils and getting better crops with rotation and putting back the manures on the soil.

Mr. Stiles—Of course the main thing for us to consider as farmers is that, that we have to save the manures carefully in order to save that eighty per cent. We cannot expect to throw the manure out in the barnyard or on the hillside and have fifty per cent wash down into the creek. We should use as many absorbents as we can get in order to preserve all of the liquid portion.

Mr. Convey—Don't you consider the use of the manure spreader necessary in order to get the best results?

Mr. Stiles—I certainly do in many cases.

A Member—I put about six loads to the acre; how is that?

Mr. Stiles—That depends upon the size of the loads. I will say that with the manure spreader, it can be spread a great deal thinner and more evenly, and therefore more economically. Without the manure spreader, it will get onto the land in chunks and will not go nearly as far, so you will not get the value from it that you will where you spread it more evenly over the land.

A Member—What is the best way of saving liquid manure?

Mr. Stiles—The best way I know is to have a tight stable floor and for that a cement floor is the cheapest you can build. Then use all the absorbents you can. Sometimes it is pretty hard to get absorbents, but use straw, swale hay, or shredded corn fodder, or even dried peat. Sawdust or shavings are also good absorbents, but their effect upon the land I am sure is not as good as the effect of straw or litter.

A Member—How about a tank, or a cistern?

Mr. Stiles—Experience seems to prove that with our mode of farming and the high prices we have to pay for labor that it does not pay to have a cistern and pump it up and put it on the land. We seem to get better results the other way here in Wisconsin.

Mr. Imrie—And isn't there quite a loss in the cistern from fermentation?

Mr. Stiles—Undoubtedly, unless you handle it with a whole lot of labor. The greatest loss we have with our manure is where the farmers allow it to accumulate in the barnyard, especially in the summer. If you have manure in the summer and let it stand, even where there is an old straw stack, often half of it will be

lost by leaching and by fermentation. If hauled out in the fall, after it has laid in the barnyard all summer, you do not haul out one-half of the value.

Mr. John Imrie—We have found shredded corn fodder is about the best absorbent we can use in the gutters. It takes it up readily and it is easily spread.

Mr. Nordman—I believe that that question of cutting peat and using it to a greater extent than we do ought to be a matter of importance. In many sections of the state, peat can be had very cheaply and there isn't a better absorbent, it can be used with great success, it soaks up the liquid like a sponge and it is a good manure in itself, because it contains a larger percentage of nitrogen than common barnyard manure.

A Member—A man can spoil his farm by digging holes in it to get the peat.

Mr. Nordman—Oh, yes, you do not want to dig the holes in your meadow.

TILLAGE.

L. E. Scott, Stanley, Wis.

The student of nature marvels at the close analogy between the animal and the plant, finding, as he does, that they subsist upon the same elements and that the same laws of heredity, development and growth govern both.

His first error comes with the thought that the animal is nourished by its food partaken in a solid form, while the plant can only receive its nourishment in form of a liquid.

A little farther in his research, he finds that the animal is nourished only after its food, being masticated, acted upon by the saliva, gastric and other juices and reduced to a fluid called chyle, is absorbed in this liquid form by the membranes of the intestines into the circulation of the body

So with the plant. Its food may be given in a solid form, as with the animal, but it must be acted upon by bacteria and ferments and reduced to a liquid before it can be used by the plant. In this form it is absorbed by the hair-like surface of the tiny rootlets and carries with it materials with which to build the cells of the plant.

In short, plant food must be digested and the soil should be regarded as the stomach of the plant.

In this stomach the most of our plant food is digested. Some of it is pre-digested in the compost heap or in our fertilizer factories, the same as our breakfast foods are predigested at Battle Creek. Sometimes we apply plant food upon the surface or top-dress. Somethimes, in case of a bad stomach, we nourish the animal through the skin, but it always seemed to me that a man is indeed very miserable who has to take his nourishment externally.

Many of our ills are caused by indigestion. This is true also of the plant.

If the stomach is sour, if it is cold, if it contains too much moisture, or if it contains too little and becomes too dry and feverish, then the digestion is impaired and the crop suffers.

As exercise on the part of the animal is necessary for good digestion, so tillage is necessary to a hasty and thorough preparation of food for the plant.

Tillage fines the soil, giving it larger capacity for the storage of film moisture, giving the rootlets of the

plant a larger feeding surface. Tillage furnishes air, which is just as necessary to the soil life as to animal life.

Tillage stimulates bacterial action, thus hastening the development from the nitrogen furnished by the vegetable matter that we are incorporating in the soil.

Tillage to some extent governs temperature.

Tillage conserves a due amount of moisture to carry the crop through an ordinary drouth.

If you take a lump of sugar and place the lower edge in colored water, the water will come at once to the surface. If you place a little pulverized sugar upon another lump, the water will come up to it but not through it.

If you cover another lump of sugar with granulated sugar, the water will come through it almost as readily as it does through the lump, showing that to conserve moisture we must have our dust mulch fine rather than coarse and cloddy.

The Seed Bed for Small Grain.

An ideal seed bed is one with substrata of soil sufficiently compact to enable soil moisture to come up by capillary attraction, as it does through the lump of sugar, to moisten the seed, which should be deposited at the bottom of a finely prepared dust mulch.

Ground well plowed in the fall and worked early in the spring with harrow and spring tooth, furnishes such a condition.

It is not always necessary to disk fall plowing, and I am not in favor of very deep disking.

There is a great deal of corn stubble and potato ground this spring that is not plowed. If clean, it will undoubtedly be better to disk this rather than to spring plow. The disk should lap half, so as not to ridge the ground, and it should be harrowed finely and level before the grain is sown.

Rolling.

If rolling is done when the soil is moist, it will increase the capillarity and the land will dry out more quickly, unless the roller is followed with a harrow. There are conditions where the ground is hard and dry, as it sometimes is after grain comes up, when the roller will mellow the surface and pulverize the small clods that lie upon it, thus forming a dust mulch, which will retard evaporation.

Killing Weeds.

Again the plant is like the animal, in that its life in its early and tender age can be more easily extinguished than after it is old and strong and stubborn.

The time to kill a weed is when it first shows its tip above the ground.

A fine and shallow cultivation will kill them at that stage when it would require a coarser cultivation later on.

The Use of the Weeder.

It has been my practice for some time to throw a little ridge over potatoes in planting, to harrow level a few days later, when the weeds start.

I am convinced that a light ridge over corn is of equal advantage, especially upon heavy soil.

Shovels should be placed behind the wheels of the planter, the corn planted shallow and a light ridge thrown over it. This will enable the weeder to do much more effective work, lessen the expense of clearing the field and result in a better growth and an earlier maturity of the crop.

A deal of prejudice against the weeder comes from an attempt to use it in poorly drained land that has become set after a heavy rain. Such land should be cultivated first and

Noble's Fawn Prince, 95705. Junior Champion Wisconsin State Fair, International Dairy Show and National Dairy Show, 1911. Owned by Mrs. Adda F. Howie, Elm Grove, Wis.

when friable finished with a weeder, either crosswise or lengthwise of the rows.

I had one of the first weeders that was made (the old "Breeds") and for some years I did not use it, but the modern weeders are an improvement if used as indicated. I would not be without one.

Inter Tillage.

The inter-cultivation of all plants should be shallow, fine, frequent, continuous. and, if possible, level.

It is well known that up to a limit, rarely reached in a northern latitude, that the warmer the soil the more rapidly nitrates will develop and the faster crops will grow.

The most effective way to warm soil is to drain it of surplus moisture, which would naturally cool the soil if allowed to evaporate.

But soil may be also warmed by proper tillage. With shallow tillage, the roots grow nearer the surface, where the higher temperatures are, and where bacterial action is most active.

Experiments show that with tillage one and one-half inches deep, soil is warmer down to a depth of three feet than with tillage three inches deep. Also that where the surface is left smooth the soil is warmer than where the cultivation is coarse and furrows and ridges have been left.

I cannot call to mind a crop but will do better with shallow tillage if that tillage is thorough.

We are sometimes asked if we would not cultivate corn deeply the first time through. When corn is big enough to cultivate, a casual examination will show you that the roots in mellow soil are three times the length of the plant above the ground. A glance at the shank of the cultivator tooth running deeply, and you will see the fine and tender roots clinging to it. Prune the roots of a plant and you will retard its growth every time.

Many orchards have been permanently injured by deep plowing or even disking. The same principle holds good with all trees, shrubs and plants.

Kinds of Tools.

The ideal cultivation of all is an old-fashioned, down-east-Yankee and a hoe, with handle held upright so the blade will be flat, with a bright blade and a sharp edge he will pare the surface, which falls loosely behind the blade in a fine and smooth dust mulch.

The finest gardens I have ever seen are those in which no horse's foot ever enters, except to plow and harrow the land at its first fitting.

But the Yankee and his hoe are too slow to suit the modern idea, or to comply with the requirements of these strenuous times where laborers are few. We must have cultivators and I believe a farmer makes no mistakes who has a variety of tillage tools to suit different conditions and different seasons.

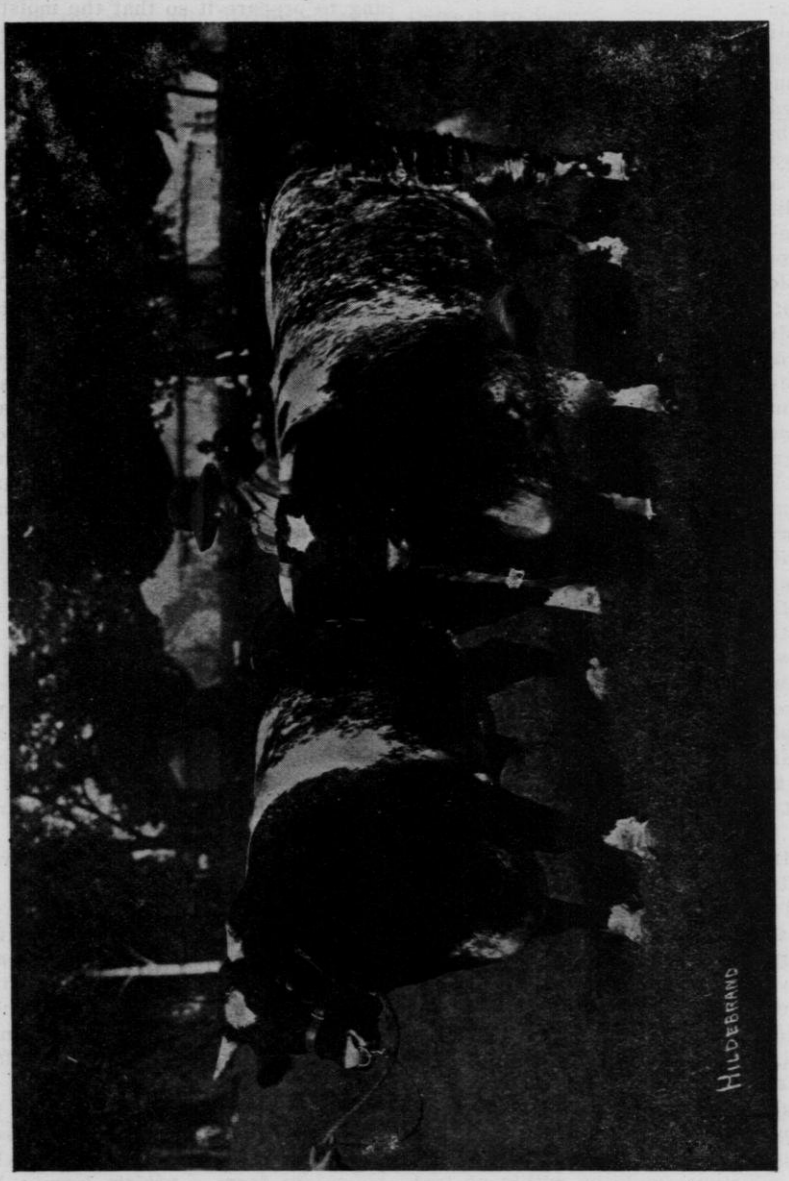
Anything that works like a hoe suits me best, where soil conditions will permit of it. The next best is the spike-tooth, or the spring-tooth, if teeth are not too wide. The old bull-tongue tooth has about had its day.

If it is necessary in weedy and wet soil to cultivate coarsely, this should be followed a few hours after with a fine tooth, to level and smooth and insure a full killing of the weeds.

Finally I say, Till the soil! for "He that tilleth the soil shall be satisfied with bread."

DISCUSSION.

Mr. John Imrie—I heard a good many times this winter of the practice of taking out a little dirt and planting the corn right in the dirt.



Sutlan Mine and Dale's Gift. Champion Shorthorn male and female at Ohio, Indiana and Wisconsin State Fairs, 1912. Owned by Carpenter & Carpenter, Baraboo, Wis.

Why do you think it is best to ridge it up?

Mr. Scott—I tried that scheme twenty years ago on potatoes and I found it was very difficult to kill the weeds by harrowing the dirt over them. Last summer I planted fourteen rows of corn on one side of the field as an experiment and ridged it just a little, and that corn was fuily a week ahead of the rest of the field all through the season and at maturity; besides it was very much more easily kept clean.

Mr. Jacobs—Did you cover that corn that much deeper?

Mr. Scott—No, sir, the corn was planted more shallow. I will say, however, that the soil is a loam soil, not quite as heavy as most of the soils in Winnebago county. It is a clay loam soil, and I have become convinced that we get a better and earlier crop by planting it shallow.

A Member—Do you use a spike-tooth harrow?

Mr. Scott—We used a weeder and it was effective with that ridging.

Mr. Imrie—Would not the season have a good deal to do with that kind of planting?

Mr. Scott—Our season last year, up to the time that corn matured, was just normal. It was not extremely dry, even at the time of planting.

Mr. Utter—Doesn't the difference of latitude and the difference of soil affect it? The general practice in the southwest, in Nebraska, is to plant their corn deeply, eight or ten inches, they must have a deep root growth in order to protect them against the winds.

Mr. Scott—We are talking for Wisconsin conditions, not Nebraska. I would not recommend planting more than one inch below the surface. The ground should be so prepared that the moisture would be within an inch of the surface. If your ground is not properly prepared, possibly it is better not to plant at all.

Supt. McKerrow—How are you going to prepare it so that the moisture will be held?

Mr. Scott—If it is fall plowed and you commence to harrow in the spring, just when it becomes nice and friable, and put that dust mulch on the earth and keep it on, you will have no difficulty in keeping the moisture where you want it.

Supt. McKerrow—Will not a coarse dust mulch hold the moisture better?

Mr. Scott—No, sir, it will not. You want to harrow to a fine, pulverized surface.

Mr. Nordman—You have a clay loam soil, and we find that the nearer we can plant our corn to the surface, the more sure we are of having a good plant, everything else being equal. The one thing we aim at is to have it close to the surface and still have it covered up. We do not want to plant deeper than an inch if we can help it.

Mr. Scott—Of course we plant our corn with a planter and the wheels pack the soil over the kernels after they are deposited near the surface of the soil. The packing of the soil will tend to increase the capillarity and the moisture comes up to the corn. Then these coverers should be behind the wheel where they will throw the dust mulch over them.

Mr. John Imrie—Mr. Griswold takes out just enough so that it shows moisture on top, planting very shallow right in this moist earth, and then puts on the dust mulch, and he seems to get quick germination and very good corn crops. There seem to be two different ideas; it may be conditions are different in different soils.

Supt. McKerrow—I can easily see why there is a difference in different soils. Mr. Griswold is working what we might term a prairie loam; Mr. Scott is working heavy clay; on our farm we have both kinds. On the heavy clay I would want to have the

ridge over the corn rows, because the clay in the rain will harden quickly and with the ridge the harrow easily breaks it up, whereas, if it is in such condition that your clay surface is hard, it is drawn into the hollows, and those particles are not broken; but on other parts of our soil it does not harden with the rain, and if you harrow right along it doesn't seem to make those hard lumps.

Mr. Imrie—It looks as if Mr. McKerrow doesn't prepare his soil properly if he has lumps.

Supt. McKerrow—No, sir, heavy clay will crust after heavy rain, no matter how fine you have made it, it isn't fine any longer.

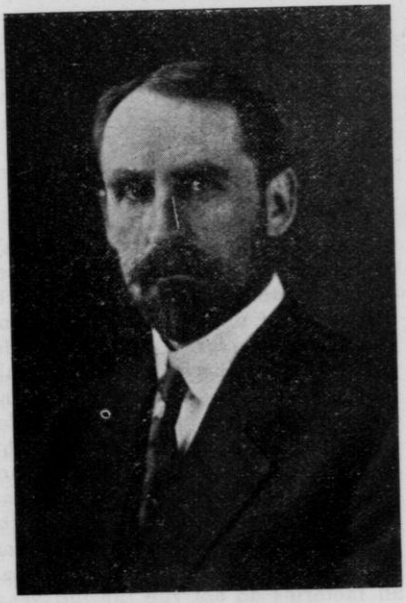
Adjourned to 1:30 p. m.

AFTERNOON SESSION.

The convention met at 1:30 p. m. Mr. Thomas Convey in the chair.

WHY I BELIEVE IN STATE AID FOR HIGHWAYS.

Senator John S. Donald, Mt. Horeb, Wis.



Senator Donald

Why I believe in State aid for highways.

First, because the highways of a State are the most public of all its institutions.

Second, the highways 64,000 miles in length, ramifying every section of the State, are of sufficient magnitude to engage the largest division of State government.

Third, because the provisions to sustain life must go to the consumer or to the shipping station over country highways, as well as the necessaries for rural development and the home, from the factory or station to the farm. The millions of tons each year thus transported, staggers ones imagination.

Fourth, intellectual growth can only come from some form of contact, and the highway affords the most common means of providing these opportunities.

What is State Aid?

Perhaps we should first consider what is meant by State aid for highways. What is the object? It is that the State shall contribute financial aid out of funds derived from the State at large, to a county or town, if the county or town wishes to permanently improve its highways. Then, too, State aid does not mean only financial aid. It means a recognition of

the importance of the highway improvement which will supply a much needed stimulus and give prestige to the efforts of communities that are progressive along these lines.

It further means system and a comprehensive method of procedure with an object to be obtained. The truly beneficial aid to an individual is not always money, but more often it is intelligent training, self respect, interest and pride in accomplishment.

This, I believe, should be the attitude of the State toward its component parts. Great road improvement can be obtained with no greater expenditures than have heretofore been made. Good roads will cost more money. The $2,500,000, the general and poll tax which has been raised annually in this State for some years for road and bridge purposes, has been presided over by sixteen thousand path masters, expending that large sum (more than twice the amount possible under the present State Aid law) and this large amount has been expended without any plans or system. Some path masters have labored to get good results in their districts. Their successors might be equally ambitious in undoing what had been well started. In too many localities the office of path master is a joke, and that sort of a man is chosen to boss for obvious reasons. Contrast this with the plan of Switzerland, which is famous for her highways. There the engineers and the their assistants in each canton must have an academic education and possess a diploma from the Polytechnic Institute, while the road masters are required to have a good technical education. This extreme may not be necessary, but the superintendent of highways in Wisconsin or any other State should be no joke. The small percentage of roads which can be reached by the State aid plan of this State, at the start, will gradually increase and the County Commissioner of Highways will give to each county at least one man who is making this important work his business. Even this will greatly assist in the plans and the procedure and in the inaugurating of more system to all highway work.

What State Aid Means to the State.

Now, consider for a moment the aid to the State. It seems almost an insult to the intelligence of a Wisconsin audience to argue on the saving which would be due, owing to a good road, as compared with a bad road. Many have tried to place a money value on this saving, but the figures are so large that few will believe them. Reduced grades and improved surfaces must of necessity mean a saving of time and effort and reduce the cost of transportation of goods. Competition is so close that the farmer, the manufacturer and the merchant can only expect to succeed by paying the strictest attention to economy and by using the best and most modern methods and machinery.

We can hardly realize the extent of the travel and use of the highways of this dairy State of ours. Conservative figures will amaze. Take the delivering of milk to the three thousand cheese factories and creameries of the State; take an average of only ten patrons to the factory, and an average of two miles for each patron from the factory. This would mean four miles a day for each patron, forty miles a day for each factory and 120,000 miles a day for the three thousand factories. Take ten months or three hundred days, as all factories do not run the full year, and the travel will aggregate 36,000,000 miles by the farmer for factory delivery alone. Add to this the delivery of the product from the factory to the station, which would be heavy hauling, and then consider the

skimming stations, condensing factories, shipments of cream and city delivery, and who will say it will not total above 50,000,000 of miles? Is a dairy farmer's time worth anything? Should he take energy and expense into consideration in his business?

Make another calculation, where we are more certain of our figures. Take the rural delivery of mail. Last June there were 1,600 routes in this State. The average number of miles in a route is twenty-five. This makes forty thousand miles traveled each day the mail is delivered. Multiply by three hundred days for the year once more, which would be deducting for the Sundays, holidays, and a few days when the roads are impassable, and we have 12,000,000 miles traveled in the rural delivery of mails. Should not Uncle Sam take some interest in this highway problem with us?

Add to the sixty-seven millions of miles of travel in the delivering of milk and its products and the daily mail, which is not looked upon as going anywhere, or travel or use of the highways in the usual sense, the general traffic of business, with the social, professional and pleasure use of the highways, and you will find "we have been going some."

Please compute the saving to this State in time, energy, wear and tear of patience, vehicles, harness and horses, of this travel over good roads as compared with bad roads. It is worth considering.

Scores of cases could be cited where over the improved road double the load can be hauled in from one-third to one-half the time, even in good weather, with still greater difference at certain seasons of the year. The price of every load of milk, of wood, or any farm product, every load of coal, of timber, is affected by bad roads and either the producer loses or the consumer pays more on their account. This question cannot be dodged, as the man who does not own a horse or use the roads is as much a loser, indirectly, as he who does, and both alike can afford to share the cost of making and maintaining good roads.

Some one has said, "The town is the heart of a community, the country

Senator Donald in the act of cheaply maintaining a good dirt road near his home in Dane Co.

is the body. Roads are the arteries by which they live. Good roads mean good circulation and good health." He might add "and morality," for another said, "Good roads promote prosperity, but bad roads promote profanity." If the roads around a town are bad, it might as well be on an island. The State can be no more than the aggregate of its parts, stimulated by the prosperity of its industries and its developed resources.

Wisconsin has achieved much along many lines, but in keeping with her motto "Forward," there should be a constant effort for a "Greater Wisconsin."

Good Roads Attract Home Seekers.

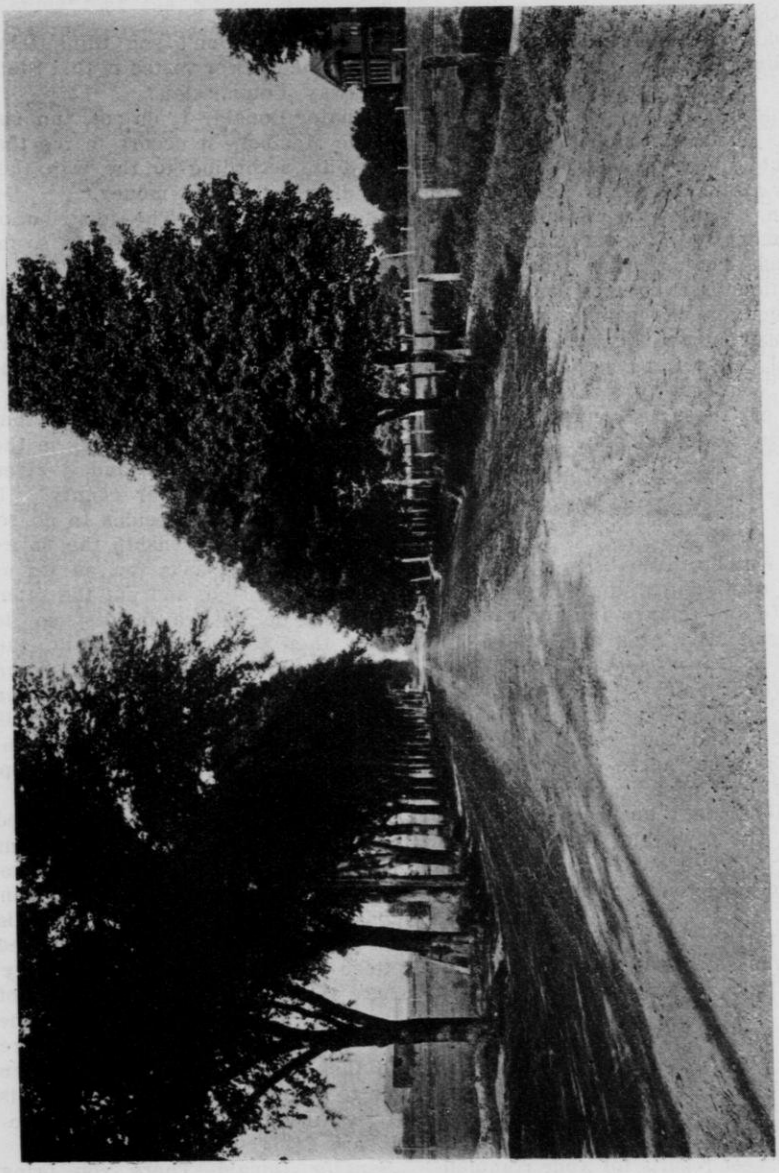
In this her highways are an important factor. A thought as to conditions which attracted settlers in an early day will illustrate. The early settlements were made along the rivers and lakes, owing to the ease of access and facilities for the shipment of any products to be marketed. Again, the settlements are along the railroads through a new territory. Does this same condition not exist as to our highways? It certainly does. Good roads attract and hold residents to a community, increasing land values, thus increasing the production of the State, preventing stagnation and loss in emigration. That this is true can be ascertained from the findings of the Country Life Commission appointed by President Roosevelt, which studied country life conditions in all parts of the United States. The report further says that at every meeting held, the improvement of country roads was urged as one of the greatest needs of rural life.

To the bicycle should go much of the credit for early sentiment for highway improvement. When man placed himself in the position of the horse in propelling a vehicle, he commenced to think. Good roads require sentiment, also money and brains. Where there is a will there is a way, in highways as in other ways. The American Wheelmen had an organization one hundred thousand strong. Later many of these became autoists, and with the growth of this industry came increased sentiment for highway improvement, also a greater problem in maintenance, caused by increased use of the autos. Wisconsin, like some of the eastern and extreme western states, should derive some income from tourists. We have every attraction excepting satisfactory roads. Our situation is admirable. At the head of the Mississippi Valley, Wisconsin has been dubbed "the play-ground of the middle west," with her many, many beautiful lakes, her forests and natural scenery, and points of interest in nearly every part of the State. The income annually from tourists and summer resorters with their various expenditures, according to statistics, bring to the State of Maine $20,000,000; New York $10,000,000, and New Hampshire $9,000,000. This should be an incentive to make attractive our roadsides and country homes as well. Social intercourse and pleasure are only possible in those sections where comfortable traveling is possible.

Good Roads and the Schools.

Good school facilities and good public roads go hand in hand. They are companions that cannot be separated. We must look to education in some form to furnish the intelligence for the solution of the many complex problems which come with citizenship. Better country life conditions, to make for country life contentment, which in turn will relieve city congestion.

The whole is dependent upon the people, and again the people are genrally influenced by their surroundings, and in the last analysis we should be



Town of Clinton, Rock Co. The Milwaukee road after improvement under State aid, 1912.

mindful of the fact that the effort of man is, or should be, to better man's condition.

Looking to the future, I see the final triumph of the good roads movement. I see through this State and this nation, or at least I hope I do, better public thoroughfares, and as our public highways shall improve and finally attain the proper degree of perfection, I see a corresponding improvement in all our interests and citizens, coming from the superior educational advantages, enlarged and extended church privileges, the better opportunities for moral and intellectual culture, and innumerable additional comforts placed within the reach of those to whom they were hitherto unattainable.

DISCUSSION.

Dr. Kutchin—We have this system in my own county up at Green Lake, of State and County aid, and cash for the road tax. At a meeting of the Board of Supervisors, it was found that every member of the Board wanted the money expended in his own township, and the result was that they could not agree to expend it on any of the most traveled highways, and the amount has been divided up among the townships, each township having about enough cash to build a piece of good road as long as a dining table.

Senator Donald—It was a matter that was left with the County of Green Lake, and the object of having State aid and a State aid commissioner, with some authority, is, if your County Board should determine on the road and then there were others with other ideas, it would give them a tribunal to go before in order to get the best results for your community. It would give you both an opportunity to be heard, and then this outside authority, not having your local prejudice, would probably decide for the best interests of the majority of the people.

A Member—Don't you think there is too much power vested in that State Highway Commission?

Senator Donald—I do not, no, sir.

The Member—It occurs to me that there is, according to the way they are distributing the money.

Senator Donald—The distribution is left with your County Board so far as the county is concerned.

The Member—If the township raises a certain amount of money, the county has to give an equal amount, and why doesn't the State come up with an equal amount?

Senator Donald—It is because they did not have a sufficient fund in the State aid to go around, and it gives you this option in your county. If your County Board decides to do so, it can give each township the entire amount which it asks for, as far as the money will go, and put the other townships on the waiting list, so to speak, then you come in first at the next apportionment, or, if your County Board decides to do so, it can apportion the amount that is available for that county to each township, therefore, it gives you the option.

The Member—Brown county raised ten thousand dollars in its different localities, and the township did likewise, and the State gave them seven thousand dollars. Why is it that this Tax Commission has appropriated sixteen hundred dollars to the county where I came from without any proof that they have complied with the law? They had money to give there and they did not have any money to give to others that deserved it. It is a fraud, that bill is, and we, the people, are going to repeal that law.

Senator Donald—There you bring in a tax question of which I know nothing, but your county had that amount for your County Board to dis-

tribute, and I have told you the two options and that certainly does not show that the State Commission is assuming too much authority.

Mr. Aderhold—The two places the gentleman speaks of are in different counties.

The Member—As I understand it, this amount which the Legislature appropriated was applied last October, was it not?

Senator Donald—No, sir, it was raised to be applied in this year of 1912 to the counties or townships which took action last year.

A Member—How does the State Commission justify its giving to those counties that did not take action last October, giving them money now?

Senator Donald—I do not know of any counties in that situation, excepting this: There were some townships that took action last spring, or there were some counties that had taken action under the County Aid Law, which was previously in force, and where that was done, they were entitled to their proportion of the State aid. So it would be in one of those two cases.

A Member—Suppose all the towns in the State had asked for aid, don't you think our little tax would be pretty high? I think they are pretty nearly up to the limit now.

A Member—The State couldn't pay it.

Senator Donald—You are both right in that. No one has contended that anybody was going to get something for nothing, but under your County aid plan, which has been quite generally accepted in the State, the townships have made application to the county for county aid, and they were given county aid. The townships that did not make application paid their proportionate share of the county tax, which went to those townships which asked for it. The State aid plan is just the same and goes one step farther to pay the counties, which whether by county action or through the town, ask for State and County aid, and receive it, to the extent which the State has to give. Suppose all townships asked for State aid, we wouldn't have enough with three hundred and fifty thousand dollars to give that. We may not see fit to aid them, but if we do not, even if we did not get back anything in excess, it would give us the system and it would put that county into this as a unit, and you would have your county commissioner and I feel that this system and this working together would be an aid which is perhaps as great or greater than a financial aid. It is the whole interest working together, and should command the interest which we should put into this work that is going to bring great good.

A Member—Yes, but we have got to put money in.

Senator Donald—It takes money.

A Member—Is there any possible way for a town that did not appropriate anything last October to participate in the fund this year?

Senator Donald—Not for 1912.

The Member—Our town of Menasha is a town that has not appropriated any, and yet the chairman of your Commission appeared before the County Board in Waukesha and made the proposition that if the county raised a certain amount, he would see that a certain amount was raised for the county. How do you justify that?

Senator Donald—I do it in this way. A member of the Commission, or the Commission even, could do what you say in this way. The State has three hundred and fifty thousand dollars to use for State purposes.

There is an additional forty thousand dollars for the administration of this Department; that is, for the engineers and the expenses of the Commission, and to carry on experiments. Now, out of that fund, the Commission might say to you, "You get your

county or township to apportion a certain part and we will apportion a certain part, providing you put in your share."

A Member—Somebody came up to Outagamie county and made the same promise there. I am afraid they they will make too many of them.

Mr. Utter—It seems to me there is no money that is appropriated in the State that is of more benefit to the community than the money that is appropriated for this purpose for building good roads. Three hundred and fifty thousand dollars or a million is a bagatelle compared with what should be provided. The county of Los Angeles, in California, bonded the county for about three million, five hundred thousand dollars, and they think it is a paying investment.

A Member—Perhaps they had no roads at all.

Mr. Utter—They had much better roads than ours. We are farther behind in the way of progress in good roads than anything else.

A Member—Do you think it would be advisable for a town to depend on this man's promise to get twenty-five hundred dollars from the State in case the county did appropriate double that amount?

Senator Donald—I do not want to get into a discussion of anything as foreign as that, but I feel that if the Commission does have an excess that they can use in that way and decide to do so, you are certain of getting it.

A Member—That doesn't hardly justify the town in case we raise this money and deposit it with the county treasurer, then if we do not draw anything from the State, as we expect to do on this man's promise, there will be great dissatisfaction.

Senator Donald—I suggest that you write to the Secretary of the Commission, because I am not in position to say anything authoritatively in that line.

I wish to say this, Mr. Chairman, I am glad we have gone slowly in this State and am not surprised that criticism is made because there is such a small amount, I think it is a just criticism, but, as has been said, we do not want to do as Los Angeles county did,—by bonds issued it raised three million, five hundred thousand dollars,—but if we can in Wisconsin start in this small way and get onto a business basis, where there can be no charge of graft or anything of that kind, that is what we want. I am glad to see the interest that is shown here in our having started in a small way. If this law is not right, let us all take an interest in it and make it right. We are starting slowly and in a moderate way, and if we find we are on the right track, we can increase the amount.

A Member—The State of New York is bonded for three hundred million dollars for good roads and some of them are sick of it.

THE WORK OF THE WISCONSIN HIGHWAY COMMISSION.

A. R. Hirst, Acting State Highway Commissioner, Madison, Wis.

Mr. Hirst

The legislature of 1911 passed a State Aid Law providing for the expenditure of $350,000 annually by the State to aid in the construction of roads and bridges on a certain system of roads in the State to be selected by the County Boards of the various counties. The law provides for a non-paid Commission of five members, three appointed by the governor, two ex officio, these last members being the Dean of the College of Engineering of the University and the State Geologist. The sum of $40,000 was appropriated for the purpose of paying the engineering and other expenses incident to the work of the Commission.

The law provides that one-third of the cost of roads built under it should be paid by each, the town, the county and the State, and that two-fifths of the cost of bridges should be paid by each, the town and the county and one-fifth by the State. The original power to apply for an improvement rests with the towns, but the counties have a right to make improvements and pay both the town's and county's share of cost if they so desire and draw State aid just as if the money had been voted by the towns. The first distribution of the State fund was made November 1, 1911, and although the law was passed long after the annual town meetings and towns were obliged, in most cases, to hold special meetings to get work done in 1912, the State funds available were over-subscribed more than $100,000.

There are seventy-one counties and about twelve hundred towns in the State of Wisconsin. Four hundred and seveny-nine towns voted money for road construction to the total amount of $400,000. One hundred and twenty-three towns voted money for bridge work. The bridge money voted by the towns was $52,000. The total number of towns voting either road or bridge money was 508 and in addition to these towns there were five counties, comprising 45 towns, which voted as counties, and work in these counties will probably be done in at least 25 towns in addition to the above, so that work next year will be done in at least 530 towns in the State. From information at hand it would seem that about 400 miles of stone, gravel, or shale road will be built and about 250 miles of dirt road, the last class comprising sand clay and other types of semi-permanent surfacing, as well as ordinary grading work. In addition to this, there will probably be 150 bridges of various sizes to be built, the total amount of work reaching $1,250,000 in value.

The Wisconsin Highway Commis-

sion is required by law to give effective engineering supervision on all this work and the problem of doing this on work scattered over such a wide extent of territory within the limit of $40,000 is a larger one than has ever before been atacked in the first year of operations under a State Aid law. Some account of the organization and the engineering methods to be used may be of interest.

The Work of the Bridge Department.

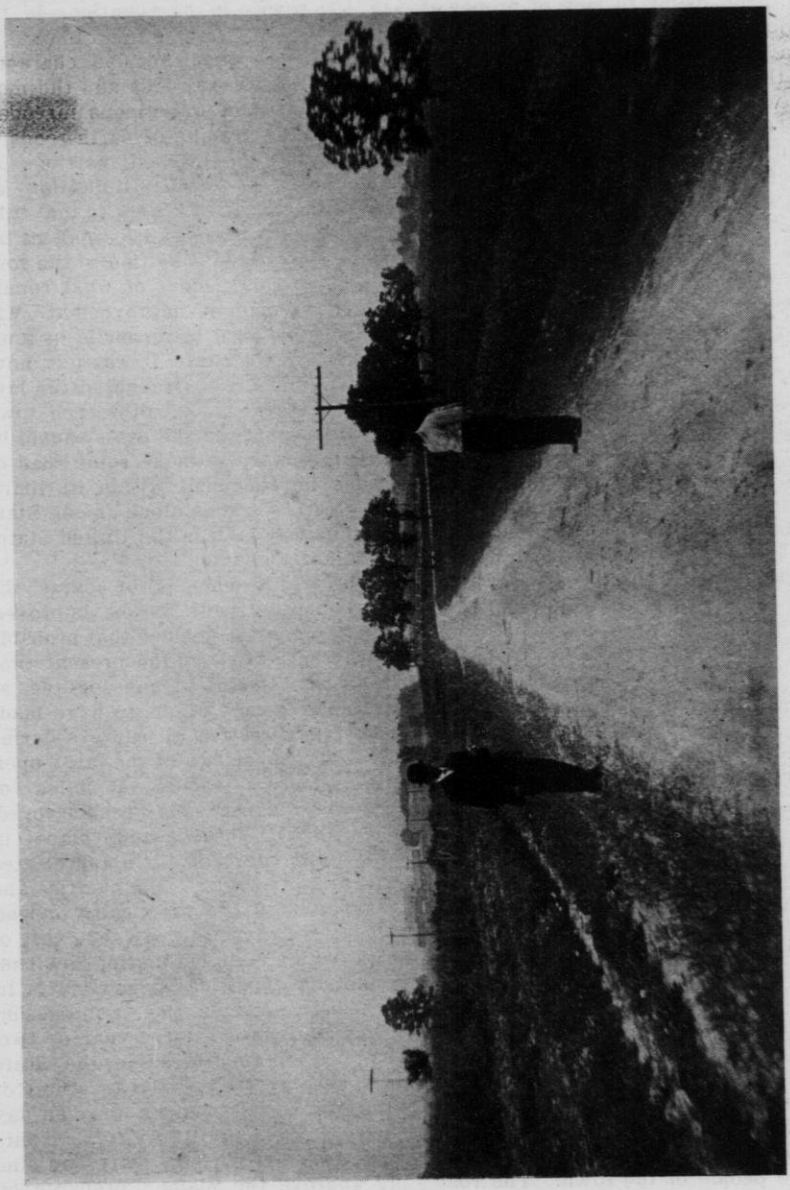
The work is divided into two main heads, the road department and the bridge department. The bridge department will have charge of all bridge construction under the State Aid law, which provides that plans and specifications must be prepared or approved by the State Highway Commission for all of this work. In addition to this, there was imposed by the law upon the Commission the duty of approving the plans for every county aid bridge built in the State before construction could be undertaken. Since under the State Aid law it has been ruled that everything over six feet in span on the State system of roads is a bridge and may be built with State aid, and under the county aid law any bridge costing over $200 built on any road in the State can get county aid, it may be seen that there has been placed upon the bridge department of the Commission responsibility for practically all bridges to be built in the State in the future. Work on bridges which the Commission plans involves, first a visit to the bridge site, usually with the chairman of the town in which the bridge lies. A record is made of the present structure and all details of water-way, character of the bottom and materials available. A detailed report on conditions at each structure is made out and a bridge designed to fit that place.

The abutments, of course, are different in practically every situation, but standard plans are usually used for the superstructure, whether it is to be built of concrete or steel.

After the plans and specifications are prepared, the bridges are let by contract at a public letting to the lowest bidder. We have found that by sending out blue prints and specifications to all of the bridge companies interested in work of that class, they can often obtain mailed bids, and the bridge companies' agents who are on the ground are prevented from combining to set a price for the structure, even if they desired to do so.

When the work of the Highway Division of the Wisconsin Geological Survey was started four years ago, the design and erection of steel bridges was almost entirely in the hands of the bridge companies. The people who paid for the job were, in very few cases, represented by any one who had an engineering knowledge of the design of bridges. As a consequence, many bridges were built which were indefensible from an engineering stand point, and in many cases a very high price was paid per pound for the steel in them. The work of the Highway Division was purely advisory and no town had to call on its engineers unless it wished to do so, but its work in bridge design and letting was so successful that in the last year of operations the Division probably designed at least one-half of the bridge structures of any size built outside of cities, and the new law, making the checking of designs by the Highway Commission compulsory, has so far as known, produced no protests from the town chairmen in the state.

It is intended to continue practically the same methods in work under the State Aid law and it is probable that every year the Highway Commission will be called upon to design or approve the design of, at least, $400,000 worth of State aid and county aid bridge work. In the past, the inspection of construction has been left with



The First County and State aid road in Dodge Co. between Juneau and Minnesota Junction.

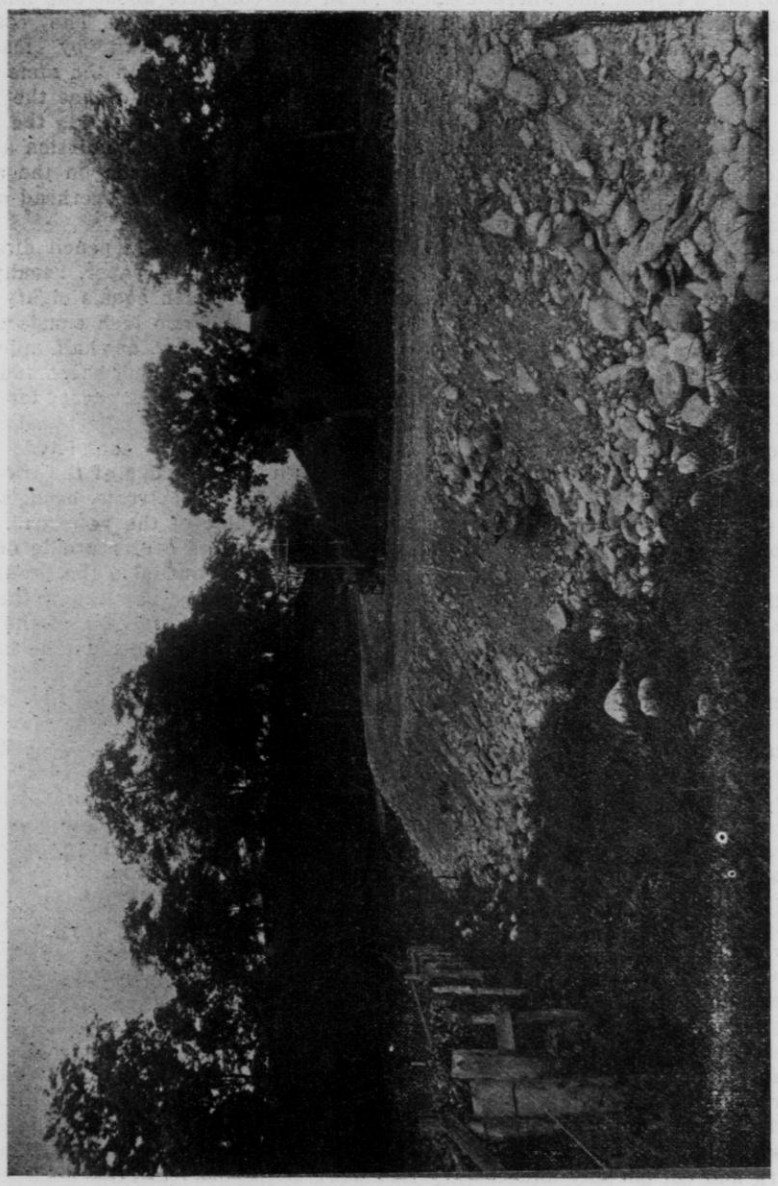
the local people and while in one or two cases the results secured have been poor, owing to lack of proper attention, in general the work done has been very good. Under the State Aid law the inspection lies with the county and will be done by the County Highway Commissioner elected by the county board, or his representatives. The Commission expects to demand that all concrete work be inspected as it is built, as most of the trouble with abutments has been caused either by the foundations not being built according to the plans, or by the concerte being mixed in proportions not in accordance with the specifications. There is no idea, at present, of inspecting steel in the shops, or of anything more than an examination after erection of steel superstructures. Most of the steel used in highway bridges is of standard size rolled sections, obtained on the open market by the bridge companies and the physical properties of this steel are uniform enough to justify designing along the lines of standard practice without shop inspection.

The Road Work Department.

The road work of the Commission is centralized in the highway department. Indications are that most of the State Aid work will consist of road work and the problems presented in this part of the work, owing to the ground that must be covered in the expenditure of a comparatively small amount of money on each job, are more serious than those in the bridge department. The average amount available for construction in each town (exclusive of Milwaukee County) is about $1,750, and many of the towns have found it necessary to divide the money into at least two parts in order to get the appropriation made by the people of the town. The road department has therefore the problem of securing adequate surveys and plans and construction on probably 750 different pieces of road situated in 500 towns in 63 counties in the State.

This work will vary in character from the concrete roads and the most modern type of bituminous macadam down to the grading of earth roads in the more undeveloped portions of the State. The sole limitation on the character of this work is that it be such that it will make a permanent improvement in the condition of the road and the varying ideas of what constitute a permanent improvement will probably be hard to reconcile in some portions of the State. It was felt, however, by those who draughted the law, that whatever its wealth, each town in every county in the State should be given a chance to make some road or bridge improvement within its limits and this law stands alone among State Aid highway laws in the United States in doing this.

The first problem is, of course, the surveying of roads to be improved. The Commission decided that probably it was best fitted at the present time to do this work and has offered, as far as its means allow, to have made under its direction all surveys during the first year or two of the law's operation. In fact, about 125 miles of 1912 work have already been surveyed. The value of surveys and plans in road work has been little appreciated in the past in rural communities and it has been found practically impossible to get them to pay the cost of work of this class, no matter how badly the situation may demand it. In view of this fact, the Commission will make surveys for a year or two, until the communities of the State have been aroused to a realization of their value, but it hopes at some day not very far in the future to have this work assumed by the county and simply approve the plans prepared by the county commissioner or county surveyor.



Heavy fill to reduce grade on road near Rochester, Racine Co. Later surfaced with gravel.

In making road surveys our system is to run a transit line where it can be most conveniently measured and distances are taken to the present fences and the tops of fills and bottoms of cuts, so that the new center line can be placed with a due knowledge of what is there now. The stakes are placed 100 feet apart at the side of the road, well out of the way of construction, and at the time the profile is run a level is taken on the top of those stakes and at the bottom. The distance from a stake to the transit line is recorded and the distance from the stake to the new center line is computed in the office. When taking the profile elevations are taken at the center of the present traveled road, and also in the ditches where the country is flat and drainage doubtful and a cross section of the cut or fill is taken at such places as may seem necessary Along those parts of the road where the center cut or fill will be a true indication of the earth to be removed, no cross section is taken. We have found that one man who acts as chief of party and instrument man combined, with a party of two or three local men (new on each survey) can usually complete about one mile of survey per day, including location and levels, where the work is on a road already in use. Of course, where relocations have to be made, or new roads laid out, progress is very much slower than this. On the other hand, where conditions are extraordinarily favorable, nearly two miles of road have been finished in one day. It is not claimed that the methods of surveying above outlined are by any means complete, but we have found that plans can be gotten from such surveys that adequately take care of ordinary road construction and the aim has been to do sufficiently accurate work and cut out any unnecessary refinements.

The work of getting out plans in the office is about double the work in the field. Under good conditions one man can complete about one mile of such plans in two days. The cost of surveys is kept down by making those close together on the same trip, and it has been found that the field and office work in preparing the road plans will cost the Commission about twenty dollars per mile on the average, not including the overhead office expense.

Plans are drawn in pencil directly on Plate A tracing paper, usually on a scale of one inch equals eighty feet horizontal, and one inch equals eight feet vertical. About one-half mile of road is placed on each sheet and the ten-inch paper is used, except for very hilly roads, where the twenty-inch width is used. The completed plan shows in ink the edge of the traveled way, the fences, culverts, bridges and the center line of the new road. The profile gives the center profile of the present road and also the profile of the center of the new road, the finished center in the case of the dirt roads, and the center subgrade in the case of macadam roads. Both plan and profile are drawn on the same sheet, the profile below the plan. At the end of each sheet is placed the grade sheet, which gives, first, the stake number, second, the distance from the stake to the new center, third, the distance of the new center above or below the top of the stake, and fourth, the actual cut or fill at the station. With this grade sheet and a carpenter's level or Locke level and metallic tape, it is possible to stake out a road and get good results. No center line stakes or slope stakes are set, the stake on the side of the road being placed out of the way of construction and used for building, so that outside of the original survey of the road, no additional engineering work is needed in the field. The writer has used this method on many miles of work in Maryland and Wisconsin with good success and it is ex-

Twin Falls bridge. Steel highway bridge, with reinforced concrete floor, on concrete abutments, over the Menominee river and connecting Florence Co., Wis., and Dickinson Co., Mich. Span 140 feet; width of roadway 16 feet; cost $6427. Designed by Wisconsin Geological and Natural History Survey. View from Wisconsin side; Florence Co. trap rock macadam road in foreground; macadam is 9 feet wide.

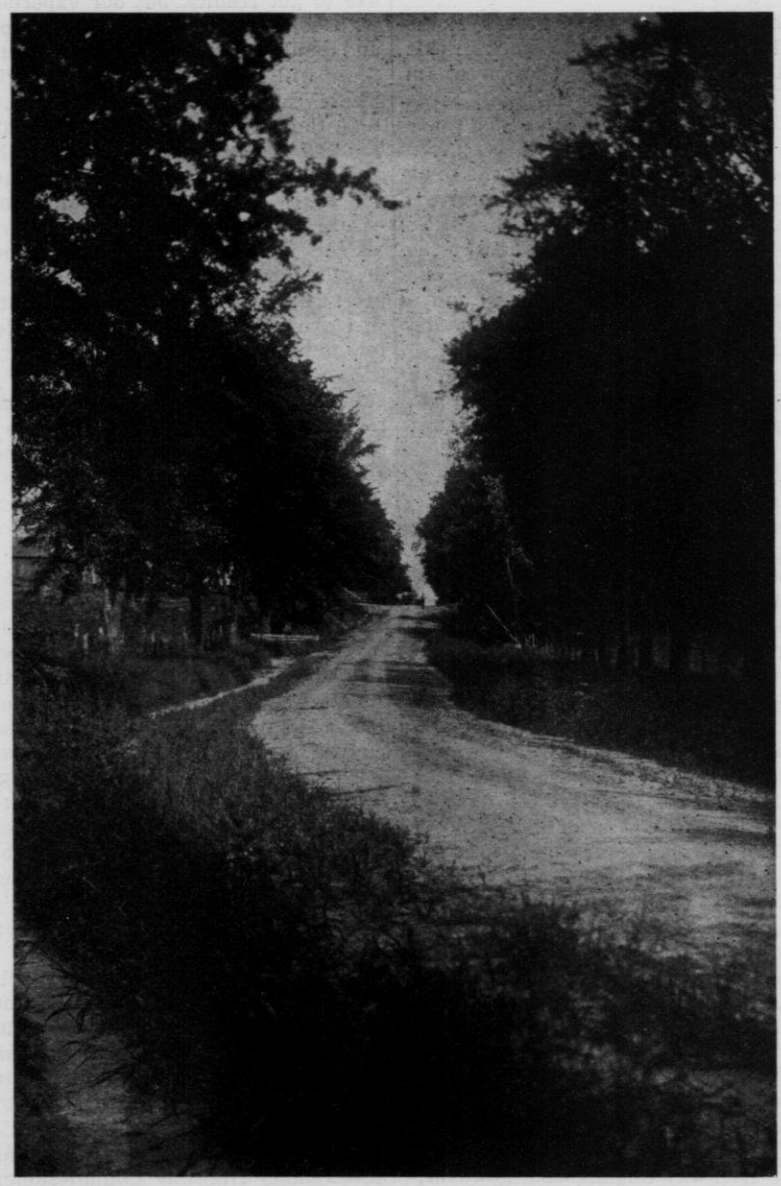
pected to continue these methods on the State Aid work.

The County Highway Commissioner.

The new law created the office of County Highway Commissioner. His duties are to construct or inspect State Aid construction in his county under the general supervision of the State Highway Commission. The law provides that if a county does not wish to elect a County Highway Commissioner, it can petition the Highway Commission to take charge of the work in the county and the actual cost of such supervision is charged to the county. Twenty-six of the counties have not elected commissioners, but have requested the Commission to take charge of the work. It is expected, however, in each of these cases, to use a man from that county to do the work. The Commission desires to train up in every community, as soon as possible, men who will be able to attend to the work in that community.

The work of the County Highway Commissioner is practically the same work that has been done by officers of the same name under the county aid law previously in effect in this State. Most of the work to be done under the new law will probably not be let by contract. At least, not until there are developed in this State contractors who are equipped to handle this sort of construction. The work done by the counties under the day labor system has in general been done at very reasonable cost and as long as the counties have to buy and furnish the outfits and have to have men with these outfits to see that they are properly cared for, it will probably be best to continue under the day labor system. Contracts for grading, quarrying stone or for hauling field stone to designated places have been often let to advantage, but in the work of laying the macadam so much depends upon the care in small details, that I believe that the fact that the men in charge of the work have no interest in skimping any phase of the work is an advantage.

Town of Kronewetter, Marathon Co. State aid road built of granite gravel, 1912.



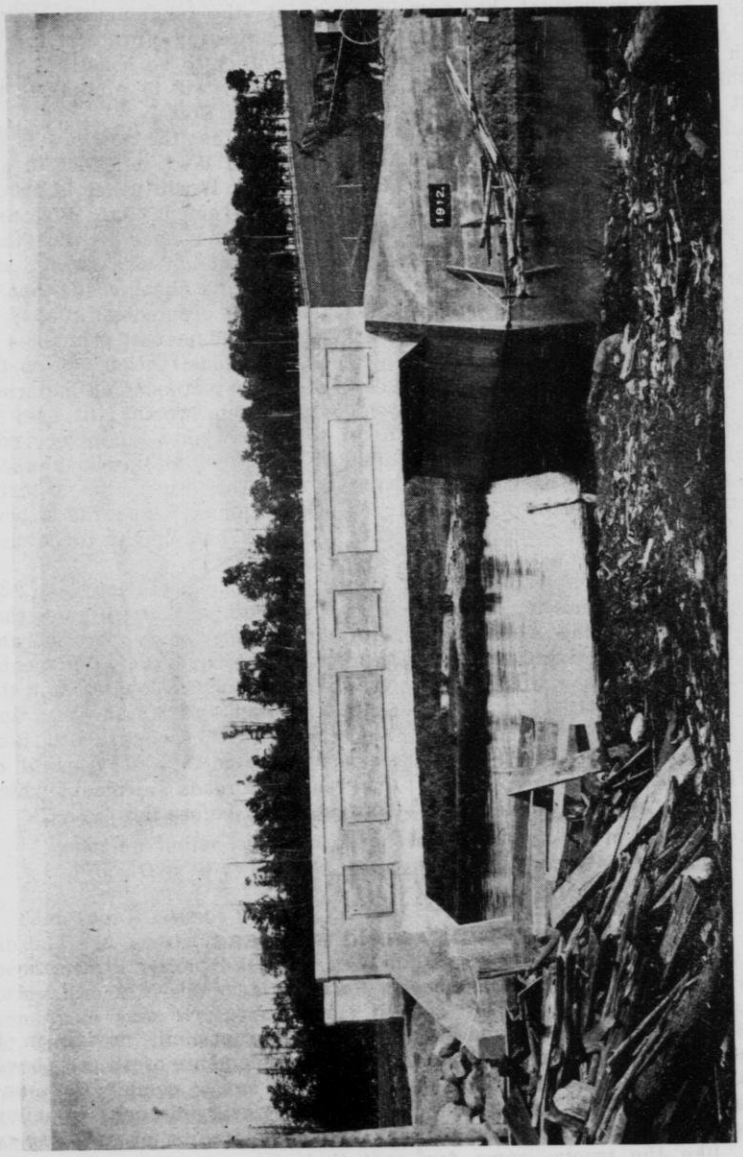
Trempealeau Co., Town of Gale. Road built of local limestone.

Some of the Systems Now in Use.

There have been several systems used in doing county aid work in this State which have proved successful and it is expected to continue these systems under the new law. The general system is for the county to own the outfit and to send it into the town together with at least a foreman, crusher operator and roller operator. In some cases this permanent force includes also a crusher feeder, one team to attend to the engine and a man or two to make sub-grade and spread stone. The rest of the labor is secured locally. Since to work these outfits economically they must start work as early as the season opens and continue until the freeze up, it is sometimes hard when it strikes a town in the midst of the busy season for farm work to secure the labor that is needed. Some counties have gotten around this difficulty by disregarding entirely local labor and sending around with the outfits complete gangs who live in tents on the work. This system has been used with pronounced success in Ashland and Green counties, and it is believed that, sooner or later, all of the counties will adopt this system, or variations of it, for their work. If this be done, it merely becomes a question as to whether a contractor can manage such outfits more economically than the County Highway Commissioner can, and since the County Highway Commissioner has no profit to make out of the work, it is believed that he has the better chance of getting cheap results; provided the men under him will work at the same efficiency as a contractor's man. This efficiency, of course, depends almost entirely upon the efficiency of the foreman on the work.

The Highway Commission, however, is not committed to any definite plan to be used in each county. The first year of the work will be somewhat experimental as to the exact methods to use to get results, but our experience with contract work on jobs as small and badly scattered as work in this State will be is not very encouraging. There can be no reasonable doubt that the engineering and inspection cost on contract work is larger than under the day labor system. Under the contract system it would be necessary for the county to have a man on the job at all times to inspect stone or gravel road work and a competent inspector would cost the county just about as much as a competent foreman who could direct the work. In the case of grading work, where results stand out for themselves, contracts can be let with advantage in many cases, as inspection is not necessary.

The amount available to carry on the engineering and inspection work imposed upon the Commission is so small when the amount of work and its badly scattered state is considered, that it is going to be impossible to give anything more than an occasional visit to the work as it is being done, and the final inspection of completed work demanded by the law. The practical control of the actual construction will be in the hands of the County Highway Commissioners, a few of whom have had two or three years' experience under the county aid law, but many of whom will be absolutely without experience in the kind of work they will have to do. It has been found possible, however, in most cases, to get very good results in those counties where the County Highway Commissioners, even if unskilled, were interested in their work and anxious to become familiar with proper methods of road construction. The Commission has no fear that if sufficient men can be found to start these County Highway Commissioners right on their first work that there can soon be trained up in this State a body of men who will be entirely



Side view, Somers bridge, Town of How, Oconto Co. This is a reinforced concrete span of 36' clear opening, 16' roadway. Built with State and County aid. Cost $1300.

competent to construct roads properly.

The good roads movement has now come to the point where the difficulty is not in securing votes of money for road construction, but to the point where it is difficult to supply the demand for experienced road builders. Men from other states will not always prove satisfactory, as in most cases the other states are building a type of road much more expensive than the people of Wisconsin will stand for. This is evidenced by the fact that during 1910 and 1911 the stone roads built under our plans in Wisconsin did not average over $3,000 per mile, grading included, while the roads in the eastern states will average $8,000 to $14,000 per mile. Much of this difference is due to the wider roads being built in the east and the use of bituminous macadam in quite a large percentage of their construction.

The Commission realizes that the work before it is a tremendous one. The engineering appropriation is about one-half the amount that the best minds of other states deemed absolutely necessary to carry on a work of the character contemplated by the law. The only way that the work can be made a success is by developing as rapidly as possible, in each county, a County Highway Commissioner and force of assistants, who, while they may not be civil engineers, will have a grasp of the fundamental principles of engineering work and the desire and ability to so construct their roads that they will be a credit to the county and the State.

We believe that the new law is the best State Aid law in effect in any State and that it will usher in an era of road improvement in Wisconsin more general and more sensible than the development in any other State. We hope to build cheap roads, but at the same time economical roads; to stick to the fundamental principles of all good road construction, but to try also those new methods and materials which may seem worthy of use; to defer to local wishes wherever possible to do so without serious disadvantage to the work, but to insist upon those things which the experience of years has taught to be necessary and right.

Plenty of difficulties may be suggested or imagined, but we know that with a true spirit of co-operation and friendship between the representatives of the town, the counties and the State they can and will be met and overcome, and Wisconsin will take her proper place in the vanguard of the great good roads movement which is sweeping all before it.

ORGANIZATION AMONG FARMERS.

G. L. Brakemeyer, Polar, Wis.

Organizations are manifold and for divers purposes. Some are ethical and moral, like the church; some are philanthropic, like the missionary societies; some are for exploitation, like the trusts; some for protection, like the civic associations and the unions, but the one I have in mind for the farmers is for mutual uplift and betterment, having in it some of the elements of all the above.

This is an age of combinations and associations; every branch of industry and commerce is organized, except that class of toilers whose welfare furnishes the foundation for the well-being and prosperity to all the other callings of men. The farmer

still follows his vocation as an individual and isolated, easily exploited by powerful organizations and trusts. And the sad part about it is that it is mostly his own fault. Of all men, he ought to have been first to organize, for his calling was the very first and numerically he might have the mightiest organization on the face of the earth.

In Union There is Strength.

We all admit that there is strength in union and vehemently condemn trusts and corporations because of their dictatorial power. The Bankers' Association for years thwarted legislative efforts to give us the postal savings bank, and the Retail Merchants' Association has successfully

Park's Princess Rhea, 34930. First and Junior Champion Guernsey yearling heifer at Iowa, Minnesota and Wisconsin State Fairs, 1912. Owned by John H. Williams, Park Farm, Waukesha, Wis.

Then too, it cannot be charged that he has had no teachers. There have been men of vision that have tried to bring him into some kind of an assembly or pact, but nearly every one of these efforts or movements have ignominiously failed, because the great mass of farmers were too indifferent for their betterment, or too skeptical as to the final results, or afraid of some deep, hidden scheme to exploit them again, or of jealousy, the bane and ruin of so many good plans and beginnings.

withheld from us the blessings of parcel post. Thus it is a fact that an eleven-pound package may be sent from Berlin, Germany, to any point in Wisconsin for less money than that same package would cost from New York, and still the millions of farmers cannot be induced to organize for successful self-help and self betterment. He works from sixteen to eighteen hours per day, pays the highest prices for what he buys and sells his product to the lowest bidder. I do not claim that the farmer is sat-

isfied with these conditions, for he is not, but he hates to exert himself to better his own condition and views with suspicion every man that offers aid and he shuns movements calculated solely for his advancement and protection.

Example Better than Precept.

For more than a quarter century the State of Wisconsin has endeavored to help the farmer to better agricultural knowledge. The State has spent vast sums of money for agricultural experiments and for publications, yet I wager that more than fifty per cent of the tillers of the soil do not attend Institutes or read the bulletins published for their benefit. As a rule, it is far easier to form a state-wide Mercantile Association or organize a National Wild-cat scheme than to bring twenty farmers into an organization. It takes more than a statesman, it requires a genius to accomplish such a fact.

But a better day is coming, and it will be brought about by practical administrations rather than by Institutes and lecturers, valuable as they are. A German in Germantown, Nebraska, bought a run-down farm and his neighbors pitied him; but he began to haul manure from town a mile away and stayed at it all winter, then his neighbors laughed at him, but after they had seen his corn crop, three of these neighbors bought manure spreaders forthwith and tried to beat him to town in the morning. One live farmer in a community will accomplish more than a great State Fair and a bushel of bulletins. He too, may gather his neighbors in local farmers' clubs, probably the best organization in most rural communities. Such a club, led by a progressive farmer, will become a blessing to any community. That one farmer can show his neighbors that these are good things, easily to be gotten and better methods they are not acquainted with and will inevitably lead up to better things right along. Such a club may be very primitive and loose in its organization; will of necessity deal with local conditions and needs adapted to the individual locality.

A Practical Example.

We of the northeastern part of the State have other problems and difficulties than you in other or older portions of the State. Ours is practically a new settlement. Most of our settlers were of necessity driven to spend the winters in the lumber camps. Many fell in love with that kind of work and life. They became lumber jacks who owned a small tract of slashing with a shanty and a garden spot where they housed the family in winter and spent the summer, but now the timber is gone and they have no farms, that is, they have no clearings large enough to support a family. In the past, it did not matter much if they raised a crop or not, and now many do not know how. Formerly it seemed all the same, whether they had a cow or something that looked like one. Now there is little or no wild land left and cattle must be fed. That makes a vast difference. In days gone by, the lumber camp furnished a means of sustenance, but now that support must be derived from a different source.

Seeing these things and knowing that a crisis was inevitable unless something was done at once to avoid it, a few of us tried the organization of a Farmers' Club in Polar, Langlade county. To some of you, that may seem a very simple matter, but it was by no means an easy task, though now we have some thirty members, of whom we exact the enormous membership fee of ten cents per annum, and we do believe that this Club has come to stay.

At first we met in the grove of a church. Our attendance was very small and vacillating. We had to coax men from a distance to come and speak on a likely theme and then to carry on and do all the discussing. In looking over the list of speakers, I notice that we had County Superintendent A. N. Overson, Prof. C. O. Marsh, of the County Teachers' Training School, Mr. J. D. Steward, a graduate of the Agricultural Department of the State University, and Mr. Ed Nordman, of state-wide reputation, to address the Club. After a few months we discovered that we had in our own community men who had studied some phases of farm life and some who had tried some new method; most of them still in embryo, but still material to work with. Now we have no trouble finding themes, nor men to discuss them.

Some of the Things Accomplished.

Now, as to some of the results. Several silos were erected and there are more to follow; several patches of alfalfa were planted and a lively interest in better seeds was awakened; a speedy change from flint to dent corn is in sight; several lumber jacks have vowed to quit the camp and henceforth devote their time and energy to the farm. Through the discussions in the Club, several have been converted and are now trying to secure a better grade of dairy stock; though I have not heard of any one disposing of his mongrel poultry and buying pure blooded fowl, I know of a few that had their milk tested and several have provided pasture for their cattle, and, last but not least, the Farmers' Club was instrumental in organizing a Rural Telephone Co., now having some thirty stockholders, and we are just aching for spring to open up so we can plant the waiting poles and string the wires.

I want to recommend a Farmers' Club to every community and with such a man as Mr. Ed Nordman leading we expect still greater things of our Club, as co-operation in purchase and sale, and you may justly expect great things of such a club in your neighborhood.

DISCUSSION.

Chairman Griswold—I understand you have an organization in your community which is very successful.

Supt. McKerrow—Why put the annual fee so low as ten cents?

Mr. Nordman—So as not to scare away the farmers.

Supt. McKerrow—I asked Mr. Brakemeyer.

Mr. Brakemeyer—Mr. Nordman is my right-hand man.

Chairman Griswold—Perhaps Mr. Nordman did not have the fifteen cents and he had ten.

Supt. McKerrow—If it was to accommodate Mr. Nordman, we will accept it.

Mr. Brakemeyer—It was simply because the expenses are light and if we had charged any more we would have never succeeded. We have to have some kind of a fee to make it look like an organization.

Chairman Griswold—How often do you meet?

Mr. Brakemeyer—Once a month in the evening all the year round.

Mr. Michels—Where do you meet; at the farmers' homes or the school house?

Mr. Brakemeyer—First at the grove of the church and then in the town hall. We are going back to the grove as soon as the snow is off.

A Lady—Do the ladies attend your meetings?

Mr. Brakemeyer—Yes, they have not come lately, because of the depth of the snow, but in the summer they often come.

A Lady—I was just wondering if

such questions as woman's suffrage might not be discussed at your meetings?

Mr. Imrie—Do you charge them ten cents, too?

Mr. Nordman—No, this ten cents is for the whole family.

Mr. Brakemeyer—They always bring the ladies if they can.

A Member—How fast are they cleaning up the slashings?

Mr. Brakemeyer—The club has not entered into that business yet. The farmers are beginning to clear a little land though, which they did not think of years ago.

Mr. Martiny—What lines of work do you think can be taken up in the different parts of the State? You have already taken up the local telephone up there, I understand, what other lines have you thought of?

Mr. Brakemeyer—We have only been dealing with local questions. I think every locality will have to decide that question for itself. This telephone company matter was an afterthought; it was not thought of when we organized the club. We intended improving the community, if possible, along agricultural lines, to get rid of our scrub cows, building up farms on lumber patches.

Mr. Imrie—I can see where there are a lot of different topics that can be worked out. Neighbors can talk together about what their cows are producing. A man doesn't notice so much if he doesn't compare but I can see it might be a great advantage to a man who has been taking poor care of his animals and getting poor results; when he comes to find out what the other man is doing it will be an incentive to him to do better.

Mr. Nordman—The biggest drawing card we have at the Farmers' Club is this matter of showing them where they can make more money by coming to the Farmers' Club and learning how to do their work better. They know that such questions are going to be discussed, such questions as how to make corn produce seventy-five dollars' worth of feed per acre, for instance, and how to make our cows produce well and growing big crops in general. These are the things that attract attention. I know some of our peop le go home after attending that club and they will talk to their neighbors about the condition of things as they have been spoken of at the club and the things that have been claimed there by the speakers and they want to know the reason why they cannot do as well, and that is what causes others to join. The more successful we are in showing the farmers how they can do better and make more money in their farm operations the bigger the meetings are going to be. I think in the first instance that has got to be the way to get at it.

Mr. Imrie—Are these subjects announced at your meeting and the speakers elected for the next meeting a month ahead?

Mr. Brakemeyer—We try to keep one or two months ahead. At the next meeting we are going to discuss how to feed chickens for profit. The last time we had the subject, "How to Feed Hogs for Profit and for Market."

A Member—Does your meeting at the church produce any sectarian pre judice and keep anybody away who might otherwise come in?

Mr. Brakemeyer—I do not believe it does in our locality. We do not go inside the church, we do not get mixed up in religion. Every one is not only allowed but encouraged to attend, whether they are members or not.

Dr. Kutchin—You say at your next meeting you are to discuss how to feed chickens profitably. Will you kindly send me a postal card down to Green Lake?

Mr. Brakemeyer—One of my neighbors up there told me, "My wife has

nine old hens and gets fourteen eggs a day." He is going to speak at this meeting; you better come up, Doctor.

A Member—Did he say how many pullets she had?

Mr. Brakemeyer—No, sir.

A Member—Would there be any objection to holding those meetings in the school house?

Mr. Brakemeyer—Not at all.

Mr. Convey—I suggest that Dr. Kutchin pay the ten-cent membership fee.

Dr. Kutchin—I will, if they will teach me how to feed chickens profitably.

EDUCATION, ORGANIZATION AND CO-OPERATION.

M. Wes. Tubbs, Sec'y American Society of Equity, Madison, Wis.

Mr. Tubbs.

I desire it to be understood from the start that what I shall say applies to the masses instead of to the classes. And, further, that I am not assuming to voice the sentiments of the organization I have the honor to serve. I am simply giving my honest convictions, based upon years of study, investigation and actual experiences in active educational, organization and co-operative work.

In Wisconsin we can scarcely realize the poverty and ignorance of the great majority of farmers and other laboring men in this country; nor that the annual income of eighty-seven per cent of the farm families of the United States is less than $800.00, while over sixty-six per cent of our farm families receive an income of less than $400.00 a year, nor that the condition of seventy-five per cent of the citizens of our great cities is even worse than the average condition among farmers.

Truly it is a struggle—"Poverty and ignorance against brains and capital."

The remedy lies in education, organization and co-operation.

Education.

Education, not in the way we have been inclined to think of it, as something emanating from the "little red schoolhouse," nor from the district school, nor yet from the high school, the college, or the University, but a practical, continuous investigation of all the phenomena of human existence, a study of cause and effect, and a working knowledge of all the modern processes of civic, social, econom-

ic and commercial life that have a bearing upon our daily existence.

Must Be By Proxy.

In this busy age, with its incessant demands for close application and continuous toil, it is impossible for any worker, farmer or artisan, to keep abreast of progress and for himself dig out and understand the complexities of government, the intricacies of commerce and finance, the interdependence of industry or the subterranean, incomprehensible deviations and manipulations of politics and legislation, hence here, if our education is to progress and be effective, we must organize and collectively employ men to do the "digging," to work out these problems, solve these enigmas, give to us straight, the results of their investigations, and to "expose" to our view and comprehension those "ways that are queer and tricks that are dark," so often employed in business, in commerce, in politics and in legislation.

The First Lesson.

We must learn that co-operative associations of farmers, with a trusty Business Agent, schooled not only in price, but also in the "tricks of the trade," will be a power of strength to any farming community. His duties would necessarily include grading, sorting, preparing for shipment, storing, and all the other details necessary to secure for the producer the highest market prices. His expert advice should include directions as to the best markets and the best routes over which to reach them, the proper time to sell and all the other details which the middlemen have at their finger tips, and which give them such a great advantage over the individual producer. Thus high efficiency in production would go hand in hand with profitable selling, and we would no longer see the ridiculous spectacle of bumper crops bringing the farmers less money than normal or small crops.

Kentucky Law.

This Business Agent must also be a student of economics and assist in the development and passage of needed legislation, as was done by Mr. Crecelius in Kentucky, who wrote into the Kentucky statutes the following act, authorizing pooling of farm crops, which was passed by the Kentucky Legislature on March 21, 1906.

"It is hereby declared lawful for any number of persons to combine, unite or pool, any or all of the crops of wheat, tobacco, corn, oats, hay, or other farm products raised by them, for the purpose of classifying, grading, storing, holding, selling or disposing of same, either in parcels or as a whole, in order or for the purpose of obtaining a greater or higher price therefor than they might or could obtain or receive by selling said crops separately or individually."

Compare this law with the law in Wisconsin, or with the Federal Law, and you will see the Kentucky farmers have some advantages not enjoyed by Wisconsin farmers.

Co-operative Distribution.

If I can succeed in convincing you that co-operation is destined to become the locomotive of modern distribution, and that it will eliminate many of the present wastes and losses and most of the graft and exploitation of modern merchandising, and if I shall succeed in turning your thoughts from the plow end of farming, from its scientific phases of selection and breeding, important as they are, to the social, the educational, the civic, the economic and commercial possibilities of agriculture

through the medium of education, organization and co-operation, I shall have accomplished my purpose and you will leave this hall with higher hopes, with greater ambitions and with a determination to become a part of the great co-operative movement now attracting the attention of the entire country.

they have furnished and from which the profits have all been accumulated.

Centralization Necessary.

I have no quarrel with Trusts or Monopolies; I believe in organization, consolidation and combination. The centralization of industry tends

The Farmers' Store Co. of Bloomer, Wis., operates a chain-of-stores from its main store at Bloomer. Branches are located at Chetek, Cameron, New Auburn and Sand Creek. The company does a business in excess of $500,000 annually at an average profit on investment of nearly 18 per cent.

But whether my presentation of the subject be successful or not, the great co-operative movement will succeed, as it is founded on the rock of eternal justice, granting to mammon that which belongs to mammon, a fair rate of interest; and to labor that which belongs to labor, a fair compensation for services actually rendered; and unto those who create the business, all surplus profits proportionate to the amount of business

to both economy and efficiency. The decentralization of the marketing and of the farmer's business and of distribution generally is the primary cause for the instability of prices for farm products.

Supply and Demand.

Demand is practically a stable factor, varying but little with the seasons or one year with another. The

food value of farm products does not change. Average production is little if any, in advance of consumption, taking the year as a whole and one year with another, hence there should not be the wide variation in prices for farm productions that there is. Supply and demand has but temporary control. Taking the year as a whole, the total supply of any farm product is not thirty days in advance of the total demand, that is to say, our wheat bins, our corn cribs, our granaries and elevators, our potato ware houses and our cold storage houses would all be empty within thirty days after the end of any crop year if the new crop should fail to put in an appearance.

Daily Consumption.

Enormous quantities of all products are consumed daily. It requires a million bushels of wheat every day to feed our own people; about a million bushels of potatoes, hundreds of thousands of head of cattle, hogs and sheep; millions of eggs and millions of fowls that lay them; all the milk, butter, cream and cheese that we can produce and all the "oleo" that the packers can turn out; all the fruits and vegetables that we can get to market, and still, because of the heavy carrying charges, the extortionate expenses and excessive costs of unorganized, unsystematized and competitive distribution, thousands of poor people in our larger cities cannot get enough to eat.

Fluctuations in Prices.

We all know that in the season of flush production and at harvest time, prices drop to about actual cost of production, if not below, and that, in the past, the major part of the crop or production has gone onto the market at these low figures. We know that but a small part of this vast supply was needed for immediate consumption, hence, it follows that it was purchased by somebody to hold and speculate on until the demand called for it. We know that, as a rule, prices advance rapidly after the farmers have sold their crops, and we also know that it makes very little difference to the consumer in any large city whether the farmer gets thirty or seventy-five cents a bushel for potatoes, he must pay from $1.00 to $1.50 a bushel anyway, and the price of beef on the hoof has no perceptible influence on the price of beef on the hook. Fifteen-cent fresh eggs seldom sell for less than twenty-five cents in a city, and may come out of storage and sell for thirty-five cents and forty cents, while the actual cost of transportation and storage does not exceed five cents per dozen. And so we might continue throughout the entire catalogue of food, clothing, timber and mineral productions of the earth.

Increase in Farm Prices.

To be sure farmers are getting better prices now than they received a few years ago, and they must get still better prices than they now receive. They have to make a large investment in a modern farm and they are entitled to a fair rate of interest on the money they invest. They have to assume big risks, because of natural and climatic conditions which may cause a total or partial loss of stock or crops. They are beginning to realize that the virgin fertility of their farms may be exhausted and they are beginning to demand pay for the plant food removed by any crop. They have learned that their plant and equipment is subject to extraordinary depreciation in value and they are beginning to provide a sinking fund for replacing worn out stock and machinery.

Farmer—Merchant, Manufacturer Scientist.

The farmer has learned that production, the plow end of farming, is really its smallest part. As soon as the crop is harvested, it becomes merchandise and the farmer proposes to place it on the market according to the principles of good business, letting the year's supply go onto the market gradually over a year's time, and at a profitable price, rather than follow the old method of "dumping" at any old price at harvest time. Somebody must hold it until the market wants it. It is safest in the farmers' hands. It can be held there more economically and it is better to have the millions of extra dollars that have been appropriated by middlemen, who bought cheaply from the farmers and sold at high figures to the consumers, distributed among the millions of farmers and the business men of the country towns with whom the farmers do most of their business, than to have them continue to pour it upon those who are now already overburdened with wealth.

The farmer is also a manufacturer. His characteristics as a manufacturer become doubly noticeable after he has sold his products and again enters the markets with his money to purchase raw material, supplies and equipment for his next year's output. To get the best results he must be something of a scientist, both as regards the feeding value of different grains and in understanding the nature and composition of his soil, so any deficient elements may be supplied and the most appropriate and economical farm machinery utilized.

The Family Considered.

The farmer is also quite generally recognizing and taking account of the labor of his wife and children and begins to feel that his income should be sufficient to make them an allowance not wholly dependent upon a motherless lamb or a flock of scrub chickens. In fact, he can see no good reason why he and his family should work for board and clothes to feed and clothe the rest of the world, who demand good pay for any service they perform, a substantial return on any investment they make and a good profit on any business they transact.

Farmers are under no legal or moral obligation to feed the balance of the world at unfairly low prices.

Farm Women Have Hard Lot.

And the women folks are beginning to feel it a great injustice that they must throw an old shawl over their head, rush out of a hot kitchen into a zero atmosphere to get a pail of water while their city cousin simply has to turn a faucet over the sink in one corner of the kitchen to get this every hour necessity for any housekeeper. Then there is all the baking and cooking and washing and ironing, much of which is done out of the house in the city homes. There is the unpleasantness of isolation, the lack of entertainment and social contact for both women and children, and a continuous round of routine work, care of live stock, etc., that makes absence from the farm home for a single day impossible. There is really nothing to compensate for these extra duties and privations and the farmers are justly demanding additional compensation to make up for some of the losses of life's pleasures.

Modern Conveniences.

Heating plants, hot and cold water with bath-room equipment, lighting plants, co-operative laundries and bakeries, more books and magazines and more time to read, study and enjoy them, consolidated township schools with assembly chamber for

entertainments and culinary conveniences for neighborhood spreads, with liberal acreage for play grounds and for crop experimentation, these are some of the things the immediate future must provide for the farmer and his family if "the exodus from the farm to the city" is to be stopped, or if the "Back to the Farm" movement is to meet with any success, or, in fact, if the young farmer of the future hopes to win the heart and hand of any intelligent girl friend who comprehends the work and privations of farm life as compared with the apparent ease and enjoyment of average village and city life, a difference almost wholly unnecessary and favorable to the city because the city has demanded compensation that makes modern convenience possible, while farmers have scrimped and saved and economized and gone without, hoping that some day, by some change of economic conditions, they, too, would be able to have some of the modern conveniences and social advantages of twentieth century civilization.

That day is at hand. It is not here as a result of changed conditions, but because farmers will refuse longer to submit to the dictation, domination and exploitation of manipulators standing between them and the consumers of their products, the men and women who manufacture the things farmers must buy, and, because farmers have learned how, through organization and co-operation, they can compel a "square deal" for themselves and for their patrons, the working masses in the shops and mills and factories of the cities.

The City Worker's Lot.

As bad as conditions are and have been in the country, they are still worse in the cities. The appearances of ease and enjoyment are largely snares and delusions. It is true that most city homes have all modern conveniences, baths, hot and cold water, heating plants and gas or electricity for lights, that laundries and bakeries and stores are convenient, that schools and churches are handy, that there are many places of entertainment and everything seems to have an air of luxury and prosperity, but there is another side to the picture not usually exposed to view and seldom seen until the lure of things, nice and attractive, has worn off, the few surplus dollars dissipated and the city toiler thrown with tremendous force against the real fact that his only friend and resource is his pocketbook. Then he begins to fear sickness, misfortune or unemployment, which would rob him of his "pay envelope" and with it food, clothing and shelter. Then he begins to see and realize the lack of friends and the lack of sociability, the mad rush for a job, the struggle for money, the vice and corruption, the misery and prostitution, and the hopelessness of his position dawns upon him.

"Back to the Farm" sounds good to him, but it is a mockery. Somebody else owns his farm and he could scarcely scrape together enough money to get back, even if the farm was still awaiting him. He has not been studying agriculture or learning by experience modern methods of producing crops, care of live stock, etc., and doubtless would make a failure of farming if he now undertook it. He must continue in the economic struggle and make his way as best he can.

City Workers Must Co-operate.

But like the farmers, city workers must adopt new methods. They must systematically undertake to make small savings to invest collectively in land and industries out in the open country and in co-operative warehouses and distributing agencies, stores and markets in the cities

where they can buy collectively and at wholesale prices many of their food and clothing necessities direct from the farms and factories, eliminating all advertising and selling expenses, middlemen's profits and speculator's graft, and retail these necessities to themselves at the minimum of expense.

Westby Co-operative Creamery. During the season of liberal production the daily output is about 1,500 pounds, while for the season its aggregate volume of business is close to $100,000.

Excessive Wastes—Delivery Service.

Statements without evidence or verifications sometimes mean little, hence we will examine some of the excessive selling costs usually little realized. You are all more or less familiar with the overlapping, wasteful and expensive retail delivery system of our larger towns and cities, and know how half a dozen milk wagons traverse the same route; how each meat market and grocery store delivers practically to all parts of the city with the same overlapping as is done by the milkmen, and frequently expending the time and energy of a man and wagon or auto to the amount of twenty-five or fifty cents to deliver a loaf of bread, a sack of salt or a dime's worth of meat, the profit on which could not possibly be more than a few cents. But possibly you will say that, as farmers, this burden does not fall on you. You deliver your own goods. Yes, but you pay the same price as is charged the villager, providing you trade at the same store. And often the prices you receive for your products are beat down to make this expensive service possible.

Advertising.

Then do you realize the tremendous tax you are forced to pay to settle the advertising bills of our great manufacturing and selling agencies?

Farm Journal.

I hold in my hand a copy of the "Farm Journal" of Philadelphia. Many of you take it. Do you know its advertising rate? Here is a seeds-

man occupying the last page. Who will venture a guess as to what he pays for this page for this one issue? I have recorded figures ranging from one hundred dollars to five thousand dollars; eighteen hundred dollars is the correct amount. Their advertising rate is four dollars a line, single column, one time. Advertising is measured by the line and fourteen lines are counted to the inch, regardless of the size of the type or whether the space is filled with illustrations or left blank. The little fellow occupying a space of only one inch, so small you can hardly see it from the back of the room, has to put up fifty-six dollars of good, hard money, and he and all other advertisers add this expense to the cost of their goods and you have to pay it whether you buy of them or of somebody else. The cost of the advertising in this one issue is over $80,000.00.

Saturday Evening Post.

Here is a weekly publication with which you are all familiar. Who will venture the cost of the National Biscuit Company of this double page display? Seven thousand two hundred dollars for this one issue. Their rate is six dollars a line, eighty-four dollars per inch, twelve hundred dollars per column. The advertising in this one issue, March 2nd, exceeds a cost of one hundred and twenty-six thousand dollars. This is all added to the cost of the various things advertised, and the consuming world pays it.

The Ladies' Home Journal.

Here is a woman's paper. The expression on the face of the little fellow on the front page of the March issue is not very attractive, but the income from advertising in this issue alone must be very attractive to the publishers. Their rate is seven dollars a line, ninety-eight dollars an inch, five thousand dollars a page if printed in black, more if printed in colors, and the total cost of the advertisements in this issue alone is over two hundred thousand dollars.

Of course, these are all papers of very large circulation and correspondingly high rates. From these lofty and almost unbelievable heights, we run down to about ten cents an inch for the average country weekly newspaper, but in the aggregate we pay fully one billion dollars annually for advertising, or a tax of more than ten dollars a year for every man, woman and child in this country.

Selling.

The retail dealer's system of purchasing his supplies through "Drummers" or the necessity, born of keen competition, on the part of manufacturers and wholesalers, to employ such an expensive sales force, is a burden little realized by the average dealer or consumer.

Commercial Travelers.

To illustrate specifically, it is known that between four and five hundred commercial travelers operate from the city of Madison. We will take the smaller number, four hundred. Their salary and expense will exceed two hundred dollars per month each, or a total of over eighty thousand dollars per month, fully one million dollars per year. Every good railroad center and distributing point has a greater or smaller number, and this expense is all added to the things sold. At least another billion of dollars in the aggregate is added to our necessities, another tax of ten dollars a year for every man, woman and child in the United States to maintain an antiquated system of distribution.

Too Many Stores.

Then again, we are carrying an excessive burden sometimes designated

as "Store-eat-us." We have too many retail stores, all maintaining independent management and excessive "overhead expenses", proportionate to the volume of business done, and unable to buy in sufficiently large wholesale quantities to command much more than a reasonable retail price.

Retailers Make Little.

The average retail merchant, however, is making very little money. The fact is the retail trade in the city and in the country village is carrying a burden of expense and trying to meet a condition of competition that makes net profits small, prices excessive and drives trade unwillingly to mail order houses. Often goods are priced to the retail dealer both ways, exactly as the farmer is told what his products will bring and what he must pay for the things he buys. And, my friends, where this is the case, the retail dealer is not allowed much profit. He operates very much like a slot machine. He delivers the goods, but the owners—the Trusts—get the profits.

Retail Dealers and Mail Order Houses.

The American Society of Equity is the first farmers' organization to go on record as opposed to the mail order house trading and it has consistently and persistently urged its members to trade with their home merchants. There are so many economic reasons for such action that I should hesitate to inject this subject into this discussion but for its great importance and the dire results that may follow a mail order house habit.

For reasons previously outlined, and others, among which smaller purchases and extension of credit by the local merchant when needed may be mentioned, patrons may frequently realize a temporary gain by sending away cash for a semi-wholesale bill of goods, just as a centralizer or skimming station, or local buyer who has no interest in the community except to "fleece" it and who pays no taxes, contributes to no charity or public enterprise, may offer a temporary advantage in price as against your own co-operative or a privately owned home enterprise, or dealer. But follow the transaction to its conclusion and you have lost.

In the first place, you have created an ill feeling on the part of your home merchant with whom you are regularly compelled to trade and to whom you must go when you do not happen to have the cash to send away. You have also reduced the volume of business that justly belongs to your home merchant, thus making it harder for him to compete with those who contribute not one cent to the maintenance or advancement of the community, thereby forcing him to charge a still higher price or lose a part of his income, or reduce his contributions to home charities and local improvements.

Secondly, you have injured your own self-respect. You know you have not done the right thing. You have seen many mail order house buyers get their goods after dark, or get out of town on a back street, or attempt to cover up their purchases with blankets.

Third, you have played directly into the hands of Trusts and Monopolies. For years the Standard Oil Company has owned the Larkin Co., of Buffalo, N. Y., but this fact is not generally known by the public. I have been told that Standard Oil is the principal owner of Sears-Roebuck & Co., but I cannot vouch for the correctness of this statement, I do know, however, that all mail order houses handle, almost exclusively, Trust-made and Scab-made goods, purchased at starvation wage prices, for the labor that makes them, thus making such laborers too poor to buy

liberally of farm and manufactured productions, and that it is from this source of under-paid and under-fed labor, rather than from any reductions in profit, that mail order houses and such manufacturers reap their millions, as their advertising and selling (correspondence) expenses are tremendous, fully equal to the legitimate overhead expenses of local retail merchants, proportionate to the volume of business done by each.

The Situation Grave—The Remedy.

Truly the situation is grave and the remedy important. Retail dealers must catch the spirit of the times. They must combine, consolidate and co-operate. The four or five separate stores must come together into one. Dealers in the different towns must co-operate and establish their own "wholesale," where a "stock needed" blank and a postage stamp will provide what now requires half-a-dozen "drummers" and many dollars of expense. They should become leaders in all truly co-operative activities and join with their patrons, whether they be farmers or wage-earners in shops and factories, to work out and perfect a system of co-operative distribution. More important yet, they should lead in a movement to develop industrial co-operation in the country villages near where the raw material is produced in abundance and thus as rapidly as possible build up our own manufacturies of necessary food and clothing products independent of the Trust-controlled enterprises of the cities, the mail order houses and the like, then with a "market" already established by the tens-of-thousands of customers, farmers and working men, who are share-owners in the enterprises, they can compete with any combination on earth, and make it possible to eliminate and save the little realized but nevertheless burdensome tax for advertising and selling previously referred to.

No New Scheme.

We are advancing no new scheme, no untried theory. This identical plan has been developing in European countries for more than sixty years. Hon. William Maxwell, president of the International Co-operative Alliance, recently summarized what is now being done in Great Britain as follows:

Success in Europe.

"There is a total membership in all of the local societies of 2,701,000, and since the member usually has others dependent upon him, the total number directly interested in these societies approximates 11,000,000 people, or more than one-fourth the total population of Great Britain.

These societies have a total working capital of $263,000,000; their sales last year amounted to $565,000,000, and their profits, outside of the interest on the investment, exceeded $55,000,0000. The English society has five great flour mills, four boot and shoe factories, two soap factories, and mills manufacturing cloth, tobacco, woolen and cotton goods; they have a tea blending factory; they own two estates for the growing of fruits, and have a fleet of four steamers to carry their purchases direct from their foreign agencies to their local wharves. The Scottish society is but one-fourth the size of the English, but in proportion to the population, co-operation is stronger in Scotland than it is in England.

Success in Scotland.

The Scottish Wholesale Society owns four great tea plantations in Ceylon. In Australia they have a depot for the purchase of sheep. In

America their purchasing agent last year placed cash orders for $6,250,000 worth of produce. In Montreal their agents' business amounted to $3,500,000. In Winnepeg they have either five or six elevators, from which the wheat that is bought direct from the farmer goes, without profit to the middleman, straight to their three co-operative mills, where last year they consumed of Canadian wheat 1,585,583 bushels.

Their buyers in Spain, Denmark and Sweden did a business in six months during the year 1910 exceeding $10,000,000. Last year the societies spent on education alone $4,400,000. They employ 81,000 persons, paying them the union wage schedule, together with shorter hours. In 1910 they manufactured $45,000,000 worth of goods, and in the same year the Scottish Wholesale Society did a business of $40,000,000, and this tremendous volume of business, both in the case of the British and Scottish Wholesale Societies, is based on the success of the local retail organizations."

Success in United States.

There are numerous disconnected co-operative successes in the United States, among which may be mentioned the East Coast Produce Co., the Long Island Potato Exchange, the New York State Grape Growers' Association, the American Cranberry Exchange, the California Fruit Growers' Association, the California Rochdale Stores Co., the Co-operative Stores being organized in Minnesota and Wisconsin by the Right Relationship League, the Mutual and Co-operative Insurance Companies, Telephone Companies, Creameries and Cheese Factories. In the aggregate, these co-operative or semi-co-operative enterprises do a volume of business that would compare favorably with that done by the English co-operators, but no collective figures are available.

Success in Wisconsin.

Co-operative activities are a big success in Wisconsin. The Farmers' Store Company, of Bloomer, does over half a million dollars in business annually. The Sparta Fruit Growers' Association is another successful enterprise. Pierce County farmers did over eight hundred thousand dollars' worth of business through their own elevators and warehouses last year; Marathon county about $300,000; Monroe county something like $250,000. The Wool Growers have sold collectively approximately half a million pounds of wool each year for the past three years at an advance over local prices of from one to five cents per pound.

There have been some failures with resulting losses, but in almost every case failures are traceable to a few well defined causes:

Lack of capital.

Incompetent or dishonest management.

Disloyalty of members.

Speculation—that is, banking on markets and losing on decline.

But other enterprises, privately owned, have also failed during the same time and for the same general cause, so failure is no argument against co-operation.

Actual Results.

We can do no better than to quote specific figures from Mr. Maxwell as to what has actually been accomplished.

He says: "Taking the city of Edinburg as an example, there are 41,000 members, representing more than 160,000 people or nearly one-half of the total population of the city. Originally there were several societies in this city, which later on amalgamated in order to cut out competition. Under the British laws, no man can have to exceed one thousand dollars' worth of stock, and a share amounts

to twenty-five dollars. He may buy that by paying one shilling (or twenty-five cents American) and instead of taking his dividends, allow them to remain until he has liquidated the debt to the society. Dividends and interest are paid in cash every six months, and the average return on a purchase of four hundred dollars, Mr. Maxwell estimated at eighty dollars, or twenty per cent. This society has fifty-six stores scattered in various places throughout the city. The capital invested in these stores exceeds $2,500,000, on which they figure a five per cent depreciation annually. The following figures for eight families indicate what these savings amount to over an extended period of time. From 1891 to 1910, a term of twenty years, the dividend returns for the eight families specified were:

Nos. 1 and 2	$1,595.00
No. 3	1,075.00
No. 4	1,435.00
No. 5	1,380.00
No. 6	2,460.00
No. 7	1,430.00
No. 8	2,050.00
Total	$11,425.00

This is an average per year of dividends returned on the cost of living of eighty-one dollars. These stores do not attempt to sell for less than the surrounding market, and the quality of the service rendered is of the very best.

Mr. Maxwell pertinently said he had frequently heard of folks "eating themselves out of house and home", but that the Scottish co-operators had discovered a better thing, and that was to "eat themselves into a home" by taking the dividends from their store purchases and applying them to the purchase of a home."

If.

If retail dealers expect to maintain their present independence, excessive expense, proportionate to volume of business done, and to continue to tolerate the great economic wastes of advertising and selling, they must expect to see mail order business continue to grow and to draw more heavily from their patrons as the years go by. And they must not blame their patrons if they break away from them entirely and establish their own co-operative manufacturing and distributing agencies substantially as outlined. It is bound to come. Parcel post will neither solve the problem nor hasten nor retard industrial and distributive co-operation, which alone will eliminate the wastes and correct the evils under which we now suffer.

These are some of the things referred to in the first word of the topic under consideration, and for our purpose we will venture the following definition:

Education—That continuous process of enlightement that enables mankind to know, do and enjoy things not before comprehended.

Double Pay for Double Work.

Farmers have been so driven by the school of production, by the effort to make "two blades grow where only one grew before", that they have given little time to that even more important problem of making "two smiles appear where only one appeared before," or, expressed differently, to getting double pay for double production and something out of life besides work and drudgery for themselves and for their families.

Scientific Agriculture Endorsed.

This is in no sense a plea for idleness, nor a criticism of scientific agriculture. I believe in work and for three years have been doing the work formerly requiring two men. I also

believe in scientific agriculture and intensive farming and commend most highly the excellent work that has been done and is now being done by our Colleges of Agriculture, Experiment Stations, and Associations, Farmers' Institutes and the agricultural press generally in improving quality and in helping to increase quantity, as the world must be fed, but I believe more firmly in the efficacy of economic, civic, social and commercial education, organization and co-operation among farmers to place their business on a permanently paying basis and to give them and their families more chance to acquire and enjoy modern household conveniences, educational and social advantages and some of the luxuries and entertainment now regarded as an essential part of normal human existence.

It is to this phase of agricultural investigation and research that I have turned my attention. I have found that many things can be done quicker, easier, better and more economically collectively, through organized effort, than they can be done singly. In fact, it is a safe proposition to state that all social, educational, commercial, civic and economic progress is directly traceable to organization based on education, in the sense of "knowing", "doing", or "enjoying" "things not before comprehended" and to co-operation, in the sense of "working together for the common good."

Organization.

To avoid the appearance of bias, because I am actively engaged in organization work, I shall cover briefly this phase of the discussion as applicable to farmers, by quoting from the pen of Charles S. Conwell an article bearing the stamp of approval of that veteran editor and publisher of "The Farm Journal", of Philadelphia, Wilmer Atkinson, and appearing on page 2 of March, 1912, issue of that publication. The article follows:

Farmers Need Organization.

"The farmer is already getting oceans of advice. If it is good advice, the more the better, on the principle of "line upon line, and precept upon precept." He is already getting floods of information. It is pouring upon him in torrents from the Department of Agriculture, from Agricultural Colleges, Farmers' Institutes, various kinds of agricultural and horticultural societies, from thousands of professors, lecturers, experimenters and demonstrators; in pamphlets, circulars and bulletins.

Much of that information is valuable, and probably the farmer should not kick, despite the fact that it all tends to increase competition, over production, lower prices for farm products, higher-priced and more worthless farm labor, and higher prices for what the farmer has to buy. And, of course, it should be borne in mind that this agricultural propaganda is not primarily a farmers' movement, and that it is benefitting others more than it benefits the farmers. Indeed, it is a debatable question whether or not it is doing the farmer more harm than good.

But it can, at least, be safely said that there is one thing the farmer needs more than he needs additional information, and that is organization. Of the one hundred and one blessings that organized agriculture could bestow, attention is asked to five of them:

1. It would put more farmers in Congress. How humiliating to intelligent farmers in this supposed-to-be representative government, that there are so few farmers in Congress! Th railroads and trusts have probably fifty to represent them where there is one farmer. This fact is full of peril to the farmer, and means for

him, if it continues, even less profit from his farm, still fewer comforts in his home, more patches on his pants, and sooner or later, as in certain European countries, "peasant" and "serf" as his titles of honor.

2. It would make it impossible for any man in this country hereafter to get his clutches on hundreds of millions and leave it to his children and grandchildren, either as a means for the display of folly or as a weapon wherewith to help subjugate the nation to the yoke of plutocratic oligarchy.

3. It would bring producer and consumer closer together, and thereby remedy existing conditions under which the average consumer can hardly live because of the high price of farm products, and the average farmer can hardly live because he has difficulty in getting enough out of his crops to meet expenses.

4. It could reduce the number of offices and the salaries attached to them, with their never-ending increases, and thereby head off monarchial salaries and conditions and help to bring it about that the average intelligent and capable farmer could get as much out of his business as the average politician and others now get out of theirs.

"Harriet and I," as Judge Biggle sometimes says, "were talking the other evening about a neighbor of ours, an intelligent and very industrious man and a good farmer of no bad or expensive habits. He had been farming for forty years and had saved in that time, as we estimated, about four thousand dollars. At the same time we called to mind an unprincipled politician who was getting more than that sum per year. As the "melancholy Dane" remarked on one occasion, there is something "rotten in the State of Denmark," when an unprincipled man, possibly by some mean or unpatriotic act, can get as much in a year as an intelligent, industrious and economical farmer can save in forty. The editorial entitled "The Real Problem Unsolved", in the January "Farm Journal", is along the line that we need to hear more of.

5. An organized agriculture would have it in its power to govern this country and make and preserve it in fact as in name, a government of, for and by the people. But an "advised" and "informed" but unorganized agriculture will accomplish nothing. It will become poorer and poorer, more and more the dupe of its "friends" and "lovers."

Country Life Commission.

I will also quote from the Report of of the Country Life Commission, Senate Document No. 705, wherein it summarizes the result of its investigations, covering thirty public hearings in twenty-five different states and a digest of over one hundred thousand replies to more than five hundred thousand question blanks sent out, each containing a dozen questions.

The Report says:

"From all that has been done and learned, three great, general and immediate neds of Country Life stand out:

First. Effective co-operation among farmers, to put them on a level with the organized interests with which they do business.

Second. A new kind of school in the country, which shall teach the children as much outdoors as indoors and perhaps more, so that they will prepare for country life, and not, as at present, mainly for life in town.

Third. Better means of communication, including good roads and parcel post, which the country people are everywhere, and rightly, unanimous in demanding."

It will be noticed that "the first, great, general and immediate need"

recorded is "effective co-operation among farmers to put them on a level with the organized interests with which they do business."

Effective co-operation without organization is impossible, hence organization is really of first importance.

Farmers' Organizations in Wisconsin —The Grange.

There are two distinctively farmers' organizations in Wisconsin. In this immediate vicinity (Neenah, Wis.) there are a few Granges. I am not familiar with their activities and I do not know the extent of membership of their organization in this State.

The American Society of Equity.

The American Society of Equity is an organization of State-wide reputation and influence. It has a membership of about twelve thousand. There are upwards of four hundred Local Unions, about thirty County Unions and several Department Unions, Tobacco Growers, Wool Growers, Beet Growers, Stock Growers, etc., to look after the details of marketing these special crops. The society publishes a sixteen-page semi-monthly, economic-agricultural paper and besides, expends about twenty-five thousand dollars annually in maintaining its organization and for propaganda and educational work.

Organization and Co-operation Defined.

That there may be no misunderstanding of terms, I will define Organization, as the assembling of individuals into a working force where the whole may operate as one in the accomplishment of a given purpose, and Co-operation, as the working together, as a unit, of many individuals under a well-defined plan for a common purpose.

An Organization Must Be Built.

A machine cannot do well what it was not made to do. In a sense, an organization is a machine, and while we have hundreds of different organizations built for hundreds of different purposes, we have no organization built expressly for universal, industrial and distributive co-operation. Such an organization must be built, and it will be built. It will be simple in detail but effective in operation. It will probably utilize the organized forms and forces of the many existing organizations, becoming, in fact, an organization of organizations for industrial co-operation.

Toilers Waking Up.

The toilers of both farm and factory are rapidly coming to realize that it is a poor business policy for them to place their savings in banks without any guarantee of safety or of reimbursement in case of bank failure, and to receive only two or three per cent for the use of their money, while exploiting capital controls industry and compels us to pay dividends and profits as high as forty per cent annually; at the same time conducting their business largely on our small savings and making their profits out of our labor and our necessities as represented by the goods we purchase from them, which, in the first analysis, we produce on our farms and manufacture in their mills and factories. What chumps we are!

Productive Labor Vs. Capital.

We raise the raw material. We furnish a large part of industrial capital. We do all the work. We get, according to government figures, about forty-six cents of each dollar we produce, while labor gets scarcely sixteen and two-thirds cents of the dollar's worth of manufacturies it produces. We get two or three per cent

on our savings in the banks. Labor has practically no savings. We pay a large part of all direct taxes and a still larger part of indirect taxes, as we are by far the greatest consumers, while capital, which now controls industry, demands from six to ten per cent on its money as a fixed expense and dividends ranging as high as forty per cent as profits on its business. It collects the fifty-four cents as charges and profits out of each dollar we create and about eighty-three and one-third out of each dollar labor produces, while losses, sickness, accidents and unemployment usually get away with the small surplus our economy enables us to accumulate.

Condition Foreseen by Lincoln.

This condition was foreseen by Abraham Lincoln shortly before his assassination, when, in the agony of his soul, with the eye of prophecy, he exclaimed: "As a result of the war, corporations have been enthroned and an era of corruption in high places will follow, and the money power of the country will endeavor to prolong its reign by working upon the prejudices of the people until all wealth is accumulated in a few hands and the Republic is destroyed. I feel, at this moment, more anxiety for the safety of my country than ever before; even in the midst of the war." That time is now upon us. The statistical abstract of the United States, twenty-ninth number, 1906, prepared under the direction of the Secretary of Commerce and Labor, reveals the following startling facts:

First. That fifty-one multi-millionaires own one-thirty-fifth of the entire wealth of the nation, their names and wealth being given.

Second. That there were at that time approximately four thousand million-and multi-millionaires who owned approximately eighty-seven and one-half per cent of the entire wealth of the nation.

Third. That the average property holdings of the remaining ninety-odd million people was less than five hundred dollars each. (See page 900, Vol. 48, No. 24, Congressional Record, January 11, 1912.)

What Must Be Done.

We must extend our education so as to know and understand these economic conditions. We must organize so as to correct all exploiting abuses through just legislative enactments. We must finance industry and work co-operatively, so as to prevent monopolistic tendencies and insure to those who do work their full share of the value they create. We must conserve our purchasing power and reorganize distribution, so it will not be necessary to carry the burden of billions of dollars expended for useless advertising and in maintaining an unnumbered hoard of commercial travelers, credit men and high-priced hotels to accommodate them in every conceivable luxury.

It is the mission of our scheme of education to find out the economic leaks and losses, the graft and extortion, the commercial and legislative manipulation that enables capital to collect so heavy a toll from productive labor.

It is the mission of organization to bring together and to again disseminate all this information, to discuss and consider and develop plans and methods to correct existing evils, to develop team-work, to break down walls of petty jealousies, political and religious differences, and to create a new spirit of brotherly love and human helpfulness.

It is the mission of co-operation to do collectively the things our education and our organization have developed should be done, to do them quickly, irrespective of musty traditions, ancient theories and modern political or ecclesiastical interference based

upon first century conditions. We are living in the twentieth century, in the age of steam and gas and electricity; in the age of telephones and telegraphs, wired or wireless; in the age of automobiles and air ships, steam boats and locomotives; in an age which knows no limit, where desire means do, where will commands and latent forces rest or bound as man unchains his will and gives command.

The command has been given. Get together, study the civic, the economic, the socialogic, the commercial and the industrial problems as affecting society, and co-operate in making small but regular contributions to a working capital which shall establish and finance co-operative industry for the manufacture and distribution of our necessities, without the burden of advertising and selling expense previously explained, and independent of Trusts and Combinations, with their watered stock and systematic exploitation.

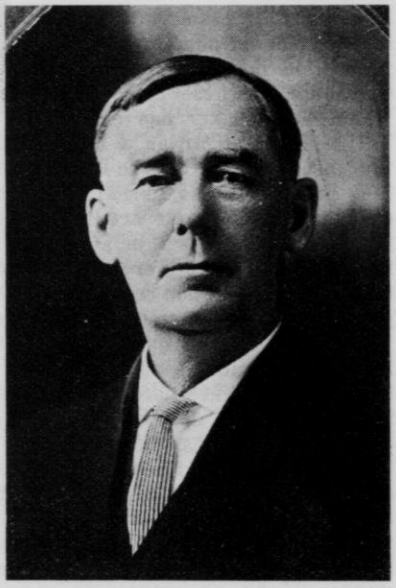
Will you do it?

DISCUSSION.

Mr. Utter—Mr. Chairman, if a man can take the lemon that is handed to him and make it into lemonade, he is to be admired. I think many of the farmers have had pretty good lemonade in the last five or six years, so I do not think they are to be pitied. I think the best lesson to be taught us by the trusts is that the farmers should establish better methods. I venture to say there are at least a score of farmers in this audience and thousands in the United States who are, many of them, taking full page advertisements and paying as large a proportion in money for those advertisements as these large advertisers which the speaker has exhibited to us. I think as far as a man receiving just what is offered to him for his product, it is perhaps a little overdone. The staple articles on the market are sold within a margin of the cost and with very little profit to the dealer. When we come to the products of the farmer, it depends very much on the quality which he has to offer and his ability to sell. I find in the market garden business I get prices that I demand if my goods are such as the public demands. I think the greatest aim of the farmer should be to produce the very best he can and sell it to the very best advantage he can, by selling himself or hiring experts to sell for him, and that is surely within his own handling. While co-operation is good, we have tried it, and found it a failure. When we come to the expense of distributing our goods, those expenses increase as our cities increase in size, the larger the city the more spent in the distribution, and the more wealthy the customer, the more service he demands.

THE INCOME TAX.

Hon. Nils P. Haugen, Chairman, State Tax Commission, Madison, Wis.



Mr. Haugen

The question of taxation is like Banquo's ghost; it will not down. It is one of those problems of government that never will be and never can be settled to the satisfaction of everybody. No system of taxation ever escaped criticism and opposition.

Public activities have been so extended of late years that necessarily the demand for revenue to carry them on has been largely increased. This is especially true in cities, but also, though less so, in the country. We demand better schools with teachers better paid, better roads, better sanitary conditions, better care of the unfortunate and dependent classes, and in the cities, improved streets, sewerage, water and light,—all in accordance with an advanced civilization, and it all costs money. The expense is freely and willingly incurred, and if the money is judiciously and economically expended it is safe to say that there is no expenditure that brings the same amount of comfort and advantage to the individual members of society as do the contributions in the form of taxes. Taxes are as necessary as government itself. In fact, government would have no excuse for existing were it not that the community as such can serve the individual much more cheaply and far better than he can himself.

I have heard much good talk here this afternoon, and especially this last talk on the question of distribution, or the cost of marketing your products, and it brings home to me the fact that the city community and the farming community are more interdependent upon each other today than ever before, and that the legislature would not be justified in passing a law that was intended to favor any particular class.

We have to raise taxes, and we are willing to pay taxes, I hope, for useful purposes, so I am not here to say that the farmers ought to be exempt.

The General Property Tax.

We received our system of taxation from Massachusetts and New York, through Michigan, while we were part of Michigan territory. It is what is known as the "General Property Tax." Under it a man is supposed to pay taxes according to the property

he owns, whether it is productive or not. That has been the measure of taxation in this country generally. It was a system that responded fairly well to a new country where the classes of property were few and simple, where there were no corporations, no millionaires and no trusts. But those conditions have changed, large industries have grown up and it has become more and more difficult to reach wealth represented by personal property. The old garment no longer fits us.

The rule that ought to lie at the foundation of any just taxation system is that every person should pay taxes according to his ability. Another way of stating it is, that there should be an equality of sacrifice on the part of individuals; that is, that the burden should rest no more heavily on the shoulders of the weaker members of society than on the more prosperous, which means that a man having an income of ten thousand dollars can afford to pay not only the rate upon his income that the individual with one thousand dollars taxable income is required to pay, but he can afford to pay a higher rate. That is the principle which lies at the foundation of the income tax.

Some years ago the tax commission had occasion to review some local assessments, and we found that while in the country the strictly farm property, such as horses and other farm animals, were assessed at about sixty-five per cent of true value, in the cities the merchants' and manufacturers' stock was assessed at only twenty-six per cent of true value. Last fall we had occasion to re-assess certain manufacturing cities and we found the same conditions to exist. The larger the manufacturing establishment, the more difficult it was to assess, and the more poorly was it assessed. We are simply having the same experience as other states in the taxation of personal property.

The Personal Property Tax.

In 1866, real estate was assessed in Philadelphia at $66,454,602 and personal property at $67,218,101, or $800,000 more than realty. In the next twenty-five years the city had more than doubled the value of the real estate, but the assessment of personal property had fallen to $44,735,670. The same is true of every large city in the country. In other words, there is practically no attempt to assess personal property in our cities. There is an absolute disregard of law in that respect. Men of large wealth escape with far less taxation, relatively, of their personal property than men of comparatively small wealth.

It has been my fate, I may say, to assist in administering the taxation laws of Wisconsin during the last ten years, and it has been part of the duties of the tax commission to give some study to this matter, and recommend improvement in methods.

The first tax commission, organized before I was a member of it, found the same evils existing as to the personal property tax as I have just suggested. The tax commissions of other states reach the same conclusion.

Now, as to the personal property of the farmer. Farm animals are fairly well assessed, but when it comes to the more indefinite articles of personal property on the farm, such as wagons, carriages and sleighs, the assessment falls off and they are assessed at a much less ratio to the true value than farm animals. That is probably because the assessor generally has some pretty fair knowledge of the value of farm animals, but as to wagons, carriages and sleighs, there is no definite market value of such second-hand articles. And when you come to farm machinery and tools, the assessment is still worse.

In the cities, the best assessed

property, so far as we can ascertain, is bank stock, because the officers of the bank are required to make a sworn statement of the amount of stock outstanding and the amount of surplus and undivided profits in the vaults of the bank, so that the assessor has something definite to judge by. When it comes to the merchants' stock, the assessor makes very poor assessments, and manufacturers' stock is still worse.

The assessor is not wholly to blame. Nobody can tell just what manufacturers' stock may be worth on the first day of May. In large manufacturing establishments, where the articles are in every stage of manufacture, from the raw material to the highest finished product, the assessment becomes a howling farce. The owner himself would not be able to say what the value of such stock is on the first day of May.

How to arrive at a system which would avoid the evils we have been contending with and still impose a measure of taxation fair throughout is what the tax commission has been trying to solve. The general property tax has fallen down so far as personal property is concerned. There is no intention, no attempt to get away from the real estate tax; the larger burden of taxation must, for the present, as heretofore, rest upon real estate.

The International Tax Conference, an association of tax experts, if there be such, representing the different states of the union and the Canadian provinces, at its annual meeting in Milwaukee in 1910 unanimously resolved that the personal property tax was a failure and that such failure was not due entirely to poor administration but to inherent defects in the system itself. Among students and economists there is unanimity of judgment that it is unjust and inequitable and bears with undue severity upon the less prosperous members of society. The result of all this is that some methods of taxation in lieu of the personal property tax has become a necessity.

Thus came about the agitation of the question which resulted in the adoption of the constitutional amendment in this State three years ago last fall, authorizing the enactment by the legislature of an income tax law, which may be graduated. The last session of the legislature, after a great deal of difficulty, finally passed the act which is now upon our statute books.

I am not here to defend all the different features of that legislation. I think it might have been very much improved in many respects; but I do believe it is a step in the right direction, though only a short step, and that it should have a fair trial.

How the Law Operates.

There is one thing that ought to be kept in mind, and that is that our present income tax is not a State tax, but a tax which will be raised for local purposes only. When collected, ten per cent of the tax goes to the State, twenty to the county and seventy to the towns, cities and villages. But the State bears all the expense of administration and it is doubtful under the peculiar provisions of the law, whether any revenue will go to the State this first year.

Secondly, it is not an additional tax, as charged by its opponents. The income tax law provides for the exemption of moneys and credits, all household goods, wearing apparel and some other minor articles, also farm tools, machinery and implements, which have heretofore yielded about $1,500,000 in taxes. It is doubtful whether the income tax will exceed that amount. The act itself is trying to remove from the local tax roll those things which have been the most difficult of assessment in order to simplify the work for the local assessor.

While moneys and credits and all these other items have been put on the exempt list under this law, the income from moneys and credits and from any other property which a man may have, is taxable under it. In lieu of the tax upon moneys and credits, as property, we have now the income from credits as taxable. We know that moneys and credits have been the very worst assessed of all property. Not twenty per cent of the moneys and credits in the State have been assessed by the local assessor. Occasionally some assessor would get after some few men with considerable wealth in his district, and assess them fairly well, but as a rule the assessor has shut his eyes and failed to assess his neighbors, even though he knew they had property of that character.

In 1901 a law was passed creating the office of supervisor of assessment in the different counties. The first year under his supervision the local assessor raised the valuation of moneys and credits from something like thirty-two millions to over ninety million dollars. But the so-called mortgage exemption law was enacted in 1903, and since that time there has been very little of moneys and credits put on the assessment roll. In 1909 and for several years previous, in six counties not one dollar was assessed. The total assessment in the State was $22,278,390, which the tax commission raised to $95,828,954. Last year the commission raised moneys and credits to $150,000,000. This meant an additional tax upon those whose property was fairly well assessed. But the law required it and we tried to comply with it.

There is no reason for this action of assessors. When you tax a bond or a note or a mortgage upon its face value, you create a very heavy tax upon the income from it. Take, for instance, a note or bond of one thousand dollars, drawing five per cent interest. I do not know what the tax rate is in this community, but in Madison it is seventeen and one-half mills on the dollar. If that is assessed at one thousand dollars in Madison, a man would have to pay $17.50 tax. His income from that thousand dollars would be fifty dollars. He would be paying thirty-five per cent of his income for taxes. Such an exceedingly high tax does not appeal to the sense of justice of the community, and so the assessor refuses or neglects to assess and the owner escapes. The assessor pays more attention to the sentiment of the community and possibly to the solicitation of the taxpayers, than to the obligation of his oath of office.

It has been proved in other states that if you make the rate reasonable upon property of that kind, you are much more successful in getting revenue from it than if you charge an exorbitantly high rate. In the city of Baltimore until 1896 they had the same law that we have had. Up to that time they placed upon the assessment rolls of the city only six million dollars for taxation purposes, and it was recognized to be a very small part of the total wealth of that character in the city. About 1896 the legislature of Maryland passed an act authorizing the city of Baltimore to put a flat rate upon interest-bearing credits of three mills. In addition to that there was a tax of something over a mill on the dollar for State purposes. Under the low rate, with good administration, they have increased the assessment of interest-bearing credits in the city of Baltimore from six millions to nearly one hundred and sixty million dollars, and they get much more revenue under the low rate than under the former high rate, showing that when you get the sentiment of the community in favor of a law it is possible to enforce it, even to the taxation of credits.

It is believed that in this State, removing the tax from the credit and

putting it upon the income from the credit, we will be able to collect considerably more taxes than we have before from that source, and it is believed we will have somewhat better administration than formerly. In the first place, the individual, under the income tax law, will have to make a sworn return of his income. I do not know whether the people in this community have received blanks yet from the assessor, Mr. Shea.

Mr. Jacobs—They won't send them to the farmers, will they?

Mr. Haugen—They will send them to everybody who is supposed to have an income of several hundred dollars. The highest rate possible upon the thousand dollar bond or note of which I spoke will be six per cent on the income, and that will make the tax only three dollars instead of $17.50. But if a man has a taxable income of only two or three or four thousand dollars, the rate will be less than two per cent, and two per cent of the income would be only one dollar of tax. It shocks some people when you speak of a six per cent rate, but six per cent of the income is a low rate compared with one per cent upon property. In the case of a five per cent security, it will be six per cent of five per cent, or three mills of the face value.

Under our income tax, a man with a large income will pay at a higher tax rate than the man with a small income. It recognizes the fact that the man who is dependent upon his daily labor for a living should have an exemption out of his income sufficient to support himself and his family. It therefore exempts to the single individual eight hundred dollars, to man and wife twelve hundred dollars, and two hundred dollars additional for each child under eighteen years of age. That is a fairly liberal and probably a too liberal exemption. The average wage of a laborer in Wisconsin is less than six hundred dollars per year. The farmer will generally escape, even under the eight hundred or twelve hundred dollar exemption, and particularly where he has a number of children; however, the law is not intended to exempt any particular class.

We have been rather backward in this matter of reforming our tax system. There is probably no people on earth so extremely conservative in a matter of this kind as the American people. While there has been frequent criticism passed upon the assessment of personal property, we have not dared to break away from it.

But we have made a start under this new law. The income tax law of Wisconsin follows out the principle that a man should pay according to his ability, that there should be an equality of sacrifice. In the first place, the tax is not upon the gross income, but upon the net income. The blanks sent out require you to put upon the first page all your income from whatever source. On the second page are the various items that you can deduct as specified in the return; for instance, necessary cost of conducting the business and taxes paid upon the property from which the income is derived, but not the taxes upon unproductive property, such as wild land.

The requirement that the rental value of the residence of the owner must be returned as income has been criticized, but unless you charge the owner with the rental value of his residence property, you exempt in case of the owner of a residence of small rental value say, one hundred dollars, while his more fortunate and wealthy neighbor, living in a magnificent and luxurious home, might have an exemption of perhaps two thousand dollars, which is reversing the rule we are endeavoring to lay down. This principle is recognized in the tax laws of all European countries that I have had occasion to examine.

It is likely that in the country this matter of rental value is not of much importance, but in the cities it may mean a great deal. In some European countries the kind of a house that a man lives in very largely governs his assessment. I recollect hearing some gentlemen tell about their experience in Germany as students. They rented rooms and settled down. Two or three weeks later a gentleman came in and introduced himself as belonging to the tax department of the city, sat down and visited awhile and went away. He took occasion while there to look around and see what was in the rooms, which were indicative of fairly good quarters. There were books and pictures on the walls, etc. A week or so later, these gentlemen received notice from the rathhaus, or common council, to appear and show cause why they should not be assessed at a certain amount. I think neither one of them paid any tax, but they had to appear and explain.

This first year this income tax will not be so very easy to administer, but we feel that it ought to get an honest start in life, and we have aimed to administer it as thoroughly as possible. The State has been divided into thirty-nine assessment districts and an assessor appointed in each district. Individuals will receive blanks from the assessor of the county or district. The law provides that those having eight hundred dollars or more income shall report. After allowing the deductions a man may not be liable to any tax at all, but in the first instance, we have thought it advisable to insist upon the report being made out by the individual, that he shall claim his deductions, and then the assessor will determine whether there is any tax to be assessed.

In future years it may be that many of those who make a report this year will be relieved. The assessor will be better acquainted with his district and with the condition of his constitutency, so that many may not be required to report. If it is obvious that a man has less than eight hundred dollars of income, he will not be required to report, but the assessor can hardly be expected to know that unless he has gone through his district very thoroughly. The law, of course, will not execute itself. People are not running after the tax gatherer to pay their taxes.

A great many remedies have been suggested for poor assessments, but they have been tried in other countries and in other states and have failed. Merely passing a law putting another penalty on the statute books does not bring results. Our statutes are full of penalties, but very few of them are being enforced. We have had a law for years that if a man has evaded the payment of taxes upon any part of his personal property he is liable to a fine of ten dollars for each one hundred dollars of value which has escaped assessment, an exceedingly harsh remedy, of course, but it has never been enforced. It has not been in the discretion of the tax commission to enforce it, because the law itself provides that complaint must be made by a taxpayer of the district, a neighbor.

I believe if we can substitute the income tax for the personal property tax, we will be making a long stride in advance. The Canadian provinces have largely abandoned the personal property tax. In British Columbia, some of the communities have undertaken to follow the Henry George idea, which has many good features, but ignores entirely the rule of ability to pay. It exempts the man of large income from other sources than land and he is not required to contribute to the support of the schools, the building of roads, and other local and state expenses.

In the distribution of the tax of

seventy per cent to the local community, twenty to the county and ten to the State, the law follows out somewhat the taxes as at present levied. The total taxes levied in the State are in the neighborhood of thirty million dollars a year, and of that about eight per cent goes for State purposes, some twenty-two for county purposes, and about seventy per cent for purely local purposes. Ten per cent of the income tax goes to the State, but the State pays all expenses, thus relieving the counties of about fifty thousand dollars of expense, formerly paid to the supervisors of assessments. The supervisors paid their own expenses. Of course we expect much more work under this new law and the State will pay the necessary expenses of the assessors of incomes. They also do the work of the former supervisors.

If we can advance to the point where we can repeal the taxes on personal property and get somewhere near the same amount of taxes from incomes, we can go another step and assess real estate, say, once in four years. We are the only State in this part of the country that assesses land every year. There are nearly sixteen hundred assessors in this State and they go over this work year after year and have very little to show for it. In most instances they practically follow the former assessment roll. If we had an assessment only once in four years, there are two reasons why we would have a better one. In the first place the assessor would feel that there was more depending upon his work, and in the second place, the taxpayer would feel that his assessment would remain for four years, and he better look after it himself and see that he is fairly assessed. In that respect we would kill two birds with one stone, besides saving a great deal of expense. What we need is not more legislation, but better enforcement of the laws we have.

We are getting to a stage in the southern two-thirds of the State where property does not change materially from year to year. If a building were constructed or destroyed during the year, that could be taken notice of by the board of reviews, which would sit annually and which might make such changes as were necessary. In Ohio until a few years ago land was assessed only once in ten years. That is too long a period in a state where the changes are as rapid as they are here. Ohio now assesses real estate once in four years.

Tax Laws in Foreign Countries.

There is this to be said in favor of the income tax on general principles. Nearly every country in Europe has gone through this same experience that we have had and has abandoned the personal property tax, and, as a rule, substituted the income tax for it. In some countries there is some tax on personal property, but the income tax is one of the principal sources of revenue for the community.

We congratulate ourselves upon our self-government, and still we haven't as much self-government as they have in many German states and in some other European countries. In the Kingdom of Saxony each local community is left absolutely free-handed as to its system of taxation, and it is said to be the most highly developed state industrially in Germany. It has one-ninth the area of Wisconsin and something more than twice our population. They have something over four thousand local assessment districts in that small country, and each one of those districts is practically free to adopt the system of taxation it chooses for local purposes. We cannot do that here. The trouble with the United States is that when the Union was formed, they thought they

were preserving their local self-government by preserving state's rights, but when a state was organized every power was given to it and none left with the local subdivisions.

The city of Neenah, or any other community, never could adopt an independent system by which it could raise money but that somebody would raise the question of constitutionality, and it would have to be fought out in the courts. In some German cities they have put up buildings for the laboring people, selling to them on time. They make small payments from time to time. The individual is helped by his governent in a way we never dream of. They look to the building up of the individual more than we do here. As our population becomes denser, as the people drift to the cities from the country, the welfare of the entire population depends upon conditions being such that each community will live in harmony and peace and good-will toward every other section.

We have in our office the tax laws of nearly all European countries. Probably the latest development in taxation in Europe is in Norway. Some years ago a commission was established in that country to consider the question of taxation, to reform their tax methods, and a couple of months ago we received their new tax law, which was enacted on the 18th day of August last. This law is a very carefully worked out plan of taxation. They tax real estate, but they have a condition in the very beginning of the law that real estate in the cities shall not pay more than one-third of all the taxes levied; that it shall not pay to exceed seven mills, nor less than two mills upon the dollar of valuation. The principal source of revenue is the income tax. This same rule prevails in the main in the country districts. They have exemptions; they recognize the family and each child. It seems to be a very perfectly drawn plan carefully worked out.

There is no country in Europe that has abandoned the income tax after having once adopted it, and every country in western Europe today, except France, has an income tax. All the cantons of Switzerland except five, I think, have the income tax; twenty of them have it. The only country that has not an income tax is France, and it has been proposed there at every session of the legislative assembly during the last fifteen years, has gone through the House of Deputies time after time, and failed in the upper house, controlled by the old nobility of France.

It is part of the fiscal policy of England and of long standing. A committee of Parliament in 1905, after a thorough investigation, emphatically endorsed the income tax, saying in part:

"We are very glad to state that no very drastic alterations seem to us to be necessary in the administration of the income tax. Indeed we desire to place on record our opinion that the tax appears, on the whole, to be levied with a minimum of friction and a maximum of result."

Some Features of the Law.

There is one more feature that I ought to speak about. The committee and the legislature refused to exempt all personal property from taxation because they feared there would not be sufficient revenue from the real estate or the burden would be too heavy on real estate. So there is a clause in the bill to the effect that a person who is assessed upon personal property may take his receipt for taxes on personal property and use it as an offset of his income tax. If you have a tax receipt for your personal property of fifty dollars, and you also have an income tax of fifty dollars, your personal property tax re-

ceipt will wipe out the income tax. If the personal property receipt is fifty dollars and the income tax seventy-five dollars, there will be twenty-five dollars to pay. This grew out of the fact that nobody could foretell how much would be received from the income tax until we try it. We will have the experience with which to go before the legislature after this assessment is made. We will know exactly how much revenue we would have from the income tax if all personal property is exempted from taxation. We will also know what changes are desirable in the law.

It is sometimes said that the income tax is inquisitorial, and that our people will not stand it. It is not as much so as the present personal property tax, if the law were enforced. Under the personal property tax law the assessor goes to a man and tries to get at the value of his personal property. If he is not satisfied with the statement made by the owner, he says, "I will assess you anyway at so much," putting down a figure higher than the figure given him, and if the taxpayer is dissatisfied, he must go before the board of review and there make a full statement under oath as to all his personal property. He can be required, under the old statute, to lay before the board of review all the items of personal property, including moneys and credits, before he can be relieved. That statute provides that unless he does that he has no standing in court. The income tax law has the same provision. Under it a broad of review sits in each county, meeting in this county on the last Monday in July. That board of review will be composed of three men selected from the county, who will have the same general powers as the board of review under the property tax law, and if a man is dissatisfied with his income tax assessment he must appear before it, and under oath make full disclosure of all his income from whatever source. Unless he does that he has no standing in the court. Under the former law the assessor was under no obligation of secrecy as to the assessment he made, but under the income tax law the assessor is not permitted to divulge anything that comes to his knowledge as to a man's business in making the assessment. He is under severe penalties if he does divulge it. The same thing is true as to the members of the tax commission and any clerks which we may employ. Of course the assessment and tax rolls will be open to the public.

As far as possible, it was endeavored to keep expenses down in the administration of the law, and with that in view the taxes will be collected in the same manner and by the same officials as property taxes. After the assessments are made and the tax is levied, it is certified back to the local town, city or village clerk and put upon the same tax roll with other taxes. So that the incomes assessed at about the same time as property in May and June of this year will be collected at the same time upon this same tax roll next winter. The man who has an offset in the shape of a personal property tax receipt against the income tax will then have the roll before him, and on the same roll will appear his personal property tax and his income tax, and he can use one against the other.

In the case of farmers, gentlemen, while their exemptions may be such as to practically destroy their taxable income, because the first twelve hundred dollars or more income over and above expenses will be exempt, the farmer also has personal property which remains taxable. His farm animals and wagons, carriages and sleighs will be taxable as heretofore. The farmer who depends upon the operation of his farm for a living,

who has no outside business, no outside investments, will generally have a personal property tax large enough to wipe out his income tax. The merchant will be in the same category; his stock of goods will be assessed as heretofore. So will the manufacturer. I speak particularly of the merchant. It is hardly conceivable that a merchant's stock of goods would not be assessed at such a figure that the tax upon it will more than offset his income tax. The manufacturer is in a little different position. If he carries very little stock on May first, he may not have very much personal property assessed, and he may have to pay an income tax. It depends entirely upon the character of the business in which he is engaged. The manufacturer in Wisconsin is assessed upon the property that he possesses on the first day of May, whether he has turned a wheel or earned a dollar. Under the income tax law, the manufacturer will not pay unless he has some income over and above his expenses. No income, no tax. That ought not to drive any industry out of the State.

I believe that the manufacturers of the State of Wisconsin have been mistaken from beginning to end when they have fought this law. Nobody wants to discourage manufacturing in Wisconsin. Every farmer in Wisconsin is interested in encouraging the manufacturer, and this law I believe does it.

Who will pay taxes under this law as it stands at present? The answer to this in a general way is that it will call upon those who have heretofore escaped their proper share of the tax burden. Professional men and men with large incomes from investment will be made to contribute. Also salaried men. Why should not a salaried man or a professional man with an income above the exemption limit contribute something to carry on the government and support the schools where his children are educated? Heretofore any such men have escaped entirely, and their neighbors have paid for the education of their children and protection of their families and property. Manufacturers with little or no personal property on hand May first will be reached. Commission men especially will have to contribute, and they have as a rule paid nothing under former laws. Agents of life insurance companies, or similar lines of business, will have to pay.

Corporations are assessed directly by the tax commission, but the tax is collected locally and distributed the same as that collected from individuals.

The aim should be to make the income tax a substitute for the personal property tax. With that end in view it deserves at least a thorough trial. The old system is an acknowledged failure. Not only do officials absolutely refuse to assess in accordance with law, but such violation of official duty receives the approval of leading members of the community, themselves beneficiaries of official misconduct. The public respect for law must of necessity decline under such conditions. Much of the opposition to the new law comes from self-interest on the part of those who have benefitted by former illegal methods. Had the former law been enforced, they would have been the first to cry out. Much is due to ignorance of what an income tax really means. All law-abiding citizens owe it to themselves and the rising generation to give this and every other law their cordial support. Only by thorough enforcement can it be demonstrated whether it is what its friends hope or its opponents predict.

Gentlemen, I appreciate very much the attention you have given me, and if there are any questions you would like to ask I shall be pleased to an-

swer them as far as I may be able to do so.

DISCUSSION.

A Member—How about a postmaster's salary, is that exempt?

Mr. Haugen—It is exempt, and for this reason. The question was raised immediately as to the constitutionality of the law. While it was felt that that could be taken care of as far as the State was concerned, there was danger of its being thrown into the federal courts and tied up for years in litigation, therefore United States officers were excluded. Of course, the salaries of postmasters are a very small feature anyway, but the question was avoided by cutting out the salaries of all United States officials, so as not to complicate matters, and I think it has proved to be a very wise thing.

A Member—Won't it be necessary under that law for every farmer to keep books?

Mr. Haugen—It would probably be better if he did keep books.

The Member—All I know is how to make checks.

Mr. Haugen—You probably know in a general way about what your income is. Your statement can be sworn to according to your best knowledge if you are unable to give it accurately.

A Member—As I understand, every farmer will get a blank to be returnable about the first of April. In case of actual report of expenses, etc., where we have done a cash business and we haven't kept any books, how will we answer those questions in order to certify to that paper?

Mr. Haugen—Of course this first year of the administration of the law, people have not known what was coming and necessarily there will have to be estimates made. If you had kept a cash account your cash receipts and expenditures would show how your account stood during the year. If you have not done that; not kept books, you will have to make estimates on a fairly safe basis. It is required that you shall swear to the return and the assessor of incomes is not permitted to accept the return unless it is sworn to and all questions are answered. There will be several questions asked in regard to the matters where you have received no money. In such cases write "Nothing" opposite the question.

Mr. Imrie—Suppose year before last we had a very dry year and some of the farmers had to borrow money to carry them through the year. If they paid that this year, would that be deducted?

Mr. Haugen—No, not the principal. The interest is deducted from the income. I know what you say is true in the western part of the State. Many farmers in the fall of 1910 had to sell off a great deal of their stock, and I suppose many of them had to borrow money. For that very reason we must look for returns below the average this year.

Adjourned to 7:30 in the evening in the Opera House.

EVENING SESSION.

The convention met at 7:30 p. m. at the Opera House. Mr. L. E. Scott in the chair. Music, Girls' High School Glee Club. Music, Scotch Character songs, Mr. Baker.

THE FARM HOME.

Mrs. H. D. Griswold, West Salem, Wis.

Undoubtedly the most serious problem in the farm home, the most stupendous fact, is the farmer, and when the mistress has grasped and solved that successfully she may feel pretty well assured of victory over every other.

Without him the home would never have been, with him, the home is often what he makes it. If he be the traditional oak around which clings the traditional wifely vine, with several little olive plants blooming around, the ideal has been reached, but, unfortunately, in real, practical life, he sometimes fails to maintain his upright position, conditions are reversed and he stands in need of some vigorous and healthy counsel from the vine.

There is one quality of the oak which he is apt to possess, which probably he shares in common with his sex, whatever may be their occupation. This is a certain fixedness of opinion, firmness that we would hate to call stubbornness, but a kind of inflexible, unpliable habit of mind, and unconvinceable temperament, that sometimes makes him somewhat trying to the natural woman. These characteristics are manifested in various ways, according to the individual; with many it appears only occasionally, and we believe with only a few is it their natural condition.

The ordinary and usual farmer has a great aversion to change of raiment, and some have a natural aversion to water. When he has once fully dressed himself in the morning, he deems it a foolish waste of time and strength to make any additional change until he disrobes at night. Because that sometime during the day he must make a trip to the city or village, why should he remove his overalls, put on a necktie or wear a better hat? Are the merchants and tradesmen of town any better than he? Has he any reason to fall down before the minister, the doctor, or any woman (suffragette on otherwise)? They are all dependent upon his efforts and those of his profession for their daily bread, so in spite of earnest entreaty, he positively refuses to dress up for their benefit, and goes on his way in conscious dignity and self-approval, while his spouse reluctantly returns to her occupation, saying sadly,

"Oh, wad some power the giftie gie us,
To see oursel's as others see us!"

To the farmer's wife, the matter of clothes is a vexing problem in many ways. The everlasting brown and blue denim, so much worn by the male members of her family, and to which strangely enough they seem so firmly attracted, is an eye-sore, for although suitable and useful, it is not becoming or attractive.

Quite often, too, she is aware that her own and her daughter's clothes, well enough to wear at home or when visiting a friendly neighbor, suffer

in comparison with the smart gowns worn by her friends in town. She has little time to make her own clothes and dressmakers are becoming like the queens of the kitchen, hard to catch and harder yet to hold, and were it not for the department store or mail order house, her soul would suffer indeed from the humiliation every sensitive woman feels when good taste is offended.

But to return to our farmer. I wonder if there are many women here who have not been impressed by the elusiveness of her husband's memory. Sometimes it seems to have departed altogether and again it puts on startling, almost superhuman instinctiveness. Have you ever heard anything like this? "What was that you sent for this morning? I couldn't think when I got there; can't you send by one of the children?" Not only this, but sometimes he goes away and forgets to come home. Ordinarily, if dinner is late, his appetite is so keen he suffers by the delay, yet a sociable neighbor, the charm and allurements of the blacksmith's shop, or the post-office, will so beguile and absorb him that he forgets home and family for a season.

Again, did you ever hear a kind of reminiscent voice saying, "I wonder what has become of that suit I bought a little while ago?" When you remind him that it was long ago discarded, his memory easily spans the gulf of years and he declares it "still had a lot of wear in it." Then woe to you if you have traded with some vender of bric-a-brac or toilet soap, disposing of that discarded suit in barter. Sell all the old iron, paper, rags or rubber shoes on the place, feed the tramps with the best your table affords, give away all your own clothes, but never, as you value your peace of mind, meddle with your husband's wardrobe, for as you surely as you do, no matter how remote its fashion or worn its texture, some day it will be required at your hand.

There are frequently callers at the farm, guests unbidden, who come without a welcome and should depart without encouragement. I refer to the peddlers of stove blacking that does not black; silver polish that does not brighten; liniment that will not heal; cement that never sticks, and kindred articles that seldom benefit, and usually, if we are deluded into a purchase, leave us with the reflection, "A fool and her money are soon parted." I have learned to avoid them all, even though I may never have my photograph enlarged, or add a false braid to the glory of my departing hair.

Some Rules for Happiness.

If the farm home, or any other, is to be happy, there are certain things which must be observed. Argument as a rule is useless, especially between husband and wife, but if you must argue, go by yourselves and have it out; never dispute in the presence of your children, your guest or your hired help. If events prove the wisdom of your choice in some disputed matter, don't say, "I told you so," happy is that man or woman who knows enough to keep still then. "But," says the young wife, "if I don't stand up for myself my husband will think he is always right." Well, my dear, he will if you do, and you won't convince him in that way. There are three things to do with a man; love him, pet him and praise him. You can catch a fly lots better with molasses than vinegar.

Of course we know the members of the household all love each other, but for this I plead, that they show it a little more by deeds and also give expression to their affection. There is very little danger of people who have passed their honeymoon getting sickish (although I admit that the

honeymoon lasts longer with some than others). Young woman, if your husband goes away in the morning without kissing you sometimes, do not worry or sulk over it, but next time see that he does it. If you find that he is getting careless in these little matters, take him by the coat collar and insist that he does his duty; he won't be offended and it will tickle him mightily.

There is another thing that is very agreeable and more healing than medicine. This is a smile. Oh mother, if it be possible, greet your children with a smile when they return from school, even if you are tired. It means so much to be welcomed when we come home. If things go wrong elsewhere, let us feel there is warmth and peace there. I know a man who was once a boy, he is fond of his little joke now, bless his heart, but he dearly loved to stir up his brothers and sisters. The house might be as calm as a spring morning and in five minutes after he entered it would have the semblance of a hornet's nest. We all love him, but he was an agitator.

I know another man who was once a boy, and had a little temper, was easily teased, and when these two met, the agitator and the agitated, there was likely to be trouble. Wise is the parent or older brother or sister who can so blend these minor chords in a family so as to make harmony.

Sometimes it seems as if the boys and girls have an unnecessary and abnormal craving for food. Rare is the boy or girl who does not want something to eat when they come home from school; in fact, they are usually "half starved", anyway. Never mind, let them eat, they won't break the bank, probably, and in after years you will be glad they had it. Even after they are big boys and girls, they hate to come and find the door locked and mother gone away. Pity the children that cannot get enough to eat, and pity the parents more who cannot provide for them, and God have mercy on the man who shuts up the food stuff in cold storage, so his children cannot get what He has made to grow, and pity the farmer who lets good land grow to weeds instead of grain and wastes His good gifts!

There is no influence so powerful as sympathy. Dear wife, share your husband's cares, his hopes and ambitions, if you can. Never ridicule him. And, my dear fellowman, be patient with your wife's whims, even, she is the best friend you have. Most every one has his special whim. Mine is burglars. While my husband has been away so much, this fear has haunted me. There have been months and years of my life when I have never failed to look for a man under my bed, although my search has never been rewarded, yet maturer years have never quite banished the spectre, and, convinced that the lock of the front door was insufficient, my husband placed an additional bolt upon it. It might have cost seventy-five cents, there might have been seventy-five cents' worth of time spent in doing it, but it has been worth seventy-five dollars to me.

Do not fail to let her have her own purse, although your means will only allow a small one.

It is well if in the syndicate there is one "manager." I mean one especially gifted in the spending as well as the earning. There is some very good literature that commends the prudent woman, but in our day she is likely to be called "stingy." Well, I am glad there are some such in the world, for if there were not, I do not know what would become of the rest, for to buy tickets to every entertainment and church supper, to contribute to every worthy object, even, would soon cripple people of moderate means. A kindly but firm "No," is

often the most effective word in the language.

It may save you both a serious illness if you occasionally break away from the most pressing duties and go on a journey together. Just go on a little "lark," the children and the hired help can run things for a week. It will add years to your life, beauty to your features, grace to your manners and breadth of thought and expression you can never get by the most exhaustive reading of the best literature.

Do not let your children fail to confide in you, lest you scold or blame them, and never be shocked or let it get on your nerves. You must not drive them from you now or you may never be able to hold them.

Boys, be patient with father, even if he gets impatient; you won't have him always, and there will come many a crisis when you will long for his counsel.

Daughters, look out for mother. Help her; get supper some night all by yourself. Use some of the brains you use so liberally in the school room in the kitchen. Help her intelligently. Don't be at home in the body but somewhere else in the spirit and stand in the kitchen and ask her where the stove is. Just give mother a little time to rest and read and know the work is safe in your hands.

And mother, don't you dare frown, even if she accidentally breaks your china or serves the best preserves when there is no company. Also be independent in your ways and do not think you must always do just as she tells you, either. We need not be disagreeable or unwilling to learn, but we must each maintain our own individuality, or we shall be submerged in a flood of advice.

Time was when women kept house to please their neighbors, but the sensible and intelligent woman now keeps house to please her family and herself.

So far as possible, let the family be united and work for each other's interests, for a family is like a political party, strong when united but weak when divided, for verily always there is strength in union.

Others will give you thoughts on sanitation, sunlight and many things that go to make a perfect farm home, or any other, but I have dwelt on the individuals that compose the home, as I am convinced a larger sum of human happiness depends upon people rather than their surroundings, important as these are.

Music, Girls' Glee Club.

Music, Scotch Songs, Mr. John Imrie.

OBSERVATIONS FROM THE HITCHING POST.

W. C. Bradley, Hudson, Wis.

My friends, I have no paper tonight, no set speech to give you, just a rambling talk from a rambling farmer, who has rambled from the shore of Lake Superior to the boundary of Illinois, from gatepost to gatepost, on your highways.

And what have I seen in these rambling rides of mine? A good many desirable things and a good many things that are not nice to look upon, and some of these things I am going to try to tell you about tonight.

Have a Hitching Post.

In the first place, every farmer ought to have a hitching post, I do

not care whether it is round or square. You remember the German professor who was trying to teach the boys the shape of the earth and it seemed to be hard to get it fixed in the minds of the children. There was one boy to whom it seemed particularly hard to understand, he had been told two or three times that the earth was round and yet he did not seem able to comprehend. The professor took out two snuff boxes and he said, "Johnny, here is a round snuff box that I use on week days, and here is a square one that I use on Sundays," and he said, "Johnny, the earth is like the round snuff box, can you remember that?" So he called the class up and he said, "Now, Johnny, what is the shape of the earth?" Right away came the answer, "Round on week days and square on Sundays." So I say, have a round hitching post or a square one, you can use the round one for week days and the square one for Sundays if you like, but have some kind of a hitching post. Sometimes I drive up in front of a building where there should be a hitching post and there isn't any; sometimes I see a dead tree in the yard that would have been alive if it had not been used for a hitching post. Sometimes there is only one tree where there should be a dozen or twenty. Sometimes where there is no hitching post, the farmer has left a wagon or a reaper or a gang plow so I could hitch to that. I heard the other day of a man who paid one hundred dollars for a separator, took it to his farm and used it to hitch the calves to. He could turn the handle and the two calves could take turns drinking milk, and he was getting along very nicely until this man, Aderhold, heard of it, and he went to that farmer and said that the separator was not good enough to hitch calves to. I do not know what this country is coming to, when a hundred-dollar separator is not good enough to hitch calves to.

Sometimes as we drive back and forth in this Institute work, we begin our observations from the town. Sometimes we leave the livery stable and in some of the cities and villages of Wisconsin we see that a great deal of attention has been paid toward making cities and villages beautiful, homelike places to live in. We see nice business blocks on the street, lined up on two or three streets, and dwelling houses by themselves with neat lawns and trees, the lawns well kept and the buildings painted, nice places to live in, yards clean and neat, and it does you good to drive along that street and see those happy homes. Then there are other places, we leave the livery stable and as we go along the street we see perhaps first a business house and next will be a dwelling house, next a blacksmith shop and then a saloon, and in between a vacant lot covered with ashes, boxes or barrels; that kind of thing is not desirable to look upon. Very often we drive through cities that show very little desire to improve the place by the citizens who live there. It is worth while to have a neat city, a neat village, with clean streets, clean houses and then we can surely expect clean men and women to live in such places.

An Ideal Farm Home.

As we drive out into the country, we sometimes see clean roadsides free from brush, brambles and burdocks. We see clean fields, well kept fences, clean pastures and smooth, clean herds feeding thereon. We also see neat houses, some of them with a graveled driveway leading through a well kept lawn to homes that look pleasing. When we drive up to the hitching post at such a place as this, we can determine

readily from observation as we tie the team what we may expect of the man or woman who inhabits a home of that kind, for from the hitching post we see a tall windmill, and if we see that and do not see a tank at the foot of the tower, we may conclude perhaps that that windmill is pumping water into an overhead tank in the garret, or perhaps a pressure tank in the cellar that is furnishing that farm with a water supply, also the barn, the hog and sheep house with pressure water. If we drive up to a farm house of this kind, we see an orchard at one side of the house, apples, plums and berries; we see a well kept lawn, a spacious grass plat, a tree here and there of a kind that is desirable to have, the maple or the ash, the weeping willow or the cutleaf birch; we will see the house set back from the road on a nice location, we see a driveway winding through a line of noble trees. If there is a spot near the house a little lower than the surrounding ground, we see planted in that spot little thorn apples, adding to the color and helping make beautiful this country house.

Selecting the Trees.

Let us be careful in the selection of our trees for planting about the farm home. I was in a little village a few years ago where evidently the people had had a desire to beautify their streets, and what do you suppose they had done? They had planted box elder on one side and Lombardy poplar on the other. They had spent a good deal of money for those trees and they had thrown away every dollar, because the box elder gets barefooted at both ends in twelve or fifteen years, and after twelve or fifteen years the top of the Lombardy poplar breaks off and becomes unsightly. Wisconsin has a number of splendid foliage trees for lawn planting; sugar maple, blue spruce, cutleaf birch, the elm, the linden, all these trees grow better and better with the years and are not short lived, they will live almost forever. So let us be careful in the selection of trees for planting, and by all means not plant them too thickly in front of the house. Remember the house should be the picture and the trees and the lawn simply the frame, so we do not want to overshadow the picture with the frame. I have passed along the road sometimes and have seen such a group of trees in front of a house, so thick it was almost impossible to see the house at all, but the careful planting and grouping of trees is very important in making a farm home a beautiful place. Plant vines and shrubs and flowers and make that farm home as nice a place to live in as possible.

Arranging the Farm Buildings.

Sometimes I think the farmers in the early days spent little or no time in the selection of a building spot. I have seen in going along the road a house which was perhaps far enough from the road and desirably placed on a good building spot, and then man had spoiled it by putting the barn and pig pen and the manure pile right between the house and the road; there was no thought used at all in the arrangement of the buildings for beauty, no consideration of the idea that they ought to give the passersby the right kind of an impression.

I remember one place in our county, a few miles south of our own home, where the buildings were arranged in that manner and for years they have been trying to sell the farm and have not been able to get as much for the whole farm as the buildings are worth because of the very undesirable placing of the buildings.

Another thing we ought to think about in placing our buildings is the

prevailing winds. We were taking a drive a year ago last summer, some twelve or fifteen miles from home, where we were driving along a north and south road. A man had just finished building and he had the right idea of the location for his house, but then he went to work and about twenty feet south of the sitting room he put up a hog house eighty or a hundred feet long. Those people would never have to buy perfume, they would have it all summer, because the prevailing winds in the summer from the south or the southeast or the southwest would certainly bring the undesirable odors right to the house.

If possible, put such building to the north or east, so that during the warm weather of the summer we will not get this disagreeable odor.

The Water Supply for the Farm Home.

In the arrangement of our outbuildings, we ought to spend a good deal of time and thought. In a good many places in Wisconsin they are remodelling the home, tearing down buildings, sometimes rebuilding old houses, and we want to be very careful in building that new home. Remember that in the future the farm home is to be a little different from the old farm house, we have got to get that house a little higher from the ground than we used to think necessary, because we will want the heating plant in the basement and more light in the basement than formerly; perhaps the laundry work is to be done down there. Remember that the farmer's wife today is entitled to a good many things that city people think they are entitled to have and yet the farmer somehow or other has not thought that his wife needed. I drove up to a farm house a few days ago and a woman was working at a well ten or twelve rods from the house. She had to uncouple the wind mill, there had not been any provision made for pumping water into a barrel, and every bit of water that was used in the house had to be carried from the well. This woman had to uncouple the pump, pump her pail of water and couple up again. I asked her, "How long have you been carrying water from this well?" "Why," she said "thirty years, all the water in the farm house." I said, "Why don't you make your husband run a pipe from the well to the house and put in a tank so you wouldn't have to carry water?" She said "I never thought of that."

I want you women to think about that if you are carrying water two rods, ten rods, and in the next month have a pipe taken into the house and let the windmill or a gasoline engine force the water into the house. Do you know, I think sometimes farmers do not know that water will run down hill! I have seen many a woman carrying water out of the house year after year, to throw it out, when a slop sink with a pipe outside will carry it off so easily. We ought to be ashamed of ourselves to make a woman carry water into and out of the house, and in a modern farm home it is very easy to provide for this. Even in the old farm home it is an easy thing to do.

I was amused at Mrs. Griswold when she said that a great many farmers were a little afraid of water. I do not care how poor a farm home is in the State of Wisconsin, there is not a home but can afford some sort of apparatus for bathing. I remember a farm home that was fixed up at a cost not to exceed twenty or twenty-five dollars, a shower bath, where the men and boys could come in at night during the hot and dusty part of the summer, could go into a little shed close to the windmill, where there was a six or eight or ten-barrel tank for water, the water was pumped into

that tank and warmed by the sun, and then a simple pipe ran into the bottom of the shed and with a spray on one end of garden hose, they could go in there and take a shower bath, and it certainly is a nice way to clean up and cool off during the hot summer months, and it costs so little.

Another thing I have seen as I drive from town to town that I do not like—I remember seeing on one drive this winter—where, house after house there was a great woodpile in the front yard. They had hauled up the winter's wood and landed it right up in front of the house, so they could easily throw it on the front steps. In a fifteen-mile drive we saw half a dozen places with just that kind of thing, and it made an eyesore. Of course it was handy, but it did not look very nice. The wood for the farm home ought to be at the back of the house, and it ought to be in a woodshed, split up and handy for the wife. Let us take a little more pride in the looks of things.

I wonder if we realize, all of us, what a benefit it is to a farm to have it look well. I can almost hear somebody say, "But the assessor will come along and assess it for more if it looks well than if it looks poor." But anyway, isn't it worth while to have it look well? Do you know there are some cities in England spending a great deal of money simply parking their streets, making them look well, and do you know that in those cities where they are keeping nice, clean lawns and clean streets the death rate and the sickness have been lessened a great deal, simply by getting people to be clean, neat and tidy in their persons, and also the care they take of their farm homes and lawns?

They are taught to grow fruits and flowers, and it adds not only to the beauty, but to the material value, both of those cities and the farm homes.

Look to the Supply of Reading Material.

Another thing we sometimes see when we tie up to a hitching post and have occasion to go into the house, is the meager supply of reading matter that we see in some of our farm homes. I was up in northern Wisconsin one day; I went into the postoffice and said to the postmaster, "How many farmers get mail at your town?" He said, "Why, there are seventy farmers get mail here." I said, "How many of them get the 'Youth's Companion'?" "Why, there are no farmers get the 'Youth's Companion.' The blacksmith's boy gets it." I said, "How many of the farmers' wives get the 'Ladies' Home Journal' or the 'Delineator'?" "There don't any of them." I asked him, "Why don't they take these papers?" "Why, they are poor, they cannot afford to take these papers." Well, I did not agree with him, I thought they could afford to take the papers, and I said, "How many of these farmers buy tobacco at your store?" "Nearly all of them." Then I said, "How much do they buy a week?" "I don't know, but I guess I could find out;" he went to his books and after a few minutes he said, "They use from fifty to seventy-five cents worth of tobacco a week." It did not take me long to figure out, there are fifty-two weeks in a year up there in central Wisconsin, but I suppose it was sixty cents a week, there's thirty-five or forty dollars a year for tobacco and yet they do not have money enough to buy the "Ladies' Home Journal," "Munsey's" or "McClure's," or any of those things that would make farm home life pleasant and profitable.

I want to say something about your taxes. I know you have been grumbling about the high cost of taxation in Wisconsin and wondering why it is so. Mr. Haugen has told you that

about seventy per cent of these taxes are local, a good part of your taxes are school taxes, giving your boys and girls a chance to learn to read, and you are willing enough to pay that, but unless you furnish them something to read after they have left the schools (and I know of hundreds of farm homes in the State of Wisconsin where little or no provision is made to give these children reading matter, what good does it do to have them taught to read if you will not supply them with reading matter? We have got to buy them books and magazines and papers to read. This country is filled with people who have spent their lives reading and writing things that the children want to read; let them read Eugene Field and Alcott, and a dozen other people who are writing books that you and I and everyone ought to read, and if we get these children in the habit of reading the right kind of things during childhood, then their education will never cease, even though they have to leave school early.

I do not believe a man has got to go through Normal School or College to be a well educated man. If we furnish our homes with the right kind of reading matter, our boys and girls will become the right kind of men and women.

Another thing we ought to do is to make the children happy during childhood, and we must furnish the things in our homes to make them happy. We talk about the boys drifting from the farm and going into the cities. I do not blame the boys in some cases that leave the farm home, nothing to read, no music, nothing to do but work, work, all the time.

I was called down by the president of a great manufacturing concern in northern Wisconsin for something I had said in regard to woman labor and child labor in the field. He called my attention to the fact that by growing a certain kind of crop the farmer could clear from fifty to one hundred dollars an acre, and he stated that family after family had done so, but I knew in many cases the wife is kept in the fields and the children from school.

The banks of Wisconsin usually pay three or four per cent interest, and there are thousands of farmers in Wisconsin drawing that today. That money ought to be put in the farm homes, putting in good water supplies, good lighting systems. I have seen where there was very poor light, gasoline or acetylene ought to be in every farm house in Wisconsin. And they can be in very many if we will take these dollars from the bank and put them into our homes and there they will pay more than ten per cent, because they will help to keep the boy and the girl in the home. If we will fix up the home so it will be just as desirable as the city home, the girls and boys will stay there. I beg you people to think about these things.

Yesterday I helped to carry one of my neighbors up to that silent city on the hill where grave stones mark the names of the departed dead, a woman who six years ago had buried her only boy, a bright, handsome, strong, happy boy, and when she had lost this son she gave the love she had bestowed upon the boy to a flower garden. With the help of her father, who was a one-armed man, she established a home that they called "Rose Lawn;" they planted flowers, bank after bank of roses, row after row of petunias, blocks of Sweet William, every flower that they could think of, so the passerby used to stop at the hitching post and admire the beautiful flowers. Sometimes the woman, when she would be working among the flowers, would pick a bouquet and give it to the passerby that he might take the fragrance with him, as well as the memory of the rose garden.

Yesterday while we lowered her casket into the grave, covered with the wreaths and flowers she loved so well, I thought of what she had done in the way of making home beautiful and a place for people to look at who traveled along the road, and I wondered, as we lowered that casket into the grave, if those who come after, if those who tend that rose garden in the years to come, will keep her flowers growing so the passerby may enjoy the flowers she planted.

So I am going to leave you at that hitching post, as Kipling puts it, "At the last hitching post."

When earth's last picture is painted,
And the tubes are twisted and dried,
When the oldest colors have faded
And the youngest critic has died.
We shall rest—and, faith, we shall need it—
Lie down for an aeon or two.
Till the Master of All Good Workmen
Shall set us to work anew.

And those that were good shall be happy;
They shall sit in a golden chair;
They shall splash at a ten-league canvas
With brushes of comet's hair;
They shall find real hearts to draw from—
Magdalene, Peter and Paul;
They shall work for an age at a sitting
And never get tired at all!

And only the Master shall praise us,
And only the Master shall blame;
And no one shall work for money,
And no one shall work for fame;
But each for the joy of the working,
And each to his separate star,
Shall draw the Thing as he sees it
For the God of Things as They are.

Music, Piano duet, Miss Law and Miss Harness.

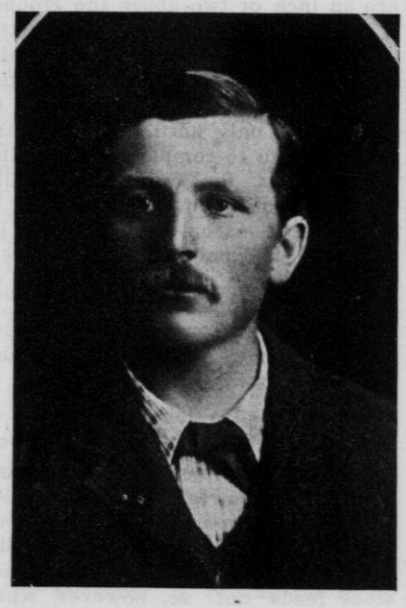
Adjourned to 9 a. m., next morning, March 13, 1912.

SECOND DAY.

The convention met pursuant to adjournment. Prayer by the Rev. J. F. Turner. Mr. H. D. Griswold in the chair.

ROOT GROWING.

E. Nordman, Polar, Wis.



Mr. Nordman.

The American farmer is only just beginning to appreciate the value of succulence in his cow feeds. It is just beginning to dawn on him that this great principle immeasurably increases the digestibility, and therefore, the feeding value of everything his cows eat. In Europe the farming population has known and acted upon this principle for many years, and over there a farmer who does not have access to the by-products of distilleries and sugar factories raises large quantities of roots each year. These he feeds to his animals and thereby adds from thirty to fifty per cent to the feeding value of all the other feeds which his cows consume.

In America the progressive stock farmer produces silage to supply the bulk of his succulent feed, but there are instances and conditions in this country where a root crop can be made very profitable. In our own case for eaxmple. We have two silos, one equal to fourteen feet in diameter, the other one sixteen feet in diameter. In the fall after these silos have been filled, the cows are still getting considerable grass, but not a full feed, out in the pastures. To supply this deficiency in an economical way, they should be fed some kind of succulent feed in addition to the pasture. We have found that it does not usually pay to feed out of the silo at this time of the year, because the cows will not eat the silage as fast as it needs to be taken out of the silo to prevent spoiling, hence we raise roots, which can be fed in just the quantities that are required, be it much or little.

We believe also that sheep will do better on roots than they will on silage and so we save out enough of them to last our sheep through the winter.

Roots for New Settlers.

Another instance where it pays to raise roots is in the case of new settlers in northern Wisconsin. Ordinar-

ily one-fourth to one-half of an acre of roots can be made to supply succulent feeds that shall be required for three or four cows and be the means of doubling their flow of milk through the winter months. However, after a settler has ten acres or more cleared, he should still continue to grow some roots, but he should depend upon silage to furnish the greater part of his succulent feed.

Varieties.

In an experimental way we have grown many varieties of roots, including rutabagas, turnips, stock carrots, and many kinds of mangel-wurzels, and have come to the conclusion that for our purpose the rutabagas are the most profitable to grow. First, because we can get a better stand; second, because it is less work to care for them, and third, because the quantity and quality of feed secured from a given acre of land is as great or greater than with any other variety of roots.

Rutabagas will grow on any soil that will grow corn or potatoes. As with other crops, so with roots, the better the land as to fertility and tilth the greater the crop we have a right to expect.

Preparing the Soil.

To grow a big crop of roots, put your land in the same condition that you would to grow a big crop of corn or potatoes. We have grown our rutabagas at distances varying from two to three feet apart in the row, and have come to the conclusion that where the land is in the best condition as much feed can be grown at three feet as closer together and with less work.

We thin out to about ten inches in the row. If the soil is not in the best condition, they may be planted closer together, but on richer soil they must have more room to grow and develop.

Sowing the Seed and Cultivation.

Rutabagas can be sown any time up to the first of July, and in northern Wisconsin they will continue to grow until stopped by cold weather. I believe the largest yield is obtained by sowing them early, say the 20th of May, or thereabouts, as that gives them a long time to grow.

The crop may be cultivated and thinned out any time after the plants are an inch or two above the ground. After this they should be cultivated and hand hoed often enough to break up a dust mulch and to keep down the weeds. This cultivation will have to be kept up only until the leaves are large enough to completely shade the ground, when the crop will usually take care of itself. In this way in an ordinary season, rutabagas can be made to yield one thousand bushels per acre in the clay loam sections of northern Wisconsin.

The past season it cost us about five cents per bushel to grow and store them away in root cellars.

The Food Value of the Crop.

Some people object to raising roots because it requires too much work to grow them. From the standpoint of area, it does unquestionably take more work to grow roots than other stock feeds, not so, however, when taken from the standpoint of value. We can grow an acre of grain much cheaper and with less labor than is required to grow an acre of roots, but it costs more to raise a given value of grain products than it does the same value of roots.

DISCUSSION.

Mr. Jacobs—In your statement of value, do you mean feeding value?

Mr. Nordman—Yes.

Mr. Imrie—Have you ever had any experience in sowing turnips at the last cultivation of corn?

Mr. Nordman—Yes, I have, and when we got a good crop of corn we never got very many roots. We have sown them in years when we had a poor stand of corn and then when they had plenty of sunlight they did first rate, but when we had a good stand of corn, a good growth, the ground was too much shaded to permit of proper growth by the rutabagas or the turnips.

Mr. Imrie—How do rutabagas stand frost?

Mr. Nordman—No trouble about that at all. The frost doesn't hurt them, in fact, the rutabagas can be frozen up in the ground and then when the ground thaws again the frost dries right out of the rutabagas without doing any apparent harm.

Supt. McKerrow—That is not so true of the mangels.

Dr. Kutchin—How do you store them in the winter to keep them from freezing?

Mr. Nordman—They have to be put in a good, warm cellar.

Dr. Kutchin—I have a scientifically constructed root cellar, warranted not to freeze. I sometimes speak of this as an irreligious experience, however, I think we can use them, perhaps some time next June, to drive fence posts with.

Mr. Jacobs—With reference to the labor question in raising roots, my experience goes back several years to the time when we were breaking up new land and the rutabagas were sown on the new plowing; I can remember very distinctly yet the pulling of those roots in the fall.

Mr. Nordman—I do not believe that it is advisable for the average farmer to grow a very large acreage of roots, because you can get your succulent feed with less labor through a silo, by raising corn and putting it into the silo, but a small patch of roots comes in pretty handy and it does not take so much labor to produce an acre of roots. We have figured up everything, counting good wages for our work and the interest on the land, and we decided it did not stand us in over fifty dollars for an acre of roots.

Mr. Jacobs—Don't you think the land is better adapted to the raising of roots in the extreme northern part of the State than with us farther south?

Mr. Nordman—I had thought so all along, but this winter in stating our experience in the southern part of the State, every now and then a gentleman would pop up in the audience at our Farmers' Institutes and state that he was raising roots in the southern part of the State as successfully as we were in the northern part.

The Chairman—You cannot tell us any cure for that lazy man's feeling that Mr. Jacobs evidently knows about?

Mr. Nordman—The only thing I know is to refrain from raising roots.

A Member—There is a gentleman out our way who planted an acre and he neglected them a little in the fall, did not have quite time to get them in, so after he had a few out he plowed the rest of them under and he said he thought that was the best place for them.

Mr. Imrie—In feeding, do you cut them with a root cutter?

Mr. Nordman—Yes, we have a root cutter and I slice the roots up before we give them to any kind of stock. They make very valuable feed for breeding sows.

Mr. Stiles—What time in the season would you prefer to plant?

Mr. Nordman—The rutabagas can be planted at any time and I think the same is true of mangels; they can be planted any time up to about the first of June.

Supt. McKerrow—If you want a good crop of mangels in southern Wisconsin, plant them in May every time; rutabagas in June and your

white turnips about the first week in July. We have grown them for many years, all these varieties, and our experience tells us those are the best dates.

A Member--Which do you consider the best feed of those three, mangels, rutabagas or white turnips?

Supt. McKerrow—That depends. We have usually considered the rutabaga the best feed, but the Government analysis recently sent out, as I understand, shows that the mangel is richer in protein proportionately than the rutabaga. The mangel in Great Britain, where it is used more than in any other country in the world, is looked upon about as we look upon the winter apple here; it is not fed until toward spring. They keep their mangels there for spring or summer feeding and they raise rutabagas for their early feeding. The rutabaga is also good in the spring, but it does not need to be kept until spring to be good.

Mr. Stiles—How about feeding rutabagas to dairy cows in the fall?

Mr. Nordman—They should be fed right after milking.

A Member—Have you ever put the tops of roots of any kind in the silo?

Mr. Nordman—No, sir, we feed our tops up in the fall and they make an excellent feed. We are as careful of them as any other feed.

CORN GROWING.

Thos. Convey, Ridgeway, Wis.

Corn growing in Wisconsin is increasing each succeeding year. The immense quantity grown for silage is responsible for the increase of acreage, as well as for better methods of growing, as the grower who attempts to fill a silo with a light crop comes to the conclusion that he will have to do better the next time.

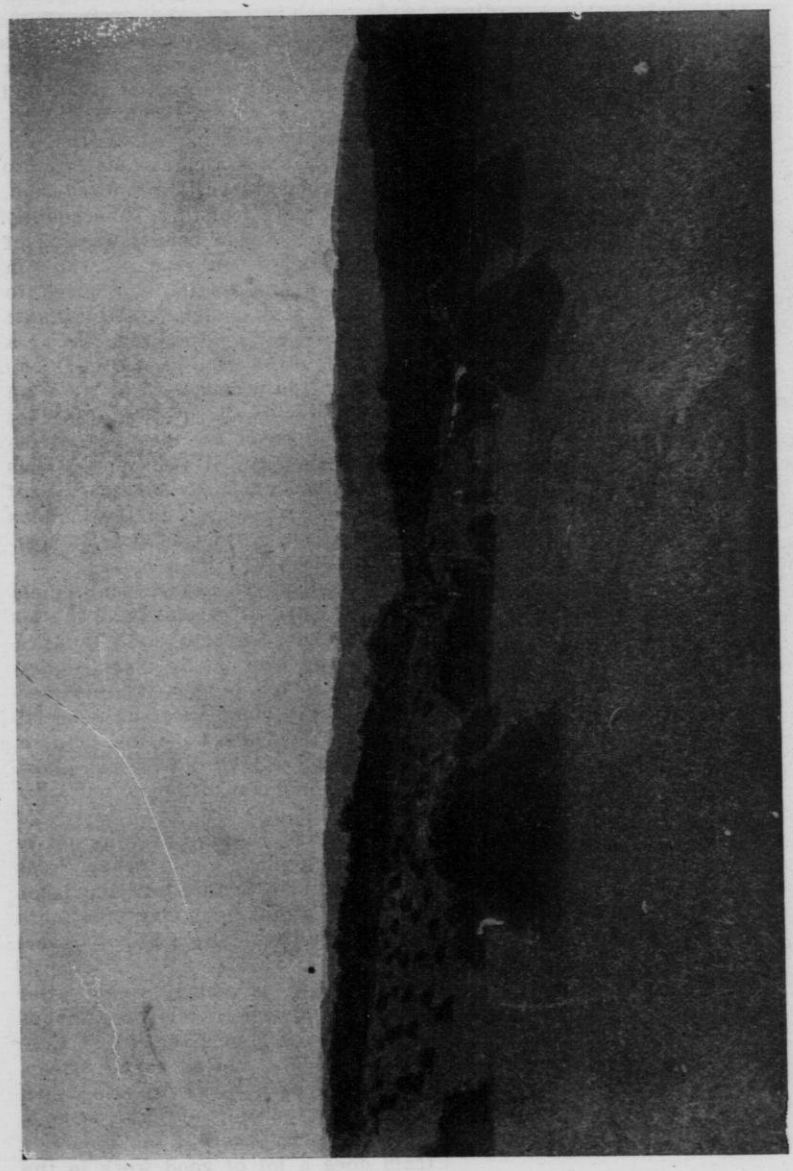
Large crops depend on good seed, good soil, good cultivation and a good season. Seed should not only germinate well, but have the greatest possible degree of vitality. To secure this, it should be mature, before cutting or picking. Selecting seed before fully ripe is injurious. Shocking does not injure vitality of corn, as it matures in shock, provided it is husked before severe frost. Where it is grown on new land, in good condition and also with an incline to the south, it has greater vitality than where grown on manured land, or with a northern exposure. A season with much moisture and little sunshine produces low grade seed corn.

Varieties.

Variety has much to do with success, but a great many growers are making a serious mistake in growing too large and late a variety. The result is a poor quality of grain, having diminished food value, and a lot of fodder that it is impossible to keep in good condition. Too much moisture in both, and the seed from that cannot be dependable. A smaller and earlier variety can be thickly planted and yield as much food of better quality.

Quality in seed is a necessary part of a successful outcome, but as we sow so shall we reap, and selected seed, of a pure bred type, will grow and mature more evenly than corn of mixed breeding.

Extreme care should be observed in guarding against admixture with



Second crop of alfalfa on farm of Thos. Convey, Ridgeway, Wis.

other varieties. Nothing is gained and much is lost by obtaining seed from a great distance in any direction. This is only justifiable in establishing a new variety, and only done in a limited way.

Selecting the Seed.

In selecting seed, a great deal of attention is given to type. This is necessary, but at the present time there is a possibility of running to extremes. We may do what some breeders of animals have done, pay too much attention to fancy points and forget size and vigor.

Preparation Before Planting.

Few growers give sufficient preparation before planting. One day's work before planting may easily be worth two days after. Fall plowing should be worked as soon as it is sufficiently dry in early spring to disk and harrow. Harrow after every rain as soon as sufficiently dry. If the gound becomes too compact to mellow up with the harrow, use the disk.

Do not plant until corn weather comes, do not plant too deep, two inches is about right. A great deal of the hand-planted corn is put in too deep. The land is marked both ways and the corn then chucked down to the bottom of plowed land, away from heat, too deep for sufficient aeration.

If the ground is harrowed after planting, as it should be, the plant has such a struggle to get to surface that it has lost its vigor. A horse planter ought to pay for itself in planting forty acres of corn, especially if the depth of planting is controlled.

Planting and Cultivation.

I prefer to plant on a clover sod, top dressed with manure, and spring plowed. I used to do fall plowing, but get better results from the former. It holds the snow better, washes less and is much better to apply manure on. The leachable part of the manure is in the top, ready for business, litter and weed seeds are plowed under and the crop gets a start before the latter show up and more easily controlled. Besides a clover sod is more porous when frozen than plowed land, takes up more moisture, consequently is not so likely to permit wasting of manure, and will have more water in the subsoil, unless it is allowed to grow too late, which would exhaust the moisture. And another thing, a growing clover crop is taking nitrogen from the atmosphere and storing it in the soil. Clover, by its root growth, improves the mechanical condition of the soil, it also appropriates fertility developed by weathering of soil. A growing crop on the land as nearly all the time as possible certainly holds good with clover.

In spring plowing, harrowing should be done close after plowing. In this way moisture is held and land prepared with least labor. Spring plowing should not be deep, it is not necessary with clover sod, and especially when top-dressed with manure. Both grass and manure decay more rapidly when not too deep.

I drill all my corn and have for several years, running rows as nearly level as possible. The heavy rains are better held in this way and labor is lighter, although it may take more time to cultivate, because of short rows.

Harrowing is done right after planting and is as nearly continuous as it is possible to make it. I have been unable to find an easier, cheaper, quicker or better cultivation than the harrow gives. A light frame, sharp, upright teeth, and a lively team does a lot of good work in the shortest time.

Plant plenty of seed. There is no remedy for a thin crop and this is the

Corn at close range on farm of Thos. Convey, Ridgeway, Wis.

rule rather than the exception. For silage drill three to six inches; for husking, one foot apart.

When corn is too large to harrow, use a weeder. This gives the best results right after the cultivator. All the cultivation is in the direction of the row. Drilled corn can be kept clean with less labor than checked corn. In either case, it would have to be hoed to keep it absolutely clean, but only needs it at ends of row where cultivation is not thorough. Drilled corn matures earlier than check rowed.

The majority of cultivators are not built on correct principles. The face of shovel is at right angle with line of draft. This takes an unnecessary amount of power to move it and leaves the land in the best possible condition to permit either washing or drying out. A good cultivator should cultivate all of top soil, the depth should be controlled beyond mere guess work. It should leave the surface smooth, but not compact. It should have a pulverizing action on the soil. To acomplish this, shovels, knives or disks should be oblique and not at right angles with line of draft. The draft is less, the cultivation better, as the old style leaves land open, lumpy and rough on surface, conditions to be avoided. An uneven surface causes waste of moisture, one of the most necessary elements to make a big corn crop. Some one has recently recommended dragging a mower wheel in the corn row. This may answer the purpose, but there are plenty of cultivators that do the work and a whole lot easier.

To control depth of cultivation and close the ground after cultivation, use some form of leveler. This is an attachment and all of them do the work.

Deep preparation of a deep soil is not objectionable, but deep cultivation does not give good results. The principal part of the root system is in the third and fourth inches, unless forced lower by deep cultivation, and this is at a loss of early maturity and also quality. Quality means more than the average man allows. I would rather have three bushels of mature corn, that is dry enough to shell at husking, than four bushels of the soggy kind that some people say is mature. It may be dry enough to not spoil in the crib, but carries too much moisture and does not have feeding value like mature corn.

DISCUSSION.

Mr. Imrie—Why should corn mature quicker in drills than in hills?

Mr. Convey—Because the root growth is not distributed to the same extent. We found that out when we drilled partly and checked-rowed partly, although our drilled corn was planted later than the other.

Mr. John Imrie—I got a very good idea from Mr. Griswold. He uses a long evener and also a long neck-yoke, separating the horses and making the planter run more evenly, and getting his corn planted more evenly.

Mr. Imrie—We are farther north than Mr. Convey and I think we need to plant more shallow and in planting shallow, wherever the horse steps, we leave the corn on top of the ground where it is hard.

Mr. Stiles—Do you prefer to plow early in the spring, or just before you plant?

Mr. Convey—If there is plenty of moisture, we prefer to wait until regular corn planting time. We plow and harrow and plant and harrow, to make a continuous operation. We have not had any unfavorable result from handling that way. If we allowed it to remain too late, it certainly would dry out.

Mr. Nordman—I think that depends on the kind of land you have to a great extent. Our farm is quite roll-

Yearling colts taken in September on farm of Thos. Convey, Ridgeway, Wis.

ing, and we find it necessary to wait until just before we plant for our plowing, because if we do not and a heavy rain comes, it is liable to do a great deal of damage by washing. Then, too, you know we live in the northern part of the State where the climate is not so warm, and not as conducive to a good growth of corn as in the southern part of the State, and we have to plant right close to the surface. We aim to just cover our corn, not more than half an inch. Some is on top when we get through planting, but we cover it with the harrow.

Mr. Martiny—What method do you employ in selecting your seed corn?

Mr. Convey—We select it in the fall, after we start to husk, taking the best ears.

Mr. Martiny—Do you call that the best way of selecting seed corn?

Mr. Convey—We get good results that way. We have not found any obection to having the seed corn cure in the shocks; in fact, we think we get better seed corn. It is not wise to wait until the cold weather sets in. It is not wise, either, to put the corn into a large pile and let it remain there for some time before you make a selection.

Mr. Imrie—I have noticed that in the southern part of the State they do a good deal more spring plowing than in the northern part. With us we always prefer fall plowing for corn or any kind of grain; we think that for corn we can get the ground in the right condition cheaper and easier and with less weeds on fall plowing than with spring.

Mr. Convey—We have been raising corn in the southern part of the State longer than you have. They all start with fall plowing, but we find there is more waste of manure, more washing of the land, and more washing out of the fertility, so we have changed to spring plowing. We plant on clover sod, in clover one year.

A Member—We put our manure on the clover sod.

Mr. John Imrie—Ours is practically level land and of course that makes a difference. We have very little washing, if any, and we have found the fall plowing seems to be the best, especially if we can top dress with manure.

Mr. Convey—I would like to ask this gentleman, don't you get good results with spring plowing on your clover sod?

The Member—We will, unless there should be a very dry season. We can always conserve more moisture with fall plowing. One year I made an experiment, I plowed in the fall and left a little piece in the middle of the field and plowed it in the spring. I found the corn was about six inches lower than the rest, and in the fall it was a good week later than the other, with exactly the same cultivation.

A Member—By planting it in drills six inches apart, you will get more to the acre, but won't you hurt the quality of your ensilage?

Mr. Convey—If we get practically half the development of the ear, we get a larger amount of fodder. Of course in a very dry season, sometimes the corn is too thick to give good results, but in an average season you will certainly get more food to the acre. On good land, that is not at all too thick.

A Member—How is the disk for cultivating corn?

Mr. Convey—We have used the disk for several years. We have two different styles of the knife cultivator. They give nice cultivation. It is one of the best I know; but it should be used with levelers in any case. I would not use any cultivator without, even the Planet Junior should have it attached to it. It keeps the land very much better and it also tends to wash less and dries out less, so I do not care what kind of a cul-

tivator I use, I would insist on the levelers every time, and start with it from the beginning. Once you get your land out of condition by leaving it uneven, it is difficult to get it right again.

A Member—Do you drag after the corn is up?

Mr. Convey—Yes, sometimes until it is eight or ten inches high. Where the season is such that there is a slow growth, you cannot do it, we use the weeder instead. Of course we always use the weeder after the cultivator, close after it, until the corn is too large, and run the same way as we cultivate. All our cultivation is in one direction.

Chairman Griswold—I think we should emphasize the fact that every farmer should test his seed corn this spring. We found this last year in testing seed corn that we received from Chicago that not more than five per cent grew, that was No. 7, but the corn that we saved in the field before the corn was cut tested ninety-five per cent. There will be a whole lot of seed corn this spring that will not grow and the farmer has got to look out pretty carefully.

Mr. Convey—We tested our seed corn, and out of 133 kernels only six failed to grow. The quality of seed corn depends in large measure on the variety and on the location, and also as to whether the ground is heavily manured and proper growth made. Two years ago we had a peculiar season, we had very little midsummer growth until after the 15th of August, when it rained. It grew until frost, we had most fodder and a poor quality of seed corn. If your corn matures and it is dry enough, there is no trouble about the seed, but it is safer to test it anyway.

VARIETIES OF FRUIT FOR THE FARMER.

D. E. Bingham, Sturgeon Bay, Wis.

Mr. Bingham.

It is not my intention in this paper to elaborate on varieties suitable for the farm orchard where care is given the varieties of fruit under cultivation, but rather to mention some of the varieties that can be grown, if any, without any attention, for this seems to be the rule. Those that understand the great necessity of care and attention also know what varieties will succeed with them, and as location has so much to do with selection of varieties, any list may be misleading to some.

The varieties to be chosen for the farmer are those that will do the best under the neglected conditions they are sure to have, close planting, sod, no cultivation, no pruning, no spraying, and annual browsing by the cattle, calves, horses and other farm stock. And if once in a while the effort is made to cultivate, the methods

employed usually result in injury, after several years of neglect, by not employing the right system of culture and pruning.

Assuming that the location is fairly good for the growing of fruit and one wishes to supply fruit in abundance for his family, he should still choose varieties that will do the best with the least amount of work, for it is hard for the average farmer to see any real money in fruit growing and he seldom takes much interest in anything he cannot see money in. He does not consider that after all the real glory in growing fruit on the farm is the pleasure of gathering from his own vine and fruit tree the abundance of fruit for the home.

Should the location be poor, the list would be the same, for if these cannot be grown none can and consequently time wasted.

The Duchess apple succeeds because of its inherent ability to stand neglect and evidence of its worth is all over the State.

The native plums grow wild, which is evidence of their worth for the conditions they must face when planted by the large majority of farmers.

The cherry is the least apt to succeed and only the semi-wild black sorts were planted, largely because they would grow and spread along the garden fence and road sides, yielding a small amount of fruit. Even these are better than none and if one must still neglect, are about the only sort that will give results.

The Seckel pear, though small, will perhaps stand more neglect than any other.

The strawberry, we should chose a variety that will come the nearest to taking possession of the ground permanently, like the quack or Canada thistle, so that we will always have strawberries from one planting, otherwise it is necessary to start a new planting every spring, which the average farmer obects to as too much trouble.

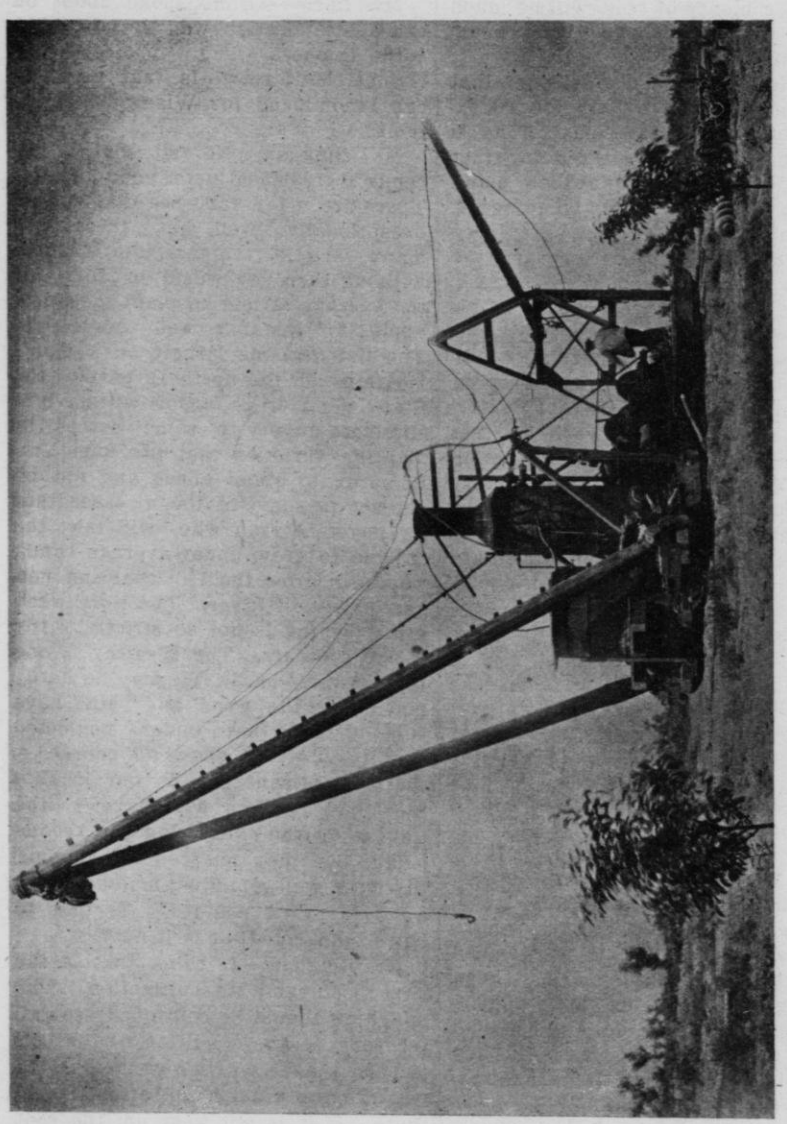
The currant, we ought to have a new variety originated, one without leaves, so we could starve the currant worm to death. Until that variety is originated, we should plant a hardy, strong-growing variety that will not be killed if the leaves are all eaten off every summer. We have quite a list to choose from and perhaps the Prince Albert is as hardy as any.

Raspberries, well, if there aren't any wild ones within ten miles of the farm where you can gather a few quarts by spending a whole day's time, it might be well to try some of the cultivated sorts that will stand out all winner without any fear or injury. The Turner is a good variety.

Blackberries select the same way, if none can be found in your township and there is no alternative and you still have an appetite for the luscious fruit, plant the low-growing Dewberry type, so that if you have a few inches of snow nature has done for you what you could do in a few minutes, but never have the time, that is, covered them so they may come through the winter without injury.

The gooseberry is a fruit that will grow almost anywhere, but, like the currant, was originated with foliage that appeals to the currant worm and consequently the same fate is due them. Unless they receive a little attention, they will, like many varieties of fruit, be a thing of the past —only a symbol of "what might have been."

After all, the farmer ought to have fruit for his table and should consider the production of it in the same light as he does the performing of any task for money expected to be derived therefrom. If fruit is to be had, like the grocery bill, the expense must be met, but it is slight, only a few minutes each day will be suffi-



Stump puller used for clearing land of stumps and stones on the 520 acres of cherries planted by the Co-operative Orchard Co., Door Co., Wis.

cient to take care of quite a fruit garden. The returns and satisfaction of having plenty of fruit will be much greater for time expended than much of the time now spent on the farm.

Mr. Farmer must not consider that he must sell fruit to pay for all expense of keeping the house if he is busy and largely interested in other lines. He should confine his planting and production to his home needs. Twenty-four apple trees are plenty —six varieties—four of a variety—ranging from the earliest to the late-keeping sorts that are adapted to his location.

No definite list will meet all conditions and locations, always keeping in mind that if you are apt to forget the orchard choose varieties that will do best under neglected conditions. A list suited to your locality can be obtained from the Horticultural Society, or by observing those that are doing the best in your immediate vicinity.

DISCUSSION.

Mr. Imrie—I have heard Mr. Bingham quite a number of years, but I think this is the best paper I ever heard from him. He has been around among the farmers and knows what they want.

Supt. McKerrow—The reason why I placed Mr. Bingham on this program under that heading was because a few weeks ago I received a letter from a very prominent man in the northwestern part of the State who had been a fruit grower for a few years and he told me how many dollars he had wasted on fruit tree salesmen. They always had the best of the argument, and he said he thought the Farmers' Institute ought to be telling the farmers what varieties to buy, rather than encouraging them into buying like the commercial orchardist, so I thought I would put Bingham on the track, and I hope you will keep him on that track with your questions.

Mr. Imrie—All he spoke about on the apple question was the one kind —the Duchess.

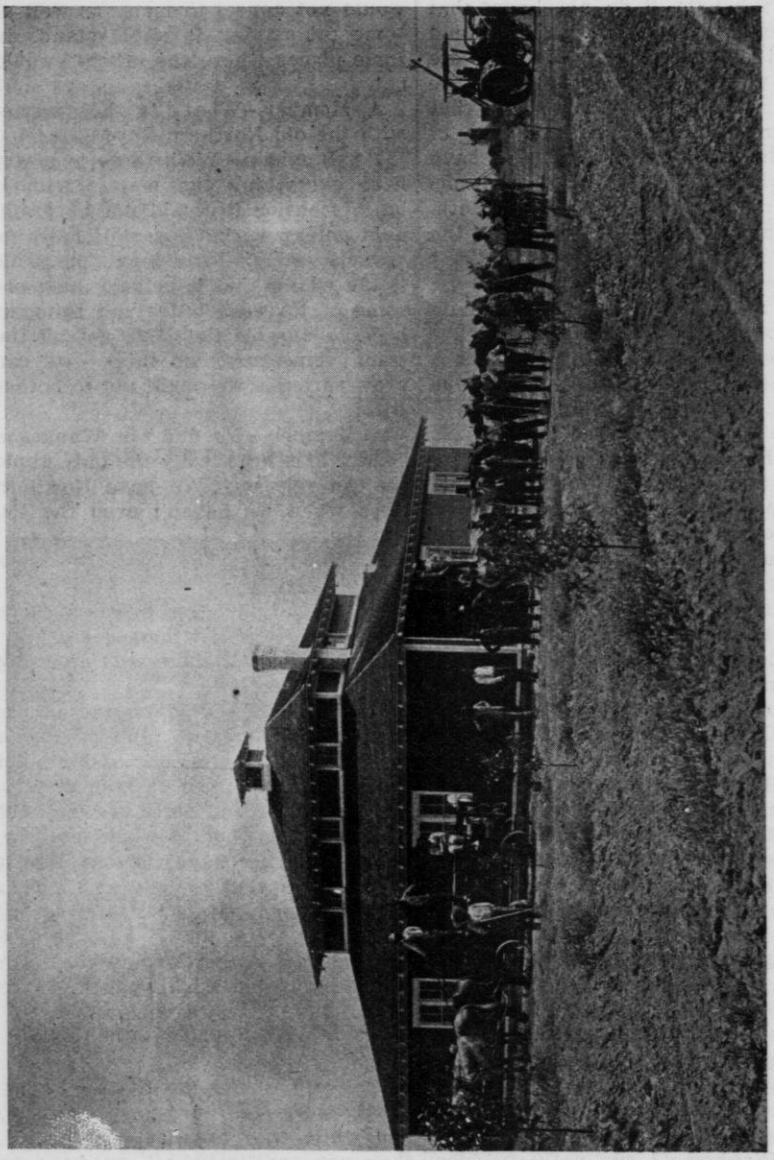
Supt. McKerrow—Is that all you can recommend for Wisconsin conditions?

Mr. Bingham—No, sir, but it depends a great deal upon your locality. There are many varieties that will do exceptionally well, but there are many varieties that are total failures without care. It would be folly for the average farmer to plant the Snow apple, for instance, and neglect it. The list depends largely on a man's location. In the northern part of the State, the average farmer will have to eliminate quality to some extent in planting varieties that are sufficiently hardy to stand abuse and not be subject to some of the diseases that we have. A man who will take the trouble to grow under average conditions can grow the Hibernal and perhaps the Wolf River. The Northwestern Greening is not so strictly hardy as some others. The Wealthy is one that is fairly hardy. It may be hardy enough in the wood and still have some defects that under neglected conditions would show up poorly.

Mr. Nordman—Up in our locality there are farmers who haven't the time to do the cultivating you recommend, but they succeed by keeping the trees well manured, mulched with good barnyard manure. Is that to be recommended, or is it not?

Mr. Bingham—I think that is the next best thing to cultivation. The mulching should be continued year after year, so the condition of the soil is such that it will allow the rain to get into the ground and also be held there. If it is not kept up, the root system will come up near the surface and then dry out during a dry season.

Mr. Nordman—At what time of



Pump house and warehouse of the Co-operative Orchard Co., which has 520 acres of cherries.

year would it be best to apply that mulch?

Mr. Bingham—I do not know that there is any particular time. I would apply it in the spring. Usually we figure there is some moisture in the spring and the object is to hold that moisture. During the latter part of the season, if it gets very dry, I have seen where mulch is an injury on account of its getting dry underneath, then the mulch would hold all the rain that fell, and the tree wouldn't get the benefit of the small showers. There should be a heavy mulch on the ground all the time.

A Member—But if you have such a rich mulch, isn't it really injurious to the tree, forcing it to too rank a growth?

Mr. Bingham—I saw a letter from a man in the east who said he forced his apple trees into bearing three or four years before they would have borne otherwise. That depends upon the condition of your soil. Unless you have an unusual amount of the right elements in your soil, there is not much danger, not so much danger in the mulch system, as there would be in incorporating it in the soil.

Mr. Convey—What about the value of ashes?

Mr. Bingham—I would apply a thin coating of ashes, in the early spring, about this time and before all the snow is gone, so it would have plenty of chance to dissolve.

A Member—What are three or four of the best winter varieties for general planting in Wisconsin under favorable conditions?

Mr. Bingham—The McIntosh, Snow, perhaps Gem City, and you might use the Windsor, although a poor growing tree.

A Member—Why do you leave out the Northwestern Greening?

Mr. Bingham—I do not consider that a good variety for the farmer's own use, to put in the cellar. It is all right for commercial growing. Scott's Winter is a good winter apple. It is a very sharp, sour apple, perhaps would not appeal to many as well as some others, but it would stand in some places where the others would not.

A Member—What is the matter with the old Northern Spy?

Mr. Bingham—Well, there is pretty near everything the matter with it in Wisconsin; it would not be profitable unless we have exceptionally favorable seasons for a long time. This is the winter that is going to test out some of those varieties and bring us back to our old list. We get off the track sometimes, we think we can grow varieties we ought not to bother with.

A Member—We find in Waukesha county it is practically the only apple we can rely on. We have Northern Spys when we haven't even the Pewaukee.

Mr. Bingham—The Pewaukee is a hardier variety.

A Member—We get Northern Spys down there and get them every year. In my estimation, there isn't anything that can beat it.

Mr. Bingham—Of course the quality is all right, but it wouldn't pay for a man to plant where he wouldn't get them inside of fifteen or twenty years, and, in the second place, we may get hard winters when it would not survive, would not have the quality. It is an uncertain proposition. It is a good looking apple. A few trees of Northwestern would be all right for cooking, for eating apples they are not so highly prized, though they are a good deal better than no apple.

Mr. Convey—The Northwestern Greening is practically the only apple we get all around the State. Everybody reports they are growing them, and while they are not very choice, they are practically all we have in the later winter season, so I think we had better grow them until we can do better with other varieties.

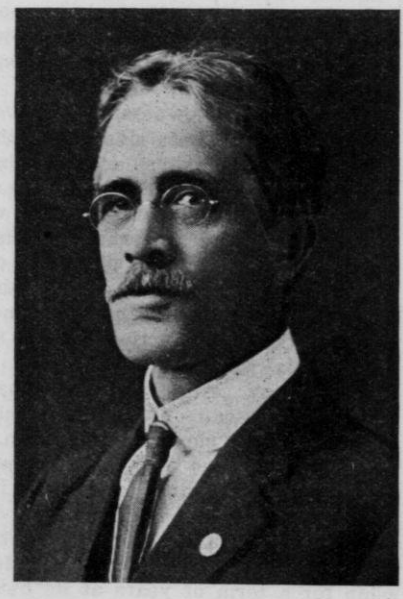
Mr. Bingham—There is no question but what it is worth while growing them, but when a man asks for a list for a man who is not going to take care of his trees, I would not put them in that class; or, if a man is not particular about the quality, the Northwestern has its place. The tree is somewhat affected with apple canker, which is quite a serious thing.

Dr. Kutchin—Why is nothing done toward cultivating the old apple called the Blue Pearmain? On the farm where I live, there was one planted over fifty years ago—part of an orchard—that has grown practically a thousand barrels or more. There were probably five hundred trees and the only trees left are two of three of these Blue Pearmains. It is a very late, large winter apple. Do you happen to know anything about it?

Mr. Bingham—I have seen the Blue Pearmain. I do not know why it was left off the list, except it might have been that it is not as good a producer, as good a bearer, as some of the newer sorts and consequently would not have any place in the commercial orchard, which influenced my selection.

THE TRUTH ABOUT FRUIT GROWING IN WISCONSIN.

Frederic Cranefield, Secretary State Horticultural Society, Madison, Wis.



Mr. Cranefield

Sixty years ago, the "down-east Yankees" who had settled in southern Wisconsin were certain that they could raise apples and from early accounts seemed to prove their contention. Thousands of trees were planted, some of which survive to this day.

Thirty years later, the people of Wisconsin were not so certain that Wisconsin was a fruit state. A few "test" winters had cleaned up most of the eastern varieties, the Russian "iron clads" had not yet made their appearance, and even the enthusiasts were somewhat at sea.

Ten years ago the situation was very different from that of any earlier period. Out of the confusion of opinions concerning varieties and methods, certain facts had come to be accepted as the doctrine of fruit growing in Wisconsin.

First, that small fruits of all kinds could be grown successfully in any part of the State, not only to supply home needs, but for market.

Second, that tree fruits, particularly apples, of certain kinds adapted to Wisconsin conditions, could be grown by farmers in sufficient quantity for their needs. A few real fruit men insisted even then that apple raising

could easily be profitable commercially. A few Door county growers were thinking seriously of cherries.

After ten years of trial and demonstration, the doubts have been displaced by confidence and uncertainty by certainty.

The contention of the few, that Wisconsin possessed splendid opportunities as a commercial fruit state, now has been generally accepted by all but a very negligible portion of our population; in other words, Wisconsin from a fruit standpoint has "arrived."

So rapidly have we grown, so greatly have we prospered in the last five years, that the present seems a favorable time to take stock to find out if our assets equal our liabilities.

(1) On the credit side we place the now well established fact that we can raise fruit in Wisconsin and make money doing it.

(2) That the capital required to start on an independent basis as a land owner and home builder is less than required to buy a "unit share," whatever that may mean, in some western orchard enterprise.

(3) That fruit raising is the most remunerative branch of agriculture in Wisconsin; no other crop can be planted that will yield as large returns through a period of years as fruit growing.

On the debit side we should note:—

(1) That not all of Wisconsin is adapted to fruit raising, in fact, only certain limited areas. This is true of every state.

(2) The mere investment of money in a fruit growing enterprise is not fruit raising. Buying shares in a stock company or a contract in an orchard company is merely an investment and such investors should not call themselves fruit growers.

(3) Fruit raising is not a get-rich-quick-proposition and the sooner our over-enthusiastic friends realize this the sooner will we be able to settle down on a sane and substantial basis.

The present day tendency in the world of industry and commerce is all toward co-operation, and the agricultural industries are at least beginning to see the need of falling into line.

Corporate Control.

Within a few years, several plans of corporate control on fruit raising have been put forward, of which at least two are legitimate and based on actual development rather than speculation or fraud.

One is the joint stock company or corporation, in which a number of individuals organize under the laws of the State, with a stated capital consisting usually of land, sell shares of stock and with the money so secured, develop orchards.

In this case the individuals composing the company furnish their own money and control their own business through a board of directors. It is really individual ownership.

The merits and demerits, the strength and weakness of this plan will not be discussed here.

The other is the contract plan of development and operates under nearly as many different platforms or declarations of principles as does the Republican party at the present time, and like the party factions, agree in all essential things.

A company or corporation buys land, but, instead of selling stock, maintains a "close corporation," which plants trees and sells these newly planted orchards on contract in lots to suit the purchaser, usually five acres or any multiple thereof. These orchards, the company agrees to develop for a term of years at its own expense and are offered on a deferred payment plan, the purchaser receiving a warranty deed when the final payment is made. The original contract, however, carries a lease, ren-

tal free to the company, for a term of years, usually ten. The profits and surplus during this period are divided between the company and the investor in some definite proportions set forth in the contract, usually sixty per cent to the company and forty per cent to the investor.

The management and control of the orchard rests absolutely with the company throughout the term of the contract. At the termination of the lease, the orchard becomes the property of the investor or buyer, to "do with as he sees fit."

This in a very general way outlines the contract orchard selling plan. In some cases, notably in the west, the investor gets only a "unit" or individual share in the whole plantation, in others a definite plat which he may select in the beginning.

I do not propose to praise or condemn either this or the stock company method, but state as fully as may be in this limited space the methods employed.

What I do condemn, and unreservedly, is misrepresentation, either in the sale of stock or of contracts, whether in Wisconsin, Montana or elsewhere.

Commercial fruit growing in Wisconsin may easily be a profitable business when properly conducted, either by an individual or a company, but there is no plan known of raising fruit whereby the mere investment of a few hundred dollars, either in shares or contracts, will insure the investor a fortune, an independent income or abnormal profits. Gold mines, the Board of Trade and poker all offer such opportunities, but these are gambling games and not fruit raising.

I will not carry the argument further, except to say that it should be the concern of every person who is interested in the development of fruit raising in Wisconsin to do everything possible to promote it on a sane, conservative and substantial basis.

We want this era of development to last. We want fruit growers, not speculators. We want one thousand or ten thousand men and women to go into the business and stay in it. We want them to be satisfied with their investment. We want lasting development and not a boom.

The Home Side of Orcharding.

There is another phase of this question and one that cannot be ignored, and that is the sociological side, the social side, the home side.

The successful development of large orchard enterprises will mean the employment of a few skilled men and many unskilled and, according to our standard as horticulturists, ignorant men. They may be home owners, but not home builders.

Two hundred and fifty home owners and home builders around Sparta cultivate five to six hundred acres of fruit. Place their acreage in one group and we would have ten or twenty men of brains and the others Greeks or Italians. Which is best?

The social unrest in our land today is engaging the attention of every thinking person. There are many who compare conditions here with those that caused the French Revolution.

The writer, for one, is not alarmed. We will have no Revolution in the United States such as that in France in 1797.

A Marat may arise, the Marseillaise may be sung, but instead of a red-handed despot, we will have a strong, virile leader of men and he will come from the farm; the battle hymn may be sung, but it will be by sturdy men from the farms and its burden not war and bloodshed, but Peace, Progress, Justice and Right.

When the crisis comes, it will be

the men from the farms who will save the nation.

If combinations of capital, corporate methods are best in fruit growing, let us have those methods, but for the sake of the future these methods should be put before the people in the right light.

Capital invested in any of the contract orchard enterprises in this State (there are several of them now and more coming) ought to, and no doubt will yield a good substantial rate of interest, but keep this always in mind: there will be no fortune in it. The men who put their money, time and brains into these ventures are the ones who will take whatever there may be above a fair and just return to the investor, and they are entitled to it. You are not putting any brains into the business, only money.

Two Important Factors.

No matter what method may be employed, corporate or individual ownership, success finally depends on two important factors; selection of location as to soils and other environmental factors and methods.

In dairying the prime factors are high grade animals and intelligent care. Substitute trees for cows and we have the conditions requisite for success in fruit growing. Good land, good trees, thorough cultivation and sanitation is the creed of the successful grower.

It required twenty years of education through Farm Institutes, farm papers and the Agricultural College to convince the farmer that a rail fence afforded insufficient winter protection for the dairy cow and the straw stack too little of protein and carbohydrates for best results.

Similarly the prospective fruit grower must be made to realize that trees planted among the brush and stumps of cut-over land, or in the pasture lot will never make an orchard, and that the prime purpose in planting apple trees is to raise apples and not potatoes, corn or cabbage, these should be grown elsewhere than in the orchard.

Coincident with education along these lines, there must be a clear knowledge of the requirements of the different fruits and the location of the plantations in sections which best meet these requirements.

In this connection a minimum of technical education and a maximum of common sense is required in order to arrive at the right conclusion.

The average prospective planter cannot afford to experiment with soils and climate, the State of Wisconsin can do that. Therefore select a location that has "made good," where not only individual trees have persisted for a long period, but where fruit growing on a commercial basis is an established fact. This may be in Door county, Monroe, Bayfield, Waukesha, Chippewa, or any one of a dozen other places.

Fruit growers should cultivate a gregarious disposition, should by all means "flock together" in herds. This will lead to a community of interests and its corollary, co-operative effort in buying and selling, a matter of the highest importance under present conditions.

The Man Behind the Tree.

The points so far enumerated deal only with natural conditions and the "rules of the game," but there remains one other factor that cannot be ignored, and that is the personal element.

Even with ideal conditions, success or failure will eventually depend on the man behind the tree and conversely upon the men behind the trees depends Wisconsin's future as a fruit state.

We want the same kind of men that have made the dairy industry in

Wisconsin, men of brains. We want young men, men of middle age, city bred men, even farmers if they will "get salvation" before entering the field of horticulture, for they must first believe that fruit growing is something more than a joke and then accept the gospel of tillage and spraying.

We need investors of judgment who will be willing to wait five or six years for returns and be satisfied with a fair return on their investment.

To all of these, the State Horticultural Society bids a hearty welcome and promises aid and comfort.

DISCUSSION.

Mr. Stiles—How many apples are being shipped out from the State of Wisconsin?

Mr. Cranefield—I think there were about 125,000 barrels of apples, barreled in Wisconsin. Whether they were all shipped out of the State, I do not know. We advocate fall apples, because we have a better market, we do not come into contact with all apple growing creation.

Mr. Convey—Is there any other desirable way of shipping apples except in barrels?

Mr. Cranefield—We are inclined to believe that the barrel is the best package for Wisconsin, not the box. We may come to fancy boxes of apples later.

Mr. Stiles—I do not see why there should be more money in fall apples if we can get the winter apples to grow.

Mr. Cranefield—The Horticultural Society will plant four orchards this season wholly of winter varieties. We have been studying the winter apple question in Wisconsin, and when there comes a winter like this, the fellows who have been planting late maturing varieties will find out they are not as smart as they thought they were years ago. We have found new winter varieties, and I think we will find more.

A Member—How do you cultivate when your orchard gets so large that you cannot get a horse into it?

Mr. Bingham—There is no orchard that you cannot get a horse into if you do it right. Cultivation is one of the easiest things to do right with a team of horses. Put your long drawbar on your harrow and cultivate close to the tree. Get all the sod away from the tree.

A Member—Do you advise anybody to manure orchard trees?

Mr. Bingham—I would use good stable manure. It depends on your soil. If your soil is very rich, dark, loamy soil, it would not be necessary to manure at all, but if your soil is rather poor and there isn't evidence of good, strong foliage, I would use good barnyard manure.

A Member—You do not think there is any danger of this barnyard manure forming infection?

Mr. Bingham—No, I do not think so.

SHEEP HUSBANDRY IN WISCONSIN.

Frank Kleinheinz, Madison Wis.

Mr. Kleinheinz

When Mr. McKerrow called upon me to come up here and talk about sheep, I thought I would be the only pebble on the beach to talk sheep, but to my great astonishment, when I got in here and listened to these horticultural men, they opened my eyes, especially when I heard the statement of Mr. Cranefield that there was more money in fruit growing than any other agricultural line, and then, to my fresh astonishment, he went on to talk about a good many things I was going to say. He talked about localities, about the land, that certain localities could not be recommended for fruit growing,—just the same thing I was going to say about sheep. The next thing he brought in the dairy cow and the straw stack, the same old joke I was going to tell. I see these fruit growers have disappeared, I do not see either of them any more. One thing which neither one of them told you is that down at the Experiment Station, when they want to grow the very best apples, they come and ask for sheep manure, because they know from the analysis of that manure that it is far better, far richer than any other.

I have a little piece of paper here, and I call it "More and Better Sheep for Wisconsin."

The question is often asked and discussed whether there is any profit in sheep raising. Some men who keep different classes of live stock on their farms claim that their easiest earned money comes from their flock of sheep. Only a comparatively small number of them say that they have not made much money by keeping sheep. We may assume that those who say that they have the greatest and most easily earned profit from their sheep, are shepherds who give their sheep proper care. The others, we may take for granted, are perhaps a shiftless class of men, who have the idea that sheep should only be kept on a farm as scavengers. The real truth of the matter is that a handsome profit can be derived from sheep when properly managed, and in cases where such profit is not realized the owner himself is to be blamed for it. A man who only keeps an inferior class of sheep, which do not possess the proper mutton type and conformation, cannot expect to get the best price for them and is merely wasting his feed on such stock. Good stock will require no more, but even less feed than the inferior kind. Moreover, men who have the idea that sheep can live on little or almost no feed, are badly mistaken.

Some even have said that sheep do not need any water. Well, of course

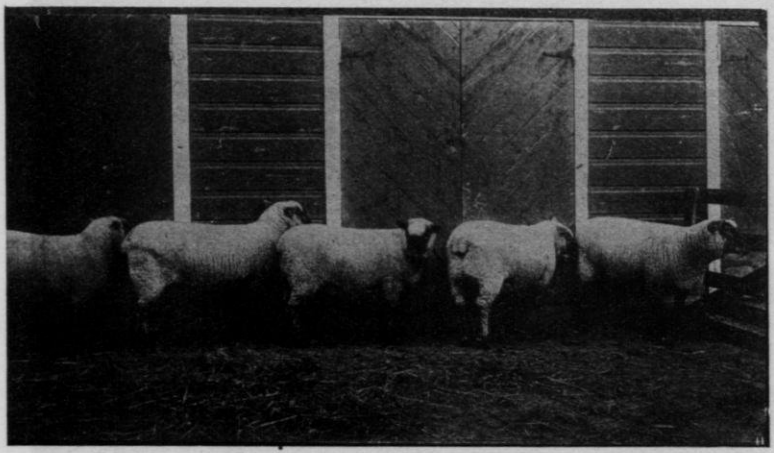
they will be obliged to get along without it if it is not given them.

The principles of sheep husbandry must first be learned in order to be successful in the business and derive a profit. That sheep are valuable on a farm is certainly true. The fertility of any land which is run down can very quickly be built up again if sheep are placed upon it. For this reason the sheep has its proper name, the "Golden Hoof." It may be mentioned right here that sheep will never thrive, and do well if kept on low, wet, marshy land. They will always improve the fertility of the land on which they are and by no means ever lower it.

It is as undisputed fact that the manure of sheep is much richer than that of other live stock, with the exception of that of chickens. And furthermore, they themselves spread their manure more evenly on the land than any manure spreader can do that has as yet been invented. A good heavy crop of grain, corn or vegetables may be expected when a coat of sheep manure has been applied on the land.

Another advantage of keeping sheep is that they are very fond of weeds and will eat some of them in preference to good grass. Authorities claim that sheep will eat over four hundred of the seven hundred different kinds of weeds which grow on our farms. Many times they will also eat the waste grass around fences and corners which is left by other stock.

It is a general complaint nowadays all over the country that competent labor is very scarce, but it must be said that at the time when the farmer is busiest with his plowing, seeding, cultivating and harvesting, his sheep will cause him the least amount of work, and thus may be called labor-savers. If at this time they have enough grass to eat, good, fresh water to drink, and have access to salt at all times, they will be fully satisfied.



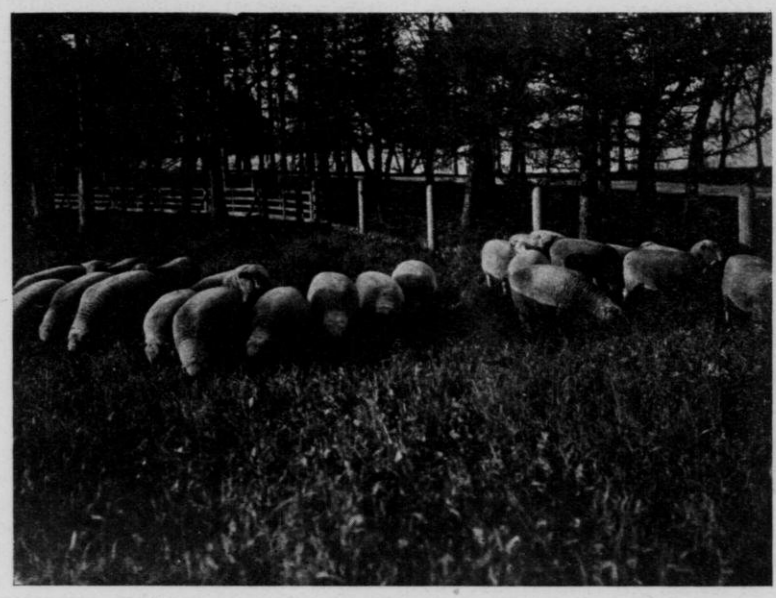
Five Grade Wethers, prize winners at International Show. Bred and owned by the University of Wisconsin.

More Intelligent Breeding.

Too many flock owners are satisfied to use an inferior, scrub ram. If a little more money is invested in

securing a good sire, it will be well repaid in the end. The best are none too good. An inferior flock can very rapidly be improved by the use of a good sire. The scrub ram should not be in existence. The greatest trouble with some of our flock owners is that they are altogether too careless and too slow to see things in the right light. They are not ready to improve their flocks by the use of better rams, nor do they each year select only the best ewe lambs in the flock for breeding and sell the inferior ones to the butcher. They do not realize that only in this way can better flocks be established.

Many flock owners also make a serious mistake by breeding their ewe lambs. They do not allow them time to fully develop. The size and constitution of a flock to a great extent is rendered inferior when this method is practiced. No breeder can expect to raise a large percentage of lambs from lambs, as they are naturally not fit to be mothers and often have no or but little milk. Lambs should under no circumstances be expected to raise lambs, and a good, experienced shepherd would never think of breeding lambs. The proper time to breed any of the down or long wool breeds is when they are about one and one-half years old, so that they become mothers when they are two years old. Another mistake often made is that too many ewes are bred to one ram in one season. From fifty to fifty-five ewes should be the limit bred to any ram in one season.

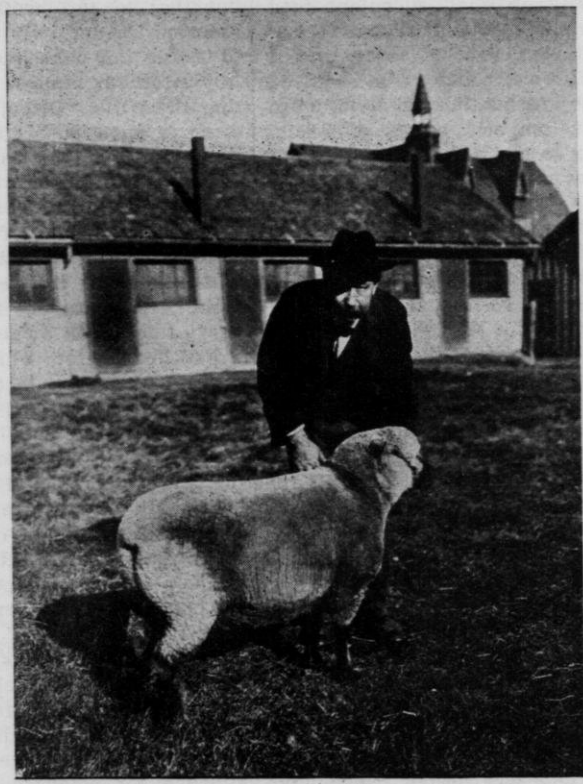


Choice Wethers of the different breeds being fitted for the International Live Stock Show at the University of Wisconsin.

The Flock in Winter

The flock should go into winter quarters in good condition and should be kept in this condition until they go out on grass again. If it is found that the flock is infested with vermin,

ticks, or lice, it should be dipped on a warm day before going into winter quarters. When this is neglected, a the flock is wasted as it goes to- the flock is wasted as it goes- towards supporting these pests. But this is not the worst of all. Just think



A first prize winner at the International Show. Bred and owned by the University of Wisconsin.

of the poor innocent sheep so affected. It has no rest all winter, day or night. It must continually rub and scratch and bite its wool in order to fight these pests. This condition, to my sorrow I must say, exists in many flocks in our State. In the spring the new born lambs are also affected with these pests, and as a consequence, their growth is checked in a large measure.

The flock should be fed liberally during the winter months. Sheep like change in feed. Nice, bright clover or alfalfa hay should be provided. Good corn stover may also be fed, as well as fine, nice oat straw. Blue grass hay may be used as a substitute for clover or alfalfa hay when the latter is not available. Peas and oats sowed together and cut and cured before ripe make an excellent hay for sheep. Pure timothy hay should never be fed for any length of time to sheep, as it is coarse and woody and causes indigestion. Many sheep have been lost by feeding them on this hay. When clover hay is fed, no grain is perhaps needed, but when

this is not fed, bran and oats, nearly equal parts, or perhaps a little more oats than bran, makes a good grain ration. Some succulent feed, such as roots or sweet corn silage, is very helpful to the flock. Care must be taken, however, not to feed the sheep too heavily on such succulent feed as this would result in what is termed a soft, flabby crop of lambs, and in this condition not many can be raised.

On many farms today the old unprofitable custom still exists of forcing the sheep to make their living around the straw stack in the winter. Naturally in the spring they are not only in a very thin condition, but their wool down to the skin is covered with chaff and dirt, and the selling price of their wool is consequently considerably decreased. Flock owners ought to realize that the sheep, just the same as the cow, is entitled to its full share of feed. The sheep, of course, is not milked twice each day, nor is its production noted as carefully as is that of the cow. In the case of the cow, the farmer begins to give her better feed just as soon as he finds that she is going down in milk and that his milk check is decreasing. With the sheep it is not until lambing time that the trouble is experienced.

A short time ago I learned of a farmer who daily gathered the refuse of hay from his cows and considered this good enough for his breeding ewes as their hay ration. Sheep like fine hay, but in this case they had to be contented with the coarsest kind, that which the cows had refused to eat. Breeding ewes so cared for cause a lot of trouble at lambing time. When such ewes give birth to one or two lambs, they are unable, because of this improper feeding on the part of the shepherd, to supply the lambs with milk, and very often they will then disown them. The lambs look for nourishment, and sometimes walk in front of the mother and seem to ask her if she cannot give them milk. The mother, however, knowing by her instinct that she has no milk, gives the lambs a sorrowful look, and if she could talk would like to tell them that it is not her fault that she cannot take care of them, but that of the brutal, careless and ignorant feeder, who will now have to suffer the consequences of having to feed them himself by hand or letting them die. Often, too, when such ewes in such poor condition are attacked by a slight illness, their vitality is so little that they cannot resist and often die, all due to improper feeding. And then, of course, it is all called "bad luck," but "bad luck," in most instances is due to mismanagement and improper feeding on the part of the flock owner.

Another factor which lessens the profit from sheep is that many flock owners do not castrate and dock their lambs. Each and all buck lambs, excepting pure bred intended for breeding purposes, should be castrated. They will then fatten easier and bring more money on the market than when not castrated. Docking is of just as much importance as castrating. No intelligent flockmaster would ever think of neglecting the docking of his lambs. He is aware of the neatness and cleanliness of a flock when docked, and he thoroughly understands that if the tails are left on the sheep, an excellent lodging is afforded for maggots in hot summer and fly-time. He also knows that some ewes in the flock go barren if they are not docked.

To be successful with sheep and to obtain the largest returns, the flock owner should follow more intelligent breeding in order to establish a higher class of sheep. He should be kind to his flock at all times. He should feed liberally and look after the smaller details of the work, and then, of course, the more important ones will not be overlooked either. If flock

owners would give their sheep better care, especially in the winter, and get rid of the impression that sheep are money makers without being given feed, they would soon find sheep husbandry a most profitable line of work, and in a short time the number of sheep kept on our Wisconsin farms would be doubled, and their valuable manure would build up the fertility of many of these farms.

It is most gratifying to note the improvement which a few Wisconsin sheep breeders have made in their flocks within the last ten years. Many others in the State, however, have not yet followed their example. That Wisconsin is especially well adapted for the raising of high class sheep, has been fully demonstrated by the fact that Wisconsin bred sheep have been successfully shown at our State Fair circuits, and have also very successfully competed at the International at Chicago against sheep imported from other countries, such as Canada, England and Scotland. These results were accomplished by good breeding and proper care and feeding in general.

DISCUSSION.

Supt. McKerrow—Mr. Conductor, our friend, Kleinheinz, resembles that great German statesman, Bismarck, in so many respects that I concluded when we got him at a Round-up Institute we would christen him as the Bismarck of American Sheep Husbandry. Now, I have my doubts about giving him that title, because a few weeks ago I picked up one of our agricultural papers and on the front page was a full-page picture of a shepherd in his shepherd's garb, holding a Cheviot lamb, apparently a Scotch bred sheep, and under that picture it said, "A Scotch Shepherd," and yet the picture without any question was that of my friend Kleinheinz. If he is a Scotchman, it might not be well to give him that name.

Mr. Kleinheinz—If I may be called a Scotchman, then I know that I am closer related to my friend, Mr. McKerrow. I have been mixed up with President Taft before this, and I feel very much honored to be the next best looking man to the President, but I would rather be a Scotchman, just the same.

Mr. Nordman—I believe it would be proper at this time to amend Mr. McKerrow's suggestion by giving Mr. Kleinheinz the title of President of the American Sheep Industry.

Mr. Kleinheinz—That is better, Mr. Nordman, far better, I would rather have something to do with sheep than be President Taft.

Dr. Kutchin—The first thing I ever owned was a Cotswold lamb. I have taken two courses at Madison and I have been pretty closely associated with Mr. Kleinheinz. I want to say that I think that that phrase which has been applied to Mr. Kleinheinz is truer than most things in this world, and that he is "all wool and a yard wide."

Supt. McKerrow—I did not mean to cast any reflections upon Mr. Kleinheinz by calling him a Bismarck, but simply to point to the fact that he has Bismarckian qualities. Bismarck was a very shrewd politician, carried out his plans to perfection, and I know there are some breeders and representatives of pure bred sheep in this country that agree with me that Mr. Kleinheinz is much like Bismarck. You can never tell what he means until he has got a cinch on one of the best animals. He doesn't give himself away. You can study some men and tell what they are aiming at, but not so with Bismarck or Kleinheinz.

Mr. Kleinheinz—I selected a ram from Mr. McKerrow's pen not so very long ago, and he hadn't any idea that I was looking for that particular ani-

mal. In fact, I did not look much at that animal either, but I had my eye on it from the time I saw it, and I asked in a round-about way what he asked for such-and-such sheep. Then at last I said, "There is a little thing over there; what will you take for this one?" "Oh," he said, "so much," and I said, "I will take an option on that sheep for so much money, I want to look around a little bit." He hadn't any idea that I was looking for this one little sheep, so the next day another breeder comes along and looks around, and he also gets his eye on that very sheep that I had an option on, and that gentleman, who was a Canadian, offers Mr. McKerrow thirty-five dollars more for that sheep than he had given it to me the night before. Then he comes to me and says, "What will you take for your bargain?" "Oh, no," says I, "I am working for the University of Wisconsin, I could make a few dollars on the State now, but I won't do it."

"All right, then you won't back out?" "Oh no, that sheep won't go to Canada." The sheep is in Wisconsin at the Agricultural College, and if any of you come down there to visit and will come to the sheep barn I will show it to you.

Chairman Griswold—Now, ask Mr. Kleinheinz some questions. It is your chance; get right after him.

Mr. Nordman—In our locality it is just as Mr. Kleinheinz states, the people think they can make money out of sheep by letting them shift for themselves. The great trouble seems to be that they do not provide the succulent feed for them in the winter. They have timothy hay, or some other kind of rough feed, that is very indigestible, and a sheep hasn't the capacity to digest these rough feeds, and there I believe the greatest mistake is made by sheep feeders up north, and I guess for that matter in a good many sections of the State, this mistake of not providing succulent feed. For my part, I do not believe anybody can make a success of growing sheep in any part of northern Wisconsin unless they have some kinds of roots or ensilage to depend upon; of course, along with good clover or alfalfa hay. What do you think about that Mr. Kleinheinz? Can you get along without succulent feed, such as roots or good ensilage, for sheep feeding?

Mr. Kleinheinz—Not very well in the winter. Sometimes, if conditions are favorable, they may do well, but they should have some succulent feed, then when they come to lambing time, they must have good feed. Not only as a matter of feed, but the wool crop is much heavier, there is more oil or grease in the wool. I want succulent feed, either roots or silage, for breeding ewes, I prefer roots. Rutabagas are my favorite for sheep.

Mr. Bradley—Have you ever fed ensilage when you thought that feeding all they would eat caused flabby or weak lambs?

Mr. Kleinheinz—We experimented a little along that line some years ago at the College, and found that when we feed heavily on succulent feeds we do have these soft, flabby lambs. They are nice big fellows, they look wonderful when they are dropped, but they seem to have no backbone, and you work with them a few days and nights, you try to raise these lambs, and they are very likely to die after a while. When the lamb is born, I want to hear a shrill voice from it, not a low one, which indicates that the lamb has no strength.

Supt. McKerrow—In Great Britain they feed their sheep on turnips, but we must remember they are working out there all the time.

Mr. Aderhold—I heard Frank say once that there are very few successful sheep men in Wisconsin in the last ten years. I would like to ask Frank if he considers Mr. McKerrow a successful sheep man.

Mr. Kleinheinz—Mr. McKerrow is the second Bismarck.

Mr. Nordman—I think a good deal depends on what kind of silage you have. What is considered the best in the northern part of the State is comparatively dry. It is made out of flint corn. I think you could feed a great deal more of that kind of silage than of the quality you grow at the University, which is comparatively juicy and not quite so good a quality.

Mr. Kleinheinz—I am glad you brought out that question about the quality of silage. If we cut the corn too green for silage, when it comes out of the silo it contains an excessive amount of acid, and that is much more dangerous to sheep than where the corn has become fairly well ripened before it is put into the silo. You can feed more of it, but I want Mr. Nordman and everybody to understand that I have nothing to do with the cutting of the silage at the University.

Mr. Nordman—I am not criticizing your silage down there at all.

Mr. Kleinheinz—I thought you did when you said it was "juicy stuff."

Mr. Nordman—You have good silage down there, but not quite as good as we can produce in the northern part of the State.

A Member—How do you handle your wool? Do you keep each fleece by itself?

Mr. Kleinheinz—Yes, every fleece is tied up by itself and weighed, so we know every year how much each sheep has, and we can also compare the different breeds. We line them up each year. Of course we put the clean part on the outside, just as the fruit growers put the best apples on the top of the barrel.

Mr. Bradley—Have you ever tried to note what wool cost per pound to produce, and what are the best feeds to produce it?

Mr. Kleinheinz—We have not made any epxeriments along that line. Mutton is always first. We want a sheep that has a good mutton conformation. That is the first consideration; wool is the second, but at the same time, we want a sheep that shears a good fleece. That is what we call a good dual-purpose sheep.

Mr. Convey—What breed would that be?

Mr. Kleinheinz—The breeds are all good in their proper place. Lots of people ask me which breed of sheep is the best. I answer, "My friend, I have been asked that question more than a hundred times," and I never have answered it, and I never will, but I always answer, "If you want to know which is the most profitable breed of sheep in the world, go to the United States, or Canada or England, you will find one breed that stands above all others in the number raised, and this breed is the Shropshire." Then somebody asks me, "What breed of sheep shall I take to start with?" When they ask me that I say, "Why, that is just like asking me what girl you should marry when you want to get married." Of course I say, "Marry the one you like."

Supt. McKerrow—Bismarck again.

Mr. Kleinheinz—I would not defend any particular breed, only I would advise you not to handle these fine wool sheep which are only wool sheep. What is the use to feed one animal only for one purpose, when you might as well feed it for two? When you get married, what is the use of marrying a girl who is only nice-looking, when you can marry one that is just as nice-looking and has a hundred million dollars, too? Isn't she a better one than the other?

Mr. Convey—I did not expect you to answer that question any more definitely than you have; in fact, I thought you wouldn't answer it at all.

Mr. Kleinheinz—You have heard that mutton is coming up every day, wool is coming up and you will have

some sheep pretty soon. Mr. Convey, I can see it by your eye that you are going to be a sheep man some of these days, knowing that you can make plenty of money in any class of live stock you can keep on your farm

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FUTURE SHEEP PROSPECTS IN WISCONSIN.

Supt. Geo. McKerrow, Madison, Wis.

I am worse off than my friend Kleinheinz was. He said the fruit men sold part of his thunder; he stole all of mine.

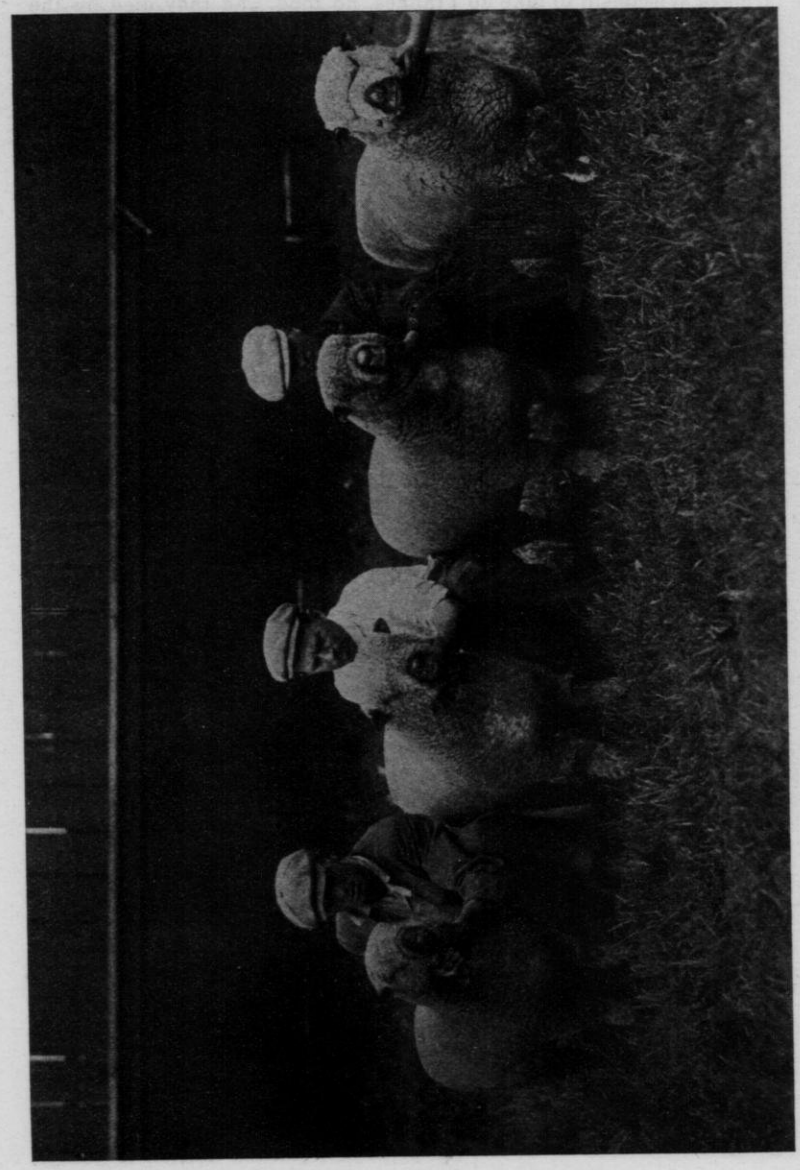
But I am to talk on the future prospects; I am to theorize, because no one can tell positively what the future prospects will be as now indicated. We must theorize, but to some extent we can judge of the future by the past.

Mr. Kleinheinz has told you of the adaptability of Wisconsin to the production of good sheep, so I have that solid foundation on which to stand. He has told you that for the last ten years Wisconsin has made a record at the greatest shows of America, and I will go back a little farther to the World's Fair at Chicago in 1893, and even before that time. But to go to that World's Fair and then couple it with such expositions as the Trans-Mississippi at Omaha, the Pan-American at Buffalo, the Louisiana Purchase at St. Louis and the Alaska-Yukon at Seattle, and taking the records of those shows, you will find that the State of Wisconsin won more prizes upon her sheep than any other State in the American Union or Province of Canada in proportion to the animals shown. The same is true, as Mr. Kleinheinz stated, of the International at Chicago. Of course he was too modest to tell you that he bred and exhibited many of those prize winners, but I hardly need to tell you either, because everybody knows that Wisconsin has made a record along that line.

If you go to the Chicago mutton market, you will find that Wisconsin, with her native lambs, has topped the markets as often in proportion to the animals sold in that market, if not oftener, than any other State. There are states in the feeding business which have often topped the market with lambs grown in the west, but when Wisconsin tops the market it is nine times out of ten with native bred lambs; and yet Mr. Kleinheinz will tell you that Wisconsin flockmasters are not doing their best.

The Western Situation.

Now, what are the future prospects? If Wisconsin is suited to high-class sheep husbandry, we should realize that. You know that for the last ten or twelve years the great bulk of the mutton products of the flocks of the United States has come from west of the Missouri river. There they have been changing over from cattle growing and horse breeding to sheep, because the sheep have been the most profitable; until two or three years ago, their flocks were large. But, at the same time, the United States government has been helping through their reclamation service to cut off the valley lands from their pastures and put in irrigation plants, and then they became very generous and by the Homestead Law are offering 320 acres of land, called "dry farming lands," which were above the irrigation district, to homesteaders; the "free



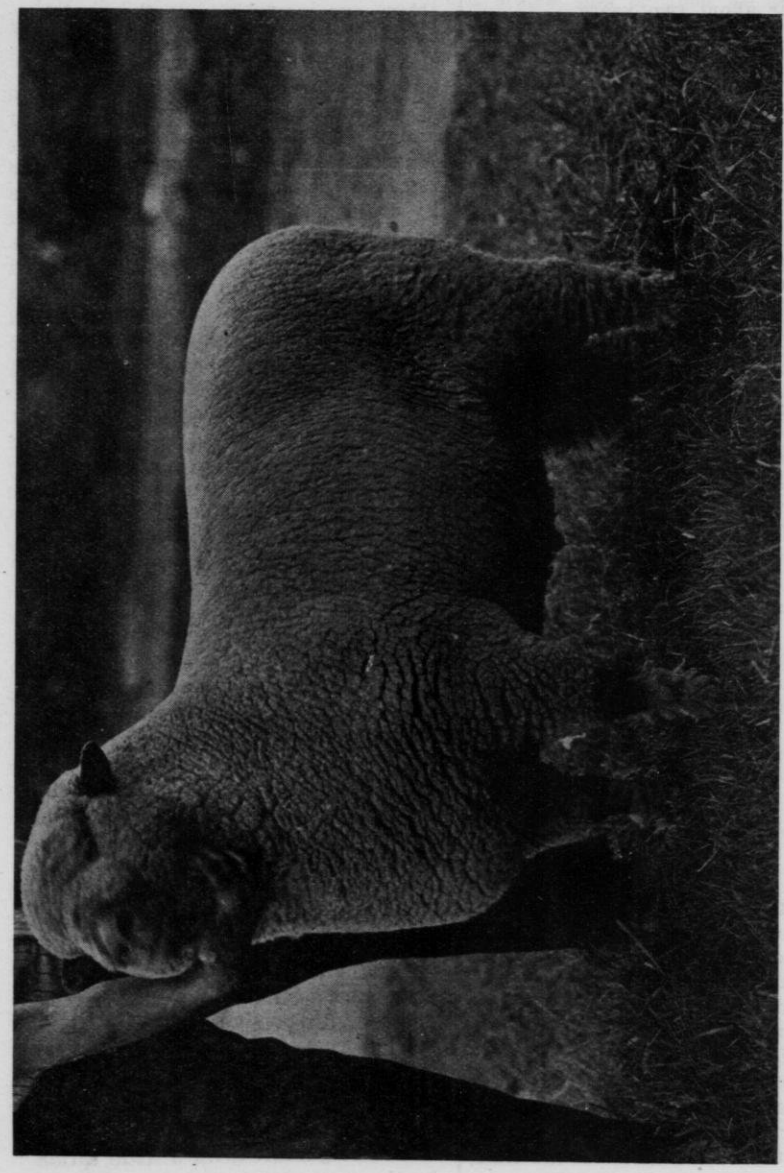
First prize flock in Wisconsin and American bred classes at Wisconsin, Iowa, Minnesota and Illinois State Fairs, 1912. Bred and owned by Geo. McKerrow & Sons, Pewaukee, Wis.

lands," we call them, and many young men and older ones have gone from the farms of Wisconsin to take up these dry farming homesteads. Now, we say "free homesteads," but an Irishman out west put it a little differently. When the Roosevelt Country Life Commission was holding its sessions at Cheyenne, they heard this little story. It was told to me by Henry Wallace, who is a farmer when he is not an agricultural editor, so of course it is true. It runs thus:

Two young Irishmen in the old country started for America, came across the ocean together. One had influential friends in the city of Chicago and he stopped there and it was not long before he was on the police force, and pretty soon he got to be a police captain. The other young man having no friends in Chicago, drifted west in search of honest labor to make an honest living. A few years later the police captain from Chicago went as a delegate to a police convention being held in the city of Cheyenne and as he walked the streets of that city he saw his old-time friend, and he said, "Hello, Pat, I am glad to see you. What are you doing?" Pat said, "I am out here on a government homestead." "Oh, man, wasn't it a grand day when we left the old sod to come to this great, glorious and free country that gives a man 320 acres of land free and a chance to work for his wife and children." Pat says, "That is all right, but you haven't got it right, the Government doesn't give it free, I had to put up $16.50 for the papers, but then I put it this way. The Government bets you 320 acres against your $16.50 that you can't take the 320 acres and make a living out of it, and nine times out of ten the Government wins out." That isn't very encouraging, is it?

But this cutting down of the pastures must necessarily shorten up the flocks. Two years ago it happened that they had a very severe winter, when thousands of sheep died on the ranges, no food, and they died by the thousands. At the same time our politicians were kicking the tariff football across the lines, oftener and farther, and every time they kicked it wool dropped half a cent or a cent a pound. Then following that bad winter came a very dry summer and thousands more sheep starved to death.

I said they had been changing over from cattle and horse breeding to sheep. Those western ranchmen are not all millionaires by any means. As a rule they have to borrow money with which to buy these sheep, their bankers are very much like lawyers, they stick by the farmers so long as his money holds out and his credit is good, but when it is not they call in their mortgages, they called in the flockmasters and said, "Here, boys, the sheep business looks bad, the wool market is bad, pasture is getting short, we have had a bad winter and a bad summer, I guess you will have to pay up some of these notes." What could they do? The only way they could get money was to sell their sheep; they couldn't sell them at home because everybody's pasture was short, so they began to ship them in. Omaha, St. Joseph, Kansas City, South St. Paul and Chicago stock yards were filled with western sheep. For a little time the flockmasters of the middle west who had some extra feed on their farms went in and bought sheep, feeders. By the time they had fed that surplus feed, sixty or ninety days, and shipped them back, the market was still lower, the sheep were worth less money, and everybody began to throw up their hands and say, "The sheep business is no good. The market is going off, the price of wool and mutton is going down and the flockmasters are all rushing their sheep into market", they are like their own sheep, they follow



Two-year old Shropshire ram, first and champion at Wisconsin State Fair, 1912. Bred and owned by L. Kammerer, Brodhead, Wis.

the example of one another, and they kept that up and kept the markets glutted for about two years.

The Situation Today.

Now, what is the result? The flocks of the west have been almost cut in two. What have we done to those sheep that were sent east? Eaten them up. Mutton has been low in the live stock market, for the last ten years we have practically eaten all the mutton produced in the United States. The mutton consumption has increased between four and five hundred per cent as compared with the ten years before. The American population has not increased to that extent. It shows that men are like dogs, when they get a taste of good mutton they keep right on after it. Stop the dogs, but keep the people going. How are we going to do that? How can we keep them going? By giving them better bred and better fed mutton and giving it to them in the form of lamb. I notice some of our Institute workers, when they sit down at a hotel table and find on the bill of fare lamb chops, beef, pork, etc., they do not tell me, but I think they think about the trichina in the pork and the tuberculosis in the beef and they order lamb chops.

Mr. Convey—They do not get it, though.

Supt. McKerrow—That is the trouble in too many of our country hotels, the lamb is about eight years old and losing its teeth. It is pretty tough, and these men turn up their noses and say to me, "Mutton is no good." But you notice if they can get a good, genuine lamb chop, they will keep ordering it as long as they eat at that table. That is the way with the American people, if we can keep good mutton before them all the time, they are going to eat it more and more every year. That is one of the encouragements we have, the mutton market in this country is growing and developing.

Now, our competition in the west is cut down and it never again will be so great as it has been, in my opinion. Here in Wisconsin three-quarters of our acreage is suitable for sheep husbandry, because we have a State, while it has a large area of marsh land, also has a large area of naturally drained lands, and a good deal of our marsh lands of the better class are rapidly being drained out, and then upon those you can grow feeds that are suitable for sheep feeding; roots, alslike clover and grand ensilage when properly handled, and so the greater part of Wisconsin is suitable for sheep husbandry.

Sheep as Scavengers.

Mr. Kleinheinz spoke of the sheep as a scavenger. I deplore the fact that there are some flockmasters in Wisconsin that simply keep sheep for scavengers, to help them clean new lands. Now, sheep have been scavengers. They have been cleaners of new land, but the flockmaster should get it firmly in his mind that while the sheep are working for him and eating up seventy-five per cent of the weeds that grow in Wisconsin, saving them from going to seed and turning them into mutton, they must have that ration mixed with something better. If they are browsing brush land, they should have something else to mix with the browse. I find that with nice pasture I can turn them onto that for a couple of days and then turn them back into the browse. I have fed grain right along through the summer when they were feeding on this brush browse. I have fattened wethers on browse pasture with a little ration of corn. So we Wisconsin flockmasters who want our sheep to help us clear the lands of north Wisconsin, may

get them cleared in that way for ten, fifteen or twenty dollars an acre.

Wisconsin's Advantages in Marketing.

Now, what shall we do to build up our flocks in Wisconsin? I am going to give you a little free advice. If you have a farm suited to sheep husbandry and you can see the future as bright as I do, and you want to go into the business, let me tell you the sooner you buy into the business the better it will be. I am not a prophet, but I am going to say that from the middle of January, 1912, for the next five years, and I think for ten, we are going to see one of the best sheep markets that we have ever seen in the history of the United States. Right here in Wisconsin we can produce that high class mutton. If we keep those lambs growing, we will always have them ready to take advantage of one of the high points of the market. From most points in Wisconsin we can land our lambs in the Chicago market inside of twenty-four hours, and there is where we have the advantage in competition with the flockmasters of the west. It takes them three, five, in some cases, ten days to get their lambs into the market, and they have to unload them from two to five times to feed. That means they will lose from eight to fifteen pounds per head on the lamb. We from Wisconsin can ship them in twelve to twenty-four hours, with a shrinkage of a pound and a half to three pounds. We can reach the market while the high point still holds, while it will have been reduced again by the time the western flockmasters get in their lambs.

Do you know that the alfalfa of Wisconsin, as shown by the last census, is worth more per acre than the alfalfa in any of those irrigated western states, just because we have got it where it is worth more to feed. And so our sheep are worth more, because we have them near the markets, and heavy freight rates and heavy shrinkage do not have to be counted in.

I am like my friend Kleinheinz, when I get wound up on this sheep question, but I am going to stop. One thing you must do, you must feed your sheep regularly. We are like the sheep in that respect and it is nearly dinner time.

Sometimes I say a Farmers' Institute is better than the church. When we go to church we have to sit still and let the minister have all the say, and sometimes we think our wives have been giving us away, but here you can get up and talk back if I have said anything you do not agree with, so pitch into me.

DISCUSSION.

Mr. Kleinheinz—Why didn't you mention that those Institute workers who are asking at hotels for lamb chops probably do it because they are acquainted with the fact that the doctors recommend mutton chops and mutton broth for those persons who have weak stomachs and cannot digest other meat, such as beef steak?

Supt. McKerrow—Oh, they all know it.

Mr. Kleinheinz—When they want something that is easily digested, so they can keep on going around with these Institutes, if they will eat lots of good mutton and lamb they will do a good many years' work yet.

Recess to 1:30 p. m.

AFTERNOON SESSION.

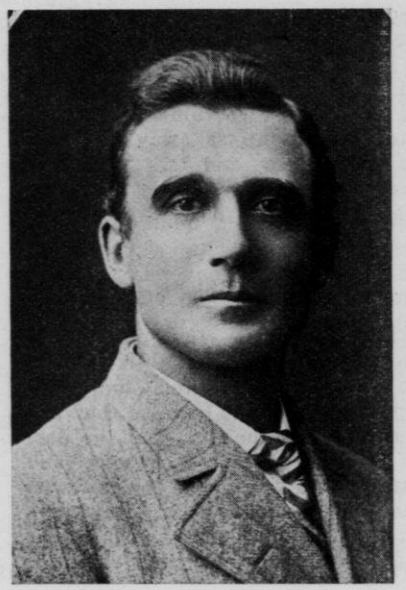
The convention met at 1:30 p. m.

The following committee on resolutions was appointed by Superintendent McKerrow: Messrs. Victor Kutchin, Green Lake; Delbert Utter, Lake Beulah, and G. L. Brakemeyer, Polar.

Mr. David Imrie in the chair.

CROP ROTATION.

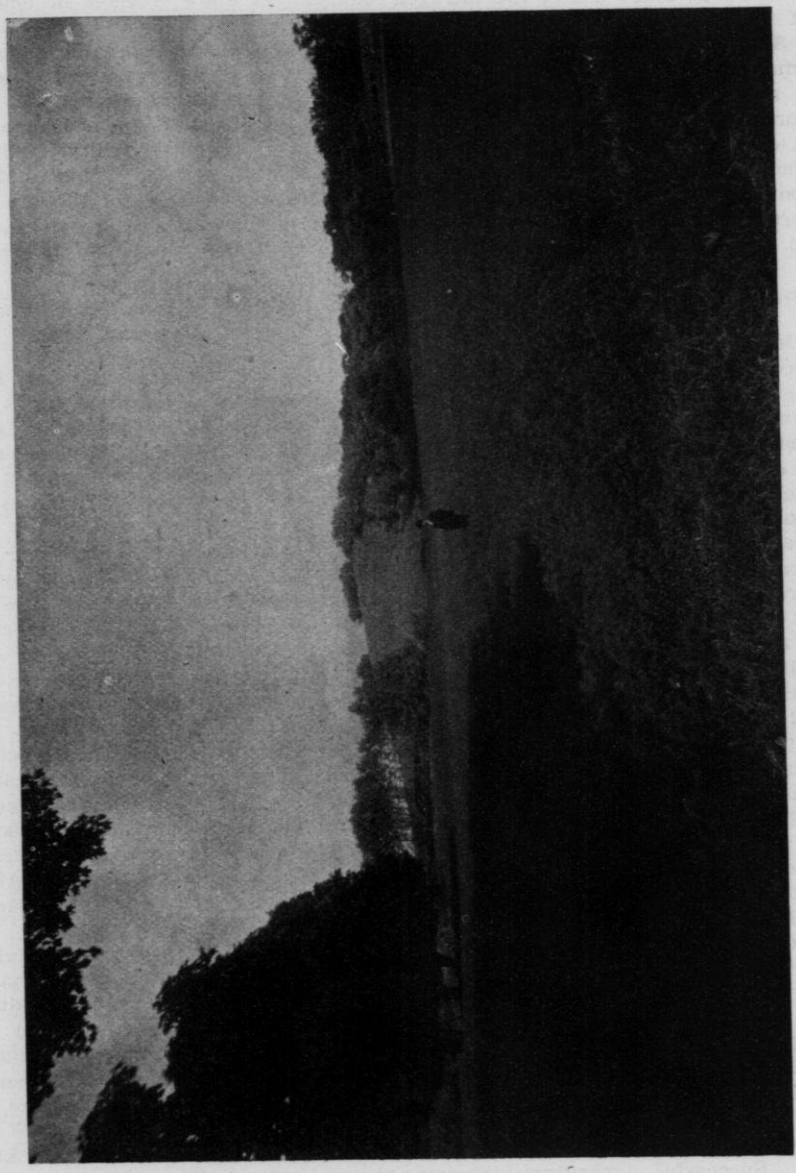
Fred Stubley, Black Earth, Wis.



Mr. Stubley.

In the past far too little attention has been given in Wisconsin to the subject of rotation and to the economizing of fertility, because the virgin soil usually contained a wealth of fertility and we farmers have been raising the crops that find the most ready sale, or are the most easily transportable, or the crop whose needs and habits we know best. This has resulted in the depleting of our soils and has allowed many noxious weeds to get a firm foothold. The power of the plant to reach the food and the power of setting it free when it is reached, and the presence or absence of a suitable supply of moisture, many different forces are always present, a knowledge of the wants of plants and of causes that have produced the visible, outward results is necessary to a good understanding of the laws which govern their growth. Forty or fifty bushels of oats may be grown on land that will not produce fifteen bushels of wheat, although the amount of plant food required by the oat crop is greater than that required by the wheat crop. This, I think, is proof that the oat plant has greater power than the wheat plant to reach its food or to set it free or both.

Some plants require extra care when young and do best where an abundance of food is immediately at hand, or is available, and later can withstand hardships, such as drouths or scarcity of food, much better than some crops which may begin growth under difficulties but must have the moisture and food at seeding or maturing. And again, we have other plants which not only have the power to set free the mineral elements in the soil in a marked degree, but they can penetrate the subsoil for it and



A field of alfalfa which has been cut three times, average yield 7½ tons per acre, and fourth cutting coming. On farm of Fred Stubley, Black Earth, Wis.

can, through organisms attached to their roots, make use of the nitrogen of the air.

Such plants as belong to the leguminous or pulse family, in some cases it may be necessary and wise to ignore the laws of rotation for a time in our valleys, or on land that is frequently fertilized by overflowing, but sooner or later rotation must be resorted to if production is to be kept up.

What Intelligent Rotation Will Do.

Intelligent rotation can be made to accomplish many things that are not secured by the haphazard methods now employed in this country. If systematically carried on, it can be made to destroy a large number of troublesome weeds. If, for instance, a three-year rotation is practiced for a few years, the land can be nearly cleaned of weeds, providing one is careful in selecting the seed sown and no weed seed is carried to the fields in the manure, and the same practice will dispose of the wire worm and white grub. This short rotation not only tends to clean the land, but also improves its physical condition and conserves and adds nitrogen and humus to the soil.

To preserve the productive power of the land, fertilizers or manures must be applied or the rotation will not give the highest results.

Rotation may be made to economize plant food. Since plants vary in their power to reach and appropriate nourishment, the rotation may be so arranged as to grow those plants which have the least power, or those which make but little demand on the soil when the land is least fertile.

The fertility in a wise rotation is used, not carried along as useless capital. Successful agriculture consists quite as much in taking fertility out of the soil judiciously, as in putting it into the soil.

In planning a rotation where circumstances allow freedom of choice, the object should be to change inorganic elements into organic substances, that is, to get the largest possible crop with the largest net results. Nature provided plants to feed animals, animals to produce fertility, fertility to feed other plants. This rotation preserves the elements of the productive power, while they are continually changing their form and character.

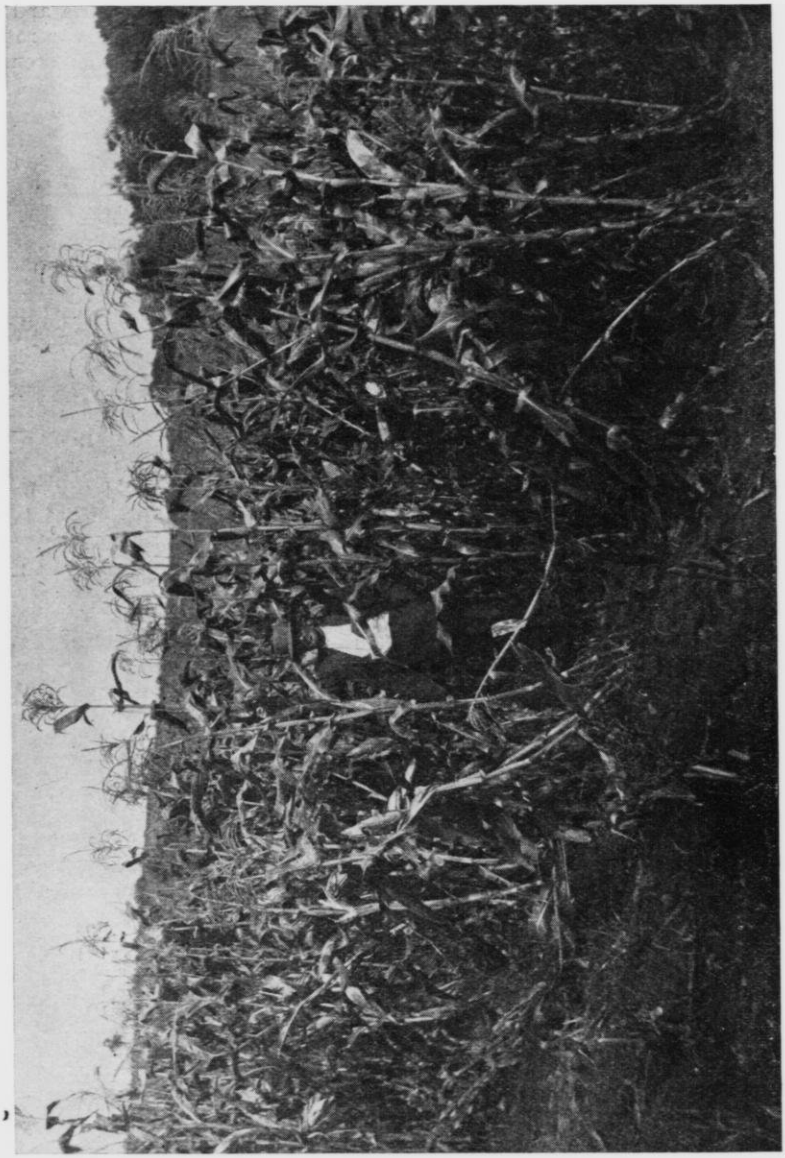
How to Form an Intelligent Choice of Rotations.

Where the land is hilly and difficult to cultivate, a long rotation is desirable and should be practiced, especially where the soil is clay, and again, long rotations are adapted to large farms and short rotations to small farms.

I have mentioned the three-year rotation and spoken of longer ones where adapted, to illustrate some of the benefits that may be expected from intelligent choice.

The object sought is to preserve the fertility already there and add more to check noxious weeds, destroy insect pests and to distribute the work of the year by providing continual employment. There is nothing more harmful to our young men and boys than idleness, we find in the western states, where only a short period of work and a long period of idleness exist.

Now, we all realize that a multitude of combinations may be made that are suited to local and individual wants, and a rotation that would be suited to one's conditions and location would not work out well in your location or conditions. Sometimes it is convenient and also advisable to raise a crop in succession on a certain piece of ground. The writer raised a crop of corn for five succeeding years on the same ground with good results, on account of its nearness to the si-



Corn growing on ground where alfalfa has been growing for 12 years. Will husk 100 bushels per acre.

lo and its location being so it received the drainage from the cow and hog yards. I just mention this case to show that a wise law can be broken in some cases without injury. Rotation planned to suit locality and carried on with fair understanding of conditions, may be made to increase the fertility of the farm and give it a greater productive power.

DISCUSSION.

Mr. Jacobs—You say that a short rotation is adapted to the small farm and a longer rotation to the larger farm. Do you mean by that that a large farm does not require good methods as well as a small farm, or that a different class of stock may more profitably be grown on the larger farm?

Mr. Stubley—A different class of stock, and it is not so convenient to change so often under present conditions.

Mr. Nordman—It is better not to have a farm so big that you cannot do it.

Mr. Stubley—Yes, I have been thinking that I ought to have about forty acres.

Mr. Jacobs—I cannot figure out how large a farm ought to be to use the long rotation. It seems to me if it works out with a small farm, it ought to work out with equal results in a larger way.

Mr. Ries—What do you call a long rotation, Mr. Stubley?

Mr. Stubley—Say a five or six-year rotation, leaving in grass a couple of year's pasture, then a cultivated crop of some kind followed with grain, seeded back to grass.

Mr. Griswold—How do you manage your rotation with alfalfa?

Mr. Stubley—We have not got into a perfect rotation with alfalfa yet. We are sowing clover with our smal grain, leaving that to stand through the winter without pasturing, plowing under in the spring for corn. We have thirty acres of alfalfa and I intend to run about a six-year rotation, three years in alfalfa and then work around with a cultivated crop, small grain, then grass.

Mr. Stiles—I think the nature of your farm would determine the kind of rotation that will work best. If a man had a hilly farm that was likely to wash, wouldn't it be better to leave that longer than if the farm is level?

Mr. Stubley—Yes. Our conditions will make those long rotations apply to some places where the land is very rough.

Mr. John Imrie—How would you limit the size of the farm as between a long and short rotation? Where would a 160-acre farm come in?

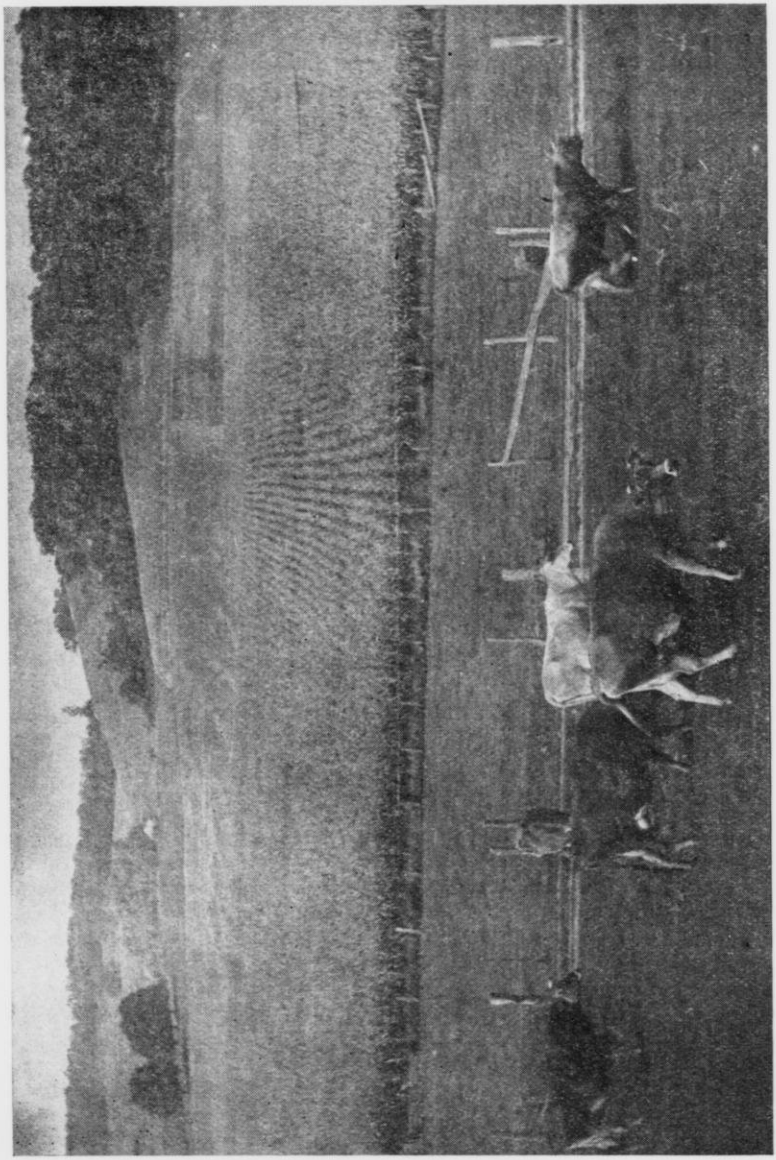
Mr. Stubley—I would say, if I had to work it, about forty acres I would call a small farm. I should call 160 acres a pretty large farm to work rotation on.

Mr. John Imrie—We consider 160 acres a rather small farm up our way, and we find a three-year rotation works all right. I know of some who are working a half section in that way.

Mr. Jacobs—I would like to ask our conductor what he thinks of the three-year rotation.

Chairman Imrie—We have a farm of that size. It all depends upon the stock you have to feed, and if you can feed out to the stock you have. The only thing we sell would be a little grain. Some years we have none left, but occasionally have a little, and I do not know of any other way that I could farm unless I had alfalfa. If I had alfalfa, I would have to stop the three-year rotation on that part of the farm that the alfalfa was on. I think we ought to follow the short rotation on a half section of land.

Supt. McKerrow—We are farming some 340 acres. I used to find that



A bunch of cows working for registry of merit on Valley Farm.

a three-year rotation suited me best, but we have stretched it out into four and the dry seasons are stretching it out still further. Three years is good. The reason we have found four years better is because of the second year in grass, we can use it for pasture and we need more pasture than anything else excepting hay. Now, alfalfa has come in; since we had forty or fifty acres of alfalfa that helps out the hay question, but I have this firmly fixed in my mind, that alfalfa ought to come in in the rotation about as fast as we can get it in. We would like to let our alfalfa stand six to eight years, and for that reason we will have to establish a double system of rotation, the alfalfa holding it down. We are proposing now to make it eighty acres of alfalfa, then the alfalfa will hold down about one-third of the farm, so we will farm the other two-thirds entirely independent of the alfalfa in one sense, and yet not in another. The alfalfa is plowed up and planted to corn, then sowed to grain and probably brought back into the other rotation of the four or eight years, as the case may be, and new land put into alfalfa. The reason for that is that most of our land is adapted to alfalfa and can come into rotation, that is the first reason; in the second place, from our experience of twelve to thirteen years, we believe that it is the best legume we can have on that soil, because it reaches deeper into the subsoil for a large part of its mineral matter, and at the same time it is working up the subsoil below, and based on the theory that we have, we want to bring alfalfa in the rotation, but in an outside rotation, so we make a double system of rotation, one that fits the alfalfa in the long period, and the other that fits the other two-thirds of the farm right along in the four-year period.

Mr. Stubley—Don't you think that after getting your farm thoroughly inoculated you could use the alfalfa just as well in the three-year rotation?

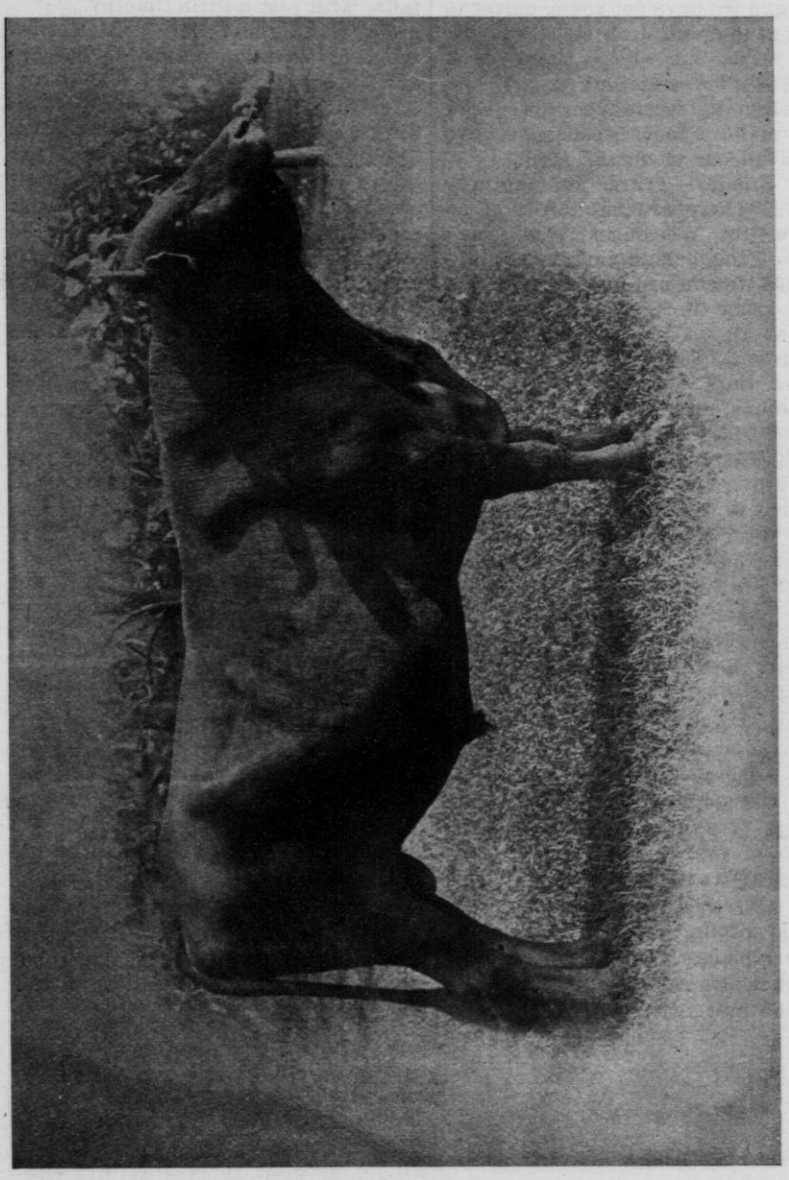
Supt. McKerrow—Under our system, we are practically losing one year in getting the crop started, and then we like to continue it while it is at its best, and we feel that in that way we are paying for that one year lost.

Chairman Imrie—Can you sow alfalfa on a new piece that has not had any on before?

Supt. McKerrow—We are beginning that now, but previously we have been sowing on old pieces. Now we have forty or fifty acres we are breaking up, new ground. We are still growing some of our hay in clovers, but it is pasture very largely.

Mr. Jacobs—I think it is well to consider carefully the amount of stock that is being kept. While it may be well for Mr. McKerrow in raising sheep largely to have this land in pasture the second year after cutting hay, I think the dairy farmer will realize more feed from his farm by a shorter rotation, and using more corn, more ensilage, instead of using this land the second year in pasture. There is another reason why I do not like to use the hay land in the second year, that is, use it in hay. The fact is that clover has left all the nitrogen in that soil in one year's growth that it will ever be able to. The second year it is left in hay, the timothy will grow there at the expense of the nitrogen that is in the soil, and I believe that can be put to a better use than by raising timothy hay, but in the case of the sheep perhaps it is all right.

Supt. McKerrow—We pasture forty or fifty head of cattle, sometimes sixty or seventy, but there is this about it that is practically bringing us to the four-year rotation, two years in grass,—the dry seasons, the drying out of the clover after harvest sometimes, and things of that kind. With two years in grass, and sometimes that is cut down to one year,



One of our herd bulls, Double Time's Varsity King, 3182315.

when the clovers have grown the year before and we have got young clover to come on, then we drop right into the three years, but when there is a failure, we make it four years, and quite often in recent years we have had to make it four, because we have not got all our clover to catch.

Mr. Stubley—There is another thought. There are two-thirds of us farmers in Wisconsin who have plenty of rough land that is not tillable that we can use for pasture. We cannot bring the pasture into the rotation at all, so what would suit Mr. McKerrow's condition would not fit mine or yours.

Mr. John Imrie—There is one thing I have noticed in the four-year rotation; if the sod is laid down two years or the pasture two years we are liable to the cut worm and white grub. With our three-year rotation we never have a hill of corn hurt with the cut worm but if it is left over a year longer, as some did two years ago, and it was a very dry year with us, there were some fields planted twice and finally abandoned on account of the cut worm.

Supt. McKerrow—This matter of the cut worm comes very largely from having a good deal of timothy in it. There is very little timothy in ours the second year. What is there the second year is usually alsike clover and alfalfa. We seed to a medium red, alsike and alfalfa, and a little timothy. The only places we find the timothy very much are where the spots are blank the first year. Our pasture the second year is largely alsike and alfalfa, with just a little timothy.

Mr. Aderhold—Mr. McKerrow spoke of leaving alfalfa seven or eight years. Do you think that it continues to store up nitrogen from the soil when it is grown as old as that?

Supt. McKerrow—When it has grown thriftily and well, I think it probably reaches its maximum about the third or fourth year as far as the storing of nitrogen is concerned, but those roots on the growing plant keep going deeper and deeper, and this mineral matter comes from farther down, and that is one of the things I like about alfalfa. I never followed the roots farther down than seven feet.

Mr. Nordman—How do you deal with your 320 acres and manage to keep up your soil fertility? You cannot feed everything you produce to your dairy cow.

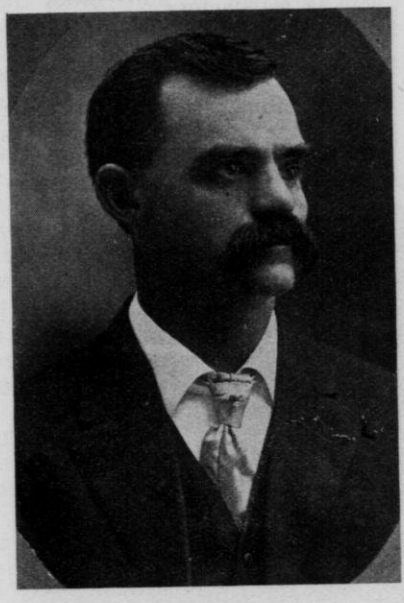
Mr. Jacobs—He keeps Holstein cows.

Mr. Nordman—Oh, that is it. If you farm intensively and raise such crops as you can grow by that kind of farming, it seems to me it would take entirely too much work to take care of all the stock you could keep on that kind of a farm.

Chairman Imrie—We have had some trouble to feed it up to the cows entirely the last two years, but we have quite a lot of horses, between twenty and thirty horses, and between a hundred and two hundred hogs, and we have been feeding some steers, so it does not all go to the cow.

THE CLOVER CROP.

W. P. Bussey, Omro, Wis.



Mr. Bussey.

If. as some claim, alfalfa is queen of all clovers, then our old, time-tried red clover must be king. It not only furnishes a very valuable feed for our farm animals, but it is a soil builder, and it is one of the three principal crops to be used in crop rotation. If as much care is taken in preparing the seed bed and in guarding against over-shading the spring crop the first season and in not allowing the young crop to be pastured during the fall, as is taken with the alfalfa crop, much better results would be obtained than are now obtained by the average farmer. Too often do we see a good stand of clover pastured during the fall, so that at freezing up time there is scarcely anything left on the ground to protect the crown of the young plant. And when in the spring the ground thaws and freezes and heaves, the roots are broken and the plants are injured, if not entirely ruined, then you hear the remark, "I had a good 'catch,' but it 'winter-killed'," not being honest enough to admit that they were as much to blame and in some cases more so, than were climatic conditions and other causes combined.

How to Care for the Crop.

And if, under all these adverse conditions, the crop survives, what is the best method of taking care of it, so we may obtain from the crop the best possible results?

We practice and advise the cutting of clover a little on the green side, that is, before the blossoms are ripe and the leaves brown and dry. We cut as soon as the dew is off in the morning, following the mower immediately with the tedder (if the tedder is used at all), and raking as soon as nicely wilted, putting it into cocks and letting it remain two or three days, then opening to air, then putting it in the mow a little tough, for if it becomes dry the leaves and finer portions are broken off and lost. As this is the most valuable part of the plant, we should try to avoid this loss.

When we have a good crop of clover, cured and put into the mow in this manner, we have splendid feed; a feed that helps to balance the corn ensilage and is good for all farm animals.

Clover as Ensilage.

We have obtained good results by putting clover in the silo for a supplementary feed during the summer when the pastures are dry and short

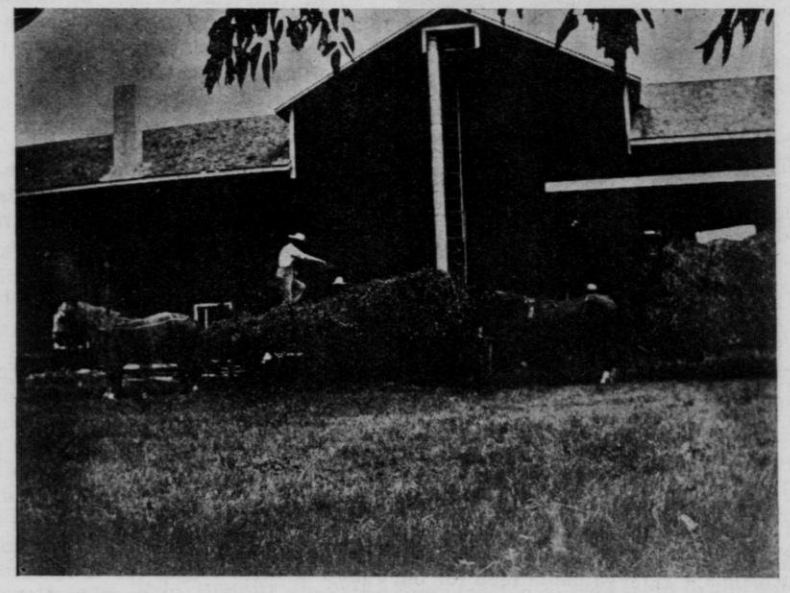
and the flies too numerous for comfort. Some of you think I am a crank on clover ensilage, but do not criticise too harshly, for there is no more earnest advocate of ensilage of any kind than I am, but if your silos are too small to hold enough to last the entire year, you can help out by using some of your clover crop this way and obtain results that are very satisfactory. I am not advocating clover ensilage to the exclusion of corn ensilage, for we know we cannot grow the amount of feed on an acre of clover that we can from an acre of good corn, but we do claim that better results can be obtained than from pasturing, or from feeding the cured hay from the same area.

In closing, I would say the three most important features in connection with growing the clover crop are:

First, a soil prepared with the proper application of stable manures; second, a well prepared seed bed, and third, the same care and attention that is given to the growing and curing of alfalfa, and the results obtained will be satisfactory.

DISCUSSION.

Mr. Nordman—I want to criticise one statement of Mr. Bussey's and that is where he says you cannot grow as much feed per acre on clover as you can on corn. That depends. In the northern part of the State we think we can. In our case we have frequently grown clover crops that would go three and a half tons of dry clover hay to the acre. If that had been made into silage, it would have made just as much as we could have gotten from that amount of corn land. Of course this applies to the northern part of the State.



Filling silo with corn, July 1, 1912, on farm of W. P. Bussey, Omro, Wis.

Mr. Bussey—There are conditions

in other parts of the State where you cannot grow the same amount in proportion of corn and clover as you can in the north.

Mr. Jones—How do you treat your clover silage; how did you prepare it for the silo?

Mr. Bussey—By putting it through a cutting machine. You take it immediately from the mower and sometimes add water, rather than dry it out, to get it wet enough.

Mr. Jones—How does it feed out? Does it cause bloating, or anything of that sort?

Mr. Bussey—We never have had any bad results, that heating or steaming process seems to have taken away that tendency.

Mr. Jones—Did you take it up with an ordinary rake, that heavy green stuff?

Mr. Bussey—Our best results have been by opening one swathe into barley forks and loading immediately from the swathe with the wagon. We have had it too heavy to use the rake.

Mr. Jones—You would use a one side delivery rake, wouldn't you?

Mr. Convey—No, it doesn't rake as well as the straight rake.

Mr. Scott—I do not think there is any difficulty with any of our modern rakes in raking clover after the mowing machine; if you push hard enough on the lever, you can turn it over nicely.

Mr. Bussey—By taking the swathe in forkfuls, going onto the wagon, they can be put through the feed cutter much easier than a load that is thrown on promiscuously.

Chairman Imrie—It should be raked too, the same way it is mowed.

Mr. Scott—And do not try to rake too large windrows.

Mr. Jones—How would it do to put the second crop of clover into the silo and corn on top of that?

Mr. Bussey—If it could come so it could be used right along, I would rather mix it, and then you would have your feed mixed as you went along. It would be all right as you suggest, though.

Miss Lutie Stearns, of the State Library Association, addressed the meeting on the subject of Traveling Libraries, saying in part as follows:

TRAVELING LIBRARIES.

Miss Lutie E. Stearns, Madison, Wis.

I am grateful to Superintendent McKerrow for the opportunity to present the subject of our State and county traveling libraries.

There are now over one thousand traveling library stations in Wisconsin, but the field is not yet adequately covered. The State Library Commission, that I represent, is anxious that every little farming community in the State shall be supplied with good books. If any of the delegates here present come from Portage, Marinette, Oconto, Winnebago, Sauk, Trempealeau, La Crosse, Eau Claire, Wood, Dunn, Dodge, Columbia, Jefferson or Milwaukee counties, they can secure traveling libraries through their county systems at the various county seats. Other counties in the State must depend upon the State Library Commission, with offices in the Capitol Building at Madison.

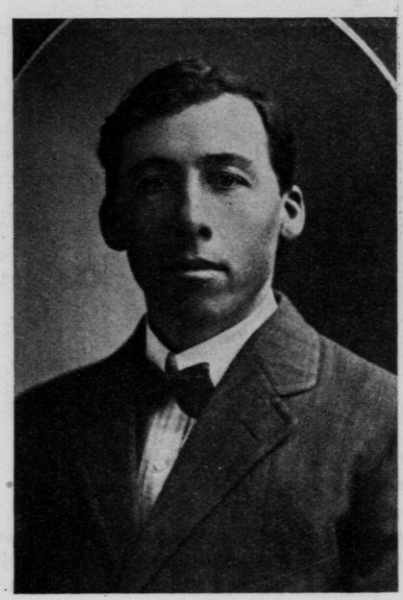
The State Library Commission sends out traveling libraries of 25, 55, or 100 volumes each, together with books for the older foreigners in German, Norwegian, Swedish, Dan-

ish, Behemian. French and Yiddish. These books are kept for six months and returned to Madison in exchange for a fresh supply for the mere payment of the freight both ways. Ten people in a community must make application to secure a library, or a school board may apply, or a town organization.

The library boxes are made up of the best stories for old and young, good books of travel, history, science and literature. As an evidence of the popularity of the collections, I may say that the books in the State collections alone were read a total of 210,000 times during the past two years.

SEED GRAINS.

H. E. Krueger, Beaver Dam, Wis.



Mr. Krueger.

The Lord may have given us a good soil, teeming with the life-giving elements of plant food; we may have expended upon it our most intelligent efforts and reduced it to a condition nigh perfect; the sunshine and the rainfall may have been ample, yet all this may bring us only loss and disappointment if we fail in the seed we sow.

Within the tiny embryos we commit to our soil lie the possibilities of profit or the practical certainty of loss. The importance of good seed cannot be overestimated, for upon it depends all.

The seed we sow has generation and generation behind it; it possesses good or bad characteristics as its ancestors were good or bad; its worth can only be estimated by the kind of breeding and selection placed upon it in the past. Its pedigree is as important in itself as that of a Percheron. A berry of barley may have within its seed coat the ability to produce ten of its race, or it may produce forty. Within a single seed may also rest the characteristic to withstand drouth resist natural diseases and enemies, or fall an easy prey to any of them.

Selection, breeding, environment have done wonders in plant, as well as animal breeding. Nothing is more certain in the bounds of nature than "Like tends to produce like." This is as true of the weakling as of the strong. A puny, shrunken seed may well be expected to produce its kind, if it but withstands the hardship of its early existence. A plump, hearty seed possesses a stored-up energy

within itself that starts it with strength and vigor and with desirable parentage it will make the most of its opportunities and ours.

How to Secure Clean Seed.

In the struggle of life, plants as well as animals are in the midst of myriads of unseen enemies bent upon their destruction. Tiny spores, thousands in a pile, beyond the range of naked human vision, yet powerful, attack our food plants and blast them in their thrift. Wafted by the breeze and nourished by the dew, they carry in their freedom, their minuteness, their safeguards. But they fall before the corroding influence of formalin.

Clean seed, at least, can be sown on every Wisconsin farm this spring, and a start made in pure seed of good breeding.

A bushel of good barley should produce from fifteen to thirty-five bushels of seed. This re-sown should produce from 150 to 700 bushels of seed, or enough to sow several farms the next year. Thus in but two years' time a man may grow all the pure bred seed barley he needs from a single investment of a single bushel. The same is true with other grains.

But when you have selected a good variety and it has done well for you one or two years, do not get the idea that it will always be that way, and that all you have to do is sow it year after year, just as it came from the thresher. What you must do is to get a good grain cleaner or grader, and grade and clean your seed each year, blowing away the light and grading out the small and shrunken kernels, only keeping about fifty per cent out of every hundred for seed, and in the end of six or seven years you will be surprised at the results, and you will not say as I have heard hundreds of farmers say, "I have got to change my seed, I have sown it for six years and it seems to be run out." Of course it will be run out if you sow the large and small berry together each year, for you are always sowing a larger proportion of small ones. For one bushel filled with

Wisconsin Pedigree Barley on farm of H. E. Krueger, Beaver Dam, Wis.

small kernels, there are twice as many kernels as in a bushel of large, plump ones, so you see the weak ones increase the fastest, and thus they should be kept out.

Wisconsin is the greatest pure bred seed State in the Union, still there are hundreds of farmers still growing scrub grains.

Mr. Krueger—Yes, I would not want to sow any oats from the bin where it would stand up.

Mr. Culbertson—Why do you have to fire-dry seed grain?

Mr. Krueger—Because of the excessive moisture and the cold winters. If it is not fire-dried, the freezing splits the germ. There is excessive

Wisconsin Pedigree Rye on farm of H. E. Krueger, Beaver Dam, Wis.

DISCUSSION.

Mr. Stiles—Do you think it is best to stack seed grains, or leave them in the fields?

Mr. Krueger—We have always stacked ours until this last year; I was away from home at stacking time, so we threshed in the shock last year, but I prefer stacking it and letting it go through the sweat. The shock threshing is all right, if it does not sweat too much, but if it gets too warm, you get a little less and a weaker germination.

Mr. Culbertson—If your oats will stand up in the bin, you would consider you would get a pretty weak germination?

moisture in there, then freezing weather follows and there is trouble. It is not necessary to fire-dry it if you keep it from freezing, but generally, if you keep it from freezing, it keeps that moisture in, and if you keep it warm, the germ will start to grow. If any of you have tried to dry seed corn in the fall in a room with very little ventilation, you will not be surprised to find some of the germs have started to grow right on the cob. Corn has to have plenty of air in drying. In a close room, if there is any heat, it will grow. It has to have air to take that moisture out as it is driven off by the heat.

Mr. Convey—Do you regard the ma-

turity as an important factor in the picking of seed corn?

Mr. Krueger—Yes, especially in corn that is a little late in maturing. You can pick them out a great deal earlier from corn standing out in the field. Corn is the most interesting and wonderful plant that we have. You take about four years and you can change the height of your corn plant; you keep on planting seed from the high plant each year and you will get it way up, or you can get it way down, or you can get it so as to have ten leaves or twenty leaves, and that is all done by selection in the corn while it is standing, before you cut it. That is the time to select your seed corn.

Mr. Convey—We have selected our corn from the shocked corn. Now, as to the necessity of letting corn mature before you pull it for seed, quite a number of people think the earlier it is selected the better it is. I have not found it that way. We have selected from the shock by selecting earlier planted corn, and we have had good seed corn right from the shock.

Mr. Krueger—After it is in the shock and is dried, I do not see how you could distinguish which was ripe ten days before the other one.

Mr. Convey—You can tell by the firmness of the ear.

Mr. Krueger—Yes, but if you had real, dry, warm weather, it would all be pretty dry.

Mr. Convey—But if it had lost the moisture in it, it would shrink in a measure in curing, and you could tell from the quality of the ear. We tested our seed corn this year and out of 133 kernels only six have failed to grow. We had fire-dried it.

Mr. Scott—Would you always select the earliest matured ears?

Mr. Krueger—Not if I did not want to get early maturing corn.

Mr. Scott—What would be the effect if you continued this?

Mr. Krueger—Why, you would lose in the heft of the corn, and you would get an earlier corn; in fact, you would get it down to Flint corn if you did that year after year.

Mr. Culbertson—Don't you find that if you select the earlier growing ear you lose the standard?

Mr. Krueger—Yes, if you keep at that, constantly selecting the earlier ears, you would lose the general standard. Some fellows select for smoothness; when you get a smoother kernel it goes back to an older type of Flint corn. We have to select for rough corn in Wisconsin in order to keep our corn from running smooth. In Illinois they do not have to do that.

Supt. McKerrow—By selecting for roughness in Wisconsin, are you not fighting against a general law of nature?

Mr. Krueger—Yes, and the climatic conditions. Corn will adapt itself very much to climatic conditions, and of course by doing that it is getting a shallower kernel. If we can mature a deeper grain, we want to select that kind.

Supt. McKerrow—Well, the soil, as well as climatic conditions, cuts some figure in a change of corn from the south?

Mr. Krueger—Oh, yes; also the corn that will mature with us in Dodge county will not mature over by the Lake. Then in some sections the soil is a little quicker and it will mature earlier than in other parts of the State.

Mr. Convey—How about oats? Do you find any advantage in early oats as compared with late oats, and which do you prefer?

Mr. Krueger—We grow both early and late oats, and the last two seasons of course our early oats were the best. We had a very severely dry season in 1910-1911 and of course the oats matured at the same time. The early oats were way along ahead of the drouth and we got a better yield from the Swedish or later oats.

Mr. Bradley—How about the ordinary seasons?

Mr. Krueger—In 1909 we had an ordinary season and I think there was very little difference. These early oats, as you know, have a small system of root development, and you do not want them on very poor soil because of that; they will not find plant food enough in poor soil to give straw enough so you can cut them.

Supt. McKerrow—A large growthy oat, like the Swedish oats, on very rich soil, gets too rank.

Mr. Krueger—Yes, that is true. The shallower running oats come in well where you have a very rich soil. They have short, stiff straw and they are ahead of the storms, too.

Mr. Convey—Is there any advantage in seeding down as to early or late?

Mr. Krueger—Oh, yes, the early oats are much better for seeding down.

Mr. Imrie—Don't you think the tendency of the average Wisconsin farmer is to raise rather too late a variety of corn for his locality?

Mr. Krueger—I think that is true. I have been around a great deal and find many men who are hardly able to mature their corn, and the immature crop does not have the plant food in it that is contained in a matured crop, so even if you grow a few bushels more to the acre you would not be getting as much feeding value as you would in a crop that got ripe.

A Member—How many kernels would you plant in a hill of fire-dried corn?

Mr. Krueger—We plant ours three feet eight, three in a hill. Occasionally we will drop four.

GOOD SILOS.

John Imrie, Roberts, Wis.

A good silo is one that keeps the silage perfectly. There are a number of different kinds that do this if they are properly built and will exclude the air. The silo that seems to appeal to the majority of the farmers of the State is the solid wall concrete silo, or the Farmers' Institute silo, on account of its cheapness and durability. The cost of a silo should be estimated according to its number of years of usefulness.

A wooden silo can be used only so long as the wood will last, which ranges (according to location) from eight to twenty years. They are more expensive than the concrete silo, as lumber is now high in price. The distance below the feeding floor, usually six to eight feet, must be excavated and a wall built at least a foot above ground. This must be added to the cost of the lumber for the walls and roof.

When the concrete silo is built up to this height, one-third of the work of building is done, and nearly the same proportion of the cost is in this foundation. By comparing the cost of the concrete silo with those of other materials, I find the solid wall concrete silo to be the cheapest of all, and the last few years have proven their utility.

As to the freezing of silage in the different kinds, I find all silos built with solid walls freeze about the same. The location, whether on the north or south side of the barn, makes more difference than the material used in their construction. We can do away with most of the trouble

of freezing by keeping the silage near the walls about six or seven inches lower than the center, never leaving the frozen silage sticking to the walls, as the freezing is as much from above as from the sides.

The silo should be round, as it can be built cheaper, requiring less wall than any other shape, and keeping the silage better, as there are no corhers to settle away and admit air. The walls should be smooth, especially on the inside, to allow the silage to settle evenly.

Walls should be well reinforced, one wire (No. 3 or 4) one foot apart until half way up, then one every two feet is sufficient. No upright or vertical reinforcing is required. Twisted wire can be used for reinforcing, but care should be taken in twisting, as the cable thus formed is just as strong as its weakest point. I like the smooth wire best, as it is more handy and just as cheap.

Use the simplest forms. Some forms are undesirable, as they require a scaffolding on the outside of the silo, making more expense. The solid concrete walls being fire-proof, the silo can be insured at a very low rate, as the roof and chute, if made of wood, might be destroyed by fire. I would advise to whitewash the outsid of the silo to prevent the walls absorbing moisture, for in case of the barn being burned down, the heat will blister the silo if the walls contain moisture.

The concrete silo is becoming more popular every day, as nearly every place we have taken up this topic this winter I have found from two to six farmers who say they intend to build concrete silos next summer.

It is better to build your silo high, rather than of large diameter, as the pressure to the square inch is greater and packs the silage more, making less waste in summer feeding, and the diameter being less, more of the surface is fed each day.

The inside of the silo should be whitewashed twice with pure cement and water, letting the first coat harden before applying the second. This will seal up all the pores in the concrete, making it air-tight. When this is done, the silage against the walls is just as bright and fresh as in the center.

One argument used against concrete is that the silage draws the cement out of the walls, thus spoiling the silage and softening the walls, causing them to crumble. This is not the fact when the pores are closed, making the walls perfectly air tight.

We have considerably more than one hundred concrete silos in St. Croix county alone, all giving excellent satisfaction, and I have heard of no case where the silage has been anything but perfect when put in at the right time, and carefully tramped around the walls to exclude the air.

I am glad to see the interest taken in silo building at this time in Wisconsin; as it means more and better fed dairy cows, better grown young stock, and more dollars and cents in the owner's pocket. A good silo is the best investment the farmer can make, so let us all have one in the near future.

We will place the Farmers' Institute silo at the head of the list of good silos, because it is cheaper, keeps the silage perfectly and will last forever. You cannot tear it down or burn it. It is a stayer and will be there when we are dead and gone.

DISCUSSION.

Chairman Imrie—One of the silos in our town was struck by lightning; it made a hole through it and that was all the damage done; they simply plastered it up and the silo was as good as new.

A Member—Can't you put a chute in the concrete on these silos?

Mr. John Imrie—Yes, many chutes are now being built of concrete, so that in case of fire all that would be damaged would be a slight blistering on the outside in case there was moisture in the concrete at the time.

A Member—Do you recommend whitewashing a silo on the outside?

Mr. John Imrie—Yes, I do, on account of keeping the moisture out; from absorbing water.

A Member—How about frozen silage?

Mr. John Imrie—With our manner of feeding and keeping the silage loose from the walls, we have no trouble; in cold weather we simply run our fork around the walls to loosen the silage from the wall a little at the outside, keeping the outside of the silage at least six inches lower around the walls than in the center. In this way we have no trouble whatever in keeping it loose from the walls, even in the coldest weather, in feeding the silage. Even if it is a little frozen, it does no particular harm, as it is mixed with the warmer silage when it is thrown out to feed. We have never had any bad effects from feeding it in this way. I think it would freeze harder where the silage is put in in too green a state, however, where there is too much moisture or sap in the corn. I know in old times, when we put in the corn in the roasting ear stage, there would be a stream of water running into the silo with the silage, the corn was so sappy, and it would freeze very hard around the walls, but if the corn is cut at the right stage of ripeness, if you dig down around the walls a foot or two, you will find only a few inches of frozen silage sticking to the sides, showing that it freezes more from the top than from the sides.

Mr. Convey—Some complaints have been made this winter in regard to concrete silos from the fact that some of the silage was spoiled on the outside. Now, in those cases, no doubt the parties failed to make walls water-tight. The concrete itself is not water-proof. The building, however, should be water-proof before the silage is put there, because if the wall is porous there is no doubt it will take the moisture out of the silage. We have used a stone silo for twelve or thirteen years and we have plastered it on the inside just as we would a cistern, two parts sand and one part cement, and we have no spoiled silage. Wouldn't that be better than to run the risk of having silage spoiled?

Mr. John Imrie—Yes, that is a very good plan to follow. It should be whitewashed twice, as I said. Let the first coat harden and then put on the second coat. Be sure to put on two good coats of whitewash. I think it would shut off the pores a little better by not having any sand in it. If this is properly done, it is closed like the inside of an earthenware jar; it will not let in any air. In four years' use of the silo, I have not found a handful (after taking off the top covering) but what was in perfect shape, and just as bright in the center of the silo.

A Member—Is there any difference between the north and south sides of the barn?

Mr. John Imrie—Yes, there is a great deal of difference in regard to freezing. If on the south side of the barn, with the sun shining part of the day on it, even in quite cold weather, the sun in the daytime will take out frost enough to almost counterbalance the freezing of the night, but if in the shade it keeps freezing and freezing and getting a little thicker all the time. I am sure you will find that the location has a good deal to do with the freezing.

Mr. Convey—What size would you recommend?

Mr. John Imrie—I would rather have a silo of small diameter and high than to have it too large in diameter and not so high. I think I

would rather have a fourteen-foot silo forty feet deep than a sixteen-foot silo thirty feet deep, as the pressure is more the deeper it is, and we get more and better silage according to the depth than in a larger diameter.

Mr. Convey—I have been inclined to think we erred in recommending small silos. In some places they are building silos twelve or fourteen feet in diameter. In the small silos the settling would not be so good as it is in the larger ones. You compare a twelve-foot silo, twelve feet in diameter, with a sixteen-foot, and you will find it almost as expensive to build one as the other, but when you come to compare the contents, you will practically have twice as much, allowing for better settling, in the larger silo, it will almost hold twice as much at one-third more expense. I feel we have been inclined to recommend almost too small silos, because on a small farm you cannot feed out of a sixteen-foot silo without having some of it spoil.

Mr. John Imrie—We are often asked how large a silo to build for, say, sixteen cows. We find most farmers are inclined to build too small, so we try to advise them to build so that in the near future they will have more cows to fit the larger silo.

Mr. Scott—Is it not the fact that the ensilage in the bottom of an extremely deep silo is not as good as near the top?

Mr. Imrie—I have only had the experience of examining the silage in one fifty feet deep, but it was all right.

Mr. Scott—As a general thing, it is pretty acid.

Mr. Imrie—It would be so if the silage was put in too green, but this was put in under ideal conditions and it seemed as bright and clean as could be, and just as solid as this floor.

Mr. Scott—I think it is a mistake to build these extremely high silos, on account of the extra cost and also the danger of having more acid in the bottom.

Mr. Nordman—I think the trouble is that you put in first the corn you cut first and where you have a good deal to put in you start when it is a little too green in order to get through.

A Member—Suppose you had an eighty-acre farm, good land, and you wanted to keep all the cows you could support on that eighty acres, how large a silo would you build?

Mr. Imrie—Not less than sixteen feet in diameter, one or possibly two of them, and then I would have one possibly fourteen feet in diameter for summer feeding. I think on an eighty-acre farm you could use three of them to good advantage.

A Member—How many tons of silage?

Mr. Imrie—I know of one man in this State who used two hundred and eighty tons on sixty acres. He has three silos and I know he is making a success of it. He has thirty-five to fifty head of cattle and milks about twenty-five cows and feeds every day in the year.

Mr. Convey—We had a silo twenty-five feet deep; last year we added twelve feet to the depth, which gave us thirty-seven. We got in practically twice as much silage and it is much better from the fact that it is more compact and has excluded the air better, so I am in favor of the deep silo now, whereas I used to be in favor of the shallow one for a good while.

Mr. Imrie—One of my neighbors has taken the roof off his silo and added about ten feet to the height. He finds his silage perfect, but he puts his silage in when it is fully ripe.

Mr. Jacobs—For the benefit of the people who are unfortunately situated on land that is level, we are thinking of having to go a good ways down or up, if it is fifty feet deep,

and also the additional expense of elevating the silage thirty or forty feet, which must be considerable. We do not like to go down in the ground too far, eight or ten feet would be the limit of what we would recommend, and I am inclined to limit this going up into the air to something like thirty feet above the level, where we have got to lift it that distance, up and down.

Mr. John Imrie—If you have power enough, the machinery will lift forty feet, all right.

A Member—I think the Farmers' Institutes ought to be for the benefit of the small dairyman as well as the large one. Now, you have been talking about a capacity to suit large dairies. Suppose we had only about half a dozen cows, or even a dozen, we would like to have a cheap way of feeding them, and the question is with us, how small a silo can we have that is profitable and practical? I have one that is only nine feet in diameter.

Mr. Nordman—I happen to live in the northern part of the State, where there are a great many people just starting in clearing new farms, and I want to tell the gentleman that there are men up there building silos who have only ten acres of clearing, and they are using them very successfully, too. I know one man with ten acres he had cleared and only about one-third of that is free from stumps, and he has a silo twelve feet in diameter by thirty feet deep, made of concrete. He hasn't any roof on it, and another year he expects to go higher with it, making it about thirty-five feet high, as he has use for more silage. There are other people in the same neighborhood who are building other kinds of silos, but all of these men who are just starting, when they have ten acres, or such a matter, cleared, why they figure that they want a silo on their place. Some make them of concrete, some out of two by six, rough as they get them from the hemlock logs out of the woods. Of course these are only for temporary purposes. But I want to say to you that it will pay a man to have a silo on his place just as soon as he can grow in the neighborhood of three or four acres of good corn. He can make silage out of that and feed it with the other feeds that he grows on his land, and he can supply a perfectly balanced ration up in northern Wisconsin.

Mr. Bundy—Do you find a mixture of one to four strong enough for concrete?

Mr. John Imrie—I would rather put it one of cement to three parts of sharp sand, and crushed or small rock four parts. But never make the mistake of putting one of sand to three parts rock.

A Member—Do you mean crushed stone?

Mr. John Imrie—No, the case I have mentioned is where the filling was little hardheads. If I had the gravel in right proportion, I should certainly mix the gravel with the cement.

A Member—When you speak about rock, I want you to distinguish between the gravel containing these little stones and crushed rock.

Mr. Imrie—I would sift a bushel of that gravel to determine the proportion of sand and rock it contained, using one part cement to three of sand and four of small rock.

Mr. Bundy—It would make it strong enough one to six or one to seven.

Mr. Imrie—Yes, if the sand is not in too large proportion in that mixture.

Chairman Imrie—We made it a little richer, the gravel was in this proportion—two parts sand and four parts gravel after sifting through a quarter inch sieve.

Mr. Scott—Where you have good, sharp sand, and pit run gravel, I have seen good silos using one of ce-

ment to six of gravel. Mr. Lindberg, of Plymouth, has built silos in Sheboygan county, where they have a most excellent quality of gravel, by using one to seven, and it appears to be very dense, but I would not advise any farmer who is building a silo himself to make it any weaker than one to six, good, sharp gravel. Now, in reference to the question asked here as to how small a silo can be built profitably, I will say, Prof. King tried an experiment with two, of course they were smooth and the silage was cut fine and thoroughly packed. I have forgotten just the limit. The tubes, as he called them, were less than one foot in diameter, and the silage kept perfectly.

Mr. John Imrie—When I say one to seven, that is in case you have clean rock, you can put in all of the rock you can cover with this mixture of one part cement to three parts sharp sand. All concrete men will tell you not to widen that any. Then you can put in all of the rock you can get in and have every particle of the rock covered. That is all there is to making good concrete.

A Member—If you have cement and sand, you would have to put one to three and that would be the end.

Mr. Scott—Is what you advise really concrete or is it cement rubble?

Mr. John Imrie—Well, in one way it would be cement rubble, it is not a perfect concrete, it is a filling. It makes a cheaper silo and if your rock is hard, the walls are just as hard as the rock which you put into that silo. In our case they were all hardheads.

Chairman Imrie—In talking with an inspector, building dams and power houses, he told me they made the mixture between crushed rock and Portland cement and sand, one part Portland cement, two parts sand and four parts crushed rock, and they were allowed to put in forty per cent clean stone. Do not put in all the stone you think you can cover, but let your concrete be sure to surround the stones, lay the concrete first, tamp these stones in so they are imbedded in it, and then put concrete on top again. Of course this is for large, heavy walls.

A Member—Where a man is using bolts through the walls to hold his scaffolding, what is the best method of filling those holes?

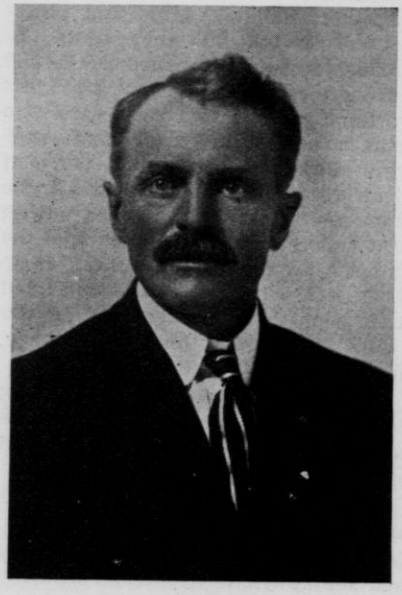
Mr. John Imrie—We do not use that method now, so there are no holes. Look in last year's Bulletin and you will see how it is handled. There are no bolts in the walls, simply studding with eight two by four's. We only use bolts to hold the plates for the roof.

A Member—I have seen them where there were bolt holes and the water came through afterwards.

Mr. John Imrie—I would fill them with clear cement and plaster it over both on the outside and inside.

CONCRETE ROOFS FOR SILOS.

M. Michels, Peebles, Wis.



Mr. Michels

For many years, in spite of all the evidence at hand regarding the value of silos and silage, not only to the dairy farmer but to all classes of live stock feeders, the progress of silo construction has been very slow up to within the last few years, or until the construction of concrete silos was taken up generally.

In my home county (Fond du Lac), the past year, as far as I know all the silos that were erected were built of concrete, with the exception of a few which were built of stone. This is as it should be, as concrete has not only all the qualities sought in the construction of an ideal silo, but it is also the most economical way to construct where gravel and sand can be had within reasonable hauling distance, and, so far as my observation goes, I have yet to find the first failure in concrete silo construction.

Value of a Good Roof on Silo.

In the construction of silos, the value of a good roof is only too often overlooked, and a light, flimsy roof, that is not only short lived but is never air-tight nor warm, is put on the otherwise everlasting silo.

A roof on a silo should be built with a view not only to keep out the rain and snow, but also to keep out frost in winter, for unless the silo is covered with a good air-tight roof, the silage will freeze not only over the top but the frost will be much deeper down the sides. The concrete roof is not only as lasting as the silo itself, but it makes a warm, good looking and perfect roof in every way.

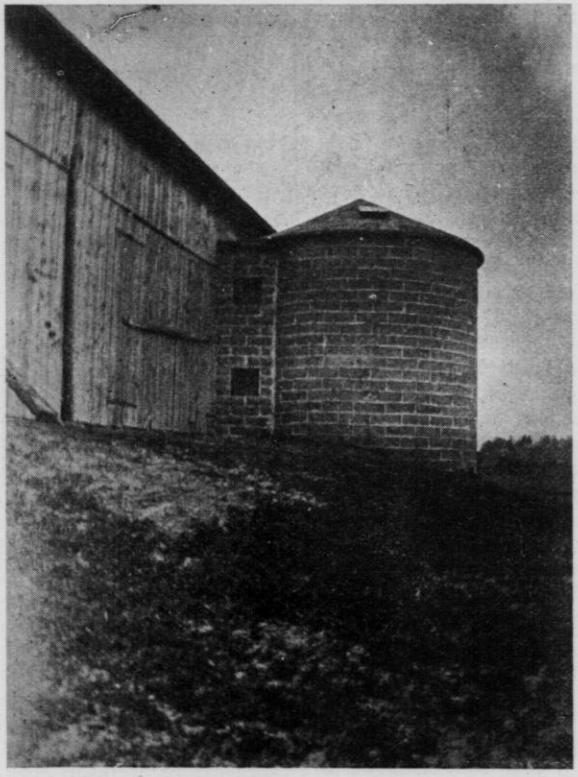
Construction of Concrete Roof.

The construction of a concrete roof is simple and can be built by anyone that can build a concrete silo. In finishing the sides of the silo, one-half-inch bolts or other iron eight inches long must be imbedded into the top round of concrete to a depth of about four inches. The other four-inch projection is used to go into an opening of the concrete roof plate block, to hold this firmly in place.

In making the roof blocks, tapering plugs of wood must be put through the blocks to leave an opening. When the blocks begin to harden, they can be taken out very easily by tapping them lightly on the small end. The plugs, however, must be put in water for several hours or, better still, over night before using them. The holes through the blocks should be about

two inches in diameter and the larger end turned up. This will allow the block to be easily shifted into place with the bolt through the opening. After the block is in proper place, this opening is then filled with a thin mixture of concrete. Blocks may be made any size desired. In building a roof on a fourteen-foot silo and the inside block is twelve inches wide, it will take forty-two of these blocks fourteen inches wide on the outside to cover the top of the silo. The bolts, if set in the center of the six-inch wall, must be set thirteen inches from center to center.

The roof plate block as shown in the illustration, is three inches thick both inside and outside; above the three inches on the outside is a depression of two inches. This depression is needed to rest the outside of the roof boards or forms on, which is all that is necessary to hold up the forms next the silo. Farther in, however, are two wooden circles made by bolting two thicknesses of one-inch lumber together (the same as making inside silo forms, figure 7, page 87, Bulletin No. 25.) These are needed to hold up the boards. These circles must be well supported, so there can

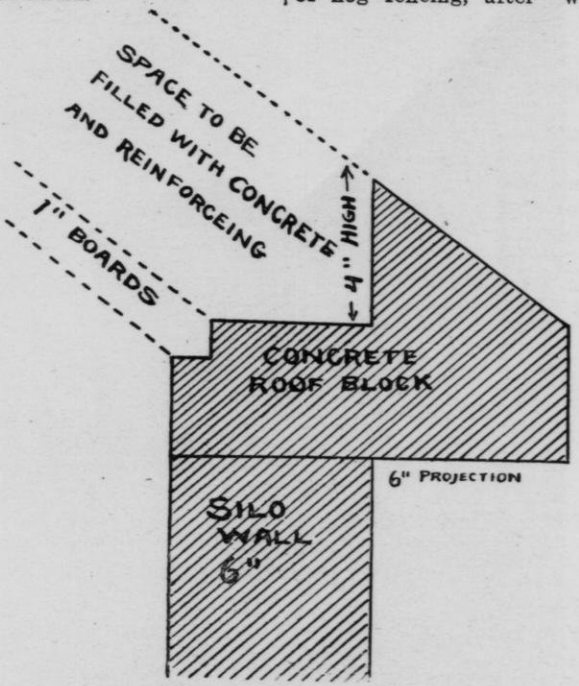


Silo built up against the barn. The picture shows the east side of silo and chute.

be no settling to cause trouble after the concrete work has been started.

The lumber needed for the two circles, together with the roof boards, can be bought for about seven dollars. The roof boards should be planed on one side where they come in contact with the concrete to insure a smooth finish.

is put on. For this purpose nothing less than No. 3 galvanized wire should be used. This wire is cut into the required lengths running up and down, some of them running through to the peak and should not be more than a foot apart at the base. Over these rods should be placed a netting of hog fencing, after which three



Concrete Silo Roof.

After the roof boards are cut the proper length, all that is necessary is to rip them diagonally, resting the wide end on the depression in the silo wall, the points all coming together, forming the center or peak of the roof.

After the roof form is up and properly supported under the two wooden circles from the inside silo staging, a coat of one inch of concrete is put on the entire roof form. After this coat of concrete, the reinforcing material

inches more of concrete are put on, troweled down and the roof is finished. The forms must not be taken down for a week or ten days. After taking down the forms, the depression left in the corner by the roof boards is filled with a trowel, leaving a nice smooth finish.

An opening for filling the silo and to let in light may be left wherever it is most desirable by simply fitting a frame into the form, the same as fitting a window or door frame in-

to a stone or concrete wall. Over this opening is placed a storm sash, hinged so it can be opened as far as desired to ventilate, or for filling the silo.

The cost of a concrete roof is considerable less than a good wooden roof. I built two wooden roofs two years that cost me forty dollars each. Last summer I saw one built as described above that cost only thirty-two dollars, including cost of forms and work.

DISCUSSION.

Mr. Stiles—Why do you use galvanized wire? Isn't the other wire as good?

Mr. Michels—I am a little afraid of the black wire. I use the galvanized wire for all silo purposes. There is so little difference in cost, I do not want to take the chances.

Chairman Imrie—The engineers tell us the black wire will not rust in the concrete.

Mr. John Imrie—I talked with a man this winter who said he had had a piece of concrete work with wire run through it for four years, he took a sledge and broke it up, the blue color of the wire was there, with no rust of any kind, it looked like a perfectly new piece of steel where it ran through the concrete. He thought it would last forever

Mr. Stiles—They took down a building near us that had been there sixty years and the iron was clear black, the same as the day it was put in. On this question of freezing: Some years silage will freeze quite a little in some silos. I think it is believed that it freezes from the top, and some are inclined to think that a concrete silo will freeze more than a wooden silo. I do not think there is any difference, but the way I overcome freezing is to use marsh hay as a cover and it prevents the freezing to quite an extent. I think in most silos the frost comes rather from the open space above than from the wall.

A Member—What is the matter with lathing and plastering a roof with cement, just putting up studding and roof boards and putting on common lath and plaster? I did that on two five years ago and I do not see anything the matter with them.

Mr. Michels—That ought to last five years and longer, but not as long as solid concrete.

Mr. Scott—On lath, I use plaster 2 to 1, and two coats about an inch thick. It has held for five years perfectly.

A Member—In taking the forms out and filling that space down where the roof comes in contact with the silo, do you find any difficulty in making that bend?

Mr. Michels—Oh, no. You see this is straight on the inside. The inside of this block is flush with the inside of the silo. This depression of two inches is left in the block only, and this end of the block is as high as you wish to have the roof come. If you want a four-inch roof, make the block eight inches thick. I have seen them where they have an eight-inch roof and of course they had to make the block that much higher at that point. When you pull out your frames from under, all you leave is an inch projection there and it is very easily filled with the trowel.

A Member—How much projection do you have on top?

Mr. Michels—A six-inch cornice makes a good looking cornice. It is an advantage to have quite a pitch on the roof, but you do not want too much.

A Member—Has any one ever heard of using a galvanized iron roof.

Mr. Bradley—One of my neighbors took black iron and had galvanized iron sheeting and cut holes through the sheeting and had an iron roof pretty cheap, but not as cheap as a concrete roof.

A Member—I have worked in concrete myself, and I find in mending, where I left off, after the concrete gets hard, it bothers me to get it fixed again, especially in cold weather.

Mr. Bussey—There is no harm in not filling those places; it is simply a matter of looks, that is all.

A Member—What is the use of having a ventilator two feet thick and three feet high, a galvanized iron ventilator?

Mr. Michels—I do not see what you want of that ventilator, unless you want the ventilation from the barn to go through the silo; there is nothing that will keep the frost out better than that. I have none on mine.

Mr. John Imrie—I put a little ventilator on mine and was sorry the first winter; I would rather have a tight roof.

Dr. Kutchin called to the chair.

Dr. Kutchin—I am not going to make a speech, I am simply going to introduce another man and I have asked permission to do so because the man who is going to address you is going to speak upon the most important question that can be presented to the American public, that is, the conservation of bird life. Neither the conservation of coal or iron or our forests is of more or even of as much importance as the conservation of bird life.

I am proud to say that for the first time in a quarter of a century the State of Wisconsin is doing something in this matter; is sending out a Moses, a missionary connected with the Game Warden Department to tell the people everywhere that what the game wardens are hired to protect is worth protecting. Farmers do not realize the importance of bird life to agriculture. The cost of the depredations of the insects is annually over a billion dollars, and the bird is a check upon pernicious insect life. I want to say that the relation between the bird and the pernicious insects is most wonderful.

Now, I am a doctor and doctors are the biggest liars on earth, they beat the lawyers, beat any one, and you need not believe this—I would not presume to tell it with the expectation of being believed—that is, you need not believe it on my say-so, but look it up afterwards. There is an insect that is never in danger of race suicide, and that is the aphid . It is the size of the head of a pin and the progeny of a single mother, what is called in entomology a "stem" mother, in ten weeks is nine billion, five hundred million. Placed shoulder to shoulder they would make a column ten feet wide, reaching 230 miles. Placed in single file, they would circle the globe 314 times.

Now, here is the smallest bird we have in winter, the chick-a-dee, it is eating every twenty-four hours five thousand, five hundred or more aphids or their eggs.

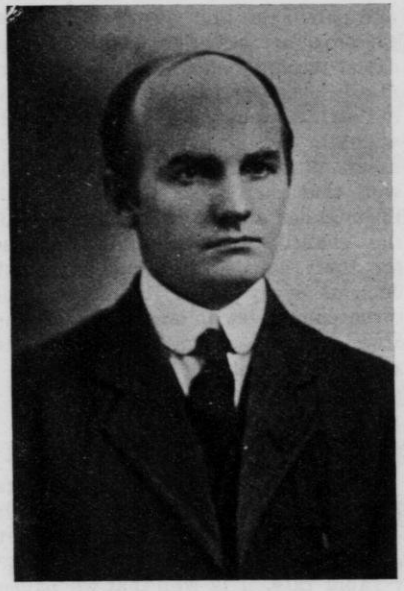
I want to bring it even a little closer to you. I am speaking of the aphid and its numerous family, at least half of them are the enemies of your corn crop. Between here and Oshkosh I saw some shocks of corn just about as high as that table over there. This innumerable family sucks the juice, the very life blood, from the plant, and yet you are killing the birds that will eat them, and for the first time in twenty-five years Wisconsin is doing something in a crusade, if it might be so called, in a missionary effort at education, and we have among the sixty game wardens—a single game warden, who is going up and down through your State and to your schools, showing that the bird is worth protecting.

I want to introduce Mr. Cleasby, a man who weighs as much as fifty-nine other game wardens, estimating his weight by the importance of the work he is doing.

Mr. Imrie resumes the chair.

BIRDS OF VALUE TO FARMERS.

E. A. Cleasby, Deputy Game Warden, Portage, Wis.



Mr. Cleasby.

The Protection of Animal Life a Matter of Education.

Two years ago, the subject of birds was given a place on your program and Dr. Kutchin, of Green Lake Wis., in a very able address, pointed out the value of birds to the farmer. In that discourse, he called attention to the laws protecting them and showed that it had not paid very well to legislate for them. He said, "Mere legislation does not amount to anything; there must be education."

The State Game Warden Department, this year, is taking up this matter of education, in an effort to show the value of fish, mammals and birds to the State. This is not a new work in the United States. Dr. C. F. Hodge of Clarke University, has done much work along this line in Massachusetts. His valuable book, entitled "Nature and Life," is being used in many schools of the country.

In the Yearbook of the Department of Agriculture for 1906, is the following:

"An officer, (meaning game warden), who realizes the responsibility of his position, can do much to bring game protection into popular favor. He may easily become an educator, however circumscribed his field. Much of the wanton destruction of animal life proceeds from thoughtlessness and few persons once impressed with the importance of preserving wild creatures, continue to destroy them. In North Carolina the bird and game wardens in addition to their official duties, spend a considerable portion of their time educating the public as to the value of birds and game to the State. During the closed seasons, they visit the farmers, explain and discuss the game laws and their object and hear complaints. Each warden is supplied with a selection of standard books on birds, and is required to familiarize himself with them, so as to be able to answer the numerous questions propounded."

In Wisconsin we realize there is need of education, and the fish and game warden department is undertaking this work through the schools, the Farmers' Institutes, school board conventions, teachers' institutes, and with the people generally.

Some Benefits of the Protection of Animal Life.

The benefits of the protection of animal life may be briefly stated as follows: to increase useful species for the benefit of the people in gen-

eral, to protect those species that are beneficial as scavengers, to prohibit the introduction into this country of those species known to be injurious, to preserve those species that are of interest to the student of nature and to conserve our mammals, birds and fish so that those who come after us may enjoy some of the things we enjoy.

Birds Act as Scavengers.

A great deal has been said of late about the conservation of our resources, but I know of no conservation more important to the American people than that of conserving our bird life. While by no means insensible to the aesthetic value of birds, the farmer who is asked to aid in their protection is entitled to know the practical purposes they subserve, and how far they may be expected to return his outlay of time, trouble and expense.

Since most birds eat insects and since many eat practically nothing else, it is their insect-eating habits that chiefly invite inquiry.

In the Agricultural Yearbook for 1907 is the following.

"When birds are permitted to labor undisturbed, they thoroughly police both earth and air. The thrushes, sparrows, larks and wrens, search the surface of the earth for insects and their larvae, or hunt among the leaves and peer under logs and refuse for them. The warblers, vireos, creepers and nut hatches, with their microscopic eyes, scan every part of the tree or shrub—trunk, branches and leaves—and few hidden creatures escape them. The woodpeckers, not content with carefully scrutinizing the bark and limbs of trees, dig into the decayed and wormeaten wood and drag forth the burrowing larvae, which in their hidden retreats are safe from other enemies. The flycatchers, aided by the warblers, are ever on the alert to snap up insects when flying among trees and branches; while the swallows and nighthawks skim over the pastures and patrol the high air above the tree tops for such of the enemy as have escaped pursuit below. Thus each bird family plays its part in the never-ending warfare and the number of insects annually consumed by the combined hosts is simply incalculable. It is well that this is so, for so vast is the number of insects and so great is the quantity of vegetation required for their subsistence that the existence of every green thing would be threatened were it not for birds and other agents especially designed to keep them in check."

Bird Life Decreasing.

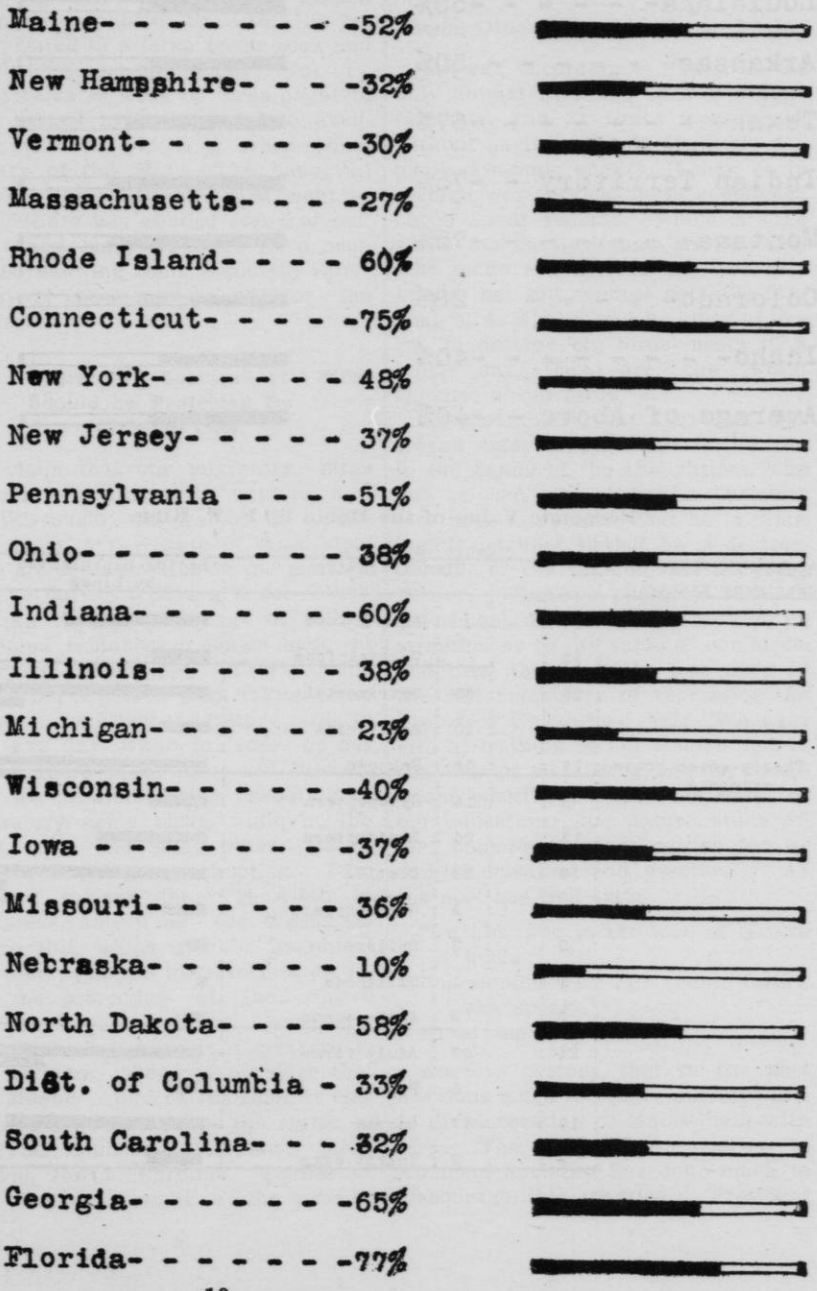
When we know that the insects damage our crops in this country over $400,000,000 worth annually and that bird life is decreasing at an appallingly rapid rate, it is well that we pause and consider what can be done. Wm. T. Hornaday, director of the New York Zoological Society, from a careful estimate from reports points out the rate of decrease of bird life. In 1901 he made his report for thirty states showing the percentage of decrease for each State during a period of fifteen years. The following is his report which is used by permission.

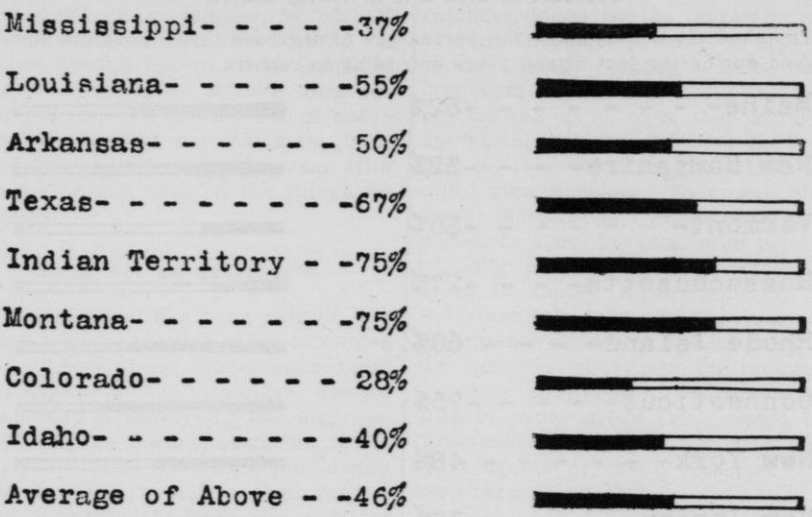
The Economic Values of Wisconsin Birds Have Been Thoroughly Studied.

The Legislature of Wisconsin about thirty years ago authorized a study of Wisconsin birds and Prof. F. H. King

Decrease in Bird Life in Thirty States.

The shaded portions show the percentage of decrease throughout the states named during the last fifteen years according to reports.





Economic Value of the Robin by F. H. King.

Table No. 1.

Number and name of specimens examined		Classification of food		Ratios Represented by Lines
Thirty-seven robins examined	34		Animal food	
	13		Vegetal food	
	29	60	Detrimental	
	6	10	Beneficial	
	17	56	Unknown	
	3	14	Hymenoptera	
	13	26	Lepidoptera	
	19	53	Beetles	
	6	9	Grasshoppers	
	2	2	Spiders	
	1	1	Millepede	
	2	2	Angle-worms	
	24	67	Adult forms	
	2	6	Pupae	
	19	47	Larvae	
	2	9	Insect eggs	

made the study, examining 1608 Wisconsin birds taken in the State. He made his report and it was a lamentable fact that the report was hidden from the people of the State by being printed in a large green book and labeled "Wisconsin Geology Vol. 1". That valuable work on birds ought to be reissued by being put into available form and placed in every school library of the State. The biological survey United States Department of Agriculture has studied many of our, birds and many bulletins have been issued showing their economic value. Many of these may be had for the asking.

Our Migratory Species of Birds Should be Protected By National Law.

I claim that our migratory birds should be protected by national law. In Wisconsin, we protect the robin, but down in the State of Mississippi they are selling robins on the markets by the dozen; I have a letter telling of one Nimrod boasting of killing nineteen robins at a single shot at Gulfport, Mississippi. In Wisconsin, we forbid a person from taking more than ten or fifteen migratory birds in any one day, while in some of our states there is no limit In Wisconsin, we prohibit spring shooting of migratory game birds, while in Illinois, Iowa and some other states, they permit spring shooting. I am pleased to say there is a bill in Congress, known as the Weeks-Anthony Bill, which has for its object the placing of the migratory birds under the protection of the United States Department of Agriculture. This is a very important measure to our farmers, when we consider that so valuable a bird as the robin is considered a game bird in the states of Florida, Louisiana, Maryland, Mississippi, North Carolina, Tennessee, and Virginia. I might say the same of many other valuable birds, as the bobolink, thrushes, meadow lark, but time does not permit.

Some Other Enemies of our Birds.

The cat, according to Shaler, is the only animal that has been tolerated, esteemed and at times worshipped, without having a single distinctly valuable economic quality. It may be in a small way serviceable in keeping in check small rodents, which are the self-invited guests of man. Mr. Forbush, who made a study of the cat, estimates that the average cat kills fifty song birds a year, and he knew of one cat to destroy six birds' nests in a single day. Cats are the worst enemies of our birds.

Another instrument that has destroyed many of our birds is the gun in the hands of the thoughtless. The boy or man who shoots a harmless bird does not realize that he is injuring his neighbor, in that he is destroying one of the valuable assets of the farmer. What we ought to have in our schools is a course of positive instruction as to the value of our birds, and then there will be less need of the dull machinery of repression. As Professor Hodge has said: "We need ethical training in our schools not in the way of moralizing, but in unconscious positive doing, as the warp of our education; and nature study offers boundless opportunities for its daily inculcation and practice." As the poet has well said:

"To him who in the love of Nature
holds
Communion with her visible forms,
she speaks
A various language."

Another custom, that in the past has done much to reduce our bird life, is the decorating of ladies' hats with birds. The National Association of Audobon Societies has done much to discourage this practice. President

William Dutcher of this society received a statement from Charles Dudley Warner as to the decorating of ladies' hats with birds, in which he said: "A dead bird does not help the appearance of an ugly woman, and a pretty woman needs no such adornment."

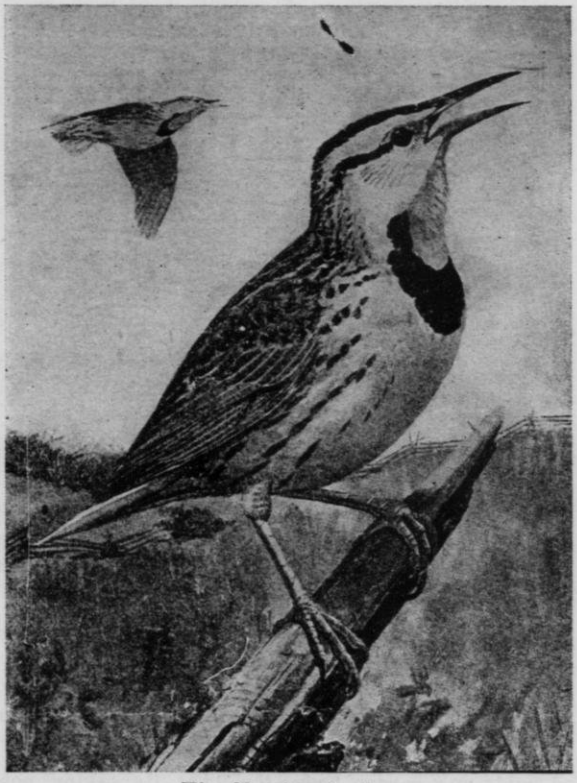
The Robin.

Order—Passeres. Sub-order—Oscines. Family—Turdidae. Genus—Merula. Species—Merula migratoria.

Encourage Our Birds by Putting up Bird-Houses.

As we have developed our farms, and built up our cities, we have destroyed the homes of our birds. I find as I go about the State, that many of our people are realizing this, and are putting up bird houses to attract the birds to stay with them. I know of no work that will furnish more pleasure, as well as profit, than the erection of a bird-house, watch the bird make his home there, listen to his song, and in addition, study the work he is doing to help raise your crops, by destroying the many insects and seeds of noxious weeds. The teacher or parent who encour-

ages the boy or girl to do this is doing a work of value to that child that cannot be measured. Not only this, if we can encourage the feeding and protection of birds during inclement weather, the birds will more than repay us for the time and effort put forth.



The Meadow Lark.

Order—Passeres. Sub-order—Oscines. Family—Icteridae. Genus—Sturnella. Species—Sturnella magna.

The poet Longfellow has given us a very graphic picture of the value of birds in the poem entitled, "The Birds of Killingworth."

"Think every morning when the sun peeps through
The dim, leaf-latticed windows of the grove,
How jubilant the happy birds renew
Their old, melodious madrigals of love!
And when you think of this, remember, too
'Tis always morning somewhere, and above
The awakening continents, from shore to shore,
Somewhere the birds are singing evermore."

Then you will find in reading this poem, that because some of the birds in their feeding habits injured some of the crops of the farmers, the peo-

ple of Killingworth had a bounty placed on all birds, and all the birds were destroyed. Then we have the other picture:

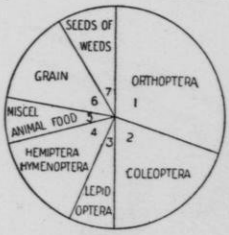
"The summer came and all the birds were dead;
The days were like hot coals; the very ground
Was burned to ashes; in the orchards fed
Myriads of caterpillars, and around
The cultivated fields and garden beds
Hosts of devouring insects crawled, and found
No foes to check their march, till they had made
The land a desert without leaf or shade."

Ownership of Animal Life.

The Supreme Court of the United States, in a decision handed down in 1895, entitled Geer vs. Connecticut, defined so far as wild animal life is capable of human ownership, wherein such ownership rested, and in that decision they say: "Wild game of a State belongs to the people in their collective sovereign capacity, and is not the subject of private ownership, except in-so-far as the people may elect to make it so, and they may if they see fit, absolutely prohibit the killing of it, or traffic or commerce in it. That its taking possession and the disposition thereof is the subject of legislative enactment."

In this brief address, the subject of birds and their relations to the farmer can only be set forth in a general way, but if asked the question: Does it pay the farmer to protect the birds, only one answer is possible. Even from the point of view of an investment for profit, the time and expense necessary for their care and protection is richly repaid. There is the

FOOD FOR THE YEAR



Months	Stomachs Exam'd	Animal Food	Grain	Weed Seeds	Total
Jan.	13	24.36	75.28	.36	100
Feb.	1	.00	25.00	75.00	100
March	12	73.14	17.00	9.86	100
April	28	77.51	15.10	7.39	100
May	8	97.99	1.88	.13	100
June	20	95.79	2.10	2.11	100
July	18	97.32	.00	2.68	100
August	28	99.35	.00	.65	100
Sept	29	99.20	.40	.40	100
Oct.	40	94.39	.61	5.00	100
Nov.	22	77.08	6.50	16.42	100
Dec.	19	19.22	32.70	28.08	100
Year	238	72.95%	14.71%	12.34%	100%

No. 1. Orthoptera.
Red-legged grasshoppers
Meadow "
Other "
Crickets

No. 2. Coleoptera.
Weevil
Billbug
Curculio
Clover weevil
Fire-fly family
Lady birds
Scarred snout beetle
Leaf-eating "
Flea "
Darkling "
Rove "
Longcorn "
Tiger "
May "
Ground "
Click "

No. 3 Lepidoptera.
Butterflies
Moths
Cutworm
Armyworm

No. 4. Hemiptera
Stilt bug
Soldier "
Assassin "
Chinch "
Spittle insects
Tree hoppers
Jumping plant lice

No. 4. Hymenoptera
Ants
Wasps
Stinging ants
Ichneumon flies

No. 5 Misc. Animal Food.
Ticks
Snails
Thousand legs
Small batrachians
Sowbugs
Spiders and cocoons

No. 6. Grain.
Clover
Wheat
Corn
Oats

No. 7 Seeds of Weeds.
Pigeon grass
Panic "
Smart weed
Rag "
Gromwell seed
Black mustard
Bayberry

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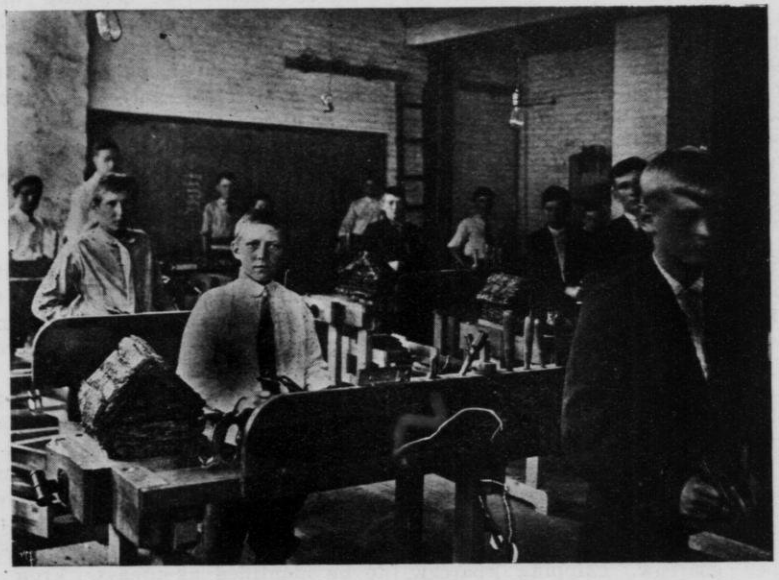
added consideration that without the music of the birds the world would be poorer. Anything that adds to the attractiveness of the farm and increases the interest of farm life is worthy of cultivation, even if no actual return is received in dollars and cents. Happily the farmer who protects the birds secures a double re-

"Freckles"—By Gene Stratton Porter.
"The Girl of the Limberlost"—By Gene Stratton Porter.
"The Harvester"—By Gene Stratton Porter.
"What I Have Done With Birds—By Gene Stratton Porter.
"Economic Relations of Birds"—By Weed & Dearborn.



High School, Portage, Wis. Sixth grade pupils constructing birdhouses. Elmer W. Lyons, Manual Training Director.

turn, increased profits from his crops and increased pleasure in living.

In conclusion, I like to feel in reference to animal and bird life, with the gifted Coleridge. when he condemned the killing of the albatross, and he cried out:

"He prayeth best, who lovest best,
All things both great and small,
For the dear God, who loveth us,
He made and loveth all."

Bibliography:

U. S. Department of Agriculture, Yearbooks.
"The Nature Study Idea"—By L. H. Bailey.
"Nature and Life"—By C. F. Hodge.
"Summer of Saturdays"—By C. W. Smith.

DISCUSSION.

A Member—How about the crow?

Mr. Cleasby—I desire to defend the crow. The crow does some harm, in that he pulls some corn at the time of sprouting; he also eats some corn at the time it is in the milk stage, and I have also heard that he carries dis-

ease. In my conversation with a farmer in Wisconsin, who makes a habit of studying birds and noting their habits, he related the following experience with the crow. The crow made a practice of visiting his cornfield at the time of sprouting and he noted that they were pulling some of the corn. He shot some of them, after which they deserted the field. In this same field, which contained twenty acres, the cut-worms absolutely cut off every hill, and he concluded that the cut-worm was worse than the crow. The crow is known to destroy a great many cut-worms.

Mr. Nordman—Is there any way of preventing crows from doing damage in the cornfield, if that is the only objection to them?

Mr. Cleasby—The Department of Agriculture has recommended some methods, and a letter addressed to this Department will secure the latest and best information available.

A Member—How about the sparrow?

Mr. Cleasby—I presume by the question that the English sparrow is the species referred to. There are many species of the sparrow family, as the tree sparrow, vesper sparrow, grasshopper sparrow, chipping sparrow, English sparrow, and many others too numerous to mention. On the whole, the sparrows constitute a valuable family of birds. One species of the sparrow family, the tree sparrow, carried out of the State of Iowa in one season 875 tons of weed seeds. The English sparrow was introduced into the United States about 1850, and it has spread until today it is one of the most abundant birds east of the Mississippi River. From a study of the English sparrow, the United States Department of Agriculture holds that there is little to be said in its favor. This Department has issued a bulletin on "How to Destroy the English Sparrow." All interested should read "Nature and Life," pages 313-317, by C. F. Hodge.

Dr. Kutchin—My idea of birds is very similar to that of the Kentucky Colonel about whiskey. He said, "Some whiskies are better than others, but there are no bad whiskies." So I say, some birds are better than others, but there are no bad birds. I haven't time to go into any argument on the subject, but the English sparrow does more good than harm. However, he is an unpleasant little cuss and you can get rid of him if you want to.

A Member—Bee-keepers tell us the kingbird is an enemy to bees. How is that?

Mr. Cleasby—"One bee raiser in Iowa, suspecting the kingbirds of feeding upon his bees, shot a number near his hives; but when the stomachs of the birds were examined by an expert entomologist, not a trace of honeybees could be found." An examination of the contents of the stomachs of 420 kingbirds was made by the United States Department of Agriculture, and in these were found only 50 honeybees, of which 40 were drones, four were workers, and the remaining six were too badly broken to be identified as to sex. From a study of the kingbird, the United States Department of Agriculture establishes three points in regard to the food of the kingbird. (1) That about 90 per cent consists of insects, mostly injurious species; (2) That the alleged habit of preying upon honeybees is much less prevalent than has been supposed, and probably does not result in any great damage, and (3) That the vegetable food consists almostly entirely of wild fruits which have no economic value.

A Member—Is it all right for ladies to wear ostrich feathers on their heads?

Mr. Cleasby—I think so, if they can get them without killing the bird.

FOOD CHART OF OUR COMMON BIRDS.

	Per Cent Animal Food	Per Cent Vegetable Food	ANIMAL						VEGETABLE				PESTS								
			Caterpillars	Beetles	Bugs	Grasshoppers	Ants	Spiders-Millipedes	Cultivated Fruit	Wild Fruit	Grain	Weed Seed	Noxious Mammals	Mosquitoes	Gypsy Moth	Canker Worm	Potato Beetle	English Sparrow	Elm Beetle	Cut Worm	Tent Caterpillar
BLUEBIRD	75	25	10	20	2	22	6	8	9	10					+						
ROBIN	50+		8			9	+	+	-5	45					+					+	
WOOD THRUSH			+	+		+	+					+			+		+				
BROWN THRASHER	63	35	8	20	2	12	5	7	11						+					+	
CATBIRD	44	55	5	14	2	4	10	4							+					+	
HOUSE WREN	98	1	16	22	12	25	4	14							+					+	
CHICKADEE			+	+	+	+	+								+	+					+
VIREOS			+	+	+	+									+						
CEDAR BIRD	12		+	+		+		+								+			+	+	
SWALLOWS				+		+	+							+							
TANAGER			+	+		+		+													
SHRIKE						+							+					+			
R'S-BR'ST'D GROSBEAK						+									+		+				
CROW	26			+	+	+					+		+							+	+
BLUE JAY	24	76	+	11		+				11	+				+						
REDWING	26	74	+	+		+					13	57								+	
GRACKLE	70	25		+	+	+	+	+				+			+						
ORIOLE	84	16	25	+	+	+	+	+				+								+	+
MEADOW LARK	72	28	+	+	+	+	+	+				+								+	
BOBOLINK	37	63	7	13		8	5				21‡	36									
KINGBIRD	90	10	+	+	+	+	+	+							+	+				+	
PHOEBE	88	12	+	+	+	+	+	+							+				+		
BLACK-BILLED CUCKOO	100		47	7	6	30		4							+		+				+
DOWNY WOODPECKER	75	25	16	24	4	+	23	3							+						
HAIRY WOODPECKER	68	32	21	24	+	+	17	+							+						
FLICKER	59	41		10		+	43								+						
RED-SHOULDERED HAWK						+	+						+								
MARSH HAWK						+							+								
SCREECH OWL			+			+							+					+		+	
ENGLISH SPARROW	11	89	2	3		1	+	+	*4		75	10									

	SPECIES DESIRABLE TO LEAVE AND PLANT IN ORDER TO ATTRACT BIRDS TO A LOCALITY AND FURNISH FOOD																
	Choke Cherry	Black Cherry	Elder Berry	June Berry	Virginia Creeper	Dogwood	Viburnum	Mountain Ash	Strawberry	Bittersweet	Hackberry	Raspberry	Pokeberry	Cedar	Frost Grape	Barberry	Spice Bush
BLUEBIRD	+		+		+	+	+		+	+	+		+	+			
ROBIN	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+
WOOD THRUSH									+					+			
BROWN THRASHER		+	+			+											
CATBIRD		+	+			+											
HOUSE WREN																	
CHICKADEE																	
VIREOS																	
CEDAR BIRD	+	+	+	+		+	+				+		+	+	+	+	
SWALLOWS																	
TANAGER																	
SHRIKE																	
R'S-BR'ST'D GROSBEAK																	
CROW	+	+	+		+	+	+				+	+	+			+	
BLUE JAY		+	+														
REDWING																	
GRACKLE			+	+		+			+		+						
ORIOLE		+		+													
MEADOW LARK																	
BOBOLINK																	
KINGBIRD	+	+	+		+	+						+	+	+		+	+
PHOEBE																	
BLACK-BILLED CUCKOO																	
DOWNY WOODPECKER				+	+	+			+				+				
HAIRY WOODPECKER	+	+		+	+	+							+		+		+
FLICKER	+	+	+	+	+	+					+	+	+		+		+
RED-SHOULDERED HAWK																	
MARSH HAWK																	
SCREECH OWL																	
ENGLISH SPARROW																	

	SPECIES DESIRABLE TO LEAVE AND PLANT IN ORDER TO ATTRACT BIRDS TO A LOCALITY AND FURNISH FOOD (continued)																
	Buckthorn	Green Brier	Juniper	Wild Grape	Holly	Hawthorn	Blueberry	Huckleberry	Bush Cranberry	Partridgeberry	Sarsaparilla	False Spikenard	[illegible]	Blackberry	Mulberry	Mast	
BLUEBIRD		+	+		+			+	+	+	+	+	+	+	+		
ROBIN		+	+	+	+	+	+	+					+	+	+		
WOOD THRUSH			+											+	+		
BROWN THRASHER	+																
CATBIRD	+	+												+	+		
HOUSE WREN																	
CHICKADEE																	
VIREOS																	
CEDAR BIRD								+						+	+		
SWALLOWS																	
TANAGER															+		
SHRIKE																	
R'S-BR'ST'D GROSBEAK															+		
CROW		+	+		+	+	+	+							+		
BLUE JAY								+								42	
REDWING															+		
GRACKLE							+	+								+	
ORIOLE														+	+		
MEADOW LARK																	
BOBOLINK															+		
KINGBIRD	+		+	+			+							+	+		
PHOEBE															+		
BLACK-BILLED CUCKOO															+		
DOWNY WOODPECKER																	
HAIRY WOODPECKER														+	+		
FLICKER		+	+														
RED-SHOULDERED HAWK																	
MARSH HAWK																	
SCREECH OWL																	
ENGLISH SPARROW																	

*Rice.
‡Green Peas.

By permisison of Prof. C. F. Hodge, Clark University.

Dr. Kutchin—It is according to whether they pay for them.

Mr. Bradley—I wish Dr. Kutchin would tell us about a bunch of birds down in his country that had a warranty deed to a piece of land.

Dr. Kutchin—The Telephone Company came along and wanted to cut some trees along what many of you progressive farmers would have considered an unsuitable tangle of trees, shrubs, vines, and everything growing, for half a mile along my farm on a public highway. I said to the agent of the Telephone Company I was sorry but I did not have possession of the land so I could not give permission to cut the trees, and he went down and looked at the record, or somebody told him, and he came back and he said, "Why, you have possession of that land, what do you mean by saying you do not have possession?" I said in brief that the birds had had undisputed possession for twenty years, they had acquired title, and I could not, without their consent, give permission to have the trees cut.

Recess to 7:30.

EVENING SESSION.

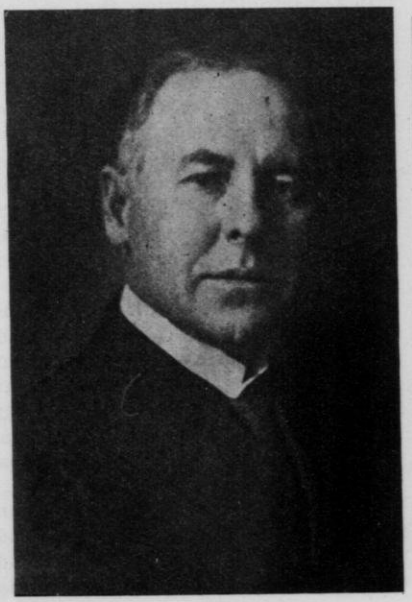
The convention met at the Opera House at 7:30 p. m. Song, by the Boys' High School Glee Club. Superintendent McKerrow in the chair.

Chairman McKerrow—Last fall, while I was in Chicago at the time of the Land Show, I picked up different Chicago papers and discovered that we had a man up in Wisconsin who had dropped a bombshell into one of the land men's meetings that had been in progress in that city. He had gall enough to talk about "fake" land schemes in their own meeting, and as that gentleman was from Wisconsin and spoke what I thought were a great many plain truths and good things there at that meeting, I asked him to attend the next Round-up of the Farmers' Institutes and talk along that same line.

This evening we have this gentleman here. I think we have got him a safe distance from Chicago so the papers will not pitch into him tomorrow. He needs no introduction to this audience, because his name is known through the length and breadth of Wisconsin, but as he is to make the speech, not I, I am going to introduce to you the Hon. Jas. A. Frear, of Madison, who will discuss the subject of "Wisconsin's Advantages."

WISCONSIN'S ADVANTAGES.

Hon. James A. Frear, Chairman State Board of Immigration, Madison, Wis.



Mr. Frear

I want to say before I begin my topic that I left the Governor's office at half past twelve and he said, "Present my regards up at Neenah. You see how busy I have been."

I know he would have been glad to be here, and if he had seen this audience he would have been glad to get away from the people who are always waiting for him.

In his invitation to speak at this Round-up, Superintendent McKerrow asked me to discuss fake land schemes which I briefly mentioned on Wisconsin day at the Coliseum Land Show. This will be my excuse for saying a few words on the subject now.

Wisconsin's Competitors.

Do you ask why Wisconsin has been passed in the race for lands by the west, south and by Canada? Upon investigation, the answer appears plain,

yet in no way relates to comparative merits.

Attractive literature, filled with glittering promises, illustrating modern steam plows in the act of turning silver dollars from out the soil, will be found in the pockets of the boys, young and old, who leave Wisconsin for the Texan and Canadian Arcadias.

For years we have been feebly competing with government reservation openings, government irrigation schemes, government reclamation of Florida everglades, with Canadian government lands, and with many other distant bidders for immigration. While not reflecting on legitimate business propositions, which are to be found in every State, some of these schemes do not even possess the merit of lotteries, because they are frauds without any redeeming qualities. Under license of law, men are trapped and swindled in a manner that would put to shame a hardened Faro dealer. Cabinet Officer Wilson is credited with the remark in connection with the Everglade scandal, that it is not the government's business to protect fools who make investments without investigation. In other words, while the government directs its energies toward apprehending moonshiners, Louisiana lottery schemes and other violations of law, it invites people to speculate in reservation lotteries, in irrigation propositions, frequently without water rights, and in everglade reclamation frauds, where losses to the many far outweigh the profits to promoters or to lucky prize winners.

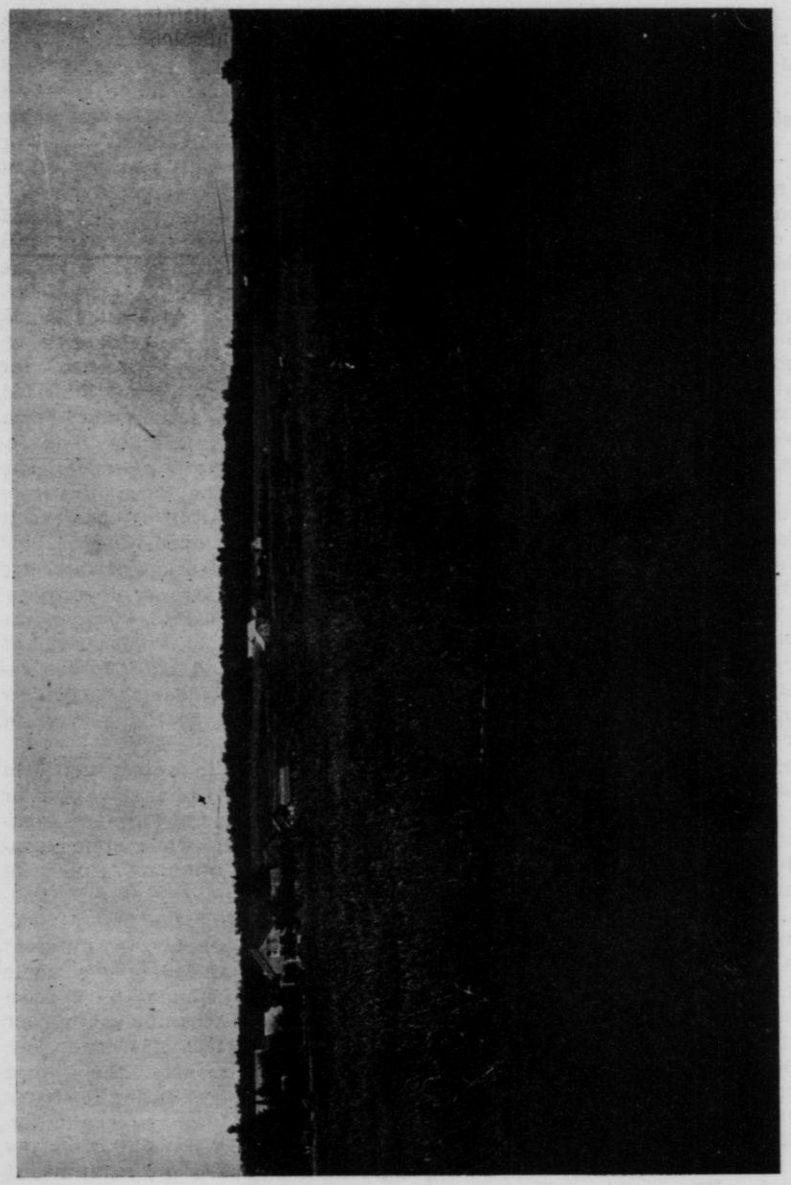
Where the government is an offender, why seek out private frauds that, because of absence of apparent authority, are but feeble imitators? A brief study of the land question presents the unvarnished fact that money talks in land advertising, as it does in all other kinds of publicity.

When you seek to know why 200,000 settlers will leave this country for Canada during 1912, according to Commissioner Walker's estimate; when you ask why approximately $200,000,000 is carried annually across the Canadian border from this country, the reason becomes apparent, even to the way-faring man who examines the methods employed.

Why does the Canadian government according to the report, spend $300,000 annually and her railroads as much more for emigration agents, literature and other advertising methods? Simply because $200,000,000 in money and 200,000 settlers is a stake worth playing for. Neither is this a case of Canadian reciprocity with any reciprocal returns, because what is Canada's gain is our loss. What proportion of this loss strikes Wisconsin, Minnesota and other border states? While exact data cannot be had, we read the result in Wisconsin's shrunken population throughout the western counties of the state that are reached by Twin City agencies, and no man can study the stationary population of the State, outside our own cities, without realizing that we are losing where we ought to gain. Some of the best blood in the State has been drawn upon during recent years, attracted across the Canadian border by specious promises.

With threefold better opportunities in Wisconsin for the average small farmer than are found in Canada, when we see our people throw away a certainty for hardship and uncertainty, to move across the border, we are free to admit that advertising pays. Minnesota discovered the danger several years ago and now appropriates $20,000 annually for its Immigration Bureau, although this is only twenty per cent of the amount recommended by Governor Eberhard's message last year.

If five per cent of the Canadian immigration goes from Minnesota and an equal amount from Wisconsin, and the proportionate loss of each state



Field of oats 10 miles from Wausau, Wis.

is unquestionably greater, it means ten thousand settlers will leave this State in 1912, carrying away with them approximately ten million dollars in money or property.

Legislative Indifference to Agricultural Interests.

To stem this vast economic loss, Wisconsin appropriates less than one-tenth of one per cent. Seven thousand dollars is the sum set apart by law with which to pay office expenses, postage, salaries and exhibits, with less than half the amount available for advertising, in an effort to combat the flood of Canadian literature and the group of Canadian agents now working in our own State.

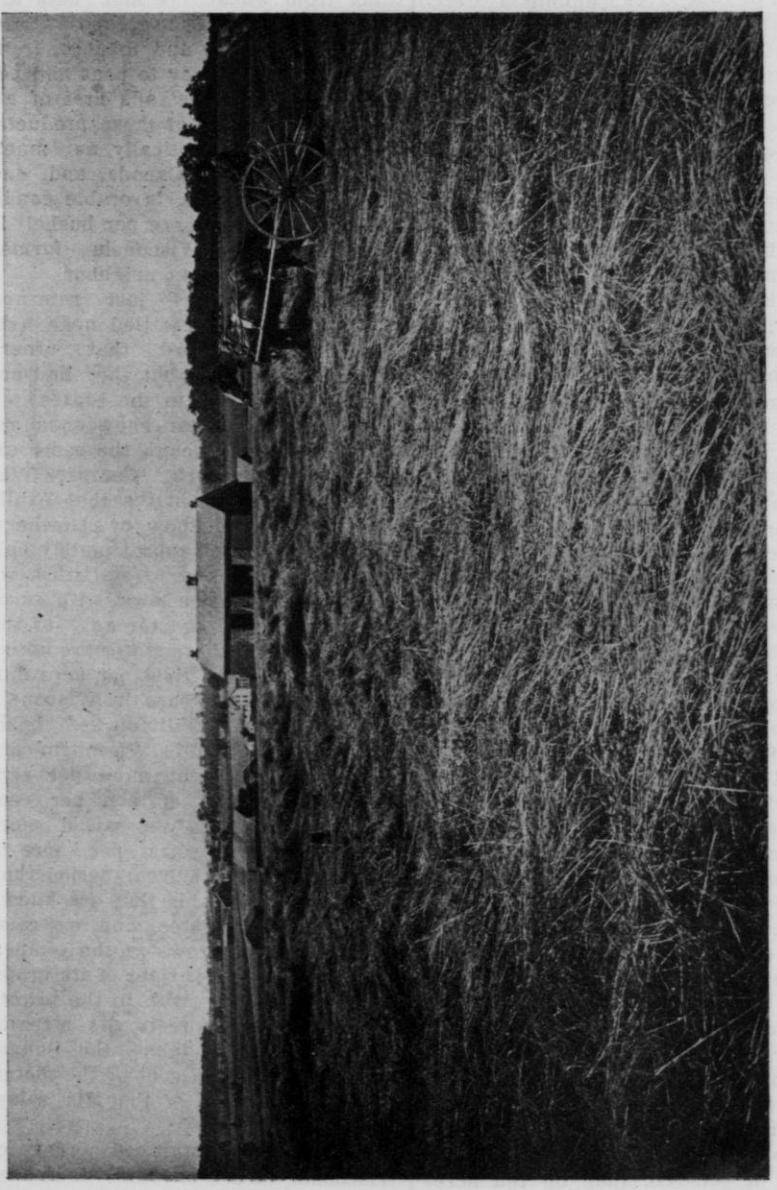
This spirit of legislative economy is not always evident, for at the last session the Wisconsin Legislature appropriated $50,000 for celebrating Perry's victory over the Canadians and British over one hundred years ago. While we are holding a $50,000 jollification over what happened a century ago, the Canadians are fighting us today, within our own State, and are annually capturing thousands of our people with millions of resources, while the Wisconsin Immigration Commission is tied hand and foot, because of lack of funds.

Less money is given to the Commission for advertising Wisconsin's resources than was appropriated by the last Legislature for a naval militia with which to drive off Canadian invaders.

Practical, hard-headed citizens of Wisconsin must marvel at legislative wisdom that gives with lavish hands for Perry's celebration; more money to man a toy gun boat on the lakes; and one-third as much money for sterilizing legislative spittoons, as is given to the Immigration Board for advertising Wisconsin's resources.

All the arguments before committees by Dean Russell, Superintendent McKerrow, President Hill of the State Board of Agriculture, and a half dozen other disinterested men, went for naught. The committee could not or would not comprehend why $7,000 was not ample to meet all necessities. In fact, this same committee, ostensibly in an endeavor to save money, made a strong effort to repeal the law creating the Immigration Board, although the Board gives free service to the State. Bill No. 186A tried to do away with the immigration work which is now carried on as far as the limited funds permit. This effort was fostered by men who ineffectually worked for Bill No. 710A, a bill which proposed to repeal the law authorizing Farm Institutes. Nine democrats, nine socialists and a quartette of republicans voted to repeal the Farm Institute law, from which it will be observed it was non-partisan opposition. This unexplained combination of interests that worked together on other measures sought to repeal a law which has given to Wisconsin thousands of Farm Institutes and has afforded instruction to two millions since the law was first enacted, over a quarter of a century ago.

Men who refuse to protect their own State from the Canadian invasion, or men who strike at the Farmers' Institutes of this State, while giving generous donations of State money to Ohio celebrations, are not representing the interests of the first agricultural state in the country. A different spirit animated our people as a whole when there was brought to Wisconsin the world's championship for barley grown in 1908, 1909 and 1911, or that gave Wisconsin the world championship for rye during the same years, including 1911. It is a different spirit that has brought to us the same high standard for oats, wheat and corn, according to the government statistics; that gives Wisconsin, with its 32,480,000 bushels of potatoes



Field of timothy 6 miles from Wausau, Wis.

in 1911, first place among all the states, or that gives the Badger State, according to the government report, three times the return per acre in tobacco compared with old Virginia or Kentucky.

Some Significant Figures.

A broader, more enlightened spirit has made Wisconsin the first dairy State in the country, with her $80,000,000 annually in dairy products, and has also placed her first among the clover, hay and stock raising states. In every walk of agricultural pursuits, Wisconsin's name has been written among the foremost states, because broad intelligence, industry and thrift have been characteristic with our people. We have the brain and brawn, the soil and seed; we have hopelessly distanced Canadian markets, climate and crops.

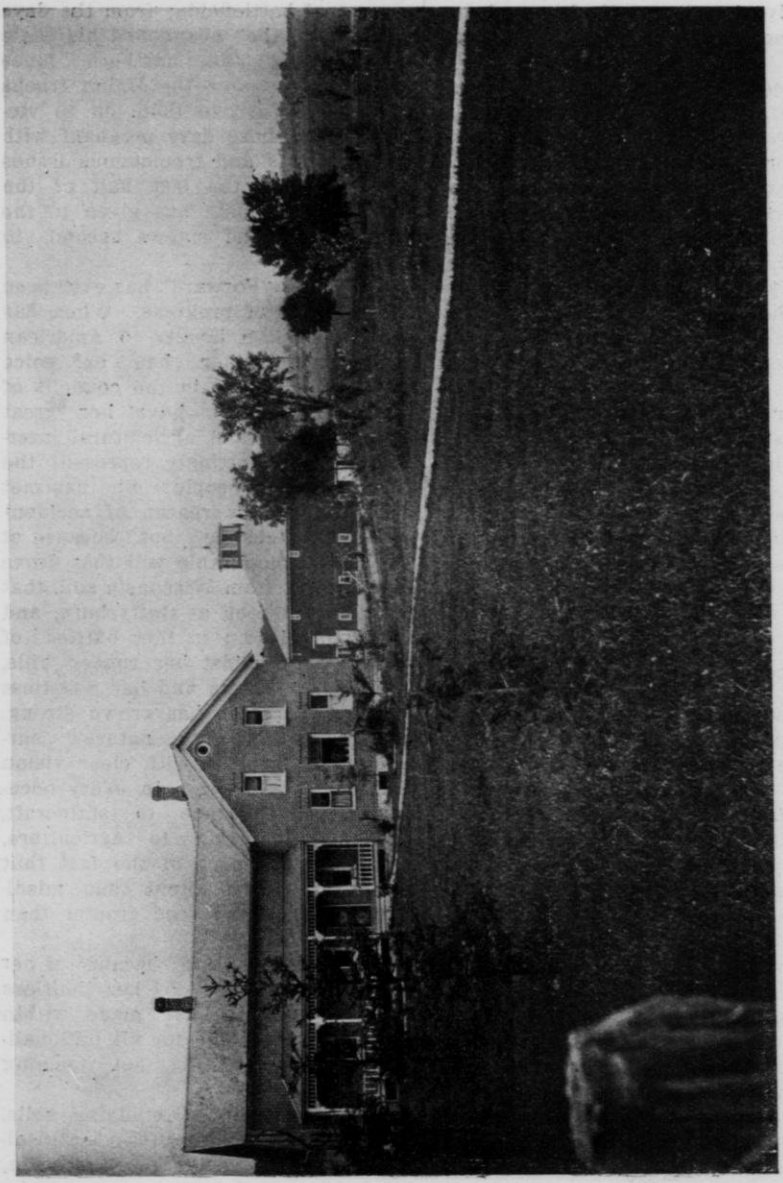
Of 411 cars of wheat sold in Winnepeg on November 14th last fall, according to the Calgary "Herald", the average Calgary price, according to grade, was 58 cents a bushel. On the same day, wheat sold in Wisconsin for 92 cents a bushel and barley at $1.02, a difference of 60 per cent in wheat and 80 per cent in barley in favor of our farmers. The Superior "Telegram" of March 5, 1912, stated that all Canadian wheat received by customs officers at that port is now docked, the actual shrinkage in one carload reaching 9,980 pounds. Aside from direct loss, this was a waste in freight charges on that one car of more than fifteen dollars. Alfalfa hay, worth in Canada from five to six dollars a ton, is worth $20.00 a ton in Wisconsin, the difference in price being wasted in freight rates.

More can be realized on one acre of Wisconsin land planted to potatoes, beets or tobacco, than on ten acres in Canada planted to wheat. Land values in Canada are as high in price as lands similarly situated in Wisconsin, while here we can produce everything from wheat, rye and oats to corn and cows, from cheese and cherries to apples and tobacco, from beet sugar and barley to peas and potatoes. Wisconsin stands first of all the states in many of these products, while it raises practically as much wheat per acre as Canada, and, due to market and other favorable conditions, 60 per cent more per bushel is received by the Wisconsin farmer than by his Canadian neighbor.

Nineteen families just returned from Alberta have settled near Ashland, bringing word that others would have come, but they had not means to get back to the States.

No other State can show equal results with ours through the same expenditure of effort. Compare Wisconsin with all the states that exhibit at the National Show, or elsewhere. Possessing land of approximately half the value, according to statistics, we can meet Illinois, or Iowa, with equal production per acre for any of the crops for which these states are noted. The average corn yield per acre during the past ten years in Wisconsin was 35½ bushels, in Illinois 34.7 bushels, Iowa 32.1. In 1911 Wisconsin corn yielded six per cent more per acre than Illinois, and fifteen per cent more than Iowa. We raised more oats and spring wheat per acre in 1911 and for the ten-year period than any of the ten states that are known as great grain states, and we raise everything that grows in the temperate zone. In the variety of its crops, Wisconsin has no rival. In the beauty of its hills, its forests, its streams and thousands of lakes, the Badger State is the garden spot of the picturesque park region of the Mississippi Valley.

Yet the actual improved acreage of Wisconsin farms has only increased six per cent within the past ten years, or about one-half of one per cent annually. Our lands are not half de-



Farm home and round barn in Marathon County, Wis.

veloped. From eight to ten million acres remain uncultivated, which, with intensive farming methods now being introduced in Wisconsin, will increase the present yield many fold. The needs of this day are important to meet, and every means that can be employed to better farming conditions, whether through the agricultural college, experimental station work or Farmers' Institutes, is an investment that will bring to the State its own reward.

Every effort to acquaint our people with the opportunities to be found in Wisconsin should be put forth. We challenge comparison, either in market or climate, water or soil, seed or home-making possibilities, with any other state or country, and when we are able to bring the comparative advantages of our own State home to the discontented farmer in our midst and he is persuaded to direct his energies to his vocation, it is a financial saving to the community and a better citizen for the State.

Wisconsin's Place in the Union.

I have dealt briefly with the practical, economic side of the question, but, notwithstanding the spirit of cynicism we sometimes affect, man is essentially a creature of sentiment. His patriotism and love of home and country have brought to him the greatest triumphs in history. For this reason, if for no other, it is better to live in Wisconsin than under a foreign flag in far away Canada. In fact, it is better to live in Wisconsin than in any other State or country.

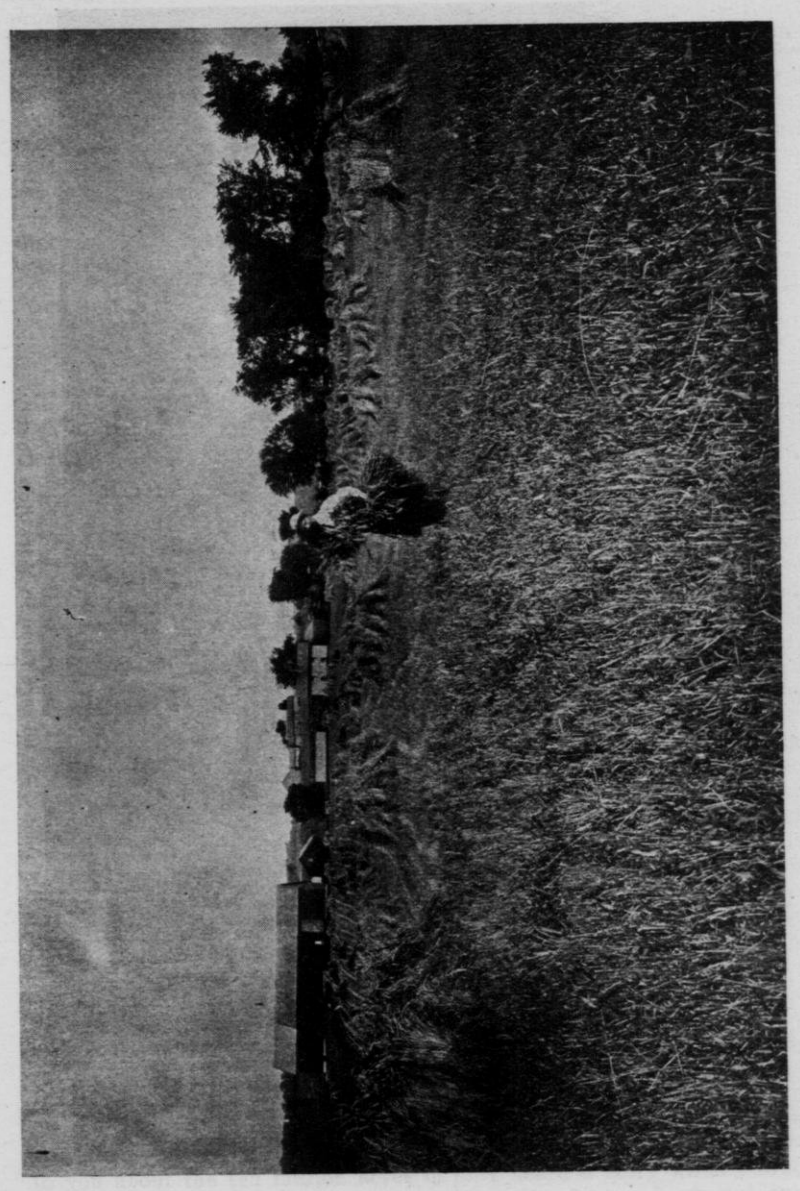
Since the days when the great Winnebago tribe held undisputed sway here in the Fox River Valley, Wisconsin has written her story through her men, her women and her wonderful resources.

From the days when General Bragg left the shores of Lake Winnebago to lead the Iron Brigade through the confederacy, carrying Wisconsin's flag side by side with "Old Glory" on a score of battlefields; from the days when "Old Abe" abandoned his eagle nest among the northern pines and soaring above the Union troops in the south drove them on to victory; from those days pregnant with mighty deeds and tremendous issues down through the last half of the century, Wisconsin has given to the nation brain and sinews second to none.

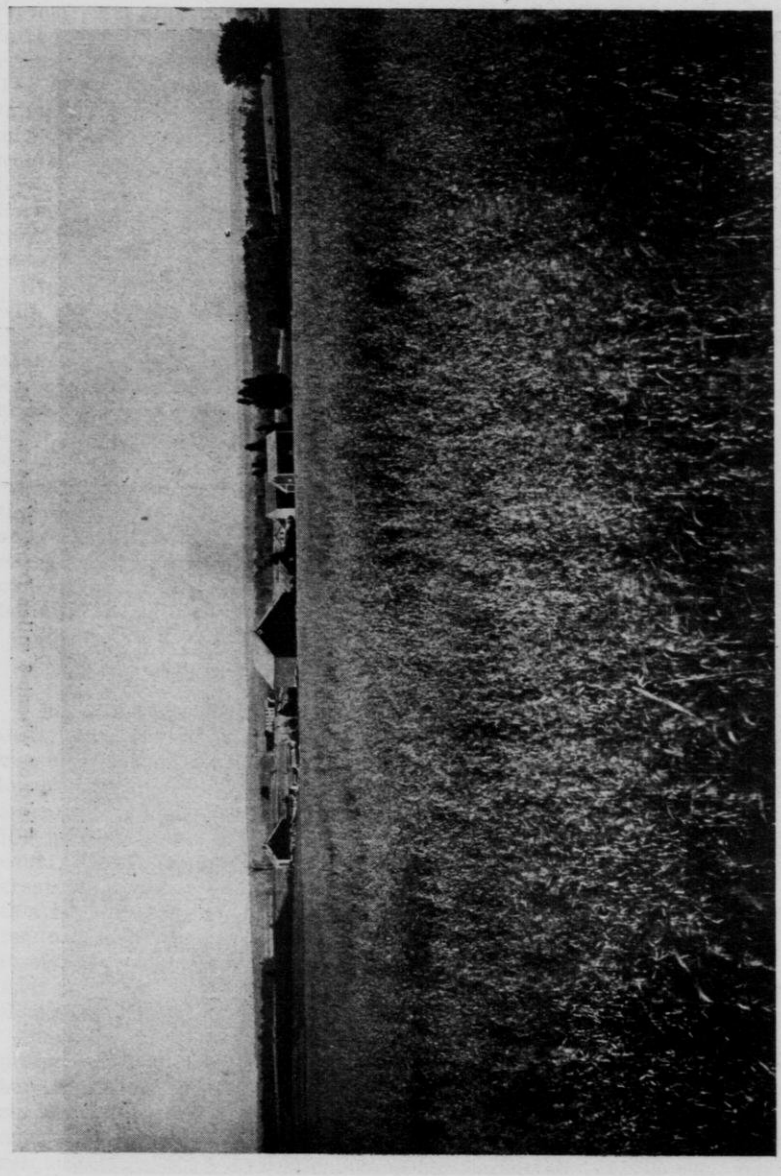
Her motto "Forward" has ever been the message of progress. When has she wavered in loyalty to American institutions? When has her voice failed to be heard in the councils of the nation? When have her great manufacturing and agricultural interests failed to fittingly represent the industry of the people? She has met all tests, not by reason of accident or favoring chance, but because of the same indomitable will that drove Black Hawk from Wisconsin soil, that stood like a rock at Gettysburg, and that today leads in the battles of peace. Born midst her rugged hills, her mighty forests and her resistless waters, Wisconsin has grown strong, virile men, like unto nature's surroundings, inspired with clear vision that sees to the end. In every occupation from science to statecraft, from manufacturing to agriculture, she is an exponent of the fact that brains are more potent than misdirected energy and seed greater than soil.

We love the State because of her history and because of her limitless possibilities that have made within her borders a home for all nationalities, a human melting pot teeming with activities.

We are not alone studying soils, animal and vegetable life, scientifically and intelligently, in Wisconsin, but we are studying our own people, their fundamental rights, their happiness, comforts and their general



Field of wheat 6 miles from Wausau, Wis.



An 80-acre farm in Marathon County.

welfare. We are studying state and national government, and we are learning that substantial, enduring progress as a people cannot be had without such study. Each one has his part to play in this development, each has his duty to perform, and the result will be a lasting monument to the men who are making Wisconsin's place first among all the states. Leaders will always be found in the various walks of life, but the government that builds most enduring is the one whose citizenship, above all things, is faithful to its own rights and loyal to the State.

That citizenship holds up the hands of our home people today by wise, wholesome laws and it welcomes all those from beyond our borders who are searching for ideal home conditions, promising to give equal privileges in the opportunities that are afforded by our State.

Music, Song, Fred Robey.

Music. Young Ladies' Choir, Mrs. Oborn, leader.

THE GIRL WHO CAN.

Mrs. Nellie Kedzie Jones, Auburndale, Wis.

Mrs. Jones.

While Secretary Frear was talking to you about the ten million acres of Wisconsin and urging you to see what they would do for you, I wondered a little what good those ten millions of acres are to Wisconsin unless there are homes upon them, and I wondered what good all the millions of acres of potatoes he talked about would be to you and to me unless we had some girl to bake them; what good all the wheat would do any of us unless we had some girl who knew how to make bread out of that wheat, and so it seems quite appropriate that I am here to talk to you about the girl who can do all these things, if you give her a chance; the girl who can help to make on these millions of acres the kind of homes Wisconsin needs. I want to say to Secretary Frear and to all of you, that while your harvests of barley and potatoes and wheat and corn may be of great moment, while your hay may be a wonderful crop; in the State of Wisconsin there is no crop that means so much to you or to me as the crop of boys and girls; you and I are more or less responsible for the bringing up of the girls.

I heard a story when I first moved into the State. I am not sure I believed it last fall when the rain was

coming down in such torrents that we did not know but we would all be washed into the Mississippi. I was not sure when I saw the thermometer dropping down farther and farther, so we almost had to dig into the snow to find it, but since the sun has come out in all his glory and we begin to see signs of spring, I am inclined to believe it.

A man dreamed that he died and went to Heaven. While wandering about the wonderful streets and trying to realize the glories, he saw every once in a while a man with a ball and chain, and he wondered what it meant. So he went to good St. Peter and said, "I do not understand this, I thought this was Heaven where nobody was bad". And St. Peter said, "Oh, those men are not bad, they came from Wisconsin and we have to chain them to keep them from going back."

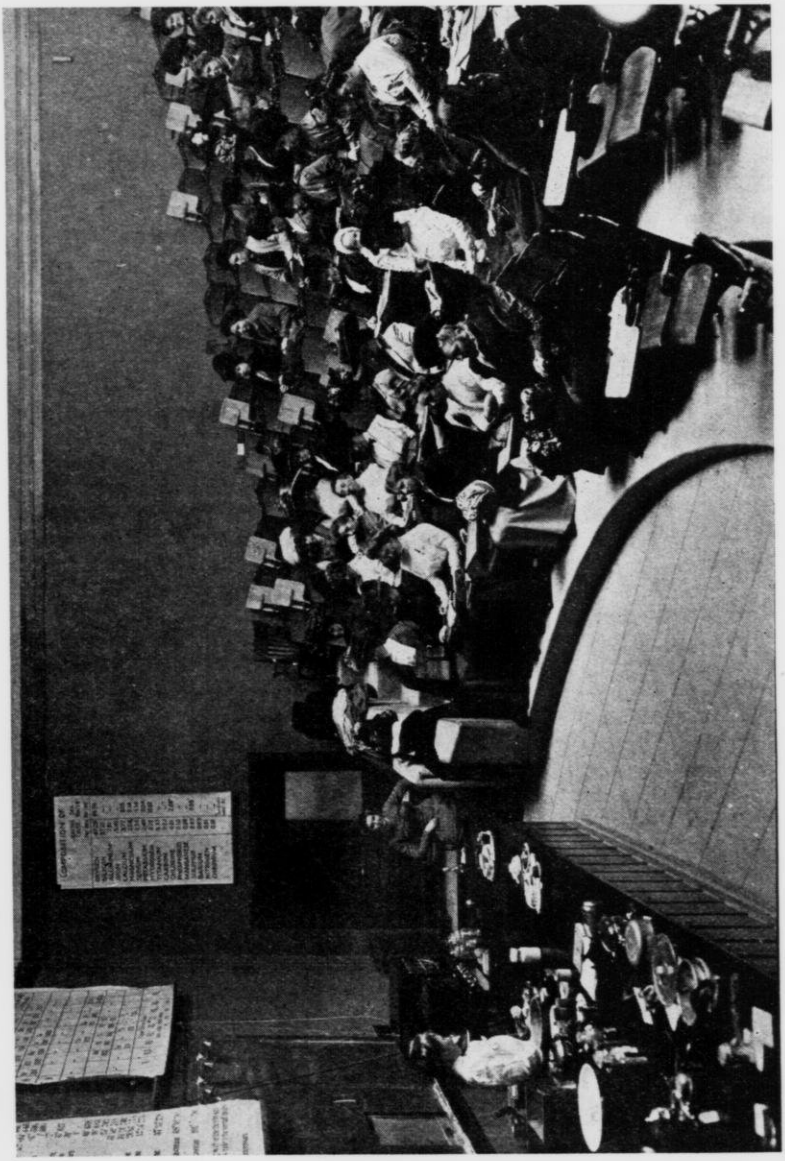
The Value of Life.

The value of any life today is measured by the the ability of that life to meet the demands made upon it. Wherever you live, wherever you go, there are certain demands made upon each one of you, and insofar as you meet those demands with good work, just so far will you one day hear the plaudit, "Well done".

Education is the training we give young people to make them ready to meet the demands the world will make upon them. Nobody asks you today, whence came you, or who was your grandfather, but everybody does ask you and me one question and that question is, what are you good for? What can you do, or what can you give out of your life to make this old world wiser or stronger or happier or better? If we do our best, we do all the Father asks of us. Our best means that we be trained in early life to do the work that will come into our hands; untrained we never can do our best. I suppose the most difficult problem that comes to the men and women to whom God has given children is the problem just how to train those children so they may be able to meet the demands the world will make upon them. The time was when all training, all education, was in the monastery; only boys had training then. Then came a time when people said that was too small a part of the world to be trained. They said, "We will train for culture's sake", but that looked selfish. Then came a time when people said, "We must train for usefulness, and unless the trained man can be more useful to his fellow men, unless he can do more for them becase of his training, then is his training for naught". We demand today that education and training shall mean stronger work, better work and more work for the people about us. We look to the trained man and the trained woman to give us their best and to help raise the standards in all their communities. So in the later days we plan our education in such shape that the young people shall be trained for whatever comes.

When our forefathers came across the sea, they built first their own little cabins, then they built the church house, and after that always came the schoolhouse, as they streamed across this great land from the Atlantic to the Pacific they planted schools; on every hillside and in every valley you will find today a schoolhouse of some sort, until we are justly proud of our educational systems.

Most of the training of the schools has been planned for the boys. "If my boy is to be a farmer, I will send him to the Agricultural College, I will teach him how to know crops and soils and to know about animals until he shall know how to use and handle them before I will trust him with all this property. If my boy is to be a doctor, I will send him to col-



Women's Course, University of Wisconsin, 1911.

lege and I will make him keep up with the investigations of the scientific men who are studying year in and year out on those problems, so he shall be able when disease comes into my family to take hold of that with a wise hand, all this before I will trust in his hand, the lives of my family and myself? And so of all the work we put into the hands of the boy.

What Are We Doing For the Girls?

But what are we doing for the girls? I am afraid we forgot them, because I heard a man say once, "What is the use of educating a girl? By and by she will get married and then what will be the good of an education to her?" Forgetting that no where in all this world is knowledge needed so much as in the home; forgetting that no where can knowledge be used to such purpose as in the training of little children; forgetting that from these homes must go out the men who will be wise and strong and good enough to be the ministers, the doctors and the lawyers and the farmers of the next generation. We forgot all these things until the girls themselves rebelled and demanded some training. They knocked at college doors finally, the doors opened a little at first, and then more, until the girls stood beside their brothers and proved they had brains, proved they could learn by learning the same lessons set for the boys. Then they asked for more, and away along in the early 40's, Mary Lyon struck the keynote for girls when she said, "Why shouldn't a woman be trained for the work which will surely come to her in after years, just as much as a boy should be trained for his life work?" So Mary Lyon put into her school a little touch of what she called "home-making", and from that keynote has swelled a great harmony that has rolled all over this land, until in every kind of school we find today something of home-making for every girl. When I say "every kind of school", I mean it, for from all grades up until we get through our great universities, there is here and there and everywhere a touch of home training for all the girls. We have put it into all kinds of schools, but alas, not nearly all the schools, and I am hoping that the day will soon come when every school in the land may teach something of home-making, just as surely as they teach the "three R's". We have said a good many times that we taught the "three R's", but we should have the "three H's" in teaching as well, we should have the hand, the head and the heart trained. This work is coming into all the schools. I sometimes wonder just why the American people take hold of things so readily, but I think they are like the old Kentucky Judge. He was going up into the mountains. When he was far away from any habitation, suddenly one of the shafts broke and he was helpless. He got down out of his buggy and looked it over and sighed and wondered and worried, but he could not do a thing. By and by an old darkey came along and the Judge appealed to him. The darkey stepped into the bushes, cut a sapling, came out and took off the check rein, fixed the thill and spliced the shaft in a jiffy. The Judge climbed back into his carriage and said, "I am very much obliged to you. Why couldn't I have done that as easily as you did?" The old darkey pulled off his hat and said, "I dunno, Massa, but some folks is smarter than some other folks".

The Americans have been smarter than other folks in that they have recognized the value of good training and are putting it into their schools. We are getting to know what it means to a girl to be well prepared for her life work, and I am sure you will agree with me when I say that whether a girl marries or not, she is more than likely to have need of

Students in Textile Laboratory, University of Wisconsin. Garments are designed and made and value of time is estimated in study of economical expenditure of the income.

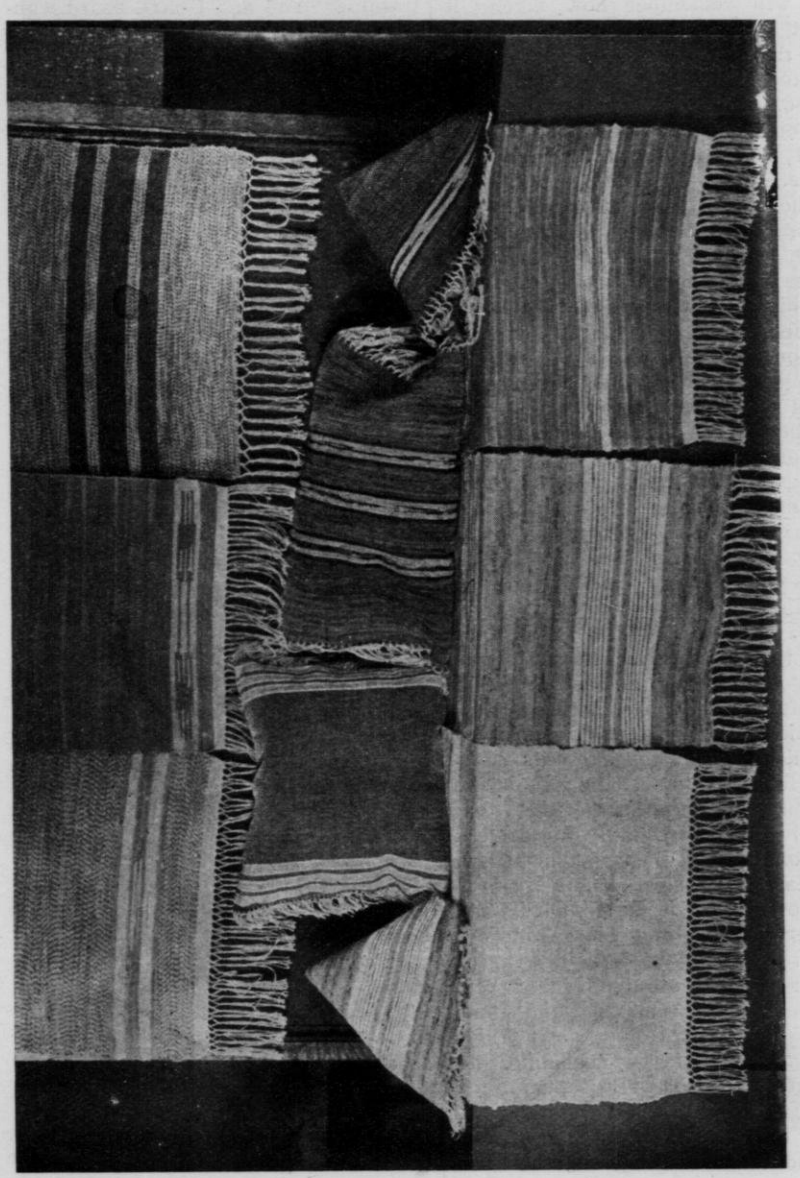
household knowledge; she is more than likely to keep house somewhere, sometime in her life. So it behooves you and me to see that every girl is so well prepared for her life's work that she will take up the burdens easily and her tasks will slip through her hands deftly, so she will have only joy in doing her work.

Across the seas they train their daughters a little differently. I remember up in northern Scotland seeing them carry a cook stove into a little stone schoolhouse. The teacher when asked about it said, "We have always taught the lassies to sew, but now we are going to teach them to cook some hot-pot, because we must keep up our reputation for good living." You remember the Englishman breakfasting with his Scotch friend looked at the "parritch" and said "You Scots are queer people; in England we feed oats to horses, but in Scotland you feed them to men." The Scotchman answered, "Ou ay, mon, and where will you find better horses than in England, and where will you find better men than in Scotland?"

In London they are training young women to go out through the country districts and see to it that every country school is teaching the cooking of foods. In France they are doing a gread deal in the same line. There is a man just outside of Paris who is devoting himself to teaching poor girls to cook; no rich girl can get into his school, for he says the salvation of France has got to come through the common people and the common people must learn how to cook the common foods in the very best way possible, and so his life is devoted to giving France something that no statesman can give, because he gives to those girls that which will bring about better feeding of the family. All through Europe they are doing just that sort of work. We began by putting this work into our Agricultural Colleges, and from there the work has spread into all kinds of schools.

The Trained Hand.

We begin by giving even the little children something to do with their hands. I believe God made hands just as well as He made brains, and I believe the day will come when a man who can only use his brains will be counted but half educated, just as now we say that the man who can only use his hands is but half educated. Remember that when Gladstone, the "Grand Old Man", wanted to think out his strongest work he shouldered an axe and went out into the woods and chopped trees. Do you remember that all our strongest statesmen, every one of them, had something in his life which compelled the use of his muscles and his hands, for the training of the hand along with the brain must make stronger brain work. You know Ruskin says, "There can be no happy labor without thought; there can be no healthy thought without labor; the two must go together." Therefore we train the little people to use their hands, to know how to do the things they want to do. We call it manual training. Somebody has said, "Oh, I do not want my child to have manual training, I do not want my child doing drudgery", forgetting that drudgery means handwork without any training. When you can learn to use the hand and the brain together, then we have true manual training. When somebody sits at the piano and brings harmony from the keys, there has been manual training. Most of us can read the notes, but how many of us have enough training in our fingers to let the telegraphy of the brain send the message down so that the fingers touch the keys rapidly and skillfully enough to bring the melody? Those of you who visited that wonderful



Rugs designed, dyed and woven by students, University of Wisconsin. In the study of textiles, each girl after studying dyeing, applies her knowledge in making some useful article.

White City in Chicago, those who were down at the St. Louis Exposition, will remember how much it meant to us to see the many things made there, to see how much we were indebted to the man whose hands are trained. Do you remember that unless somebody had trained hands you would not have seen any of the glories there? The man who thought out those great expositions did nothing for you or for me; he simply had it in his own mind, in his own brain, but the man who took those thoughts and plans and with his trained hands put them where you and I could see the wondrous beauties is the man to whom you and I are fully as much indebted as we are to the man who thought out the plans. I once saw a piece of canvas, not very large, it had some paint on it, not a great deal, but a man was glad to pay $135,000.00 for that bit of canvas, so he could feast his eyes on the beautiful picture that some man's trained hand had been able to put upon the canvas. Do you say these things I am talking about, the production of these wonderful expositions, the production of that beautiful picture are genius?

Genius! Listen. A few years ago a blind negro went through this country. He was almost idiotic, but he could play anything on the piano that could be set before him. We said he had wonderful genius, and he had. A few years later there came across the sea another man of genius, but he had training as well, and when Paderewski sat at the piano with his genius and his training whole crowds of people would rise to their feet, and sometimes tears would flow down their faces, because of the harmonies he brought forth from the piano. I leave you to say whether the man, simply the genius, or the man of genius and hand training together has made the greater mark upon the music of this country. You and I have seen glorious pictures that we would gladly put upon the canvas if we had the hand training. You and I have heard wondrous melodies in our souls that we would gladly bring out on the piano if our hands were sufficiently trained.

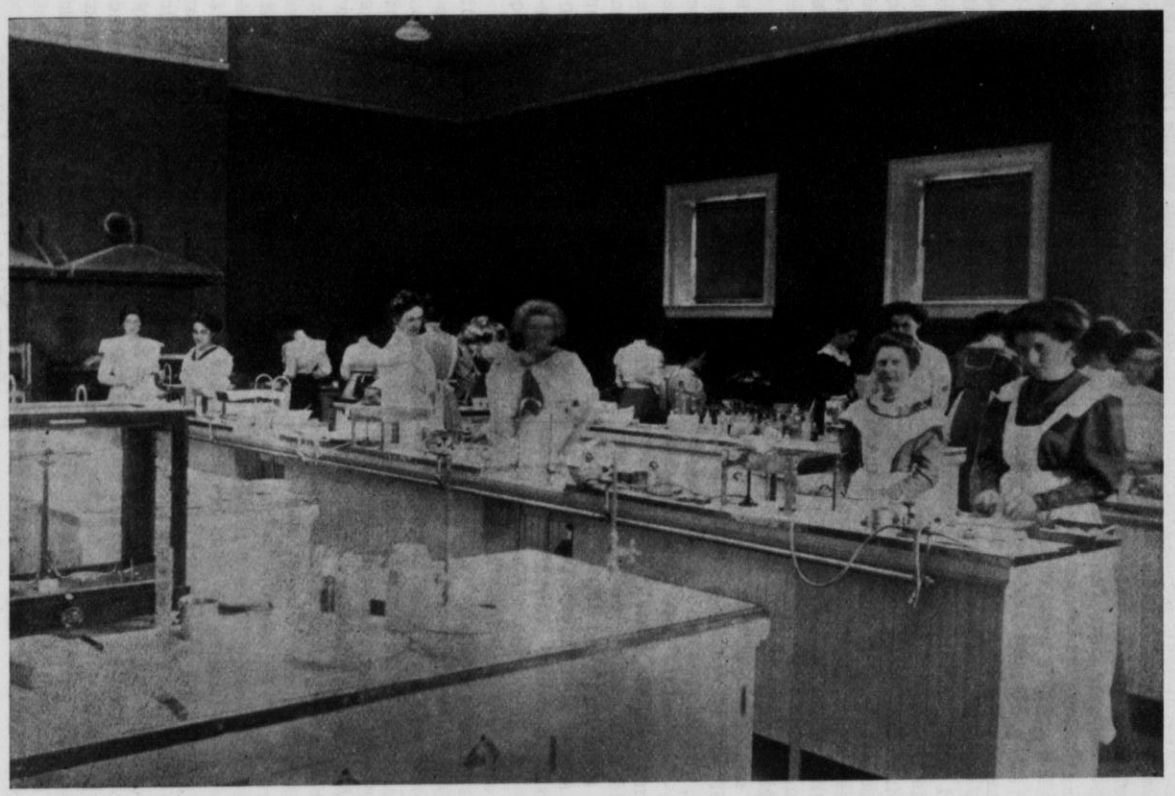
So we are glad to have the children train their hands, and this is a part of the work, one of the beginnings, so that they may send out for you and me the thoughts that gather in their brains.

It is not true that whatever training we give to girls or boys will always work out exactly as we plan. Sometimes it takes a long time and we must remember that children are much alike, that a good many of our young people are like the boy who had been taught the catechism. When the minister came, his mother wanted to show him off. The boy came in and the dog came along, so his attention got divided, still he kept answering glibly enough until they came to the question, "What is a lie?" Then he answered, "A lie is an abomination before the Lord and a very present help in time of trouble". He got his facts mixed a little.

Now, young people, in spite of their training, sometimes get their facts mixed, and you must be patient, because their facts will be helps in time of trouble in the years to come.

What This Training Means.

I want to give just a little detail of what this training means. I said we began with hand work for these little girls, this is usually sewing. I remember a teacher up in our own State who had trouble to get money to buy tools for her little boys in the school. You know the school boards sometimes do not have any money. In spite of that fact, the counties always have money enough to build alms houses and jails and to prosecute criminals. It is a sad fact that they do not always have money enough to give to the boys tools for work in



Domestic Science Department, University of Wisconsin. Undergraduate students at work in scientific preparation of food.

school which might prevent their needing the alms house later on, and might prevent their needing to have the criminal prosecutions. But this school board did not have any money, so this teacher gave the small boys sewing lessons, the boys sewed with the girls until it came time for the little girls to make petticoats. This teacher was wise enough not to ask a boy to make a petticoat. She remembered their fathers went into the woods in the winter and slept in sleeping bags, so the boys made sleeping bags and then they came to her asking her to help them make big sleeping bags; their fathers bought the material and every boy made a sleeping bag that he could slip into. The next problem was a little tent, and if you ever made a little tent to scale, you know it is not so easy to do. Then they said, "Let's club together and make a big tent." The teacher helped them and she used to sit there with them and read to them, or tell them stories about things they were interested in, while the boys sewed away on their tent. When school was out, the tent was finished and that summer those boys camped down in the meadow and slept in their sleeping bags, and every boy had room to at least put his feet under the tent, and they thought they were camping out. You say that was very good sport, but it was more than that, every one of those boys had made a long step toward good citizenship when he found out he could make a thing he wanted. As long as he lives he will be a better and a stronger man because he actually, with his own hands, helped make the tent he wanted. It is good for children to learn that they can do things.

The little girls go right on with their sewing and learn to make their own garments. It is good for a girl to have pretty clothes; it is specially good for her to know how to make those clothes and wash and iron them, especially the ironing. I have seen many a girl willing to make her own clothes and put on all the ruffles and furbelows, but when it came to the ironing somebody else had to do that. The work in sewing goes on until the girls know how to make their own pretty clothes, and I tell you that every girl who can be well dressed—I mean dressed in good taste, in good colors, in clothing that she herself has learned to make—such a girl will have more respect for herself. You and I know that a woman who can do things is the woman who is looked up to always. So every girl who can make and launder her own clothing will be a stronger girl in the neighborhood.

Right here they begin to learn something about the cost of clothing. I wish every boy and girl could have an allowance by the time they are ten years old and be made to buy certain things out of that allowance. When they spend their money carelessly, or for something they do not need particularly, let them go without something. That is what you and I do when we spend our money foolishly.

The girls learn too something of materials and the story of their production, they learn the story of flax, they learn the story of cotton and wool, and their geography lessons mean more to them. They know something of foreign countries, they learn to know and understand the great sheep ranches of Australia and our western country, and then the wonderful story of the silk worm. I wish I had time to tell you what these children learn about the silk worm. It is a lesson of patience, a long story and a good one, and through it the children learn something of China and other far lands where the silk industry is carried on.

Some of the Lessons Learned.

But all this is only a beginning. A lesson about the insects comes in and

the girl who knows something of the insects carries her knowledge into the home; she knows better than to grumble about mosquitoes if she keeps a rainbarrel just outside the kitchen door; she just puts a few drops of kerosene in the barrel and kills off the mosquitoes. She learns to know something about moths and house flies and is able to combat them successfully. She gets a touch of bacteriology—only we do not call it that. She learns of the germs that are floating about and that if there is a rottening cabbage or box of old potatoes, or a barrel of old apples in the cellar, that is just the place possibly for the diphtheria germ to put in its appearance. The germ multiplies until the air of the cellar is full and often the germs come up through the floor and the baby at our feet is the first to breathe them. Sometimes a little white coffin goes out of the door and carries with it the great joy of that home, because somebody didn't know.

All the schools teach physics, most of the girls hate it because they do not learn to carry it home, but those who do understand about heat, light, atmospheric pressure, about managing the drafts of the stove and many other things, will know how to fix the pump if it gets out of order. I knew of a girl who went home and said, "I believe I can fix the cistern pump", so she went at it and in a little while the mother tried it and she said, "To think how I have been pumping water all these years at that pump, when it took sixteen strokes before I got a drop of water, and now the first stroke brings the water", and the mother begrudged the strength she had wasted working that old pump and thought what a pity it was the girl had not brought her physics home before. And so it goes with all the lessons, they must be worked in as part of this home training.

By and by the girl comes to chemistry. There are a good many elements, dozens of them, she must learn her first lesson in exactness; if I could teach every woman in the State of Wisconsin that one lesson, I would do much, for if every woman could understand that whenever she puts together exactly the same materials in the same way and into the same heat for the same length of time, she will always have the same results, I would banish from our homes the worst old skeleton that shakes his finger in the face of most of us, that old skeleton we call "Luck," which is not luck but simply lack of accuracy, lack of exactness, that makes trouble in the kitchen. So, first of all, the girl learns exactness; she learns to judge materials, thereby learning to spend money wisely. I do not know what the Pure Food Law has done all over this State, but there are grocery stores where you can buy things that a wise girl does not buy, adulterated things. I bought some coffee not long ago that contained thirty per cent dough beans and paid twenty-five cents a pound for it. I found also some beautiful fruit jams, oh, they were lovely, and many people would carry them home and think they were carrying good stuff, when if our wise girl had investigated them she would find that they are made out of sea moss and sweetened and you can buy jam having a little timothy seed scattered through it so as to be sure to look like raspberry jam. Our wise girl does not spend her money that way, she knows better, and when she has worked at her chemistry table a little while, she begins to understand about the details of these materials and by that time our girl is ready to go to the cooking table.

People sometimes say, "What is the use of teaching a girl to cook? That will come naturally; anybody can do everything she has to do." I grant you, women do do the things they have to do, and they do them well, as

a rule, but sometimes they do them in a hard way. I suspect some of you women could tell of miserable tears you shed in the early days of your housekeeping, because the problems were so hard and heavy when you came to work them out. You do not want your daughters to work so hard. Let us give the girls a little help so the things will come easier to them. I often think when people question about teaching these girls to cook that they must be something like a man over in Michigan. He was a lawyer, he had worked so hard he had broken down and he went out in the country to a farmer friend and said, "I want to work on your farm a while and see if I cannot regain my lost health". The farmer said, "What can you do?" The lawyer straightened up, "I can do anything that anybody else can do." Said the farmer, "Very well, take that pail and that stool and go down in the pasture and milk that old red cow". So the lawyer went; he was gone two hours, the farmer went after him and found him walking around. Said the farmer, "Why, what's the matter?" The lawyer said, "I don't know what is the matter, but I have been following that old red cow around for an hour and a half, trying to make her sit down on that stool, so I could milk her."

Now, wouldn't a little previous teaching have helped him?

When these girls get to their cooking table, they have many things to look up; they learn to know the source of supplies. I wish I had time to tell you the fables and the legends and the stories the girls pick up and know about potatoes and coffee and rice, the beautiful tales that are as interesting to them as fairy tales, and that gather in such a way around the home that when they go home and begin to have to prepare these things and serve them on the table three times a day, year in and year out, there is always a little glamor of remembrance with it, there is always a little thought and something far away that keeps them bright and cheery and happy and makes them interested in every dish they make. They come to the cooking table, not only to cook food, but to talk about it, to know about the food itself, and then they begin to appreciate what the world has done for them. Do you know that there have been many men as well as women, who have put in their lives acquiring knowledge of foods? When we have the Bulletins that the Department of Agriculture sends out from Washington, or that come to us from our State Universities and our State Agricultural Experiment Stations, all of them bearing upon food of some sort, isn't it worth your while and mine to see to it that the girls know how to use those bulletins?

A few years ago, over in Michigan, a man was buried after a long life of usefulness, and one of the State Senators at his funeral stood up and said, "This man by his work put into the pockets of the farmers of Michigan millions of dollars, because he knew more about wheat than anybody else in the State; he studied the problem and then sent the results of his work out to the farmers, so they should grow the wheat that would yield most to the acre in the soils of Michigan."

Now, if it was worth while for that man to spend years of his valuable life studying that problem, isn't it worth your while and mine to see to it that every girl knows how to use wheat and to the best advantage in making bread for her family?

The Family Rations.

Thus the girl's problems come to be more complex, she learns not only to cook, but to combine various foods that make the best rations for the family. You farmers know when you begin to

feed cattle you are feeding them for money, of course, and not for fun. You send to Washington to get the bulletins and find out all you can about balanced rations, and after you have fed them, you watch your herd and pretty soon you find one that does not thrive on the ration you are giving it, you pick him out, put him in a little pen by himself and change his ration. May be you find a half a dozen that are not thriving, and you change their rations, but you do not lose faith in general in the balanced ration. However, you know there are personal peculiarities, you know there are certain cattle that will not thrive upon a balanced ration, such as is good for the great mass of them, so you look out for those few and change their ration. I wonder if we do as much as that for our children. I have been in homes where the people said, "Oh, yes, the baby isn't very well, he is not very strong, he doesn't grow as fine as his brothers", and so on, but did they change the ration for him? Did they try various foods, did they find out that that child needed other foods and were they as careful in preparing and feeding him as they would have been for a little pig or a little colt or a calf? Did they see to it that the baby grew every minute? I am afraid not. Not that they loved the child less, but that they did not think in that direction. Now, every farmer knows perfectly well that every little pig, every little animal on the place must grow all the time or he will not get his money back. It is just so with our children; they ought to thrive and grow every minute, or they are not doing the best possible for themselves.

This matter of rations for the family is one of the questions that comes to the girl all the time. We all think we know how to read and can read these bulletins, but the girl who knows her chemistry best, who knows how to do work best, is the girl who reads her bulletins right and knows how to feed her family. More than that, she learns to feed them the best kind of food for their work and she will have an advantage in such reading.

There are other lessons that the girls learn at their cooking tables, lessons along the line of serving food, and there is where the boys come in and they always come with great happiness and are ready to learn and know something about what the girls have done for them. As the girls serve these meals, the girls and boys sit down at the tables, which are well planned, and that means something, a table well set. Did you ever sit down at a table where the food looked as though it had been thrown on? It is just as easy to arrange a table well as ill. Then the boys and girls learn to talk as they sit there together. The grumpy old bachelor says, "You do not have to teach a girl to talk", but it is just as well to teach the boys and girls to talk together and do it well. I have been surprised when I have heard people say it, "We have young people to entertain and we have plans for entertaining them every minute!" The idea of having to entertain such young people every minute! What are they good for? Can't they entertain each other? Haven't they tongues? Can't they talk? Sometimes I think they have not been taught to talk as well as they should be. When they are taught to talk about something good, something that is worth while, we are going to have in our communities less scandal, less sharp speaking, less criticism of our neighbors, because all our young people will have something good to talk about; so it is worth while for them to learn to talk at the table.

A Practical Problem.

Perhaps the young people will learn to know something about the cost of

food. I think older people are learning a good deal about that. One of the problems I used to give the young girls was to find out how much they had cost their fathers in money. They used to have two or three weeks to find this out, and every girl would put down her figures, beginning perhaps with the cost of a simple baby outfit, and then taking her share of the amount spent in the home they had lived in, her share of the taxes, of the fuel bills, school bills, her share of the periodicals that came into the home, her share of the church expenses, and so on all through. I remember very well one girl who came to me and said, "There, I have it all down, and I have added it up and suppose it is right, but I know it isn't true, I know my father never spent all that money on me". Now, he had spent it, and probably double that. She couldn't pay it back of course; he never wanted her to. She never could estimate the love and the care that father had given her, but as long as she lives that girl will have a little tenderer spot in her heart for that father who gave her so much of his hard earned money and spent it on her because he loved her. If the time ever comes in her life when there is a difference between her and her father in judgment, she will be more ready to listen to him, because she put down in black and white the fact that he spent money on her. It is good for young people to have some training in humility, it is good for them to know what others have done for them, and that if they work a thousand years they cannot pay it back, because "we are heirs of all the ages." When that idea is made clear to them it is going to make them better citizens, they are going to do their best to help others.

They say that over in Oberammagau, when the wonderful Passion Play is put on, the man who personates the Christ when going up to Jerusalem goes in to bid his mother good-by. As the sad figure bends over his mother, sitting in her chair, he says to her, "For all thy love and all thy care, my heart aches; for all thine anxieties, I thank thee, O most beloved of mothers"; they say that a great sob rises from the thousands of spectators because they realize that the Master of all voices His gratitude to his mother. It is worth while to teach children this lesson.

There are other lessons that these young people talk over at this table when they sit down to eat. Sometimes they talk about their homes and how to make them; the girls in the drawing classes make plans for houses, sometimes they make designs for furniture; they discuss colors. Did you know that most children have very correct ideas about colors? They know good colors, it is a pity to spoil them as they grow older, because we all see these bad combinations all the time. Did you ever go into a house where the carpet came right up and struck you in the face as you entered the door? Did you ever go into a room where the pictures and the furniture and the wall paper all set your teeth on edge? The child wouldn't put things together that way.

I remember the story of the mountain lad who came down out of the mountains of Kentucky. Reared in a log cabin, never in his life had he seen wall paper. He went into the house where the paper was of a heavy gray-green color, and some one said, "Walter, how do you like the wall paper"? He walked around and looked at it, and said, "Well, I reckon that is all right, it looks kind of quiet and still."

It is worth while to help children to keep their instinct of color, and that is part of this home training, the work that we give the girls in "Home Economics," as we call it. There are many names for it. People say "Domestic Science," "Domestic Art," and

"Home Economics", and it all means the same thing, the gathering of ideas on home-making, rendering more rational the methods in the home, making it easier for the house-wife. It means that every girl can use her hands in such a way that the work will flow through them easily and readily. Sometimes I think the training of hand and head and heart means the making of all kinds of useful citizens.

There was a girl out in Kansas who had an experience. She had been to the Agricultural College and when she went home she found her father had been elected Attorney General of the State. They had moved up to the capital and lived just at the edge of town. A few days after her return the father brought the Governor home to dinner with him and the daughter waited on the table. The mother forgot that she had put the last drop of cream into a cup of coffee and then asked the Governor if he would have another cup; of course, he accepted, and mother said, "Daughter, bring me some more cream." As soon as the guest was gone, the mother said, "Where did you get that cream?" The girl said, "Well, I stood and looked from the door steps to the door steps on each side, and all at once a cow went down the alley and I went out and milked her". That girl was ready for an emergency. That is the kind of men or women we are looking for. When there is anything needed, we want somebody who can put out a hand and do something, and the girl who has been well trained in these directions always can.

Department of Hygiene.

Another department of this work is hygiene. If I could teach all the mothers in Wisconsin the lessons they ought to learn, if I could teach every mother that every time she undereats or undersleeps, every time she overworks, that she is robbing her family, if I could teach every mother that coffins cost a great deal more than hired help, if I could teach every mother that doctor's bills cost a great deal more than kitchen utensils, then we would not have so much need to teach the girls hygiene in the schools, because the mother's example would teach the girls at home, but the mothers, out of their loving hearts, always want to give the girls the easy time, always want to save money so the girl can have something more that she wants; they are ready to put themselves into the breach every time and overdo, and many times the broken household is the result, and many times the girl is left in early years when she most needs her mother, and so the need is greater in every school to teach every girl all possible about the care of herself. I hold that the first duty of every woman is to make and keep herself so strong and well that she is ready for every emergency. I hold that her first duty to herself, her family and to God is to make her body and keep her body just as well as possible: when we can have that lesson taught to all our Wisconsin girls and women, we shall have better and stronger women, we shall have homes that will have less sickness. I hold that every girl ought to understand that when she goes to school in the morning with only a cup of coffee for breakfast, when she goes out in wet weather with thin shoes and no rubbers, when she wears clothes that compress her body out of the shape that God made it, that she is wronging herself, and that she has no right to tamper with her health in any direction.

So the lessons go on for personal hygiene, every girl to take care of herself, and by and by it comes into mental and moral hygiene, and I wish every boy could have the lesson, as well as every girl, I wish that every

boy could learn to be a clean, strong, Christian man. I wish that every girl could understand the power of the sweet, gracious life in the community, then would our young people have higher standards and they would live up to those standards better than we realize. It means that this thought of home comes into the hearts of young people in such a way that they will go home and take the burden off the tired mother's shoulders and carry those burdens easily, because they have knowledge, they have skill in their hands. It means that father's heart will be gladdened because his girls are doing for mother as she comes to the years when she ought to rest.

The Responsibilities of the Home-maker.

All this means that you and I must do for these girls what we have been doing for many, many years for the boys; we must give them all the training and all the help possible to make their work easy for them. Give them trained hands, give them the power to do the work that will surely come to them; they will pay you back with such homes as you never dreamed of. Unless our girls do better than we have done, they are not living up to their privileges, they have not only our work to fall back on, but the work of our grandmothers behind us; they have the inheritance of all the ages; unless they do better and more than we have done, they are not going to live up to what they may; unless we give them the training we ought, they cannot live up to the opportunity that is surely theirs if we do not give them the training we might give them.

We, as a nation, have loved our homes; we have loved them well.

I am going to tell a story that I have told in Wisconsin before, I have told it many times because I love to tell it. I told it down in Louisiana, and after we got through a great, tall, strong man came up to me and as I looked up at him he said, "I was there, I heard that. I am glad you told that story. I wore a gray uniform in those days". The next year I was up here in Wisconsin and told it again, and a bowed, gray haired, old man came and said, "I heard that. I wore the blue". This is the story:

Down on the Rappahannock there came a time when the two armies faced each other, the armies knew that tomorrow would bring terrible slaughter. On one side of the river a band began to play, it played the "Star Spangled Banner". In a little spirit of defiance from the other side came the strain of "The Bonnie Blue Flag". Again the first band played, and this time it was "Rally 'Round the Flag", and the answer came back "Dixie". Way down the river a lone bugler began to play simple, trembling, long-drawn-out notes, the strains of "Home, Sweet Home". The bands, both of them, took it up and the men began to sing, up one side of the river and down the other, the sounds rolling and welling up to the starlit sky, such a sound as had never been heard before, because every man sung out of a full heart, and sung with the hope that he might see his home soon.

If those men, and if our men, care so much for their homes, how much do the women care? Teach your girls all you can about the principles of home-making, then they will make for Wisconsin so much better homes and do it so much more easily that they will have all the time they need for strengthening their own minds, their own hands and hearts while helping their communities into nobler living.

We look to the women for better things always and they always respond, but give your girls power over all this kind of household work, so they shall easily answer to your demand.

You know a few years ago a great ship went out from this land; it sailed from our eastern coast across the sea silently, because there was no cargo and there were no passengers. Through the darkness and through the daylight she sailed, until she reached the great Rock of Gibraltar and up the Mediterranean; as soon as she anchored a long box was carried on board. Around that box was folded "Old Glory". Again the ship sailed out in silence and through storms and sunlight, day after day, until she reached her own coast again, and by previous plan the word was flashed across this land, and men stopped when the bells tolled and took off their hats at the sound, because the dead body of John Howard Payne had been brought home for burial, the man who wrote for us the words of "Home, Sweet Home".

If we can so honor the dead body of the man who gave us the words, what ought we not to do for the girls who can make the homes for us? Do for your girls in all directions, develop in them power; help them in all this home-making; then when you look out over Wisconsin and her millions of acres that you hope to see settled up and ask, whence will come the power to make homes out of those millions of acres, we will answer you truly, it will be in the girl who can.

Music, High School Boys' Quartette.

Adjourned to Thursday, March 14, 9 a. m.

THIRD DAY.

The convention met at 9:30 o'clock, Thursday morning, March 14, 1912. Prayer by Rev. Henry Stauffer. Mr. Bradley in the chair.

WINTER EGGS.

Geo. W. Hackett, North Freedom, Wis.

Mr. Hackett.

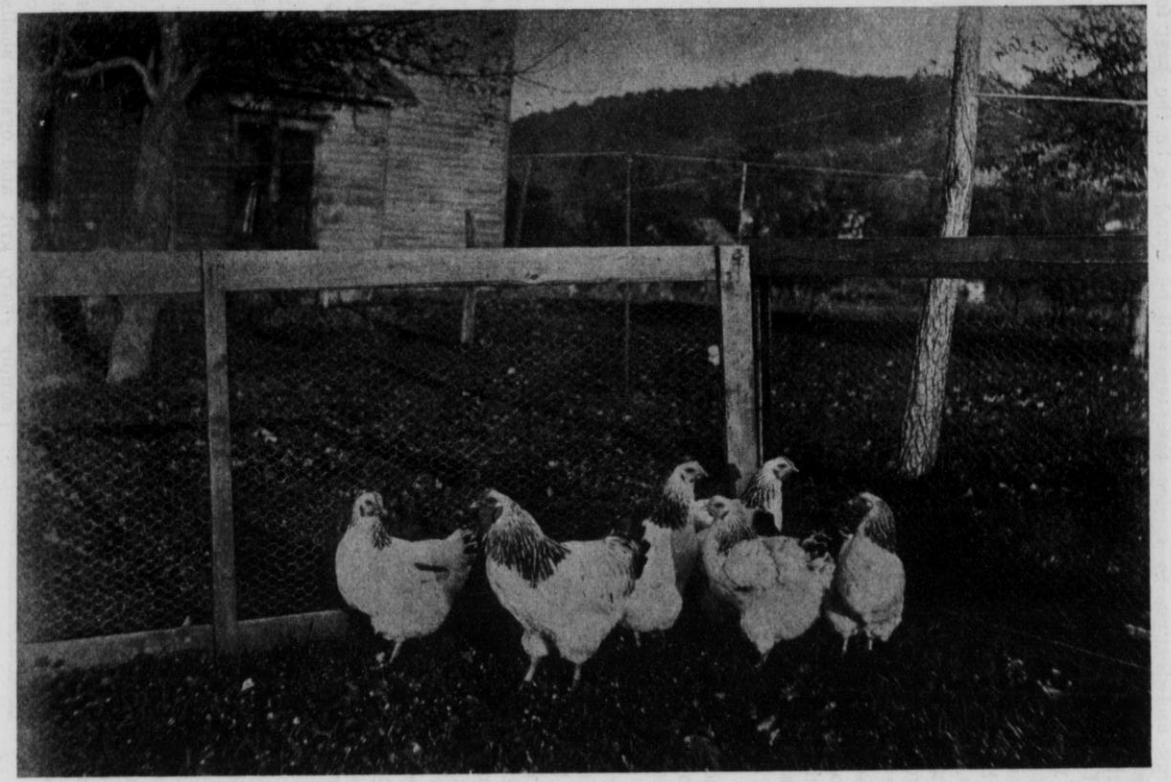
The hen and her product are important items in our daily bill of fare and the man or woman who has succeeded in creating a large out-put of such product at a reasonable profit is entitled to a front seat among the successful producers of the world's food products. The farmer has ever been familiar with the song and cackle of the hen, yet he has little dreamed of her possibilities. It has been left to those coming from success in other fields to exploit those possibilities and to demonstrate to her original owner that she is worthy of his thoughtful consideration.

I refer to such men as the Cornings, who are making utility poultry keeping an exceedingly profitable venture, realizing a profit of over six dollars per year on each hen kept. These men have come to us with radically different ideas and methods than we have been accustomed to, but their success has been a revelation to all well informed poultrymen and demonstrates what can be done by applying systematic, business methods to the industry.

Fresh eggs have been such an expensive item for the past few months, that I do not wonder the topic "Winter Eggs" was assigned to me as being the most important of all poultry subjects to be discussed at this meeting. The poultry business has become a recognized industry and the greater factor in the business is that of producing eggs. It is estimated that about four-fifths of the poultry products of the United States come from the general farms, but it is safe to say that only a small per cent of them are produced at a reasonable profit, but due to no fault of the hen. The high prices paid for winter eggs will avail nothing to the farmer who has no eggs to sell.

Preparing for the Winter Eggs.

If you want to do a winter dairying business, you do not wait until winter sets in to make your preparation. You have been at it for a year at least, and perhaps for several years. To



Prize winning Columbian Wyandottes that made excellent winter egg laying records while housed in open front colony house on Raven Rock Poultry Farm, Geo. W. Hackett, Prop., North Freedom, Wis.

secure the best results for your feed and labor, you have been selecting, breeding and testing, to secure the highest possible efficiency, and without this preparation you could hardly expect to get satisfactory returns from your dairy. Strange, is it not, that many a farmer who exercises the greatest of care in breeding up his dairy herd or other kinds of live stock thinks he should get good results from any old kind of a hen.

If you do not like chickens, keep but few of them, but give those you do keep a chance to make good. If you do like them, give them the same careful attention you do your dairy herd and they will respond most liberally to such care.

The pullets intended for winter layers should reach full development before cold weather sets in. In the larger breeds, the pullets should be about six to seven months of age and the lighter breeds about a month younger. It is not desirable to force development too rapidly in pullets intended for layers. Pullets are usually more prolific layers than hens, but it will be found profitable to keep the hens through their second laying season, and where, by the use of the trap nest we find an extra good layer, we keep her considerably longer.

Hens should be well cared for and sheltered from storms and cold winds during their molting period and be on the job with a well finished coat by the first of November.

It is best to pen the pullets and hens separately, as the pullets will require a little heavier feed than the hens for a time.

Separate the males from all of them, as you will get more and better eggs without their presence.

The House an Important Factor.

An important part of winter egg production is the house in which the layers are kept. It matters but little whether you use the permanent house or the colony house, the fresh air system will be found to be the best for the health of the fowls, and without health you need not look for eggs.

See to it that your fowls are free from vermin and that the houses are in a clean and sanitary condition. Give each fowl about four square feet of floor space, which you should keep well covered with clean, coarse straw or other suitable littler. Feed all grain in this litter to insure plenty of exercise, and never let the fowls out in the cold or on the snow.

Feeding for Egg Production.

A good scratch feed may be prepared by mixing together 100 pounds of corn (cracked preferred), 100 pounds of wheat, 50 pounds heavy oats and 50 pounds of buckweat. This should always be fed in the litter and well covered with it. This is fed in connection with a mash, which is prepared as follows: One hundred pounds corn meal, 100 pounds middlings, 50 pounds wheat bran, 50 pounds ground oats, 50 pounds beef scrap, 25 pounds oil meal, 25 pounds alfalfa meal. Feed this dry in hoppers to which the hens have constant access. An occasional armful of alfalfa or well cured clover hay, thrown in the pens, will be appreciated by the hens.

Fresh vegetables should be given at least three times a week and a less amount given each day would probably be better.

Sprouted oats are also a very excellent feed for all kinds of poultry, and specially fine for laying hens.

It is essential that the hens have all the fresh, clean water they want and that the water vessels are kept well cleansed out. Do not forget to supply sharp grit and oyster shells and by so doing avoid many of the ills so common to poultry confined to winter quarters.

One of the main poultry houses on Raven Rock Poultry Farm, showing the large openings in the front, covered with nothing but wire netting when prepared for summer comfort of the fowls. In winter these openings are covered, one-third with glass and two-thirds with thin muslin, on frames to fit, but part of these are removed except in the very coldest weather. At the right is the incubator cellar, with brooder room in the front.

On the great egg farms of the country, where poultry keeping is a business, the routine of feeding, watering, gathering eggs, etc., is done with great precision and by the tick of the clock. The nearer we can follow this plan on the farm the better will be our results. If these suggestions are faithfully followed and you do not get a good supply of winter eggs, the fault is with your hens and the sooner you replace them with fowls that have been bred to lay, the better it will be for you.

There is no excuse for keeping hens on the farm that will average less than from ten to fifteen dozen eggs a year. I believe the time is coming when the farmer will practice special mating and the use of the trap nest. It is the only reliable method whereby a substantial increase of egg production can be obtained in a strain of fowls.

Marketing the Product.

There is another phase of the egg business of which I wish to speak briefly. It relates more especially to eggs produced in warm weather, but is not without bearing to my subject.

With all our preaching about winter eggs, by far the greater supply will be produced in the summer season, and the value of the product will always depend largely upon the condition in which it reaches the consumer.

Recent investigations carried on by the Bureau of Animal Industry at Washington, and by some of the State Agricultural Colleges, have revealed surprising conditions relative to the manner and condition in which so important a product is put upon the retail market of our great cities. The investigation involved the practices employed on nearly one hundred farms to which representatives were sent to observe conditions and follow the eggs in their natural course from the farm to the consumer.

It was found in many cases that the eggs were gathered very irregularly, sometimes only twice a week and sometimes not that often. After being gathered, they were kept in warm rooms until convenient for the farmer to carry them to town, where they were exchanged for groceries. The grocer in turn kept them until his stock had accumulated sufficiently for a shipment, which sometimes required several days. They were often kept in rooms or storehouses where the taint from oil or from decayed fruit and vegetables did not add to their flavor. After reaching the retailer in the city several days later, is it any wonder that the market price of eggs is too low to be profitable in the summer? I cannot go into detail regarding the many interesting facts brought out by these investigations, but suffice to say, that the present methods of marketing eggs throughout the country are about on a par with the methods used in marketing butter before the day of the cream separator and the creamery, when we were glad to get from eight to twelve cents a pound for butter from the commission men, and on the whole it was about all it was worth.

The egg is a highly nutritious food product, easy to care for and conveniently packed for market, yet we are informed by these investigators that about seventeen per cent of the total value of the product is lost to the farmer on account of the careless and inefficient manner in which it is handled. There are few lines of business that could withstand such a waste. The loss alone would amount to a sufficient profit to satisfy some of our less avaricious corporations.

A Co-operative System of Marketing.

In order to overcome the flaws in the present system of getting the

Barred Rock pullets on the range at "Raven Rock", demonstrating the practical use of the colony house, built on runners and conveniently moved with one horse wherever wanted. They have proven to be equally practical for both summer and winter use.

farmers' eggs to market, it is necessary to adopt a system which will shorten the period between the laying of the egg and the time of reaching the consumer's table. Hand in hand with the shortening of this period, there would naturally be fewer hands through which the eggs must pass and to each of which they must pay a profit.

A co-operative system of marketing would bring these results. In Denmark, we are told, this system has been largely responsible for the great impetus given the poultry industry there and has made Danish eggs a standard on the English market.

Here in the United States, a number of co-operative creameries have taken up the handling of eggs with splendid success. The American Poultry Association, through its various branches, is working out systems whereby similar methods will be employed to secure the desired ends. They will endeavor to interest farmers and poultrymen living in close proximity to club together to market their eggs. This will enable them to ship every two or three days, while if each was to market his eggs individually he could not wait, with the average size flock, until he had a case of eggs to ship. One of these men would have to act as receiver of the eggs and see to their shipment. By shipping by express, it would be possible to put the eggs in the hands of a first-class retailer, many of whom are anxious to secure eggs of dependable quality, at an advanced price over the regular market.

It can be readily seen that the success of the scheme will depend upon building up a reputation for strictly fresh eggs, and in order to protect the farmers from carelessness of any individual, certain precautions are necessary. These eggs are destined for first-class trade and should be put up in cartons, each holding one dozen. Each egg and the filled carton should be stamped, as packed, with a small stamp bearing a number which has been assigned to that particular farmer. Thus the eggs are identified and the farmer becomes directly responsible for their quality. It would be well for such clubs to adopt a set of rules, mutually agreeing to do certain things relative to gathering, packing and delivering the eggs to the shipper. This would mean better prices to the producer and much improved quality to the consumer, and would also effect a much larger consumption. It would also mean a greatly increased interest in the poultry kept upon the farm, especially in standard bred poultry, and no other kind should be kept.

Mix common sense with all your poultry work; give careful attention to the details, of which there are many. Develop the best possible methods of putting the product in the hands of the consumer and you will be amply repaid for the extra work involved in securing winter eggs.

DISCUSSION.

A Member—What particular breed of hens would you recommend for the farmer in this cold northern climate?

Mr. Hackett—The same old story. I am not going to recommend any particular breed, but I do believe the farmers in Wisconsin, in this latitude, will do better to raise the larger varieties. The fact is, it is being demonstrated in the United States by the two great egg-laying contests now going on that it is not the breed that matters so much, it is the strain of fowls. It depends upon their breeding as to their egg production. Some of the larger breeds are really outdoing the smaller ones in these contests, although if a man likes the smaller breeds best, he will do the best with them.

Mr. Brakemeyer—Isn't it true also that the smaller breeds are more susceptible to cold?

Mr. Hackett—Yes, on account of their large combs and close feathers they are more liable to be frozen.

Mr. Jones—I am running two hundred Leghorn hens this winter and one hundred other kinds. I began the Leghorn business in 1877, when I was a boy, and I have rarely had any frozen combs, it is not necessary to have them, so if you like the Leghorns you know Mr. Kleinheinz said to marry the woman you like, and if you like some of the Mediterranean breeds better, do not be afraid of them. The Leghorn hen will do well up in Wisconsin in winter and lay a lot of eggs.

I want to say one thing about the number of eggs. I think the farmer will have no trouble in selling all the eggs he can produce. I am selling my eggs in Chicago and above the express from central Wisconsin, I get forty-two cents a dozen, where my neighbors get but thirty cents selling to the local merchant. Of course he takes a profit, then the express company takes a profit, they are sent to Chicago and perhaps bought in by a commission man, who again has to have a profit, then the commission man sells to the jobber and then the retail grocer takes his profit at five cents and by that time the poor customer, if he has the price, pays a big price for eggs which by that time are badly damaged. I have friends and relatives to whom I sell all my eggs and I can always sell more than I can produce. So go in for good eggs and get some private customers of your own, cut out these three or four commissions and go to work for the parcel post; when we get that, we can put our eggs into town promptly at a low price. They cost me now nearly three cents a dozen from central Wisconsin to Chicago, but as I am getting twelve cents a dozen better than my neighbors at that, I can afford to spend that three cents.

A Lady—How is your colony house made; how warm is it? Is it open all winter?

Mr. Hackett—It is fashioned somewhat after the "A"-shaped hog house, only we leave it wider at the top, with a flat top about three feet wide. They are built six by eight or seven by ten. The door in front is a regular sized door, about two and one-half by six feet, because six feet is the height of the house. We build this on runners, four by four, and a floor is laid on these runners. These are placed about five feet apart in the smaller of the houses. There is an opening in this door two by two and one-half feet, and in one house we have left that open all winter long without any curtain in front of the fowls, by dropping boards where we usually have kept them, and in this pen in the months of December and January we received over thirty-seven per cent egg yield from the hens, and they did not freeze at all.

A Member—How many hens in there?

Mr. Hackett—We had nine hens in that house and one male bird.

A Member—Were there any windows?

Mr. Hackett—No windows whatever, but I have designed to put a small window in the side of those I build this season.

A Member—How can they see to lay?

Mr. Hackett—They manage it all right. This opening in the door is open continually. It is about two feet from the bottom and extends two and a half feet high. The house is not lined on the inside. It is boarded with rough lumber and covered with good roofing material like rubberoid. It is not necessary to build expensive poultry houses. Sometimes a little snow gets in there, but

hens that are used to being treated that way do not mind it at all.

A Member—You must have a warmer climate than we have. I want to ask how is a cement floor in a henhouse? I put a cement floor in one to avoid rats, but I fancied the hens did not do quite as well. However, I did not lay it to the floor as much as to the cold weather.

Mr. Hackett—Your floor had something to do with it probably. A cement floor is the coldest floor there is. It is the cheapest thing, but the board floor is best for poultry. My pens are on the east side of my barn and close to it; that is the only protection they have.

A Member—Do they get out to eat at all?

Mr. Hackett—No, sir, they are kept in there continually. A laying hen should not be let out during the winter weather. I have a little table to keep the drinking water off the floor and also have their grit and shell feed boxes elevated in the same manner.

A Member—Doesn't the water freeze?

Mr. Hackett—It would freeze if we left it there, but we only supply what they drink at a time, and supply it fresh three times a day.

A Member—Out in the country we had no trouble, while here in Neenah their combs are frozen.

Mr. Hackett—I know that in houses kept side by side, the chickens would freeze in the houses kept closed up tight, while in the open houses they would not freeze.

Mr. Scott—If the circulation is good and the fowl is healthy and vigorous, it would not be as apt to freeze as if the vitality is low, would it?

Mr. Hackett—No, sir, I know that to be a fact. If one fowl gets a little out of condition in your house, that fowl will freeze where all the rest will be all right.

A Member—What breed do you keep?

Mr. Hackett—This pen I speak of are the Columbian Wyandottes. Of course they have the rose comb, which is not so apt to freeze, but the male bird has the wattles just the same.

Mr. Jones—I had a colony and the cock lost a piece of his comb, but the hens were not touched.

A Member—How do these hens get their exercise?

Mr. Hackett—Right in the house, scratching in the straw.

Mr. John Imrie—If you had not been keeping many hens, wouldn't you find it more convenient not to have so many little houses, but to have a larger house?

Mr. Hackett—It is a little more work, that is true, but if one is in the business and keeping a great many fowls, there is a big advantage in being able to move these houses about and plow up your different yards at different times. It requires about four square feet of floor space to accommodate a fowl in these scratching sheds, and by stringing them along one after the other, it is not a great deal more work to care for them than in the larger houses. We clean our houses at least twice a week in the winter and every day in the summer.

Mr. Imrie—I wish you would explain the manner of taking the droppings from under the perches.

Mr. Hackett—I usually have an illustration and a plan that I have been presenting to the farmers, where I showed the system on which my house is built. Under that system the house is built with dropping boards, a solid table as high as you can conveniently have it in the part of your house that is farthest away from this opening, and on top of that we have the roosting perches. Then it is always convenient to get in there with your hoe and scrape the droppings right off of that into a box or basket and carry them out, and in that way a man doesn't have a big job to clean the house.

Mr. Scott—We keep a few fowls, and two years ago we put our poultry house inside of the stable. It was placed so it is very easy to keep it clean and it is separated from the stable on one side with wire netting; is right there under the eye and direction of the man who has charge of the stock, and we find that our fowls are better cared for than they were when the poultry house was across a snow bank five or six rods from the barn. The sweepings from the feed alley go into these pens every morning and they have their boxes of oyster shells and grit and bran and their water supply is near approximately. Then this house is cleaned out every few days; we have had much better success and I am sure our fowls are healthier, they get the ventilation from the stable, and we get more eggs than ever before with less expense.

Mr. Hackett—Do not be afraid of the fresh air houses. Try them out and you will never use anything else afterwards.

Dr. Kutchin—Mr. Scott, aren't you afraid to introduce fowls into your stable on account of certain parasites?

Mr. Scott—I do not think I should be. I do not know as I should know a parasite if I should see one.

Chairman Bradley—In the past two years commercial feeds have been very high. There has probably been a great deal of pork produced in the State of Wisconsin that has been grown largely on commercial feed, which, when sold, actually sold at a less cost than the cost of the production. Now Mr. David Imrie is on the program to give us a talk on cheap pork production, and it has got to be cheaper than average pork is produced to make any money at the present time, because of the high cost of corn and barley and rye and oats and the commercial feeds that enter largely into the production of Wisconsin pork.

CHEAP PORK PRODUCTION.

David Imrie, Roberts, Wis.

Mr. David Imrie.

Mr. Jacobs said the other day he thought Superintendent McKerrow ought to be arrested for cruelty to animals to put me on the program for a hog talk and only allow me ten minutes to do the talking. He has certainly given me rather a difficult task, to produce pork cheaply, or a cheap pork production, with corn at seventy cents, oats fifty, barley over a dollar and middlings to correspond.

The Right Kind of an Animal the First Essential.

In the first place, we must have the right kind of hogs. To produce pork cheaply, we will have to take the lard type, because you all know that it costs more to produce lean meat than fat; so that brings us down to perhaps four different breeds, and they are all easily procured in this state, that is, grades in these breeds, namely, the Poland China, the Duroc Jersey, the Berkshire and the Chester White. These are the most popular breeds, so we will commence with a grade of some of these breeds.

Then you must have a pure bred boar. Do not use anything else, if you want to get cheap hogs.

What and How to Feed.

Then care for this breeding stock in the right way. Do not winter them on corn; feed something like this. In the morning whole oats spread out on the feeding floor; at noon, some kind of slop, warm; I would like some ground oats, middlings and skim milk. We cannot always have the skim milk that we would like. If you have plenty of skim milk, you could perhaps get along without any feed at noon, feeding the skim milk in the morning and at night. At night give some corn and that is all the corn breeding stock should have, about one-third of the ration. It is easy to feed a good class of hogs if you have plenty of skim milk and corn. You can balance up a ration with that, and any class of hogs will do very well on it.

For the young pig, I would make it in about this proportion; one pound of corn to three pounds of skim milk. For older hogs, you can give a little more corn and not quite so much skim milk; they ought to have some bulky feed, something like clover, alfalfa, or even corn silage. I have not fed very much corn silage, because my hogs waste too much of it; we think we can get better results, or a better price for the silage, in feed-

ing it to other stock, but I have seen some who have taught their hogs to eat it, after they became accustomed to it, they got along very well with it.

In feeding clover or alfalfa, if you have the right quality of second cutting, they will eat it dry, as sheep or cows will eat it, and consume large quantities of it.

We have fed ours mostly dry clover; that is, broken chaff and heads and leaves. In throwing the hay down on the barn floor, there will be quite a little accumulation of this broken clover. We have not tried the alfalfa, because we have not been raising it. We put that broken clover right out in the yard dry. I have tried mixing it with slop, but if you do that, be careful not to mix in too much; they have got to acquire an appetite for it. If you have been feeding other feeds and put in a lot of clover hay, they will simply root out the feed that is sticking to the clover and it is wasted, but just add a little at a time. If you are going to feed it in a slop, run it through the feed cutter, steam it and put it in warm feed. We feed slop warm in the winter and soak it in the summer.

We usually feed quite a lot of ground barley to hogs, but this winter it is so high it cannot be fed. We sell very little barley, but when it is up to a dollar, or even eighty or seventy-five cents if other feeds are cheaper, we feed other feeds, but soaking from one feed to the next makes it palatable in the summer. In the winter, you cannot soak it, because it would be frozen before it was soaked.

I would like to have some roots for this breeding stock and to give them one feed a day. Mangelwurzels make, perhaps, the best roots, unless sugar beets are better. If you have not enough to feed them one feed a day, give them one feed a week. You can feed potatoes and roots are better raw than cooked, except that if you are feeding the potatoes for fattening purposes, it is better to have them cooked, but for brood sows, I would rather have them raw. They will act as a sort of tonic.

If you have no roots of any kind, use some bran mash before farrowing time; see to it that their bowels are in a laxative condition. We feed small potatoes.

In feeding animals of all kinds, we have got to vary our rations, always taking into consideration the price. We cannot feed the high-priced grains simply because they contain certain elements which we would like to give them, we must use judgment at all times, so as to get the greatest results for the money spent. We have to grow these pigs as fast and as cheaply as possible.

We must have good pasture. The best pasture I know anything about is clover pasture, turned on before the clover is very high. A hog likes short pasture. Unless you have an abundance of pasture and you can turn the hogs in when the clover is headed out—years ago, you know, we used to think clover in that condition would hardly do, but hogs do splendidly on clover at that stage; they go around eating the heads, so it makes a good pasture, though it is somewhat of a waste. While they are on pasture, they should have some grain. If you have skim milk, clover and corn, it is all right. In the summer we used some ground oats, middlings and skim milk. We put the water where they can get at it at all times. You may feed them slop three times a day and still they will drink a lot of water, and they like clean water, too. If you have it in a trough where the little pigs can get in and soil it, they will not drink it, and then people say they do not like water, but if you have one of these drinking fountains where they can get clean water at all times, you will find they will drink a whole lot of water. If you have a big herd of

hogs, you will find some of them drinking most all the time, and I think that proves they need it.

A Wallowing Hole.

I like a wallowing hole, if I can get it anywhere, particularly if I can get it with running water; that is the best, of course. They never make a wallowing hole in a creek; they make it by the side of the creek. A hog washes himself by putting mud on his back and then rubbing it off; then again, when they get a coating of mud on them it keeps off the flies, and in that case they will eat in the middle of the day, whereas, if it is dry pasture and lots of flies about, they will lie in the shade and not come to eat, excepting morning and night, when it is cooler.

A Corn Field Makes Rapid Growth.

In the fall, we have had the best results in hogging off some of the corn. Do not turn them into the field where they will break and tear down a great deal of it, enough to last them five or six weeks; if we had a fall like we had last year, some of the corn would certainly be spoiled. Put them in what will last them two or three weeks, they will take it all and clean it up. We are always very busy at that time of the year, we have our silos to fill and the rest of the corn to cut and put in the shock, and it takes the work of husking and feeding off our hands for a little while anyway.

If the cornfield is there to be turned into, I would say sow some rape seed at the last cultivation, and it is well to plant some pumpkins and squash. We used to raise them and feed all winter by keeping them frozen and cutting them up through the winter, but since the advent of the corn binder, these pumpkins are often right in the row and you are apt to run over them and there is a great waste, but you can put them in this space you are going to hog off and they will do no damage there.

Hogs have a great variety of tastes and with this corn, rape, turnips or squash that they can get right there they can stay quite a while. Your clover, in the mean time, is coming up with the fall rain and you can soon turn them onto the clover. I never have found any way where you can make pounds so fast as by turning them into the cornfield. At the Minnesota Experiment Station they tried some experiments and the Superintendent of the Swine Department told me they found they had made more money in hogging off some corn than in any other way they could handle them. If you can afford to do that, losing your fodder, it is the cheapest thing to do, at least it is for us,—I will not say it is for you.

Remember, you cannot husk corn early in the season, unless you husk it every day, or every other day, to feed these hogs, it is not dry enough to keep. Turn them in on this field when it is fully ripe; commence gradually at first, then after a little turn them in and let them alone.

Get them on the market weighing two hundred pounds or more as early in the season as possible.

DISCUSSION.

Chairman Bradley—We have raised a two hundred pound hog in ten minutes. That is going some. I was greatly surprised at Mr. Imrie's talk in regard to skim milk. I would suppose a man who had plenty of Holstein cows would have plenty of skim milk. We Jersey fellows always have enough.

Mr. Imrie—This winter our sows are getting practically skim milk for their drink, but in the spring, when you have got a lot of little pigs, you

have got to thin it out. At one time I read in the paper that skim milk was a food and that hogs should have water also. I tried it, they heard the water running and they just stuck in their noses and looked at me as much as to say, "What are you giving us?"

A Member—How many litters do you have a year?

Mr. Imrie—We usually have one litter a year, but when we are feeding steers we raise forty or fifty fall pigs. When a person has only a few sows, he can raise fall litters. If you are going to raise fall litters, be sure to get a good start before the cold weather comes, or you are simply throwing your money away. Try to have these pigs come in the fall, some time in September, if possible.

A Member—Is it advisable to have them come in about the first of July?

Mr. Imrie—I would rather in this locality, or in ours, have them in April for pork production. If I should lose my spring pigs, I would breed the sow again and have another litter in July. You can sell these pigs along about the holidays and make some money on them.

A Member—Do you provide an appetizer for the pigs in feeding on corn?

Mr. Imrie—We used to feed coal dust and soft coal. It would be better to have larger coal. When we used wood for fuel in cooking, as soon as the water was up to the boiling point we always threw water on the ashes and coals and in that way we got a lot of ashes and charcoal. Now we are using soft coal. That is not as good, but we still use the coal ashes. Wood ashes, charcoal and some salt mixed in, are a great benefit to hogs, especially when you have fed largely on corn and they cannot get to the ground. If they can get to ground standstone, or anything of that nature, they will eat a lot of it.

A Member—Do you wean your little pigs?

Mr. Imrie—No, if the sows are going to breed for a fall litter, you have to wean them; otherwise let them follow the dam until she dries up. Now about breeding stock. I have made it a practice for a good many years to keep over the old sows' litters, as a rule.

Mr. Convey—I do not rise to criticise Mr. Imrie's talk, because I consider it a good one, but there is one feature I am inclined to criticise and that is that he uses so much oats as a hog feed. I realize, of course, it is one of the best hog feeds we have, but it is too expensive. In the first place, if you use it as a whole feed, about one-third is waste material. I consider it too expensive to feed, and I think wheat middlings answer practically the same purpose at a great deal less cost.

Mr. Imrie—I never have found anything I can substitute for oats for morning feed. We feed oats every morning in the winter to brood stock, no matter what they cost. They supply two requisites, they take a long time to get them, they will be on their feet all the morning, feeding these oats, whereas if you feed middlings, they are there in a wet state and they will simply eat them and go and lie down. They have to have exercise in order to have good, strong young. For little pigs, I do not believe we should have whole oats or even ground oats. It all depends there again upon what the rest of your feeds are, but do not feed the little pigs altogether on corn unless you have lots of skim milk. Mr. Jacobs does not pretend to be a hog man, he feeds a pig, and he says, "All you have to do is to give them all the buttermilk and all the corn they want."

Chairman Bradley—Secretary Frear told us Wisconsin was a great State,

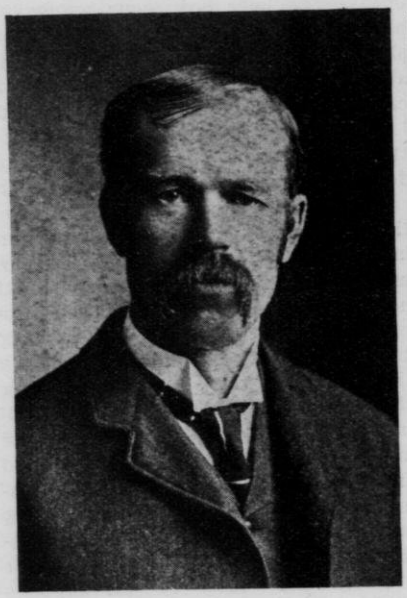
but in order to settle up this ten million acres with dairy farms, we have to take care of the Wisconsin calf crop. We have got to have more good cows in order to supply stock for this vast amount of land that ought to be made into dairy farms.

In traveling over the State year after year, we see hundreds of calves that are grown in a way that will not make good dairy cows.

Now, it is Mr. Jacob's task this morning to tell us something of the way to handle Wisconsin's calf crop in order that they may be profitable cows.

WISCONSIN'S CALF CROP.

E. C. Jacobs, Elk Mound, Wis.



Mr. Jacobs.

The eleventh commandment, according to the late Dr. Samuel A. Knapp, of the United States Department of Agriculture, is "Increase the farm stock to the extent of utilizing all the waste products and idle lands of the farm."

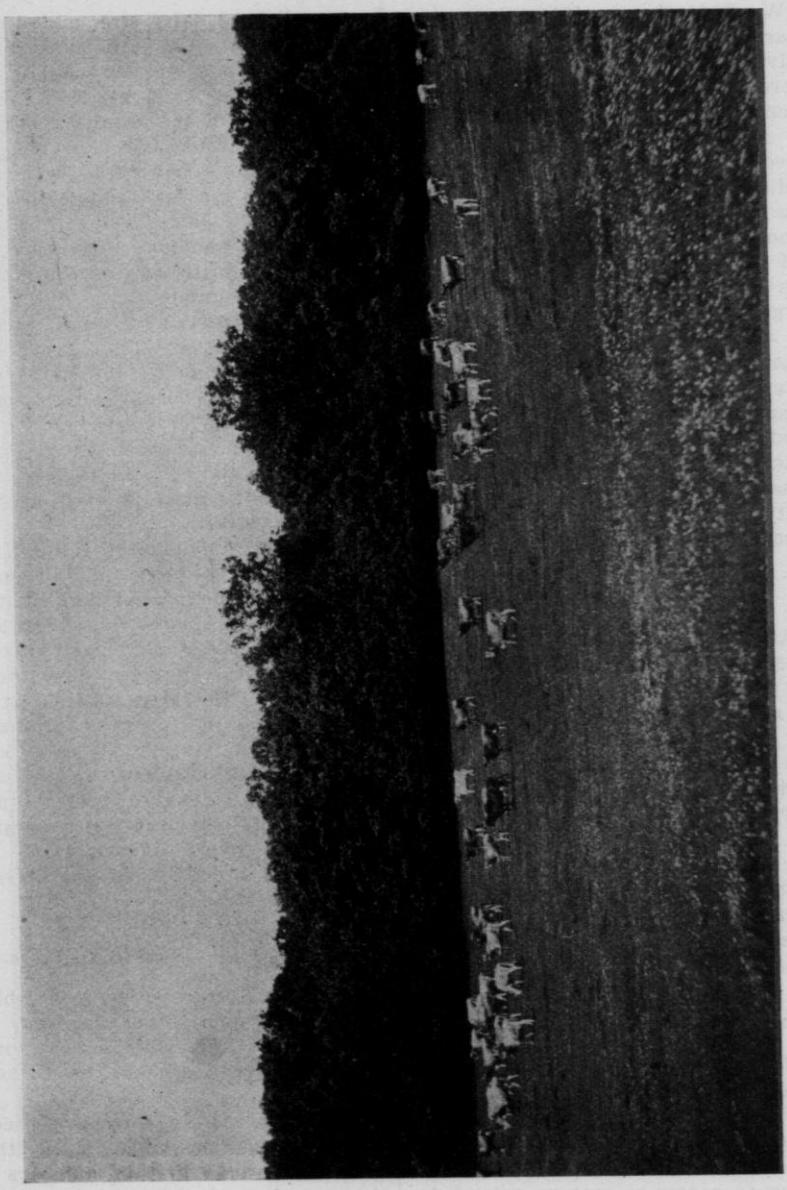
The total number of cattle, as well as the number of dairy cows, is decreasing in the United States. Although the number of cattle and dairy cows in Wisconsin shows a slight increase in the last decade, yet it is estimated that not five per cent of the farms of Wisconsin are stocked to their legitimate limit.

Wisconsin farms are now supporting but one head of live stock for each ten acres of farm land. Germany has one head for each 3.6 acres. Denmark one for 4 acres; England one for 5.3 acres.

The extension of the milk shipping districts, in which few calves are raised, and the decrease in the number of cattle in our neighboring states, seem to clearly indicate the importance of Wisconsin's campaign for more and better live stock, and in the interests of the farmer emphasis should be placed on better stock.

The last census shows there are 1,471,591 dairy cows, 351,124 yearling heifers and 138,289 yearling steers and bulls in Wisconsin. It is estimated that a herd properly managed ought to reproduce at the rate of eighty-five per cent of its number annually. If so, there should be 1,250,000 calves from dairy cows annually to be accounted for instead of the 489,413 which we have as yearlings of all kinds.

What has become of the other 761,-



Elk Lake Farm herd at pasture.

439, to say nothing of the increase of the beef cows?

We find that in 1911 there were marketed in Chicago, 499,943 veal calves, a large proportion of which were heifers, and the large shipments of veal that we see going out of our dairy districts, especially the cheese and milk shipping districts, indicate that Wisconsin is contributing her share to this slaughter of the innocents.

I believe that in the interests of the consumers of this country, the larger portion of these calves should be developed for the production of meat and dairy products. It is certain that if we are to continue to supply our own people with animal food, either as meat or dairy products, much of this early slaughter must cease, and if we are to retain the fertility of our farms more live stock must be kept.

Stock Must Be Improved.

Although the need of more live stock on Wisconsin farms is great, yet I think the need of better stock is still more important and, judging by the character of the stock we see and by the estimates from conservative sources that one-third of the dairy cows of Wisconsin do not pay for the feed they eat, it would seem that the veal and canner market might be even more liberally patronized to the advantage of the farmer if judicious selections were made for that purpose.

How to Inrease Herds and Profits.

How, then, are we to increase our herds and their profits as well?

The value of a calf at birth depends almost wholly upon the intelligence used in its breeding; its value as a cow or mature animal depends on its breeding, together with the care and intelligence its owner is willing to bestow upon its care and feeding.

A well bred dairy sire, mated only with such cows as produce a profit at the pail (and what excuse is there for keeping any others?), will insure such quality in the resulting crop of calves that farmers and dairymen cannot afford to sacrifice the heifers of such a crop for veal, and their value as prospective dairy cows will be such as to justify and induce the care and feeding that will result in a profitable and valuable animal.

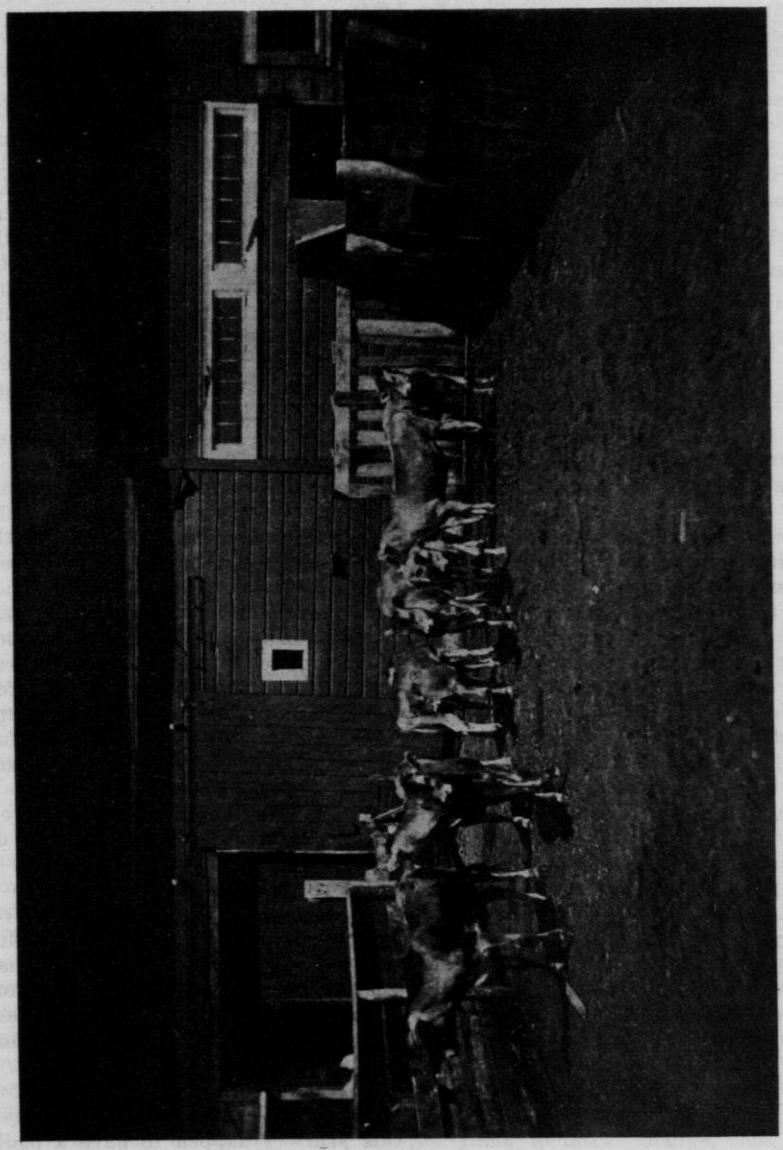
In the suggestion of using a pure bred sire, I do not claim any originality and, judging by the number of times this advice has been repeated and by the comparatively small number of such sires now in use, it would seem to be another case where it is thought to be more blessed to give than to receive.

But what would be the result if the farmers and dairymen of Wisconsin should conclude to act immediately upon this good advice that for a long time has been so freely given? Proofs are not lacking almost any where as to the great change that would result in increased profits if good sires and intelligent care were used, so I will leave that to your own estimate and I am sure it will be perfectly safe to place that estimate high enough to cover all road taxes, income taxes, school taxes, and leave a surplus besides.

How to Obtain Pure Bred Sires.

But what of the sources from which a supply of pure bred sires may be had to meet a demand which would be created by the general use of pure bred sires?

A census among Guernsey breeders taken in June, 1911 shows that Wisconsin ranks first in numbers of that breed, having 3,001 females and 697 males, with 233 breeders. If the numbers of the other breeds are esti-



A crop that does not impoverish the soil.

mated by the number of breeders as returned by the secretaries of the different herd registers, we have the following result.

	Wisconsin ranks	No. breeders	No. females	No. males
Guernseys	1st	233	3001	697
Jerseys	6th	321	3852	963
Holsteins	2nd	.....	6853	1660
Brown Swiss....	1st	30	360	90
Ayrshires	7th	18	216	54
		602	14282	3464

If the 1,822,715 dairy cows and heifers of the State were divided into herds of 12 (the average of the Guernseys herds) and all of the pure bred dairy cows and heifers should breed regularly every year, one-half their progeny being males with no losses and none shipped out of the State, there would be enough raised in seventeen years to place one bull in each herd in the State, but to cover losses and animals unfit to use as breeders, it will be nearer correct to double the time and estimate that it will take a generation to supply all the herds in the State with pure bred sires with the present ratio of pure bred animals maintained. So if there is any probability that the suggestion as to pure bred sires being taken seriously by farmers and dairymen generally, and that the advice of the late Hiram Smith to "buy a bull" is finally to be acted upon, it might be well for prospective purchasers to "come early and avoid the rush."

DISCUSSION.

Mr. John Imrie—I would like to get Mr. Jacobs' idea of how to improve a herd where they veal all the calves from that herd.

Mr. Jacobs—I think you would have to commence by reforming the dairyman.

A Member—That fellow never will be a dairyman.

Mr. Imrie—This summer I took a ride with Mr. Bradley up through the northern part of our county, through a section that is considered a dairy section, where ten years ago in December they were getting eighteen thousand pounds of milk a day, the days of the whole milk separator creameries, and we only saw in that trip of some sixty miles in June one herd that looked as though it might be pure bred. It seems as though there is something wrong when these conditions prevail in Wisconsin.

Mr. Jacobs—In regard to this question of what is going to be done in these milk shipping districts where they are using their whole milk, either for cheese or selling it directly, I realize there is a difficult situation. Those people are getting a good price for their milk and it is a great temptation to veal the calves and sell their product directly from the farm, but I think they are not in the prosperous condition that the price of the milk sold would indicate, for the future will hold a very much better condition for the people that are in a different line of farming and use their skim milk to raise young animals on the farm.

Dr. Kutchin—I think we have a condition this year that as never before may impress us with the value of vealing our stock. Feeding hay that is worth eighteen dollars a ton, bran that is worth twenty-nine dollars a ton, ensilage that is worth four dollars a ton, oats worth fifty cents a bushel, and corn at ninety cents to a dollar, there isn't a whole lot in cows this year. I happen to have a badly managed herd of full bloods, I say very badly managed, because I manage them myself. Now, honestly, while I am in no way hitting the dairy

interest, had I not full blood stock, as calves are generally being slaughtered in the dairy section, I would either have to hope to break even, or pocket a loss. If I get out with a dollar to the good, it will be from the thoroughbred calves that instead of being worth five or six or ten dollars we reckon worth four or five times that much.

Chairman Bradley—That ought to set all the people in Wisconsin thinking of the kind of cattle to which they are feeding this high priced commercial feed, and yet there are many farmers who will go on year after year with the same old scrub stock.

Mr. Jacobs—I think there is great lack of appreciation of the value of this calf crop in our dairy section. I think it is the dairymen who are breeding successfully, so that the resulting crop of calves will be of value for dairy purposes, that are going to achieve success in the end, and upon the kind of stock that they use in the production of this crop and the care given it is going to depend largely their success as farmers and business men in the future.

GOOD COWS.

Geo. F. Comings, Eau Claire, Wis.

President Hyde, of Bowdoin College, once said, "the good is the enemy of the best." At the first blush, that seems to be a rather startling proposition, a contradictory statement, but looking at it from a certain standpoint, it would seem to be entirely true. We are quite apt to say "that is good enough" and not strive for that which is better or best, and when we do that then I think the statement of President Hyde is absolutely true. We often times hear farmers say, "that is good enough", when a little effort or thought or interest would produce something entirely better.

The adjective "good",—we used to compare the adjective by saying good, better, best, and I want to talk briefly about better cows, or the best cows. I do not mean necessarily pure bred, but the best producing cows; in other words, profitable cows.

There is a verse in the Bible that says, "The way of salvation is so plain that the wayfaring man, though a fool, need not err therein".

I would say that the benefits which come from good breeding are so apparent, and the rules that govern it are so simple, that the wayfaring man, though a farmer, need not fall down in the way.

I think Paul said a great many may enter the race, but only a very few can win a prize. This striving to get good cows is not like the old Olympian games spoken of by Paul, where only a few won a prize, for every one who enters this race has a chance of winning.

The older ones of us remember that some years ago the agricultural papers, the ordinary newspapers, and sometimes the so-called religious papers had flaming advertisements of the Louisiana lottery. Immense sums of money were sent to be invested in lottery tickets. When the drawing took place, most of the tickets drew blanks. Those who make the effort to get fine cows are not going to draw blanks, but will draw valuable prizes.

I wish to speak of two ways in which good cows may be secured.

How to Secure Good Cows.

The first is by going out and finding herds of cows whose owners have carried on a system of testing for some years and can tell just what each one of their cows has given in pounds of milk and in butter fat. In this way you can secure good cows if you are willing to pay the price.

However, you cannot expect such persons to sell their tested cows, that they are know are capable of producing four hundred pounds of butter fat per year, for the price of an ordinary cow. Again, you can buy cows from neighboring dairymen and occasionally you will get a good one. The appearance of cows is very deceptive, the only way to tell what a cow is worth is to use the scales and Babcock test.

Two years ago we had two grade Guernsey cows in our herd. Several men who visited our place were asked to look these cows over and tell which was the better of the two. This was done several times, and invariably the men would select No. 13, the poorer animal of the two, and call her the best individual. We bought her for an ordinary price and sold her for beef, because no matter how well she was taken care of we could not get good results from her. The other grade, No. 16, is a cow thirteen or fourteen years old and has been capable of giving ten thousand pounds or more a year, and upwards of four hundred pounds of butter fat, and yet very intelligent dairymen looking over those individuals would say that No. 13 was the better of the two. Again I wish to say, outward appearances are very deceptive.

The second way of securing good cows of which I wish to speak and which I believe is much the better, and is open to all in my presence and to all dairymen in Wisconsin, is to take whatever cows you have in your herd at the present time, I do not care what they are, scrubs or anything you have, then decide as to what dairy breed you wish to develop on your farm. In helping to decide wisely, I think it would pay one to spend a day or two in investigating what is being done by a good Jersey herd of cows. Then go and visit good herds of Guernsey cows and spend a day or two in investigations, ask questions and learn all possible, and so with other dairy breeds in the same way. After you have spent a few days, a little time and money, it seems to me an intelligent farmer ought to be able to decide which of the dairy breeds he would like to develop on his farm.

There is another verse in the Bible which says, "That a man having once placed his hands to the plow and turns back is not fit for the kingdom of Heaven", and any man having decided to take the Guernsey breed or the Jersey or some other and then turns back to take some other line of breeding, is not likely to have good cows, and I fear is not fit for the kingdom of Heaven.

Choosing the Sire.

Having decided what breed you want to develop, the next question is the sire to head the herd, and right here you want to use the best judgment possible. Get a good individual, look carefully to the qualities of the dam of the sire. She should be a good cow, with a good udder, a large producer. Get just as long a line of good producers on both sides of this sire you propose to buy as is possible, the longer the better. If you have a fine speedy mare in your barn and you want to develop a better, faster animal than she is, you would not think of breeding the mare to a great, clumsy Percheron horse, but you would look for a horse who is himself a fine stepper, with a good dam and sire behind him, and as long a line

Jersey bull, Keepsake's Golden Lad, 71325, sire of 9 Register of Merit daughters with tests from 414 lbs. 11 oz. to 536 lbs. 11 oz. Owned by W. H. Clark, Rice Lake, Wis.

as possible of horses that have made fast time. You would then think the chances good that your colt would be a fast animal, on account of the ancestry back of him. So it is with your cows.

Now, the first lot of cows from common cows and a good sire. You can go all over our State and find the offspring of common cows and a good sire that are extraordinary animals. I wish to call your attention to Bessie, a grade Guernsey cow owned by Mr. Rowlands, of Waukesha. As a calf, Mr. Rowlands bought her from a butcher for ten dollars, to whom she had been sold for veal. She was simply a grade calf, but now is worth hundreds of dollars because of her great producing capabilities, and it is within the reach of every farmer to possess these fine, large producing animals.

I remember a herd of Guernseys near Iola, all very fine cows averaging better than four hundred pounds of butter fat, quite a large part of them being just half bloods, yet all alike in color markings and type. Persons passing remarked, there is a nice herd of Guernseys, while in fact they are simply grades.

Set a High Standard for Production.

One word in regard to what a cow should do. My opinion is we farmers ought not to set our standard at less than four hundred pounds of butter fat for a cow as an annual production. I do not say we ought to stop there and consider that as altogether satisfactory. I think it is our duty to so manage our business that we may get that much from the individuals in our herds. We should try to get such large producers that butter may be retailed at thirty cents and still leave a profit to the producer. Butter at forty cents is in the class of luxuries that common people cannot afford to use, so we ought to develop cows that will produce four hundred pounds of butter fat, which, with the skim milk and the calf she will bring, and the fertilizer to put back on the ground, will make the cow a profitable animal, even at the high prices of feeds at the present time.

Keep the Young Animals Growing.

Along with this line of good breeding there is one other condition that is necessary to be met, and that is good feeding. I am not going into the feeding question more than to say this, that I believe the calf that is to be developed into a good dairy cow should have a warm, light,clean place. Frequently it is penned up in filthy pens and that is a very undesirable condition, and certainly will not help to develop an animal that will make you a profit. The calf should be kept growing from the time it is born until as a cow it freshens. We often times make a mistake and feed so poorly that one-half the year the calf is not growing at all, perhaps through the winter simply loosing the flesh laid on in the summer. Skim milk, bran, oats and clover hay, and other protein feeds in liberal amounts should be given.

All experts agree that if you want to make a 1,600-pound horse out of a colt you must not let the first year slip away without its making good growth. It should weigh at least one-half of what it is to weigh at maturity at the end of the first year, and that same principle of good growth applies to the calf, the heifer should be well developed at two years of age.

In recapitulation, first, the obtaining or possessing of a good herd of cows is within reach of any man who has sufficient brains to run any kind of a farm successfully. It is not a difficult problem. The road is plain and straight, the important question is an ideal to do something. It is a

Five daughters of Keepsake's Golden Lad, with authenticated tests as follows, beginning at left:

Lad's Golden Tress, 447 lbs. 15 oz. butter at 2 years of age
Lad's Brightest Hope, 414 lbs. 11 oz. butter at 3 years of age
Miss Narcisse, 536 lbs. 11 oz. butter at 3 years of age
Creamy Gold, 528 lbs. 8 oz. butter at 3 years of age
Nerisa D, 474 lbs. 14 oz. butter at 3 years of age
Bred and owned by W. H. Clark, Rice Lake, Wis.

matter in reach of all present this morning and all intelligent farmers in the State; it is not an expensive or difficult problem to breed up and develop a good herd. It will take a little time, a little patience and a little thought, but all these things are in the reach of every intelligent farmer in the State if they once make up their minds to it. Where there is a will there is a way, and it does not take a great amount of will or sand, or a great amount of iron in a man's blood to do these things along the lines indicated. The most important thing is to make up your mind, having decided as to what breed you want, select the proper sire and follow on in that line of breeding, accompanied with testing to weed out poor cows, and in eight or ten years you are the possessor of first-class cows. This is within the reach of every farmer, and I say again in closing what I have previously said, it is our duty to do these things.

DISCUSSION.

Mr. John Imrie—What do you figure it costs you to feed each cow per year?

Mr. Comings—I put my figures higher than most farmers do. I say farming should be put on a business basis, the same as a manufacturing business. It pays to be liberal, and I say a cow cannot be kept in such a manner as to give her a chance to do her best at less than one hundred dollars a year. I am told by a professor at our University that they have been keeping tab on a whole lot of cows for several years; in a letter which he wrote to me he said, "for your satisfaction, Mr. Comings, I will say that your figures correspond very closely with ours". This talk about keeping a cow for thirty-five, or forty or fifty dollars is all "hot air." I put it on a basis of having the farmer get something for his own labor and that of his wife and children.

Mr. Imrie—How soon do you begin to weed out? Take a heifer, you have her milk tested right along, now, how old should she be before you decide whether she shall be weeded out?

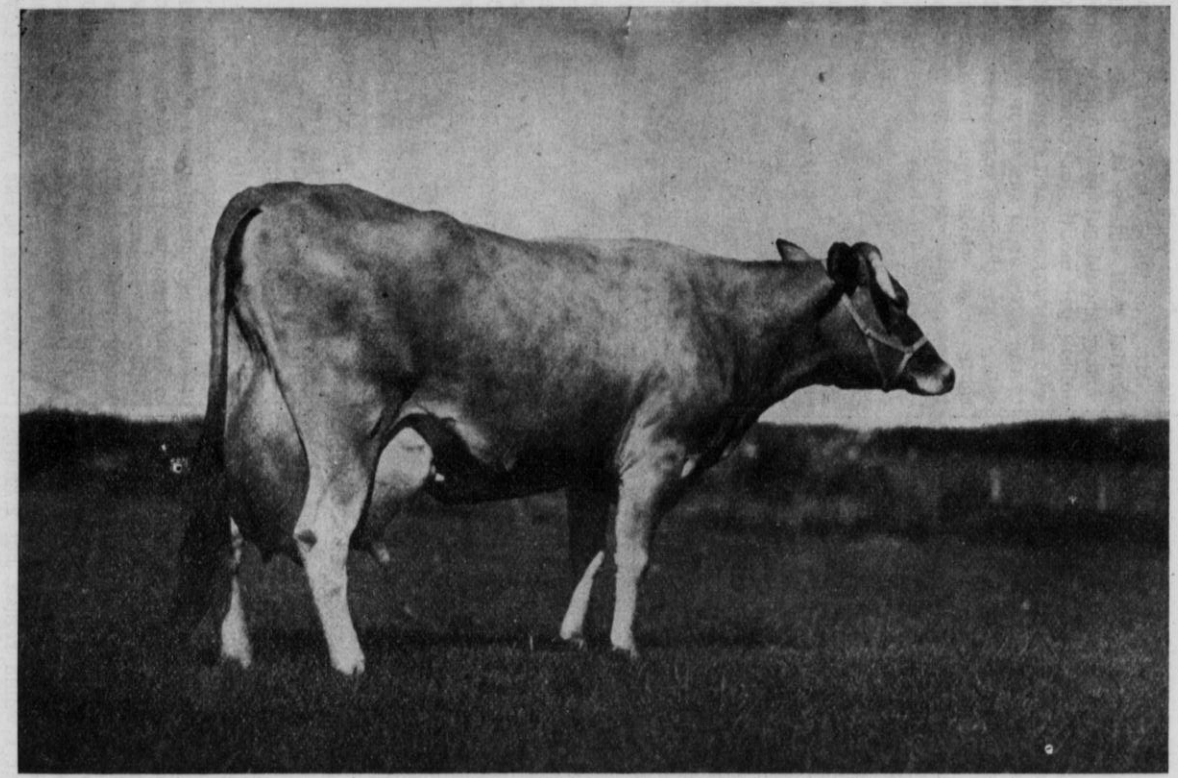
Mr. Comings—I would not condemn a heifer on a poor year's production the first year. I have repeatedly had cows that gave promise at the start of being unusual cows and then did not seem to gain very much after that; on the other hand, I have had heifers that began rather poorly and in two or three years developed into fine cows. If you have a well bred heifer, I would give her some time to show what she is going to do. There are no hard and fast rules that govern here, we must use our best judgment. A good cow may not be in just normal condition, and for a whole season do poorly, we must not condemn too hastily. There may be, and there often are, conditions that temporarily affect the production of a cow.

A Member—That kind of thing applies to the hired man sometimes, some days he doesn't accomplisn much and other days you will see him get out and do an awful day's work.

Mr. Comings—That does not apply to women at all; they put in a good day's work three hundred and sixty-five days in the year. That is why I think they ought to have things arranged so they can have a day off sometimes.

Mr. Stiles—When you have fed a cow as you suggest and then pay help, can you make anything at selling your butter for twenty-five cents a pound?

Mr. Comings—Of course we do not expect prices of feeds to be so high always. I think you can figure one hundred dollars as the cost to keep a cow as she must be kept to do good work. If you get four hundred



Jersey cow, Nerissa D, 217442. Authenticated test, 9,318 lbs. 1.6 oz. milk and 474 lbs. 14 oz. butter in a year at 3 years of age, and 1,347.2 lbs. of milk in a month and 48.2 lbs. of milk in a day as a 4-year old. Bred and owned by W. H. Clark, Rice Lake, Wis.

pounds of butter with the skim milk and a calf, you make a small profit, or in other words, you market your crops or your feed through or by the cow at a profit.

Mr. Stiles—Suppose you have cows enough to take all your farm produces and you have to put that right back into your farm, what are you going to live on?

Mr. Comings—I do not know that I quite understand your question. If I was feeding my crops to the cows and was making a product, butter and cheese, I would have those products to sell. I want to see on our farm such good cows that the products will pay for feed, labor and all proper charges in caring for them.

Chairman Bradley—Let me get your question a little clearer. You presume that Mr. Comings is feeding back to his cows all the products of his farm and is not getting back anything.

Mr. Stiles—He claims his cow is only bringing him the price of the butter, that will be one hundred dollars; he is putting in his time, and supposing he has cows enough to eat up all of the products that the farm brings, what is he to live on?

Chairman Bradley—He is going to live on the one hundred dollars that he gets from each cow.

Mr. Comings—The farmer's managerial skill enters in. I say every farmer should put down one hundred dollars per month for himself and wife as managers and charge that up to the cows or to the crops the cows eat. You charge your cows with those crops which you have grown just as though you were buying them. I think you should charge to every crop grown from six to ten dollars per acre for the farmer's managerial skill per acre. I am in favor of putting farming on a business basis, and when that is done much more must be counted as cost of forage, hay, silage, etc., and consequently much more as the cost of keeping a cow per year, and very much better cows must be developed if they are to be profit makers.

A Member—Does a single case of abortion permanently disable a cow with proper feed and care?

Mr. Comings—I would say not, but I would not want to state that dogmatically. I am simply an A. B. C. scholar in most all of these matters.

PRODUCING AND DEVELOPING A GREAT COW.

R. J. Schaefer, Appleton, Wis.

About a week ago I received a letter from Superintendent McKerrow, with a program of the Closing Institute, stating that he had taken the liberty of putting me on the program. I wondered what I had done that deserved this punishment. At first I thought I would refuse, but I finally decided that the best way to get even with Mr. McKerrow was to prepare and deliver a paper and he would probably be cured forever of wanting to hear from me.

The cow I am to talk about is the one referred to by Mr. Comings.

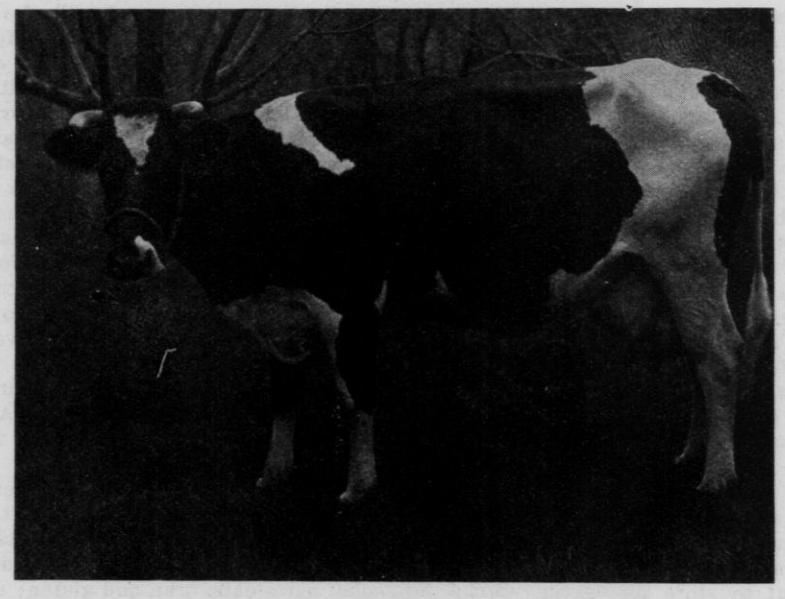
The subject as stated, "Producing and Developing a Great Cow," was given me, I suppose, on account of the work done in the Wisconsin Cow Competition and for having produced the largest actual record with the cow Caroline Paul Parthenea. This

record was not an accident nor just a happenstance, but it was due to some careful work with the cow, especially during the last two years.

Preparing the Cow for a Record.

To begin with, I must say that my work is perhaps the least to be taken into consideration in producing these qualities built up in the past years, and to do this I must start the cow when but a calf, as soon as born keep it in a good warm, dry stable, whether it is kept with its dam or not, see that it gets some of the first milk, for this is what nature provides and there is nothing better to start a calf out right.

Then for the first few days after,



Caroline Paul Parthenea, No. 77784. A. R. C. 7-day record: milk, 480.4 lbs.; butter, 25.841 lbs. Semi-official yearly record: milk, 21,967.3 lbs.; butter, 1,110.14 lbs.

results, when we look at it from the pure bred standpoint; being a Holstein in my case, a breed that can be traced back for two thousand years, bred for production of milk and butter fat, and I feel that my work is but a drop in the bucket, when thinking of the careful and judicious breeding and feeding all these years.

But my object today is to tell you my own personal experience in developing a great cow, keeping in mind not to impair any of the breeding do not give the calf too much milk, for the little calf's stomach is not strong, nor do I think that the cow's milk is in its normal state, and an over-dose is a detriment, but after a week the calf will take twelve pounds of milk daily and put on growth rapidly and at this time offer the calf a little feed, nice clover hay, a little bran and oats. I have had them eat when ten days old and show they relished it, but again, do not give an over-dose and always keep the man-

ger clean, whatever is used for feeding. Do not leave old feed from one day to another, but always try to give the right amount and have it fresh and wholesome.

When the calf is six weeks old, a gradual change to skimmed milk can be made, and a larger amount can be fed, but not too much. Always be careful to avoid indigestion, as this will set the calf back and keep it from developing into what is expected, sometimes stunting the calf entirely.

I feel I cannot emphasize too much the importance of rearing the calf, as it is unquestionably one of the vital points involved in developing a great cow. In other words, the point I wish to bring out is; the heifer must be kept in a thrifty condition from a calf until she freshens. I do not mean to say she should be fat, but at the same time I like to see a heifer when two or three years old, due to freshen having developed a dairy conformation, take a good ration and lay on some flesh, or I might state it in other words, store up energy which she will use in developing her milking qualities after freshening.

As we are developing the capacity of a cow at this time, I want to emphasize that it is quite an important point to store up energy, and the breeder can usually tell at this time what he can expect of a heifer, when he considers the amount he feeds her and how fast she lays on the flesh.

For this reason, in my own practice I have my heifers freshen in winter, any time betwen two and three years old, so there can be no possible excuse for not having them in good flesh on account of lack of time.

Developing the Dairy Points.

It is now we have reached another turning point and we must be willing to give the young cow special attention and have her in good shape to stand all the exertion necessary to put her into the next stage of her career.

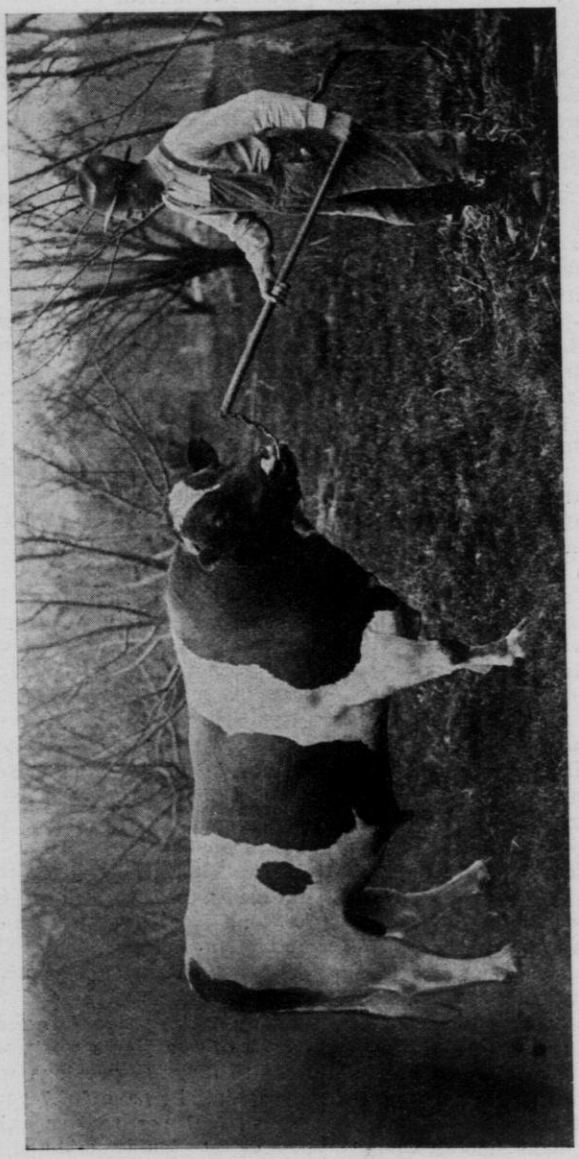
We now have developed the young cow showing a good dairy conformation, but unless we take care of these dairy points, develop and exercise them, I believe our efforts may all be for nothing.

How are we going to do it? She is ready to give milk, and there is practically no danger of milk fever, consequently all we have to do is feed and milk her. But how? Figure out a good balanced ration, see that it is plenty high in protein; do not overfeed, but feed enough, milk regularly and often. I believe that milking three times a day is practical, to induce her stored-up energy to be used in developing her milking qualities.

Keep this up for two or three months, then drop to milking twice a day, but always feed well. A good, practical rule for feeding is for every pound of butter seven pounds of mill feed, or for every four pounds of milk one pound of mill feed. And continue milking, even if you do not get her dry the first year.

I have a heifer today, two years and seven months old, reared in this way; she was fed before freshening as much as ten pounds of grain a day, equal parts oats, bran and gluten; she has been milked a month today and is giving from seventy-two to seventy-five pounds a day, her last test, made by the County Testing Association the tenth of this month, was 4.2 per cent. Her seven-day official test was 456.6 pounds milk; 19.34 pounds fat; average test 4.23 per cent. She is doing this work on a seventeen-pound grain ration; 1¼ pounds bran, 1¼ pounds gluten, 1¾ pounds ajax flakes, four times daily, twenty-eight pounds ensilage and six pounds alfalfa hay.

She was in fine condition when she freshened and is developing fine in every particular, whereas, if she had been in only ordinary condition, she



Sir Johanna Caroline Paul, No. 54534, a son of th e record cow, Caroline Paul Parthenea. Owned by R. J. Schaefer, Appleton, Wis.

would have been in torn down condition after freshening, or, in other words, to get the same results it would have been necessary to put more feed into a weak system, thereby running chances of injuring her health and ruining her future usefulness.

I believe by the time she is six years old she will raise my records today considerably, although Caroline Paul Parthenea was reared about the same way. When five years and eight months old, with little rest, she produced, shortly after freshening, in seven days 494.4 pounds milk, 19.17 pounds fat, average test 3.87 percent. The same year, eight months after freshening, she produced 296.6 pounds milk, 10.54 pounds fat, average test, 3.55 per cent.

The same year, as calculated by the County Testing Association, she gave for the year 15,987 pounds milk and 613 pounds of fat. This was valued at $182.71, cost of feed was $70.96, leaving a net gain of $111.55. During this year she was milked three times a day for the first month, then twice a day, and given ordinarily good care, which left her when dry August 15, 1910, in a good, thrifty condition. From then until September 26th she was given twelve pounds of grain daily, equal parts bran gluten and hominy with good pasture. This put her in the desired condition.

On the night previous to her freshening, September 26th, Caroline, being of a nervous temperament and uneasy due to her condition, in attempting to get through a five-strand barb wire fence got cast and cut up terribly. She looked like anything but a record cow. There were one and two deep cuts on every teat on the udder, from which some small pieces had to be cut to make smooth wounds, and it was also necessary to put forceps on an artery to stop the bleeding. As deep as were these cuts, none entered the milk ducts, but I assure you Caroline was in a very sore condition indeed.

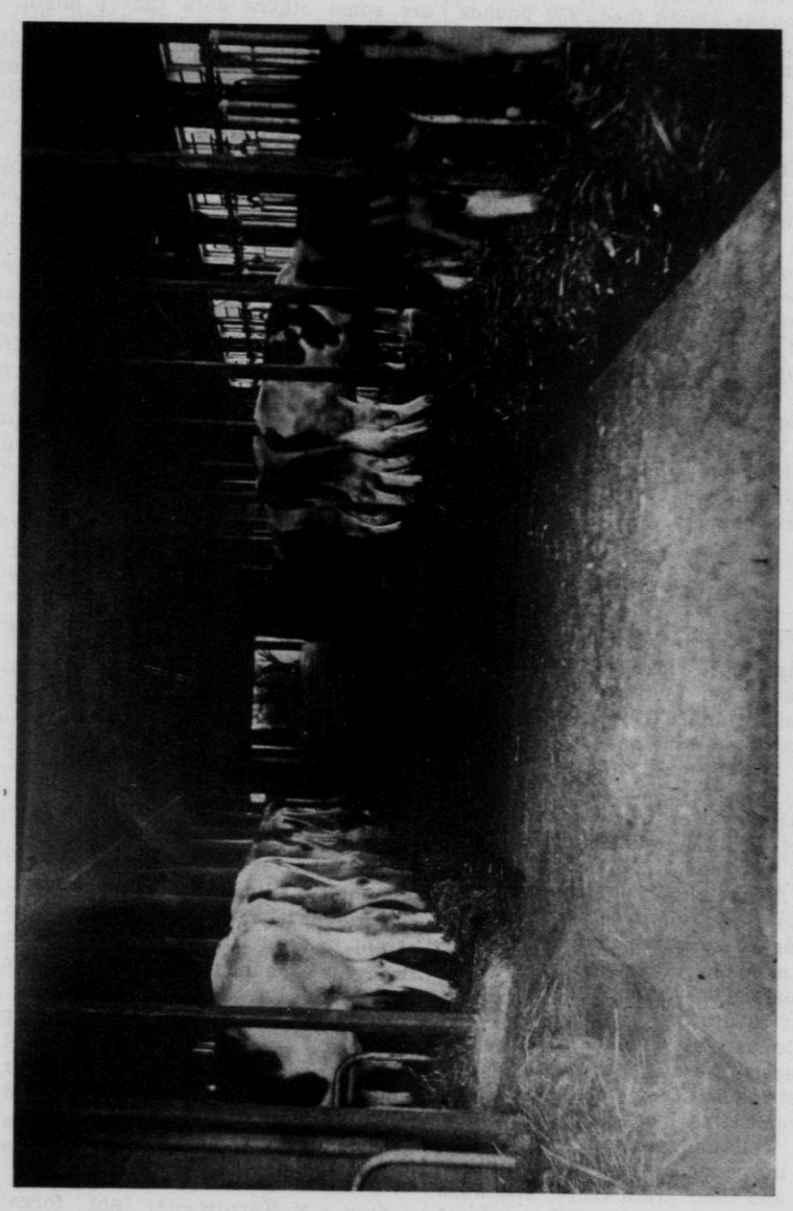
But in spite of all this, her dairy qualities were developed and not having been hurt to impair her general health, she was ready to produce. She was put in the best box stall available, though rather dark and poorly ventilated, and started out on a very light ration, milked four times a day, which was quite difficult, but she responded readily. Nine days after freshening, she was put on a seven-day test. By this time her sores had started to heal and her ration had been increased to twenty pounds grain daily.

Her Record.

She gave in the seven days, 480.4 pounds milk, 20.66 pounds fat, average test 4.30 per cent. This was the start of her year's work. She gave the first month, 2,163.3 pounds milk testing 4.27 per cent, making 92.37 pounds fat; the second month, 2,316.9 pounds milk testing 3.63 per cent, making 84.10 pounds fat; third month, 2,325 pounds milk, eight pounds more milk than the second month, testing 4 per cent, making 93 pounds fat. You will notice this is more fat than the first month, and from then on dropping off slowly, and her ration was dropped off the same.

After eight months she was turned out on pasture, but a grain ration was kept up just the same, except being higher in fat than before, and she produced the ninth month 1,664.60 pounds milk testing 4.35 per cent., making 72.4 pounds fat, and the last month of her year's work, which was only two weeks previous to freshening again, she gave 622.7 pounds milk testing 5.07 per cent., making 31.57 pounds fat. This completed the year's work, producing 21,966.3 pounds milk and 888.112 pounds fat, 2,867.66 pounds solids.

She consumed during the year 2,083



A light and comfortable stable.

pounds bran, 2,084 pounds ajax flakes, 1,878 pounds gluten feed, 850 pounds hominy, 248 pounds ground barley, 367 pounds corn meal, 10,726 pounds silage, 1,200 pounds green corn, 600 pounds green peas and oats, 578 pounds clover hay, 722 pounds mixed hay, and pasture.

Figuring these at market price, the feed cost $129.40. Credit for 888.15 pounds butter fat at twenty-eight cents a pound, and 17,578.3 pounds skimmed milk at twenty cents a hundred, makes a total credit of $283.83, leaving a net profit of $154.43, giving $1.20 profit for every dollar's worth fed.

I believe you will agree with me now that it was not an accident nor a happenstance, and I have given you all the information I can in producing and developing a great cow.

DISCUSSION.

Supt. McKerrow—Mr. Conductor, we have had more sickness this last season among our Institute workers than ever before and I tried to enlist some of these men who have done good things in our work, and among others I went for Mr. Schaefer. I made a mistake, however, of approaching the subject of his enlistment in our army before his good wife, and, like other cases I have known of, it resulted in a refusal to volunteer. I am not blaming these wives, but we have to have men, so I changed my tactics and instead of asking for volunteers I went to drafting. Of course I was a little careful whom I drafted. I had seen these gentlemen's wives, and let me say they were happy looking women, so I concluded they provided well and treated these ladies well, the same as they do their live stock and their grain crops, and were therefore better worth the risk of drafting.

Now, you know that I drafted well when I drafted this man, and there are some others here that I might say the same thing about. So, seeing this result, I can stand a lot of abuse, all they want to give me, so long as it turns out so well. I tried to draft the Governor of the State.

Chairman Bradley—He didn't have any wife; why couldn't you get him?

Supt. McKerrow—That is just the trouble. If he had had a wife to give him good advice, he would have come. You see a man with a good, sensible wife, while she may grumble a good deal in the family circle, yet the second good thought and common sense would prompt her to say to her husband, "Well, you had better do it anyway, it wouldn't look well if you didn't."

We have these fellows here now, and it is your chance to ask questions. The man who can make a cow do as well as this man has, has a lot inside of him that will be profitable for you to get out of him.

Mr. Imrie—To what age would you feed skim milk to the calf?

Mr. Schaefer—If you have plenty of skim milk, I would feed it for a whole year, increasing the quantity.

Mr. Imrie—How much would you expect this calf to take if you expected to get a thousand pounds of butter from it later?

Mr. Schaefer—I never really have had enough skim milk to feed as much as I would like to, but I would not be afraid to feed a calf as much as twenty-five pounds a day without any trouble.

Mr. Imrie—I have not fed heifer calves as much milk perhaps as I have males, but the best ones I ever raised have had a pailful; that would be twenty pounds, probably twice a day, and it seemed to do them lots of good.

Supt. McKerrow—Do not forget these gentlemen are both talking about Holstein calves.

Mr. Ries—And they are talking about Holstein skim milk.

Mr. Imrie—It used to be said that Jersey whole milk was butter, because all the globules rose to the top, and so Jersey skim milk was the poorest of all.

Mr. Martiny—How many generations of this cow's ancestors did you have on your farm, and what were there records as butter producers?

Mr. Schaefer—There have been three generations on my farm, but the dam of this cow has only been in my possession, and she produced something over six hundred pounds of fats in a year.

Chairman Bradley—You haven't anything back of that? You do not know what her grandmother or great grandmother did?

Mr. Schaefer—All I know is that they were mighty good cows.

A Member—You say you milked that cow within two weeks of calving time. Was that milk during the last week shipped for use?

Mr. Schaefer—Yes, I had no trouble with it at all.

A Member—When I strip my cows the last week or so, it isn't good milk.

Mr. Schaefer—I did not have to strip.

Mr. Martiny—In your case, you milked within two weeks of calving time for the purposes of this record, as I understand. Do you recommend that in ordinary practice?

Mr. Schaefer—No, I would not. With a heifer, I would milk her as long as I could, but I prefer to dry up a cow for six weeks.

Mr. Imrie—What was the age of this heifer that you said gave nineteen pounds and a fraction of butter fat in a week?

Mr. Schaefer—She was two years and seven months.

Mr. Jacobs—Can you usually make a success of drying up a cow within two weeks of her calving period? Wouldn't you rather continue to milk her clear up than to undertake to dry her up so late as that?

Mr. Schaefer—It is very difficult to dry up a cow at this time. I prefer drying her up six weeks before.

Mr. Scott—How close to calving was this cow milked before the record was made? How long had she been dry?

Mr. Schaefer—She was dried up, the last milking was the fifteenth of August, and she freshened the twenty-sixth of September, a little better than five weeks.

Mr. Imrie—She really was not feeding for a test by being dry a long time and fed up very high.

Supt. McKerrow—But, remember, she was well fed. Mr. Schaefer stated she was getting twelve pounds of rich protein feed and very rich pasture.

Mr. Martiny—I think it is a wonderful record when she was only prepared five or six weeks, while others were prepared six months. Another thing, this cow dropped her calf within six weeks after drying up. I think it is a wonderful record altogether.

A Member—How much did your cow weigh?

Mr. Schaefer—She will weigh between thirteen and fourteen hundred.

Recess to 1:30 P. M.

AFTERNOON SESSION, MARCH 14, 1912.

The convention met at 1:30 P. M. Mr. W. F. Stiles in the chair.

PARCEL POST.

Supt. Geo. McKerrow, Madison, Wis.

In the first place, in standing up here on the platform I am too far above you to feel comfortable. In the second place, I am standing here in the place of a man who ought to have been here and in whose shoes I am not worthy to stand.

Some time ago, Professor Henry, formerly Dean of our Agricultural College, whose name is a household word in the farm homes of Wisconsin, started out to make a trip to the south, intending to visit the Panama canal, Central America and Mexico, and to spend his winter in southern latitudes, resting from the hard work of years. On his way he went to Washington; while there he heard some of the testimony before Senator Bourne's committee in regard to this subject, the Parcel Post. He noted in the few days he spent there and listened to this testimony that there were some of the brightest attorneys in the country employed to direct the testimony before this senatorial committee; that these attorneys were employed by large interests, express companies, wholesale firms, etc., and that the side in favor of the parcel post, represented by the common people of the country, had no attorney.

Now, Professor Henry sometimes gets stirred up, and this condition of facts stirred him up. He wrote home to his son that he was not going south, but was coming up to his office in Madison to work on parcel post. Now, for the last two or three months he has been spending the time and the money he expected to spend in the warm climate of the south, in seeing the sights he wanted to see, in the interest of parcel post. In that sense then, Professor Henry has become the attorney of the farmers, paid by himself. I asked him a few weeks ago to attend this Round-up Institute and talk to the people in attendance on the subject of Parcel Post. He answered me by saying he would like to do so and was not sure but he could, but later, when I began to formulate this program for the printer he said, "Do not put me on the program, put yourself on and then if I can come you can step aside and let me have your place. If you put some one else on, it would not look well to push them aside and put me in their place." And that is why my name appears on this program. You see, I am one of these fellows that can be pushed anywhere, so long as I push myself, but some people find I am pretty hard to push when they are trying to do the pushing.

Now, I am very sorry that Professor Henry cannot be here. He has just met with a serious loss in his own family, a niece of whom he thought a great deal, died a few days ago and he has just returned from the funeral; he is an old man now, a man who has worked very hard in his time, and he says he is so broken up he does not think he could make a creditable appearance, or discuss so important a subject before a large audience, so we haven't him here at this Institute.

The Parcels Post as Seen in Foreign Lands.

Now, I am not going to talk you to death on the subject of Parcel Post. We are here as representative farmers, representing one of a very large class, one of the most important classes of the American people. We are living under a government of the people, by the people and for the people, and I think we all believe in the greatest good to the greatest number; we all believe that that is the foundation upon which our Government stands.

Our mail service is a branch of our Government that in many respects is serving us well, but in this respect of the parcel post we have the poorest service of any government on the face of the globe. I have had that impressed upon my mind more than once in foreign countries. Why, I had an umbrella sent through the mail from the city of London to the city of Shrewsbury, England, nearly across that country. Can we send an umbrella through the mail in America?

We sometimes swell up with pride and say we are the greatest people on earth, but there are some things in which we are not the greatest. In the matter of sending parcels through our mails, the United States has the lowest weight limit and the highest price per pound for parcels of any country in the world.

Just a moment upon that point—the United States and Australia are practically of the same size; both new countries, but, judging from the population per square mile, Australia is very much newer than the United States. In the United States we can send as high as four pound packages through the mail at the rate of sixteen cents per pound, or sixty-four cents for four pounds. In Australia, newer in some senses, for the first pound they charge twelve cents, and they will carry up to eleven pounds, with a charge of six cents a pound for the balance of the eleven pounds. The first pound is always twelve cents; the other ten pounds six cents each, which makes seventy-two cents all told for eleven pounds from and to any point in Australia, and Australia is just as large as the United States. There is a comparison between new countries, practically.

Russia, one of the largest countries of the old world, carries the first two pounds for thirteen cents, that is six and a half cents a pound. From two to seven pounds for twenty-three cents; from seven to twelve pounds for thirty-four cents; so that twelve pounds may be sent to any point in Russia for thirty-four cents, that Czar-ridden country where tyranny prevails, and yet the people are better served than we are in our boasted free country of the United States.

Now China. We look upon China as way back in the dark ages; yet China will send a pound package anywhere for fifteen cents; two pounds for twenty cents; four pounds for thirty cents; six pounds for forty cents; eleven pounds for fifty cents; fifteen pounds for eighty cents; twenty-two pounds for a hundred cents, or a dollar of our money.

In the United Kingdom, Great Britain, the first pound costs six cents; two pounds, eight cents; three pounds, ten cents, and from five up to eleven, two cents a pound, straight through.

Now, I think these are comparisons enough, though I could make comparisons with Germany, South American countries and many others.

How It Would Affect the Small Dealers.

Now, isn't it time that the great majority of the American people should be listened to by the United States Congress? What arguments do we hear against the parcel post?

Principally that it will injure the small leaders, the merchants in our country villages.

Now, the village and the farming community surrounding it have common interests, and I would hate to see anything done that would injure the business in the little hamlets that are strewn all over the State of Wisconsin and all over the United States. We see so much in the trade journals upon this subject that we are apt to think that all the business would go into the hands of the mail order houses. Now, I think this is the best kind of advertising the mail order houses could get, because if they can sell so cheaply that these packages will stand the postage fees, even the low rate of postage of foreign countries, as against the things that the small merchant is selling, then it will get into the heads of the farmers that the small merchant is getting too much profit, and I think the sooner the small merchants can have this argument taken out of the trade journals and the newspapers, the better for their business.

But I do not believe, this is my personal opinion, I do not believe that the parcel post will cut any figure with the mail order houses.

Parcel Post and the Mail Order Houses.

I have in my hand material prepared by Professor Henry direct from the records of the Investigating Senatorial Committee. There appeared before that committee last fall, as one of the witnesses sworn to tell the truth, a Mr. William C. Thorn, General Manager of the Mail Order House of Montgomery Ward & Co., of Chicago, and when asked if he favored the parcel post, Mr. Thorn said he did not know whether he did or not, because his firm had built up their immense business almost entirely through shipping goods by freight, and a few by express. He stated that Montgomery Ward & Co. shipped 82 per cent of all the goods they sold by freight. I believe that was based on their selling price, and it was at an average carrying charge of $1.25 per hundred. Well, the United States Government is not going to send that heavy freight through the mails at $1.25 on any basis of parcel post bill that can give us the small margin on that side of the trade. That kind of stuff will continue to go by freight. They sent also ten per cent by express at four dollars per hundred; some of that might be handled by the parcel post; and eight per cent by mail at one cent per ounce, or sixteen cents per pound. Those percentages were based on the value of the goods, but when it comes to being based on weight, Montgomery Ward & Co. shipped 99.38 per cent, about 99½ pounds out of every hundred by freight. About a half of one per cent or half a pound per hundred, were shipped by express and only .04 of one per cent have been shipped by mail.

Now, I will admit that some of the express that is now sent as express will be sent by mail, but you can see that is not going to cut any big figure with these mail order houses, based upon these figures. It will cut some figure with the express companies, and that is where the shoe is pinching in the main. If we get the parcel post bill given us by Congress, it will affect the express companies and other people, I am told, that are putting up the bulk of the money that is keeping the best and brainiest lawyers in this country in Washington before this Parcel Post Committee.

How It Would Benefit the Farmers.

I said the farmers made up the bulk of the people in this country. Now, are there any other people that want parcel post besides the farmers? Yes,

many of the small house owners and even home renters in our villages, and even in our cities, want parcel post, and will be benefitted thereby, but we will admit that the farmers of the United States will be benefitted more than any other one class, because they are farther from the express offices and if they can have these small packages,—for instance, small parts needed for some of their machines that they have had sent by express, and in many cases the express office ten miles away from where they live, they will be saved that drive and can have it sent by mail through the post-office, it will be delivered in their mail box, and be a saving many times, not only of the few cents difference between the express and the postage, but the saving of a dollar or two worth of time, sometimes even five and ten dollars' worth of time, when they badly need that part, that little wheel, to put into a machine. And so I will admit that the farmers will be benefitted the most, but all the people,—I am not going to except even the small merchant in the little towns, because if some lady comes in for a piece of nice ribbon the merchant has not in stock he can take that order and have it sent direct to her house, and in that way and many other ways it would be a benefit, even to the little merchant. Of course it is the old argument, I heard it as a boy when the reaper and the binder were invented; people talked about its cutting down the opportunity of honest labor when the binder was first invented; they said, "Pretty soon no men will be needed at all in the harvest fields of Wisconsin and Minnesota", but we know that men are wanted still and are getting better wages today. When the sewing machine was first invented, they said, "The poor girls will be out of their jobs", but the girls are sewing still. Pretty soon they will be running the government, you know, and you fellows will be kicking, but, as the darkey said, "the world do move", and I believe it will move a parcel post in the United States very quickly if every farmer in this audience, and in similar audiences today all over this country will remember that the 18th of March is parcel post day, will just sit down and write a letter to Senator Bourne, Chairman of the Senate Committee that is investigating this question, and another to your United States Senators in this State and to your Representative in Congress, so they will know you have waked up on this, just let them all know you are thoroughly awake on the 18th of March, next Monday—so you had better write it this week before you forget it. Let them know where you stand.

I have talked maybe longer than Prof. Henry would have done, but he would have said a great deal more in the same space of time, for I never saw him worked up more on any subject than he is on this subject of parcel post.

DISCUSSION.

Mr. Scott—Mr. McKerrow has spoken of the parcel post as we see it in other nations, but he did not say anything about our interexchange between this nation and others. Now, as I understand it, between the post-offices here in this country we have got to pay sixteen cents a pound and the packages are limited to four pounds, while we can send to almost any postoffice in the world, outside of our country, a package of eleven pounds at twelve cents a pound. You men here can send a package of eleven pounds from Neenah to London for twelve cents a pound, $1.32. If we send a package from Neenah to Menasha, or wish to do so, we would have to divide it into three packages and it would cost us $1.76.

We can get a package from London of eleven pounds delivered at Neenah for seventy-nine cents. If we want to send eleven pounds from Menasha to Neenah it still costs us $1.76.

Supt. McKerrow—You ought to trade in the mail order houses in London. There are no mail order houses, so far as I can learn, in civilized European countries where they are carrying parcels so low. Maybe it will kill them out here if we get parcel post.

Miss Stearns.—When I was in New York City in January, I saw a big express wagon with something to this effect on it: "Imperial Parcel Post", with the German coat of arms on it. If a merchant in New York City wants to send a package to any place in Germany, this Imperial wagon and horses kept by the German government in the city of New York will call at his place for it. He doesn't even have to take it to the post-office; it is called for.

I am very glad Mr. McKerrow has had this live topic put on the program because it has been to me the greatest drawback I have had in trying to get my traveling library boxes from Madison out into the country. A while ago I visited every place in Columbia county and took a box out to every town. In going my rounds, I followed right after the R. F. D. man every day around the circuit. Columbia county had to pay eight dollars a day for the team that carried those books and myself, it had to pay the cost of the driver and his expenses, and my time came out of the State. That enormous cost to that county for a whole week for me to follow right around after the rural delivery driver, who was paid by the Government to drive two horses with an average load of twenty-five pounds.

When they took away the Star routes and put in the R. F. D., they simply killed the large profit of the old system. On stage routes, as you know, you can get a barrel of flour weighing 196 pounds taken out to you, if you stand in with the stage driver, for a quarter; but if you are on the R. F. D. route you cannot get six pounds of sugar delivered to you. I am always delighted when I send my traveling libraries out on stage routes because otherwise the farmer has to drive in long distances to get these boxes and he is oftimes too busy to do this. That is one reason why we are anxious to have the parcel post put through.

When John Wanamaker was Postmaster General he said there were four great reasons against parcel post legislation, and they were the Adams Express company, the United States Express Company, the Wells-Fargo and the American Express Company. The amount of money they make was recently shown by the fact that the Wells-Fargo Co. had accumulated such an enormous surplus from you farmers that it divided it up by declaring a dividend of seven-hundred-per-cent. For years those four express companies kept that grand old ruin, Senator Thomas C. Platt, President of the United States Express company, in Washington to protect their interests. Senator Platt was asleep all the rest of the year except when the matter of express companies or parcel post came up, and then he was very wide awake, putting parcel post asleep in turn. Now, he has gone to his just reward and we have for the first time some chance of getting parcel post through if you farmers will help us.

Dean Henry heard I was enthusiastic over parcel post and he said, "I want you to give me some concrete illustration of the way it affects your work and the way you follow the R. F. D. man around". I offered Dean Henry a number of absolute instances where I had gone following right around after an R. F. D. man, who

could just as well have taken the boxes out. He had plenty of room, good horse flesh and all the machinery, but I would have been arrested if I had loaded my box onto his wagon, I suppose.

Dr. Kutchin—In this country we have no Imperial Parcel Post, but we have some imperial express companies.

Mr. Jones—Mr. Chairman, when I went abroad I was convinced that in every particular America exceeded every other civilized country. When I got over to London I wanted to telegraph and I asked for the telegraph office. "Why", they said, "we haven't any telegraph office". "Then how do you send your messages"? "Just go to the post-office", and I stepped into the post-office, they are on every corner, and they get a delivery every hour in the day, and I paid twelve cents for twelve words to go anywhere over the United Kingdom. That rather took the conceit out of me. When I got over into Berlin, I wanted to send a suit of clothes to the tailor to be pressed and wanted to get hold of a despatch boy, and was told they had none. "How do you send out your parcels"? "Put them in the post-office". So I stuck my suit of clothes in the post-office, mailed it to a tailor for about a quarter, he pressed them for about another quarter and sent them back. All that work was the work of the Government. It looked as if it was only in a democracy that we would find these corporations holding so much power.

A Member—Can you give us any figures on the increased cost under this system if installed?

Supt. McKerrow—If the genuine parcel post system was installed throughout the United States, I cannot give you the figures as to the cost, but these foreign countries make it pay.

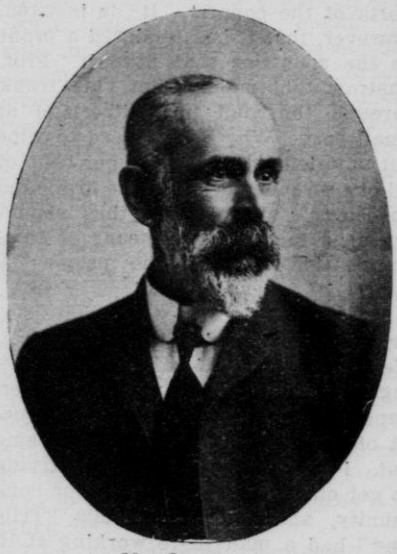
Miss Stearns—I know it has been claimed that it would produce a deficit if the R. F. D. were extended to all parts of the country. It is insisted, however, that it has rendered a profit to the countries that have it. Prof. Jastrow told me he sent his trunk through the mail in Switzerland at small cost. Why do we need to wipe out any deficit when sixty per cent of all our revenue goes into the army and the navy? Why, after this, should we need to make our means of communication between the people a source of revenue to us?

Mr. Imrie—I was somewhat surprised when I read this letter of Prof. Henry in regard to local merchants being opposed to the parcel post. Perhaps some of you tried to get the benefit of the R. F. D. when it first came out. I sent to the Department, trying to get one of these routes in our community, and the Minneapolis "Tribune" had a man there working at it. I did a good deal of talking and studying and I found that our merchants were opposed to the R. F. D., because they said if the farmers got their mail at home they wouldn't come into town to buy anything.

Chairman Stiles—There is just one other thing I want to speak of, an expense we all have to bear and are glad to bear, and that is the school books; we have to buy them for our children. They are quite expensive books; we have to buy them for our children. They are quite expensive sometimes, the local dealers generally do not keep them, and if we have to send and get them by express it costs a good deal of money. We ought to be able to get them by mail and get them as cheaply as possible.

FARM MANAGEMENT.

H. D. Griswold, West Salem, Wis.



Mr. Griswold.

History tells us that this earth was made and prepared for man before he was created, and when man came he was given dominion over the earth and all living things upon it. It was made rich and beautiful but the decree was that man must work to get the best results out of it. "In the sweat of thy brow shalt thou eat bread" would indicate that the brain should work as well as the hands. The success achieved and the victories won make us forget the work and we rejoice in the things accomplished.

Spring is coming; it will be a new spring, different from any we have ever seen. It will be grand in its beauty, it will be rich in opportunities, it will be especially for us. Are we ready to make the most of it, so it shall be to us and those around us the best and most profitable we have ever known?

The first farm management that history records was that of Adam. He made some mistakes; he raised fruit and he also raised Cain, and ever since his time man has been making mistakes, raising fruit and raising Cain.

Common Sense an Essential Requirement.

To be successful today as a farm manager, a man must have good common sense; he must also have a good wife. If he has the first, it will naturally follow that he will have the last. He must have love and enthusiasm for the out-door life, the preparation of the soil, the mysteries of plant life and growth and all the things that contribute to it, and the rearing and care of the animals upon the farm, each one a study in itself.

Buying the Farm.

Before buying a farm, a man should have some capital, some experience and some agricultural knowledge. In buying, be sure to get good land, not too far from market, and not too large a farm. Every acre must be made to do its best.

The best seed should be used, the best preparation made for the seed bed, the best cultivation given and the crops harvested in the best possible shape. Our people of today are looking for quality and not only want food, but they want good food.

A farm large enough to give continuous work for two men works to better advantage than a farm only large enough for one man. Two men working together can handle almost any job that comes along.

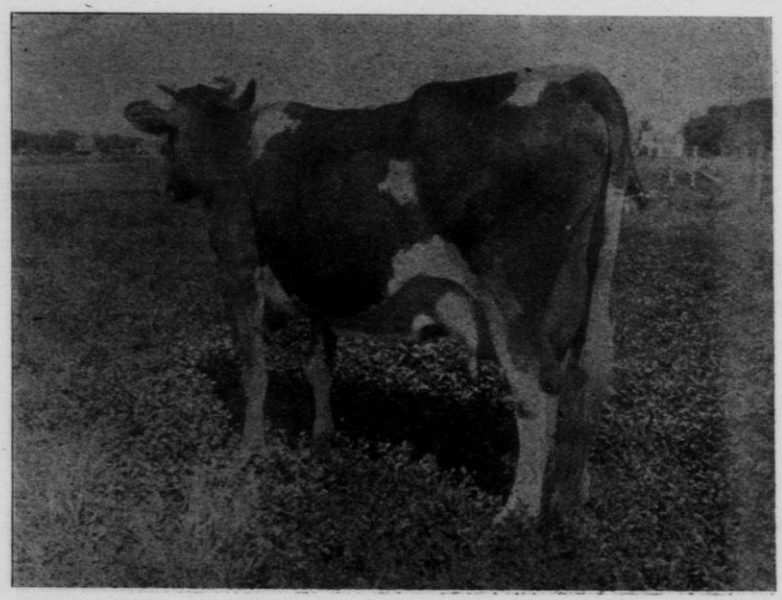
An Old Adage.

Cultivate the habit of early rising; everything on the farm seems to go better if we get an early start. The old saying, "he who rises late must trot all day", is literally true. Quit in good season at night, then if you wish to go out in the evening you can do so.

harvesting at the same time. If such are planted, one must suffer in the harvesting.

Buy good tools and always keep them housed when not in use.

No two farms are just alike and no two men are just alike, so study your conditions and your likes, keep account of everything and find what particular thing pays best for you,



Guernsey cow, Endymion's Primrose, owned by H. D. Griswold, West Salem, Wis. She is making as a 4-year old in Advanced Registry over 11,000 pounds milk and 650 pounds fat.

Drive the work and do not let the work drive you. If it should get behind, put on more help, if possible, as one day in season is worth two later on I wish to emphasize this point, as it is the cause of serious loss to our farmers, crops harvested in a careless manner, hay allowed to get too ripe, grain allowed to stand in shocks until bodly damaged, corn choked with weeds. All these things mean serious loss. Crops should be so planned that no two will require then push that thing for all there is in it.

Keep enough stock of some kind to consume the products of the farm on the farm; keep enough, but not more than you can keep well. Keep the best. Do not think you must raise everything, things that do not pay are best left to some one else.

Do your own buying and selling as much as possible; pay cash and pay promptly.

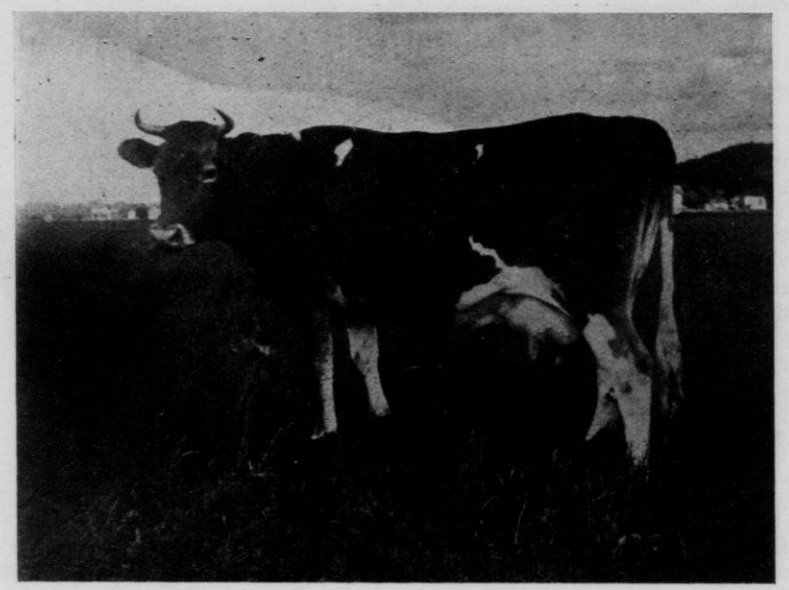
The Home Surroundings.

Be your own architect, plan your own buildings and have them convenient and handy. Keep all the rubbish, old machinery and unsightly things cleaned up and make your farm home pleasant and attractive.

Provide conveniences for the wife as well as for yourself. Let the wife manage the house and the husband the farm, but a man should not be stingy in providing supplies for the house, as it is a great help for the the housewife if she is kept well supplied with provisions, wood and water, and do not be afraid to take hold and help when the work is hard and pressing. Be good to her and she will be good to you.

The Best Crop on the Farm.

The farm is the ideal place for the boys and girls to grow up, not only for happiness and health, but it is the place where they learn to do things. Children as a rule do not like to work, but they do like to do things that they see older people doing, and if this desire is encouraged, a little praise given and a little pains taken to show them how, they get interested and drawn on to do more and more, and no matter what line of work is taken up in after life, the things learned on the farm are always useful, such as knowing how to harness and care for a horse, feeding and milking a cow, preparing and planting a garden or a flower bed, the use of carpenter's tools, etc.

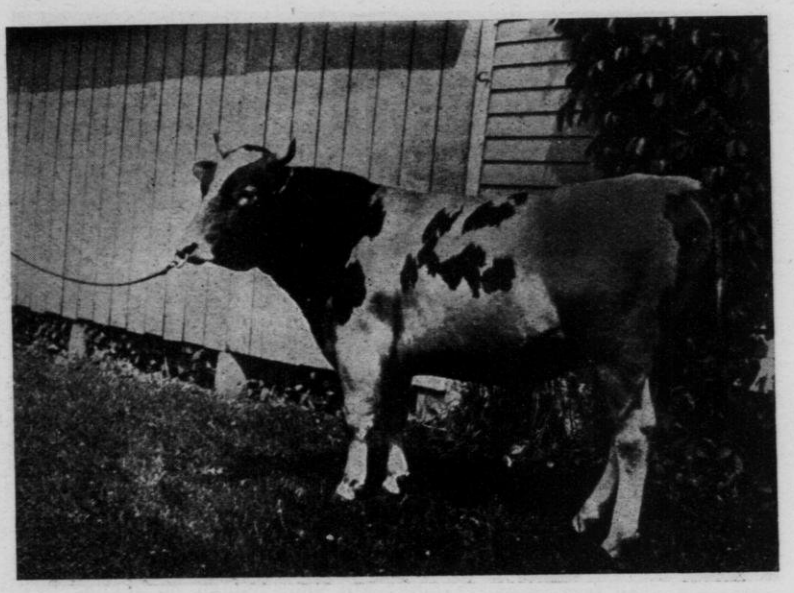


Guernsey cow, Yeksa Sunburst. A daughter of Endymion, who was Grand Champion at National Dairy Show, 1907. She will make over 10,000 lbs. milk and 530 lbs. fat this year in Advanced Registry. Owned by H. D. Griswold, West Salem, Wis.

As the boys grow up and develop, they should be taken more into the confidence of the father, more responsibility placed upon them and a personal interest of some kind given them. Boys are leaving the farm today because the father and son do not understand each other, there is a lack of harmony, good fellowship and appreciation.

ters; however, it is better to have a son-in-law than no son and he may be able to carry on the farm all right.

The hired help question is a serious question, but in every good business men are found to carry it on, and with us so far we have had no serious difficulty. We always hire the best help we can get and pay the price. Poor help is dear at any price



Stanford's Glenwood of Pinehurst IV, 16584. His dam and two grandams' average records are over 600 lbs. fat in Advanced Registry.

If a farmer does not have boys, the next best thing is girls, for the girls will get the boys and girls are getting interested in agriculture, and I believe we will have more and more women who will manage farms and manage them successfully.

The Help Problem.

It is always dangerous to bring a nice-looking hired man into a family where there are grown-up daugh-

and profane and drunken men should not be tolerated. A good man will take an interest in the stock and in the work and do it right.

We are none of us doing our best and meetings like this are an uplift and an inspiration; we go back to our work not only with new ideas, but with the spirit and courage to do better than we have ever done before. I believe we shall have to answer at the final account for the use we have made of God's acres, and what will

that man say then who has been raising tobacco?

The factory man is welcome to his factory; the city man is welcome to his city; the lawyer is welome to his law and the doctor to his paregoric, but as for me, give me the wide open fields, the trees and the brooks, the hills and the valleys, a piece of land a man select his land, if he has the selection in his own hands, near a railroad station. The live stock must be brought to the railroad station to be shipped to the larger market, and any one who has had experience in hauling stock a great distance knows the trouble it is. I know of farmers who have loaded their hogs in the

This picture was taken to show how light a barn could be made with lots of whitewash.

I can call my own, the inheritance of God.

DISCUSSION.

A Member—Is it any worse to raise tobacco than it is to use it?

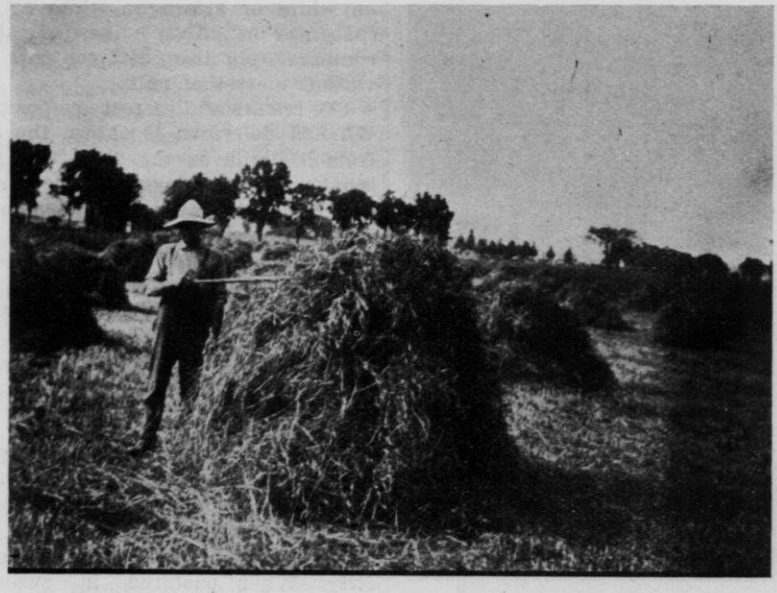
Mr. Griswold—No, I do not think it is.

Miss Stearns—If nobody raised it, nobody could use it.

Chairman Stiles—It is worse for the farm.

Mr. Kleinheinz—I would like to see evening and traveled all night continuously in order to be at their railroad station in the morning to get them shipped out; therefore I urge on every young man who goes out to select a farm, to select it somewhere near a railroad station. Another thing, Mr. Griswold went on and told us about how the horses should be hitched and how the cow should be taken care of, but he forgot the sheep. He cannot get along without sheep, and he might as well have mentioned it.

Mr. Griswold—Farmers near railroad stations are more apt to raise special cash crops, such as sugar beets, cabbage, potatoes and the like, cannot all live close to market, but in selecting a farm bear in mind that you get no pay for time spent on the road, your time is valuable and

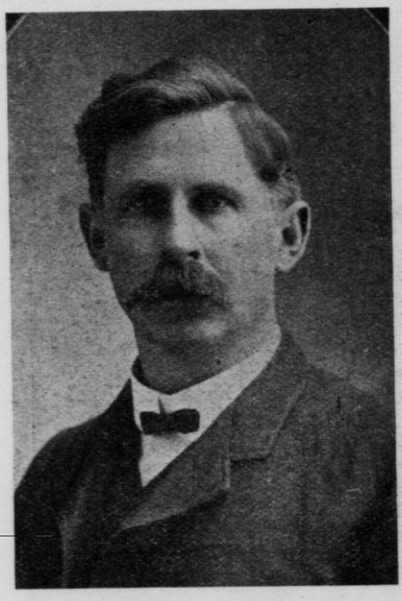


The first cutting of a field of clover and timothy hay that yielded us 6 tons to the acre in two cuttings.

as these cannot be hauled long distances at a profit. Dairy products, beef and pork require less hauling and can therefore be carried on to better advantage at the longer distance. We amounts to a great deal in a series of years. You will have to pay more for the farm near the station, but consider carefully for yourself how much more it is worth.

DIRT IN MILK.

E. L. Aderhold, Neenah, Wis.



Mr. Aderhold.

That milk contains more dirt than the average dairyman is aware of may be easily proven by the sediment test, which is desigred to show the solid dirt in milk.

In the operation of that test, a mess of milk is thoroughly stirred, then a pint of it is forced by air pressure through a cotton batting filter about one inch in diameter, which holds the solid dirt if any is present. The test is made in a few seconds and the filter, while wet with milk, is pressed onto a sheet of paper and sticks there.

At a cheese factory or creamery, a sample of milk from each patron is so filtered and all filters stuck onto one sheet of paper with each patron's number beside the corresponding filter. The filters show the dirt black on white or brown on white as the case may be. They likewise show comparatively the dirt contents of various messes of milk.

The results of this test are positive. When a dairyman is shown the dirt from his milk on the filter, that fact "soaks in" and makes the necessary impression. He does not dispute it. He usually says, "I had no idea my milk was so dirty." At once he is convinced that greater precaution in the production of milk is a necessity in his dairy.

How Milk Gets Dirty.

Generally speaking, practically all of the foreign matter in milk falls from the cow into the milk pail during the operation of milking. Cows lie down in the barn, barnyard or field and udders and flanks become dirty. When pastured in swamps, cows get black swamp soil on them.

The sediment test usually indicates the source of the dirt in milk, as the swamp soil is black, while the barnyard or stable dirt is brown in color. In dairies where cows are compelled to lie in filth, one pint of their milk may contain enough manure to completely cover the filter.

If we assume that dirty milk cannot be made clean, then the production of clean milk implies the necessity of preventing dirt from falling into the milk pail. It is a case of prevention in which the important factors are a clean cow, clean hands and a milk pail with a small opening.

The results of carefully made experiments indicate that the ordinary open pail catches twice as much dirt as the small top pail does.

Mr. Charles Steffen, who is doing good work as chief milk inspector for

the city of Milwaukee, used both the open and small top pails in a barn containing clean cows, and in another barn containing filthy cows. Sediment tests were made from the milk drawn in each barn, the milk from each of the two pails being tested separately.

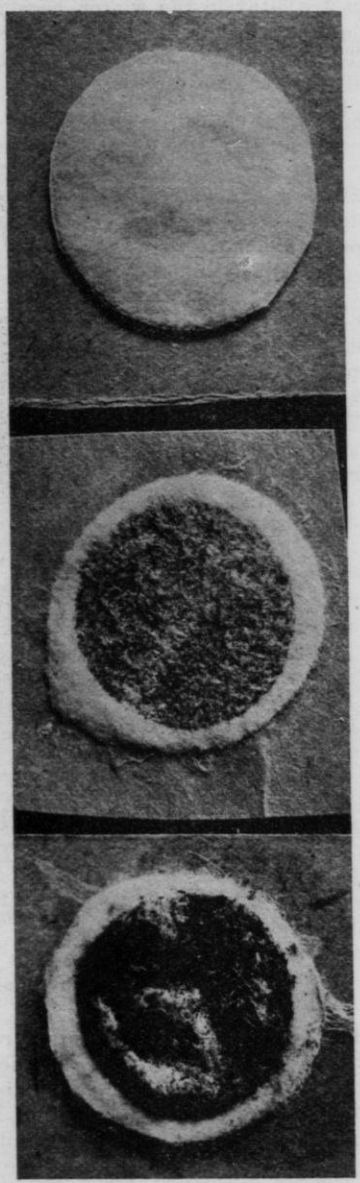
In the case of the milk drawn from the clean cows, the difference in the appearance of the filters was easily noticeable, while the tests of the milk drawn from the filthy cows showed a very marked difference in the amount of dirt on the filters, the milk in the open pail being much the dirtier.

To make the demonstration more complete, Mr. Steffen caused a bacterial count to be made of the milks in question, with results as given below, one cubic centimeter being equal to twenty drops.

Bacteria per Cubic Centimeter of Milk.

	Clean Cows	Filthy Cows
Small top pail.....	3,200	7,500
Open pail	6,800	41,000

The results of such a demonstration should appeal to every person who milks cows.



Dirt filtered from one pint each of three messes of milk at a cheese factory.

The Cow Barn a Food Factory.

At the time when our pioneer settlers built their cow barns, the object was mainly to provide shelter. At the present time, because we produce milk in the winter as well as in summer, the cow barn is looked upon as a food factory. In addition to shelter, it should furnish comfort and sanitation.

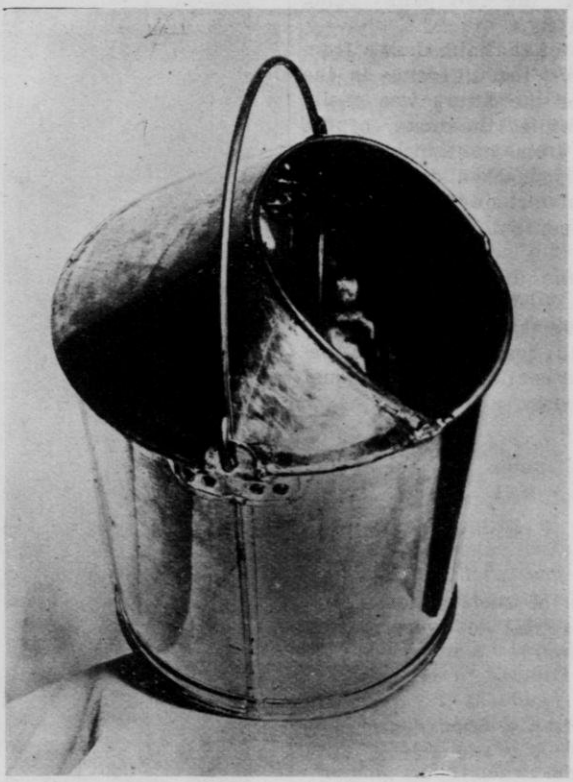
A large proportion of cow barns of pioneer days were equipped with stalls and mangers that compelled the cows to step backward before they could lie down, thus compelling them to lie in filth. There are still

dairy sections where the majority of cows are filthy in the winter, because the old barns have not been changed.

The percentage of milkers who really try to keep dirt out of milk is not large.

with a little grooming cows may be kept clean easily.

It is well to bear in mind that pure milk is not produced in a barn that has strong odors; that clean milk is not drawn from dirty or filthy cows;



The small top milk pail catches but half the dirt the open pail will catch.

The cow barn that represents a respectable food factory has a good system of ventilation, plenty of light, a good concrete floor, and it is whitewashed. The manger permits the cows to lie down without stepping backward. The stalls contain an adjustable device which lines the cows up to a wide gutter, so that

that the milker's hands should be clean; that the open milk pail is a dirt catcher; that milk is not clean unless some effort has been made to prevent it from getting dirty, and that it is more sensible to keep dirt out of milk than it is to rely on straining it out.

DISCUSSION.

A Member—Which do you prefer, a brush or a damp cloth for cleaning off the cow?

Mr. Aderhold—I rather like the the idea of a damp cloth, if it is clean enough and properly used. It leaves the skin a little bit moist, so the dust left there will stick rather than fall off, but some of them tell me they clean the cow's udder by rubbing it with the hand. That does not clean it; it simply makes the hand dirty, and when they have got through with that kind of cleaning, if they would use a brush, they could make all kinds of dirt fly from it.

A Member—I think we are buying more dirt in our groceries than in our milk.

Mr. Aderhold—The fact is, our groceries are in much better shape than they were some years ago. Grocerymen have had more attention from food inspectors than dairymen have.

Miss Stearns—I know in the city of Milwaukee they cannot sell exposed fruits or other things, everything has to be kept under cover, and we have just recently had a meeting at Madison to take up the bakery ordinance, so we may have clean bread, clean rolls, etc.

A Member—Don't you think it is a good plan to clip those cows?

Mr. Aderhold—Yes, they claim if the hair is clipped from the cow's udder occasionally it will be easier to keep it clean.

A Member—You spoke of this dirt showing slime in the separator. Why is it you will find a great deal more slime in the milk in the separator in the first six months than farther along?

Mr. Aderhold—I cannot answer that question; that is the first time I have ever heard that statement.

A Member—Well, it is a fact.

Supt. McKerrow—Can you answer it yourself; do you know of any reason for it?

The Member—Only that I believe it is in the milk, not all in the dirt that comes from outside.

Mr. Michels—I think every one of us knows if we put milk in the separator from a single cow that has been fresh less than one week there is considerable more slime. I think it is due to the extra amount of colostrum left in the milk. That will disappear after a week or two.

Mr. Schaefer—Don't you think that this matter of having the sanitary milk pail really does not compare with the importance of having a good dairy cow with a good udder? When we look for a good dairy cow, we want her teats spread apart and it seems to me that to fit this pail, the teats would have to be almost in one lump.

Mr. Aderhold—I told you you would have to get used to that pail, and I would rather have some man answer you who is using it.

Mr. Michels—We have used those pails for quite a time. You will not like them at first, we didn't, and we have a cow in the stable at the present time which it is impossible to use the pail with, because the teats are so far apart. I had to give instructions to use another pail for that particular cow. The man insisted upon using the pail, but he got around it by milking first on one side and then on the other. I wouldn't like that idea myself, but it shows that the man liked the pail enough to take extra trouble in using it.

Mr. Martiny—You might have a small hole on each side of the pail and milk each teat separately.

Mr. Aderhold—Every once in awhile there is a cow that you have to use the other pail with, on account of the shape of the udder, but it is those who are using this pail from whom I get my information, and I find after they have used it for several

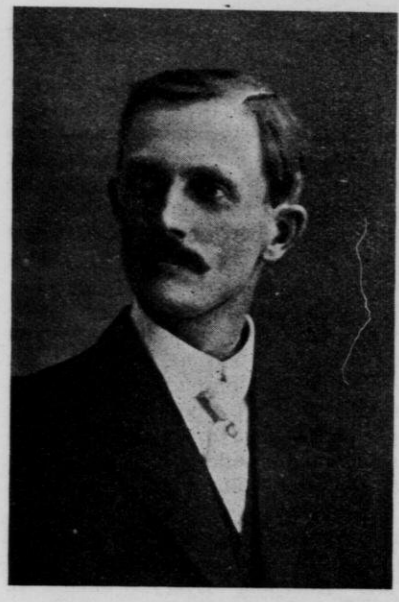
months or a year or two years, they will not have anything else, they like it better than anything else, and that ought to be testimony that is worth something. Use it for two weeks at least before you decide whether you like it or not, and I am pretty sure that then you will decide you do like it. Some of us are harder headed than others, we will not use a pail that is two-thirds covered, because we are hard-headed, but if we will use a pail that is slightly over half covered, that will help a whole lot.

A Member—Why do you make it so heavy? It is twice as heavy as any I ever milked with.

Mr. Aderhold—You have bought cheap pails, evidently. That hood puts an extra seam around the top rim of the pail which has to be soldered up inside, and smoothly, because it is unlawful to sell milk if it has been in open-seamed utensils. We haven't time to clean open seams.

TUBERCULOSIS.

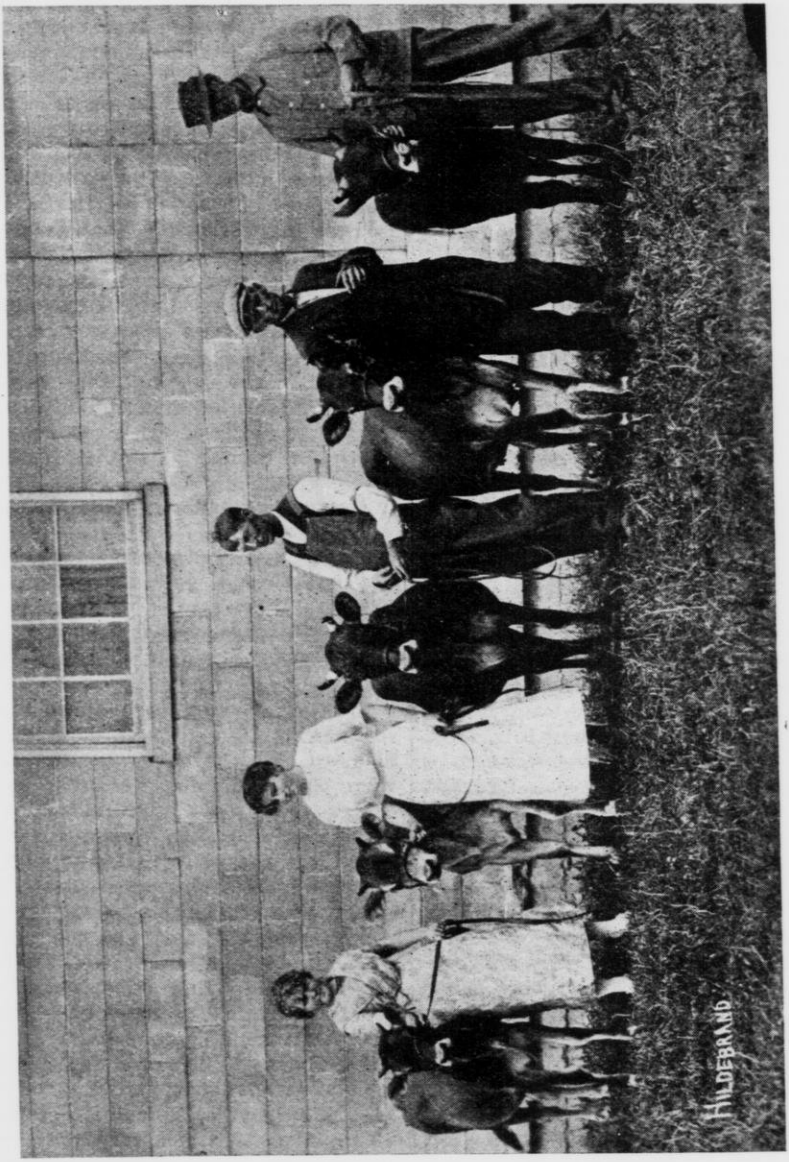
Dr. O. G. Eliason, State Veterinarian, Madison, Wis.



Dr. Eliason.

I am more than pleased to be here for a few minutes. Of course they will not let me talk very long, which is well for you, perhaps, but I want to bring one thing to your attention, and that is this, that on the 1st of July, 1913, there will no longer be provision made for any reimbursement of any herd of reacting animals for tuberculosis. Whether the Legislature will make some provision or not at the next session to meet this state of things, of course, is unknown, the Legislature is an unknown quantity, anyway; however, I think we started in wrong when we started in paying for this dead stock. It is my belief that before we help the man to clean up his stock, we should make him promise, and make him stick to it, that he is going to keep his stock clean; in other words, that he will test every year for at least the specified times, and also not to bring into his herd any more animals which have not been tested.

This campaign for putting down tuberculosis has cost this State a lot of money, and, my friends, it is costing you a lot of money every day. Every time you eat a meal it is costing you money. Reports come to us every day from Chicago, from inspections made by the Bureau of Animal



First prize Young Jersey Herd at Wisconsin State Fair, 1912. Bred and owned by E. Bruins, Fairwater, Wis.

Industry, reporting to us of shipments that have been found, upon slaughter, to have been tuberculous, and a good many of them have had to be condemned. That all tends to put the price of meat up so that we are all paying for this.

The Tuberculin Test.

It will take too long to discuss the question in detail, but I want to say to you the tuberculin test is all right if it is not interfered with; the only trouble there has been with the test is that it has been used by inexperienced people and too fast. We want to do everything in a hurry these days, so we hurry every cow into her place and we go down the line and test every one, whether she is fit for it or not. The test is all right if it is properly applied. If you are not satisfied with one test, test them again; but do something, and that is the message I want to bring to you, and the message I want to leave with you, to do something for ridding Wisconsin of this curse of tuberculosis. We have made a start and something or other has thrown cold water on the scheme, and you know how it is, when a thing gets about so far, when a work is going on and has reached just about such a stage there is a whole lot of people who stick their hands in their pockets and say, "Oh, well, what is the use anyway"? They have grown tired already. I think that is just about the stage we are in just now; we are a little bit tired of the work. You know there is no great work that comes up but that somebody gets to chaffing, and then somebody wants the credit for all that has been done, the little "I" has got to be taken care of first, and there are apt to be too many fighting for the honor of putting up this thing and putting down the other.

Now, whether our methods have been just what they ought to have been I will not attempt to say, although the State of Wisconsin ranks high as one of the bigger states when it comes to the dairy industry in the whole United States, and let me tell you another thing, it would not have been what it is now if it had not been for the forward movement, and I say all honor belongs to the force that has been back of the Agricultural Department of our State University in these matters. We hear a whole lot about the University these days, the same old things. We are not getting all the honors that belong to ourselves.

Now, whether our methods are the best that could be put on the market, the fact remains that lots of work has been done, and let it rest there; instead of arguing about the best methods of doing that and consequently doing nothing, let us get behind and push.

If you have any questions now, you had better ask them.

DISCUSSION.

Mr. Convey—In these reports that you get from the Bureau of Animal Industry, do they ever speak of other classes of stock?

Dr. Eliason—You refer probably to the hog. You have no idea how many hogs there are that are tanked on account of having tuberculosis. It is getting to be a bigger question every day, how to deal with that, and it is a very hard matter. We haven't reached the point where it would be practical to test the hog yet, although it could be done.

Mr. Convey—What are the symptoms of tuberculosis in swine?

Dr. Eliason—The symptoms of the disease are of course very hard to see, unless it is in a hog that is getting age on it. You see tuberculosis is an insidious disease and it takes a long time to develop. It can get seat-

ed enough to spoil the animal for food, but still not drag down the life of the animal, or produce emaciation.

Supt. McKerrow—And does that mean that the disease is in its early or its later stages?

Dr. Eliason—Decidedly in its early stage.

Supt. McKerrow—Is the tuberculosis test as applied to cattle what may be considered a reliable test, Doctor?

Dr. Eliason—The test is reliable, if there is nothing that interferes with it. It may be made perfectly according to rule, and yet there may be something in the animal that is interfering with the test. There may not be outside interference, but just the same the animal may not be in a fit state to test.

Mr. Imrie—Sometimes when the animal appears all right, and really is all right, it will re-act. I had a case of that kind, and in all cases of that kind, wouldn't you recommend that if these are animals you have raised, the herd has been tested before and no tuberculosis found, and this one reacts, that you hold that animal for a re-test?

Dr. Eliason—I certainly would.

Mr. Imrie—I did that, and the next time there was no reaction at all. It was something we could not explain, She apparently was all right.

Mr. Brecklin—How is the law now in regard to selling non-tested animals? Can a man sell an animal that has never been tested?

Dr. Eliason—You may.

Mr. Brecklin—Can he sell a whole herd of such animals?

Dr. Eliason—You may, so far as the law is concerned; that part of the law referring to sales was repealed.

Supt. McKerrow—There is a point in the new law that I think the farmers ought to be educated upon. When does the State, under this law, cease to pay any part for these diseased animals that may be slaughtered?

Dr. Eliason—That ceases July 1, 1913. After that there is no provision made for paying for re-acting animals, so if you want to get in on this, if you want to get your herd cleaned up, you better be about it, because you may not want to take the test that is made the first time, you may want to wait until next fall and try them again. There are lots of times that the test does not prove satisfactory, and you want to do it over again, and I think it is a very wise idea.

Mr. Convey—There are quite a lot of people that think it is not possible to contract the disease from milk from tuberculous cows. What has been the result of recent testimony along that line by the experts?

Dr. Eliason—Only a short while ago I had the pleasure of listening to a talk by Dr. Ravenel, of our State University, who is ranked as one of the best pathologists and bacteriologists there is in America, and as good as they have in Europe, and he gave figures. He said that between twenty-three and twenty-four per cent of all children suffering from tuberculosis of the bowels comes from bovine tuberculosis, from drinking such milk.

A Member—Can cattle be sold at auction now without having been test ed?

Dr. Eliason—Yes, they may.

A Member—There was an auction in our neighborhood a while ago and a man bid in a certain cow, and when he came to take her he said he wouldn't accept her until she was tested. How is that; is he compelled by law to take that cow?

Dr. Eliason—That, of course, would be a point for a couple of lawyers to wrangle about, but I would say that if the owner made no such specifications at the auction,—that the animals had been tested and the owner had not advertised them as tested,—he would have to take the cow.

A Member—How often do you test cows?

Dr. Eliason—Oh, you can test them any number of times if you string it out far enough. There ought to be no test made less than sixty days apart.

Supt. McKerrow—By the use of the double or triple dose, can a test be made in less than sixty days that is satisfactory?

Dr. Eliason—Well, it is not satisfactory. We would rather have them wait sixty days.

Mr. Convey—Do you know if poultry are subject to tuberculosis?

Dr. Eliason—They are; there are lots of poultry, whole flocks, dying from this same disease.

Chairman Stiles—What time of year is most advisable for making the test?

Dr. Eliason—The best time is shortly after the cows have been put in the barn in the fall. I think it is a mistake for people to wait until towards the latter part of the winter before they begin testing. I have noticed in my own experience that cows do not give a very good reaction when it comes toward the end of the winter. There is something that causes the temperature to go up when it ought not to, and sometimes you have to throw out a test. You can generally tell when a test works right and when it doesn't.

A Member—Do you actually find tubercular germs in the milk of a tuberculous cow?

Dr. Eliason—Oh, yes.

Chairman Stiles—If she did not have it in her udder, you would not be so apt to notice it if the disease is not very far advanced. I think the gentleman's idea is whether it wouldn't be sufficient to analyze the milk itself and tell by that.

Dr. Eliason—That would not be a reliable test.

WISCONSIN, A LIVE STOCK STATE.

L. P. Martiny, Chippewa Falls, Wis.

Mr. Martiny.

In discussing this great subject, it might be well to go into the history of Wisconsin just a little, to consider some of the conditions that have brought the live stock industry in Wisconsin to its present status.

Wisconsin's First Industry.

The greater part of Wisconsin was originally covered by a very heavy growth of timber and this large growth of timber, naturally, grew on a very productive soil, rich in the elements of fertility.

The first industry of the State was the utilizing of this natural resource of timber, and it is to be regretted that our earlier settlers, in many cases, earned for themselves the name of forest destroyers. One redeeming feature of this earlier industry, was, however, that it paved the

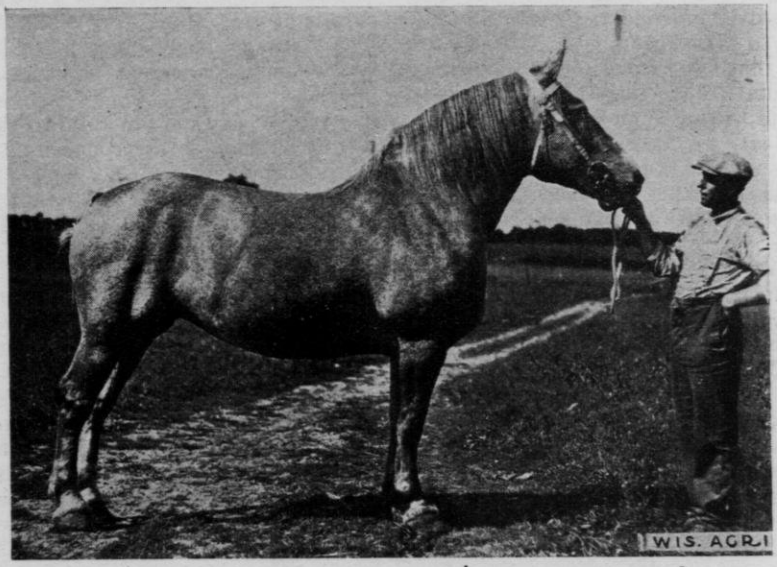
way to the utilization of the very fertile soils upon which this timber grew.

A New Epoch in Industry.

Now we come to a new epoch in the industry of the State—forest farming. Farming, did I say? That might be true in some cases, but in far too many it was from forest robbing to soil robbing. The growing of such crops upon the land as wheat, potatoes, hay, grain, tobacco, etc., and the marketing of these crops from the soil without a thought of restoring to it the elements of fertility removed, was the idea of farming, and many a man's fortune has come through the marketing of the fertility in the soil through cash crops, and the appreciation of his farm in price, despite its depreciation in true value. until the value of the land is so low and the price so high that in many cases a new method of farming must be resorted to, and this necessarily means live stock farming.

But this is not all there is to the earlier foundation for a live stock industry in Wisconsin. All this time there have been immigrating to our State the very best classes of people from the north of Europe, a people that, for industry, thriftiness and energy, cannot be excelled. These people brought with them the experience that enabled them to raise large crops year after year, with no decrease in the fertility of the soil, and they have naturally become live stock farmers.

On account of the expense and labor of clearing land, the size of farms, as compared with those on the open prairies, as a rule, have necessarily been small, and their development has been more slow, but these people have appreciated their lands and are utilizing them to good advantage.



Gypsy Maid, Champion Percheron Mare at Wisconsin State Fair, 1912. Owned by Harvest Farms, Mayville, Wis.

As their cleared land has increased, they have, as a rule, increased their flocks and herds.

Some of Wisconsin's Assets.

But what of the future development of the live stock industry in Wisconsin? First of all, we have the people, a mixture of the very best nationalities, of the highest state of civilization, to be found anywhere, a people that is progressive and aggressive, a people ever ready and willing to take up better methods, a people that has earned for Wisconsin the reputation of being the greatest dairy State in the Union.

Next, we have the soil, the water, the climate, the grasses, clovers, roots, etc., that are necessary for the very highest development in animal life.

Our soils are, as a rule, well drained and are of such nature that they make for the best possible condition of health and vigor in our live stock.

Wisconsin abounds with swift running creeks and springs, and everywhere the water is the best to be found.

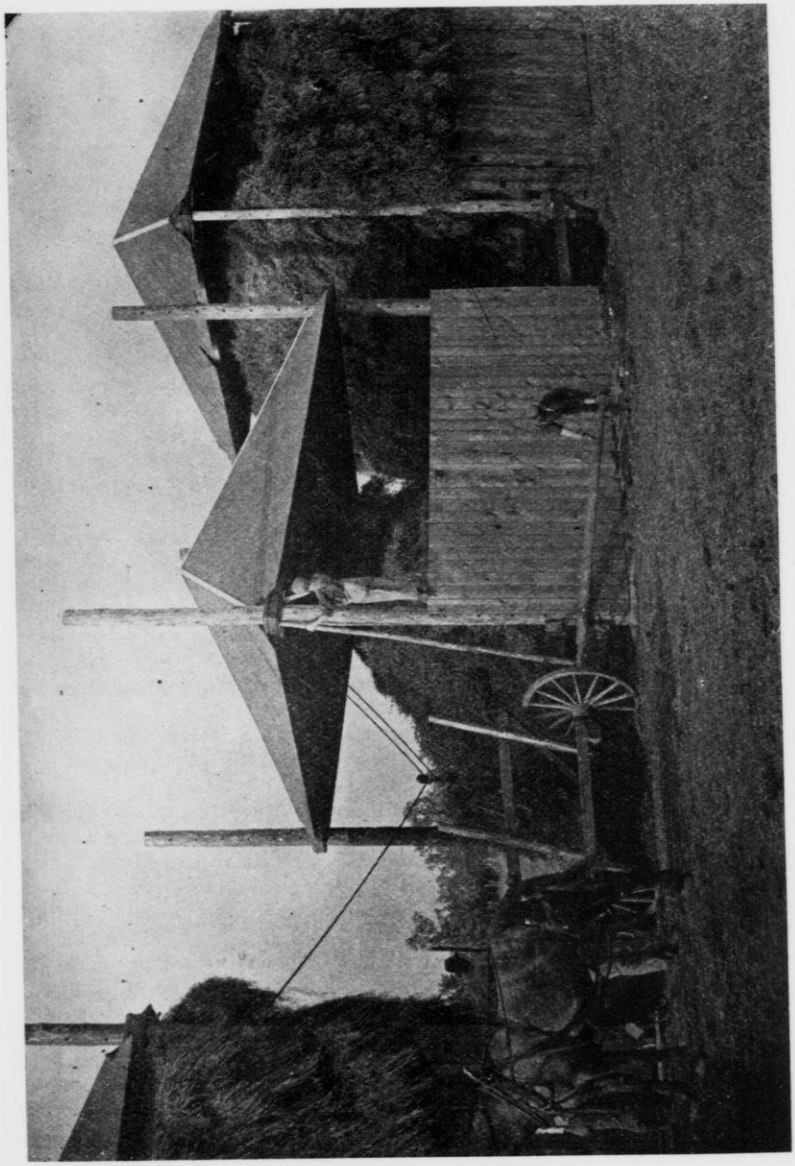
As regards location, Wisconsin has the very best. With Chicago the greatest livestock market in the world at our south, live stock from any point in Wisconsin can be landed there within twenty-four hours, this meaning low shrinkage, cheap freight and animals at market in prime condition. Compare this with the long hauls from the western states, that are being boomed so much, where it takes many days to make the shipment, several stops for feeding and water, high freight, great shrinkage in weight, the animals being out of good salable condition when they reach market. On the west and north, St. Paul and Minneapolis, Duluth and Superior, are ever growing markets for dairy products and farm produce.

The United States as a nation, with ninety-five million people and growing at the rate of two millions per year, with a soil that is steadily but surely becoming depleted if agricultual methods are followed, is beginning to realize that if future conditions are to be met, we must hasten to look after the fertility of the soil, and as a means to restore this fertility we must pay more attention to live stock farming.

Our great ranges which, heretofore, have supplied a great bulk of our beef and mutton, are fast being broken up, and in the future these meats will have to be produced on the tilled farms.

Wisconsin's Opportunities for Live Stock Raising.

With these conditions confronting us, and realizing the great advantages of Wisconsin conditions, its location with respect to the nation, and the world for that matter, we have great opportunities before us as live stock farmers. We have more pure bred Holsteins and Guernseys, along with a goodly number of other dairy breeds, in Wisconsin than any other State in the Union, and their quality is not excelled anywhere. Our dairy cattle are becoming so well known, not only in the United States but the world over, that other countries have come to Wisconsin for breeding animals. The little vicinity around Lake Mills, in Jefferson county, offers a lesson in the possibilities that may be accomplished. Without any form or attempt at organization or co-operation, a few people in that community began the breeding of Holstein cattle. Little by little there came a market and a demand for those cattle, and the cattle and the market have grown up together. Now, there are no conditions



Storing peas for winter hog feeding on Chippewa Stock Farm, L. P. Martiny.

peculiar to Jefferson county that nearly any other county in the State does not possess, and, taking our lesson from the results obtained at Lake Mills, which is known the country over for its Holsteins, as Waukesha is likewise for its Guernseys, there is a great opportunity for the development of all the various breeds of live stock in different localities throughout the State if the farmers will only avail themselves of the opportunity.

We have bred and developed some of the very best specimens of draft horses and if we were producing ten times as many of these good ones, which is easily possible, we might command the buyers of the world, instead of one million dollars of money being spent in other countries for horses as was done last year.

With the breaking up of the sheep ranches of the west, Wisconsin offers the best opportunities for the sheep business of any State in the Union, especially in the northern half of the State. Some may ask, "Will sheep do well in Wisconsin"? In answer we have only to point to a few flocks of sheep that are to be found at present that are the thriftiest and most vigorous to be found anywhere.

Owing to the great varieties of feeds grown in Wisconsin, we are able to produce a stronger, heavier and more prolific hog than in the so-called corn belt states, and hog cholera, a dreaded disease that is working disaster to many a farmer in the corn belt, is scarcely known.

The Future Development of the Live Stock Industry.

It is not enough that we simply raise more live stock, but we should, through a concerted effort, produce more live stock of a better quality.

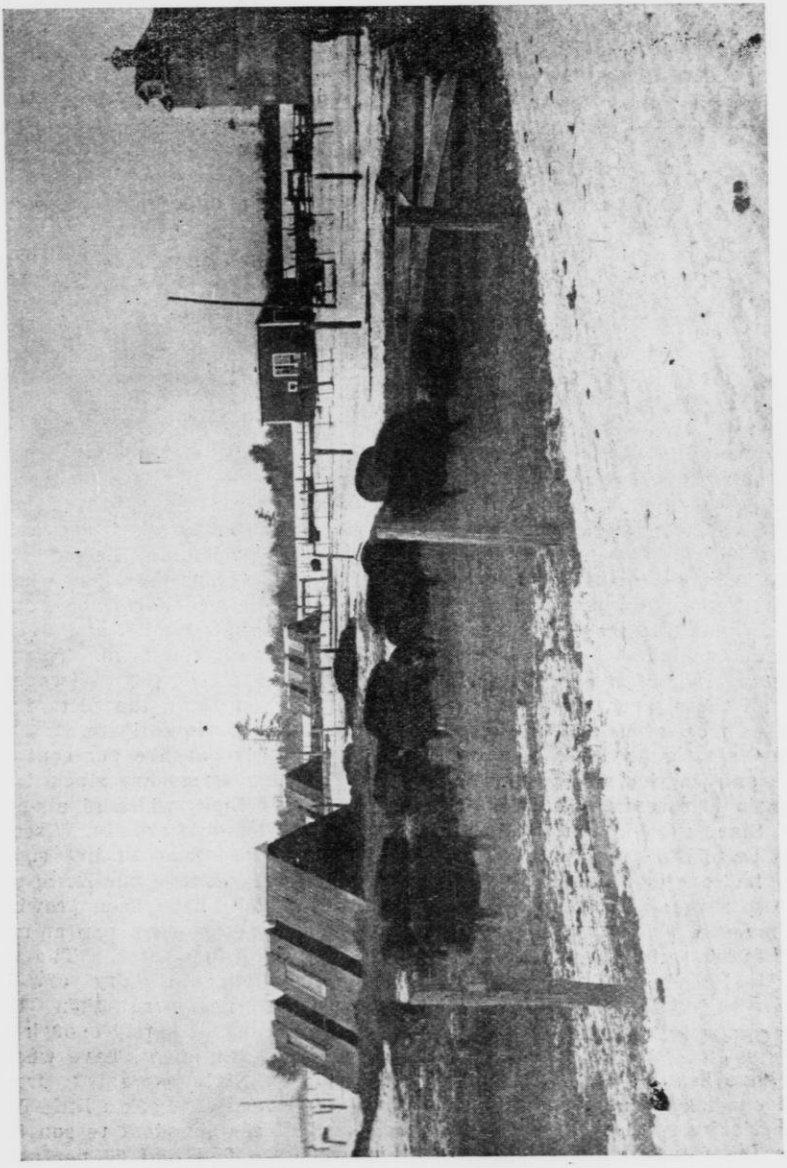
We have a College of Agriculture in this State that is a live factor in encouraging the breeding of better stock; the Farmers' Institutes have carried the gospel of better stock direct to the people and we have the Wisconsin Live Stock Breeders' Association, which, from now on, is going to be a mighty force for the introduction of better breedng stock, the forming of co-operative breeding communities, and in various other ways inducing live stock improvement.

Instead of the cows of this State producing an average of 150 pounds of butter fat per year, by a little system of co-operative work in testing and breeding, this average could quickly be brought up to 200 pounds per cow, and then to still higher production, and for every pure bred dairy animal we have now, we should have ten.

Instead of the average farm horse weighing from 1,200 to 1,400 pounds and worth from one hundred to one hundred and fifty dollars, we should have more horses on our farms weighing from 1,600 to 1,700 pounds and worth from two hundred to three hundred and fifty dollars each, to say nothing of the great opportunities there are for the breeding of pure bred horses.

In nearly every line of live stock, we have the same chances of improvement, and in many localities of this State we have the people that are wide awake to the possibilities, and if they would get a little encouragement from some outside source, the developments would be wonderful.

I might go on and elaborate on Wisconsin and its possibilities for more and better live stock, and the profits that are sure to follow, but this is sufficient to lay the foundation for the next topic, which will give you some plans for accomplishing these objects.



Poland China bred gilts on Chippewa Stock Farm, L. P. Martiny.

WISCONSIN LIVE STOCK BREEDERS' ASSOCIATION.

R. W. Rowlands, Waukesha, Wis.

The subject, the Wisconsin Live Stock Breeders' Association, is one that might well follow such a one as "Wisconsin, a Live Stock State". It is but natural that such an industry would have an organization which should be not only State-wide, but one that is teeming with enthusiasm and activity in every way to promote live stock interests.

It is unnecessary for me to tell you such simple facts as that Wisconsin dairy products have a valuation of $80,000,000 a year; that we produce twice as much cheese as any state in the Union; that we exceed every state in the production of butter; that Wisconsin dairy animals are in demand the world over; that Wisconsin-bred horses are given a preference in that greatest of horse markets, Chicago; that Wisconsin sheep return carrying the highest laurels from almost every Fair of note in the middle west; all these, and more, are well known to most of us and only establish the fact that because of our climatic and agricultural conditions Wisconsin is essentially a live stock state. Since such is the case, it behooves us to use every means which would improve our standard. That we are so naturally is not to our credit,—what are we doing? What are we as farmers, or agriculturists doing?

The Object of This Association.

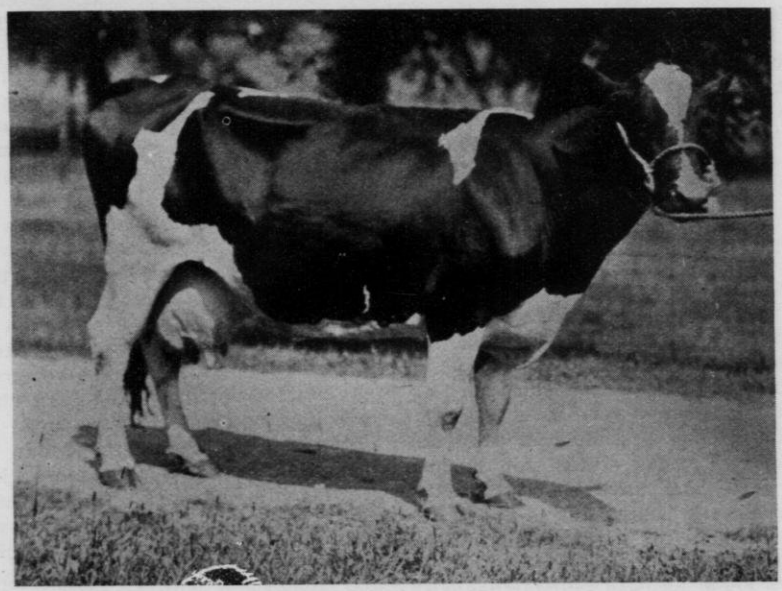
We have heard at this convention that live stock is the foundation of good agriculture, that on it depends largely the future productiveness of our State and the prosperity of our people. Not by a little live stock, but by stocking our farms to their limit, can we increase the fertility. Naturally this stock must be profitable, else the object is not accomplished. And this is no theory. Our strongest argument is that our most successful farmers are the ones whose farms are the most heavily stocked with good live stock. When we investigate their past, we find that, with few exceptions, these men began where the rank and file of the farmer is today.

The object of the Wisconsin Live Stock Breeder's Association is to get down to the man who is not doing what he would like to be doing, or what he is capable of doing; whose cattle are the ring-streaked and speckled, and whose horses belong to the class that are not desirable; whose fields do not any longer grow the bounteous crops they did; whose home lacks the comforts he would like to supply his family, and whose sons are leaving the farm. This is the rank and file of the Wisconsin farmer. If you think the picture is overdrawn, let us investigate.

We find that but five per cent of the Wisconsin farms are stocked to their present limit, while ninety-five out of every hundred are not. Wisconsin supports one head of live stock to every ten acres, and our European countries which have been growing crops for centuries have one animal to every two to four acres. The average production of a dairy cow in Wisconsin is not more than 175 pounds of butter, or barely enough to pay for board, while we have whole herds in the State averaging from 350 to 500 pounds. Look a little farther and we see abundant reason for this, when we find that 97 per cent of the bulls used in the State are scrubs; 55 per cent of the stallions used in the State are not pure bred, and thus the story is continued with

sheep, swine and poultry. With such conditions prevailing, and such methods in practice, is it possible that the average farmer can ever attain a remarkable success without a complete revolution?

responsible for the establishment of a Dairy School at Madison long before it would have been established had they not been in existence and thereby set the cornerstone of the State's greatest agricultural pursuit.



The grade Holstein cow, Madge, owned by H. P. Giddings, of Sheboygan Co., Wis. This renowned grade formed a portion of the equipment of the "More and Better Live Stock Special" which, co-operating with the Chicago, St. Paul, Minneapolis & Omaha Railroad and the College of Agriculture, the Wisconsin Live Stock Breeders' Association operated in northwestern Wisconsin, visiting 22 towns in 14 counties.

What Other Organizations Have Accomplished.

The next question is,—Can an Association similar to the Wisconsin Live Stock Breeders' Association do anything to improve these conditions? We can best decide this by acquainting ourselves with what organizations in other agricultural bodies have accomplished.

For instance, the State Dairyman's Association, probably the oldest, was

Out of this organization grew the Butter and Cheese Makers' Associations, with a combined membership of nearly three thousand, both of which have been a boom to their respective industries, and in recognition of whose work the Legislature yearly appropriates funds to aid in carrying out their plans to produce more and better cheese and buttter in Wisconsin.

This Association originated and is now promoting the Cow Testing Associations, one of the most active

agencies through which the farmer is being convinced of the inefficiency of the scrub.

The fruit growers of the State, organizing themselves into the State Horticultural Society, and co-operating with the College of Agriculture, have succeeded in turning the eyes of hundreds from the embellished, highly-colored, and many times fictitious propositions of the west, to the real concrete probabilities of our own State, and as a natural sequence we have Door county, Bayfield, Sparta and other districts, who have even seen the advantage of local organization in returning thousands of dollars for the development of our commonwealth.

The Experimental Association, organized for the purpose of growing more and better grain in Wisconsin, with their fifty or more subsidiary organizations, have very materially aided in placing Wisconsin in the front rank with other states, for bushels per acre; and have made it almost folly for any competitor to appear before them in the great grain contests of the world.

We could proceed still farther with this enumeration and illustration, but time is short and I wish to bring to your attention another powerful phase of organization, namely; county orders.

There is no agency for improvement that gets nearer to the ordinary farmer than this. You know Joe Wing said that the first Farmers' Institute was held when one farmer talked to his neighbor across the fence, and the community organization has that peculiar faculty of forcing the farmer to rub against his neighbor and his way of doing things.

If you will pardon me for making personal reference to my own county, —not because it is doing any more, perhaps, but because I happen to know it better,—I will use that as an example of community work. If you are looking for an example of an organization which had nothing to start with, ours is a good one.

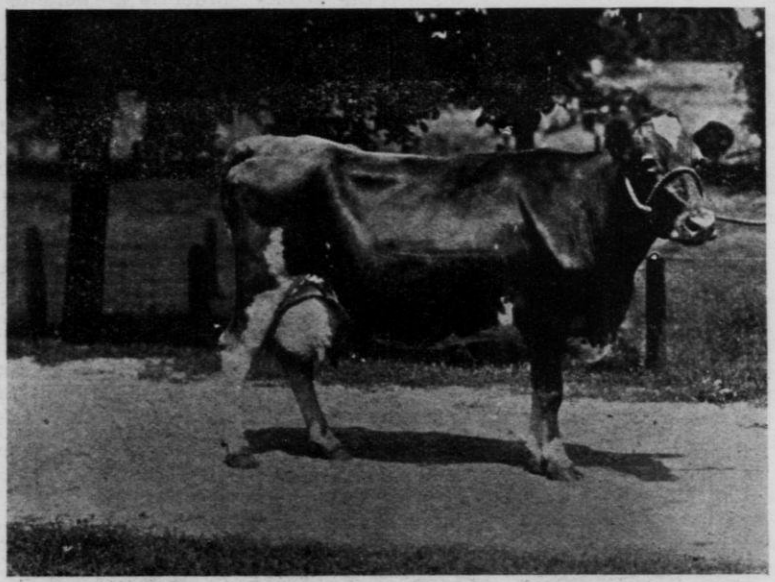
Six years ago it was organized with a handful of members, few members, and no money. Today, they have a paid-up membership of nearly seventy-five, with a fee of three dollars. The annual winter meeting has an attendance of about two hundred partaking of the banquet at one dollar a plate, and I have seen an attendance of four hundred people at a summer meeting. There are 1,500 pure bred Guernseys in the county, with as many grades. The sales made in 1911 were estimated at $100,000, with from $60,000 to $70,000 of that amount coming from outside the State. Besides this, thousands of dollars come into the county because this community supplies the great per cent of certified and high class milk in Chicago and Milwaukee.

Many of the members of our organization are young breeders, just growing into the work. Do you think that they could accomplish, or even dare to attempt what they are doing were it not that they have the backing of a powerful organization?

What This Association May Do.

Now, gentlemen, if organization can accomplish all this for these various industries, a few of which I have enumerated, is it not logical that there is an enormous amount of work before the Wisconsin Live Stock Breeders' Association, one which represents in a sense the correlation of all live stock associations within the State, with a valuation of about $160,000,000, and which is powerful enough to influence legislation?

Other states have recognized the need of such an institution, and have given Wisconsin the lead in the work, notably Indiana, whose Association receives the personal supervision of



Jerry, Grade Guernsey. The champion grade cow of the world.

Jerry made the following semi-official record in the Wisconsin Dairy Cow Competition, was 10 years old at the time of the test and was sired by King of Ellington 11096.

Year	Month	Lbs. Milk	Per cent fat	Lbs. fat
1910	May	1005.8	4.94	49.687
	June	1695.0	3.74	63.393
	July	1755.3	3.95	65.384
	August ...	1603.0	4.39	70.372
	September	1465.9	4.45	65.233
	October ..	1429.3	4.29	61.317
	November	1233.9	5.34	65.890
	December	1173.4	5.40	63.364
1911	January ..	945.1	5.73	54.154
	February .	663.4	5.82	38.610
	March	926.6	5.00	46.309
	April	1462.0	4.65	67.983
	May	485.3	3.74	18.174
	Totals ..	15,744.0	4.63	729.87

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

Her feed for the year consisted of:

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

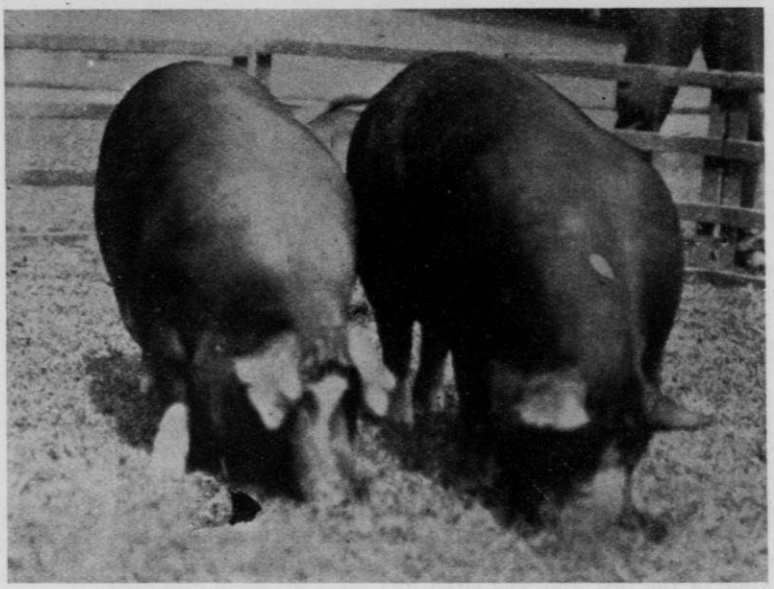
Value of butter fat	$229.55
Cost of feed	99.20
Profit	$130.35

Record made by A. N. Schmit, Appleton, Wis.

Owner, Charles L. Hill, Rosendale, Wis.

Dean Skinner, of the Agricultural College.

There are many channels through which the work might be propagated, but since the Association has but recently received the funds by means of which they can promote the work, it will be necessary for them to seek their adjustment. Many plans have been suggested, and some have been decided upon. First, the running of a "Live Stock Special" the last week in March over the C. & N. W. R. R., west of Madison, and one over the C., M. & St. P. east of Madison, during the first week of April, with a prospective trip through the northern part of the State later in the spring. Second, the organization and encouragement of Community Breeding Associations over the entire State. As the county order is a help to the young breeder and beginner, so the State Association should support and assist the young county organization, and bring to it the benefit of a parent association. Through these, new cow testing associations might be formed. Some counties in the southern part of the State have an estimated average production per cow of two hundred pounds of butter. If this could be made true of the entire State, it would mean an added revenue to the State of Wisconsin of $20,000,000 a year.



Berkshire and Poland China gilts owned by the Wisconsin College of Agriculture, which were exhibited on the "More and Better Live Stock Special" sent out by the Wisconsin Live Stock Breeders' Association over the Chicago, St. Paul, Minneapolis & Omaha lines in northwestern Wisconsin.

Another ambition of the Association is to build up for the State of Wisconsin a reputation for fair and honest dealing. In connection with the

present demand for Wisconsin dairy stock from all over the United States, there is always the temptation to "do by the other fellow as we would not that he should do us by". And next to the stock itself there is nothing more important to the welfare of the industry than fair and honest dealing.

In order that this Association may succeed and may help you to succeed, it needs the support of every smaller organization, and of every individual breeder in the State. The success of any organization rests upon the unit. If we have active and helpful units, we shall have an active and helpful Association, which would mean greatly increased prosperity to the Wisconsin farmer.

DISCUSSION.

Mr. Martiny—At the present time, the Wisconsin Live Stock Breeders' Association has an appropriation of four thousand dollars from the State to carry on this work. We have had an organization of this kind in the State for the last ten or eleven years, but we have not done much. Now we have this four thousand dollars to work with. Our plan is to co-operate with the Holstein Breeders' Association, the Horse Breeders' Association, and all these other live stock associations, and in every way to help live stock in the State of Wisconsin.

The membership fee of the Association is only fifty cents. We are going to get out one of the best annual reports on live stock that has ever been gotten out. If you join the Live Stock Association you get this report in connection with all of their printed matter.

Mr. Rowlands—You understand that every breeder of pure bred stock in the State and every breeder who is improving his stock, ought to belong to this Association.

Supt. McKerrow—Yes, every one who wishes to improve his live stock is eligible.

But we canot dwell any longer on these interesting subjects. Dr. Kutchin here is chairman of the committeen on resolutions. I took pains in appointing this committee to appoint gentlemen who were not connected with the Farmers' Institutes and who came from different parts of the State. I made Dr. Kutchin, of Green Lake, chairman, partly because he is a physician and if these resolutions needed doctoring he could do it. Mr. Delbert Utter, of Racine county, was put on that committee because he is a fertilizer man when he is not farming and when he is farming he is putting fertilizers on his fields, and if any of these resolutions needed fertilizing, he would do that. And the Rev. Brakemeyer, of Polar, I put on this committee because I was afraid there might be some moral aspects that these other gentlemen might miss. Taking them altogether, these gentlemen ought to have brought forth a pretty good set of resolutions.

Resolutions.

The Report of the Committee on Resolutions was submitted and unanimously adopted, as follows:

Whereas: Agriculture is Wisconsin's most important industry, anything having to do with better methods and larger returns is especially worthy of commendation, the work of the Farmers' Institute in the dissemination of more scientific methods of farming, in the management of soils, the handling of farm animals and the raising of crops, has been conspicuous, the results being seen in the place Wisconsin now holds among the other states of the union. The Agricultural College has devised great things for the State of Wisconsin and the Farmers' Institutes and the University Extension Division have carried their better methods to the people. Therefore, be it

Resolved: At this Twenty-sixth An-

nual Closing Farmers' Institute, assembled in the City of Neenah, this 12th, 13th and 14th days of March, 1912, that we hereby heartily support the following Resolutions:

1. We commend the work accomplished by the Agricultural College, the Agricultural Extension work and the work of Farmers' Institutes in the results already attained. The appropriation for the Farmers' Institute work should be increased that its good work may be extended as never before.

2. That we ask a larger place for Nature study in the courses of study offered in the Agricultural College of the University, and that the subject of the economic value of birds and their protection have a place in all Institute work. That we heartily approve of the educational work recently started by the Fish and Game Warden Department, calculated to show the importance of protection of song birds, as well as our fish and game, and that all moneys collected for hunting licenses should be expended by this Department in the extension of information of the economic value of mammals, fish and birds of the State.

3. That the appointment of a State inspector of the orchards and nursery stock meets with our hearty approval, in view of the fact that America is the dumping ground of the insect-fested ornamental and nursery stock of the world, and that we demand Federal protective laws, such as have been enacted by all other civilized nations.

4. We, actual representatives of the agricultural interests of Wisconsin, demand that hereafter two-thirds of the members of the State Board of Agriculture shall be actual farmers, one a woman, instead of bankers, lawyers and exposition boomers.

5. Country life and farmers' clubs are of undoubted value to the agricultural interests of rural communities and should receive cordial sympathy and encouragement.

6. We earnestly favor the passage of a general parcel post law without restriction, which in some form or other has been knocking at the door of Congress for the past twenty years.

7. In the name of the dairy interests of the greatest State of the union, we demand the retention of the present tax on oleomargarine.

8. We heartily endorse the work of the Wisconsin Free Library Commission in its efforts to supply rural communities with wholesome reading matter and urge the farmers of the State to avail themselves of the opportunities afforded.

9. WHEREAS: It has pleased Divine Providence to remove from his field of usefulness, R. E. Roberts, of Corliss, Wisconsin, the agricultural interests of the State of Wisconsin have suffered a great loss, as he was an earnest, faithful and efficient Institute worker his untimely death cast a shadow of personal grief over his former comrades and co-workers. We wish to express to the immediate members of his family our high appreciation of his intellectual gifts, and many fine traits of character. No formal words of condolence can convey to them the sympathy we extend to them in their personal grief, and whoever may take his place, it will always be a matter of regret that he was not spared to urge upon us more business-like methods on the farm.

10. To the beautiful city of Neenah, Wis., for a most cordial welcome and hearty support and co-operation and unnumbered courtesies we return our thanks, and will carry away with us pleasant memories that neither time nor change will soon efface.

Mrs. Norah Perkins Jeanson—As a representative of a neighboring city, I want to epxress my appreciation of this splendid convention. I am sure I voice the sentiment of this audience when I say that the farmers and

the city people around here are much indebted to this splendid organization of Institute workers, but did it ever occur to you that we sometimes fail to remember a mighty important factor in the Farmers' Institute work —I refer to the faithful wives at home, but for whose sacrifice and devotion it would not be possible for these Institute men to continue in the field, therefore, on behalf of the splendid home-makers, I take pleasure in offering the following resolution:

Resolved, That the members of this convention who believe in equal rights for all loyal to our cause and at the general election in November, 1912, vote to enfranchise our Wisconsin women, and thereby give us an opportunity to share equally in the government of the State as we do now in the government of the home.

Chairman Stiles—This may bring us into politics, but if any one wishes to speak on the resolution there is an opportunity.

Mr. Cook—If this is the proper time, I have a resolution which I believe represents the feelings of our home people and the surrounding territory.

RESOLVED, By the citizens of Neenah and the surrounding territory, that the Twenty-sixth Round-up meeting of the Wisconsin Farmers' Institutes is and will be of much benefit to us all and that a vote of thanks be tendered to Superintendent McKerrow and the Institute workers for their earnest and efficient work in developing the great agricultural opportunities of our State, in which every citizen is vitally interested, and may God speed them in their every effort for good.

Said resolution was carried unanimously.

Chairman Stiles—On behalf of the Institute workers, I wish to thank the inhabitants of Neenah.

Mrs. Jeanson—I rise to a point of order. There is a resolution before the house.

Chairman Stiles—I have heard no second to that resolution.

Adoption of resolution offered by Mrs. Jeanson moved by Mr. Imrie and motion carried.

Closing Remarks.

Supt. McKerrow—We have reached the time when we must close this Twenty-sixth Annual Round-up Institute. It has been my privilege to attend twenty-five of the twenty-six Round-ups, and I wish to say that the audience assembled here at Neenah has never been exceeded in its attentiveness and evident interest during these last three days. There has evidently been a great deal of careful work done to make this meeting a success. As a rule, we have had larger audiences and larger premium lists offered, and I must say I hoped and expected that there would be some prizes offered for the products of the home as well as the farm.

We hope there will be another Round-up in Wisconsin another year when somebody will offer a prize to the girl who will make just as good bread as the girl out in Iowa sent to Washington to President Taft, I am sure we have the girls who can do it.

Now, we have reached the point where we will have to close this meeting. We will stand adjourned until the next Round-up.

WOMAN'S DEPARTMENT.

COOKING SCHOOL.

Held at Neenah in Connection with the Closing Farmers' Institute March 12, 13, 14, 1912.

Conducted by Miss Nellie Maxwell, Neenah, Wis., Miss Edith L. Clift, Chicago, Ill., and Mrs. Nellie Kedzie Jones, Auburndale, Wis.

Stenographic Report by Miss Nellie E. Griffiths, Madison, Wis.

FIRST SESSION.

Tuesday Afternoon, March 12, 1912.

EMERGENCY DISHES AND PAPER BAG COOKERY.

Miss Nellie Maxwell, Neenah, Wis.

Miss Maxwell.

The subject this afternoon is Emergency Dishes and Paper Bag Cookery.

Soup.

I want to talk just a few minutes about the subject of soup. These soups we will put under two headings, stimulating and nourishing. The stimulating soups are the clear soups that are used before a heavy meal as a sort of stimulant to get the stomach ready for the heavy food which follows. Nourishing soups are those made of meat, broth, cream, or combinations of broth and vegetables.

The emergency soups I am going to prepare here today are soups that any one can prepare in just a short time. All that is needed is boiling water and then drop in a cube of "Oxo" or "Steero" or a teaspoonful of Armour's or Libby's Beef Extract, using a little of that with soup stock if you have it. A soup of this sort can be served with-

in ten minutes from the time you know you are to serve your guests.

Then there are canned soups, Campbell's Heinz's, and Curtices' soups, all very good. We have all kinds of soups put up in cans, chicken broth and chicken soup, beef, mock turtle, mulligatawney, all sorts of meat and fish soups, that can be bought very reasonably, and if we have, as all careful housewives should have, an emergency shelf, where soups and sauces and condiments can be kept and only used for emergencies, we will always be prepared when we have unexpected company. The soups are so easily prepared we should always have a supply on hand.

Some one may say, are they economical? What is economy? Is economy spending as little as we possibly can? Sometimes I think it is, but is it? Economy means not spending as little as possible, but getting as large returns as possible for the money spent. If we do that we are economical, but if we are not careful about the expenditure of money, if we are extravagant in buying things we do not need and cooking food that is not eaten, that is extravagance. An old saying that has been employed for many, many years and is still in good working order is "A woman can throw out of the back door more on a spoon than the man of the house can bring in on a wheel barrow". We need to learn how to be economical. We need to know how to prepare our meals so that we get just as good returns for the money and energy spent as possible.

I want you to try some of these soups. I shall prepare a small amount and then we will serve them. There will be just a taste. That is one of the secrets of demonstration work. If you have a good, fair taste it might not seem so good as it does when you only get a little. I want you to like it so well that you will go home and prepare some, then you will see how thoroughly good things may be made from these simple things which we can buy ready made. These cubes are two and a half cents apiece, that would be ten cents for the soup. Is that expensive? When you are serving five or six people with nearly a cup of soup do you consider it so? When we serve this we feel that our guests are being given something that is good. Of course if you have time and can make your own soup, by all means do so, because it is better. The soup which you can prepare in your own home you can season to suit yourselves; this soup is stereotyped and you might get tired of it, but for occasional use it is very convenient to have in the home.

I have three kinds here this afternoon and shall use them just as soon as my tea kettle boils.

I want you to ask questions; I do not expect you to always agree with me and if you have any sentiments on the subject which you would like to express we will be glad to have you. Feel that this is a conference and be perfectly free to ask questions, so that everybody will get help from the meeting.

The cream soups, of course, are more nourishing soups. These are soups which you would serve with a light dinner. There are many kinds of cream soups that are so good and so nutritious and so attractive too that an afternoon could be profitably spent with cream soups. The vegetable soups of all kinds are appetizing and nutritious. For potato soup, a cupful of mashed potato added to a quart of milk and thickened makes a very appetizing soup, perhaps with a little flavor of onion in it. Then there is asparagus soup, spinach and tomato soup, even carrots make a very nice soup.

In serving the boullion cubes, if you like to vary the flavor you can add a little tomato or onion juice, so

that your family does not have a monotonous diet. We like to have variety in the things which we serve. When serving this soup, it is always nice to add seasonings to it. Taste of it, be sure that it is seasoned all right.

Question—Do you use canned soup?

Miss Maxwell—I would like to have served some of the canned soup, but I knew we did not have time for it, so I will just tell you that they are good and you can go home and have some for supper. They are so nice for supper on a frosty night, or the soup you can make at home. The Campbell soups are only ten and fifteen cents and with the addition of milk a can makes a nice soup for five or six people. The larger can is enough for a large family.

Another thing I like to have on the emergency shelf is plenty of seasonings,—Tobasco sauce, Worcestershire sauce, mustard, mushroom catsup; they all cost something, but I know that a bottle of Worcestershire sauce used in an ordinary family will last over a year for all the use we want to make of it, and I presume it might last longer in most homes. Just a teaspoonful occasionally for changing the flavor of a dish, —Pepper sauce and Tobasco sauce, a drop or two, that is sufficient. "Much tasting means no wasting". We notice in the preparation of food for our families that if we taste the food and prepare it well it will all be eaten, provided we do not prepare too much, and we notice that when we do not taste of the food and are not careful to season it that it is not all eaten, so we want to be careful to season our food and taste it.

I will put just a small piece of onion in this and remove it before it is served.

Question—How much soup does one cube make?

Miss Maxwell—Just a good cupful; enough for one person.

These little dinner biscuits, which should have gone with the soup, are very nice to serve with the soup. They come in little boxes, and one box goes a great way. They make a very nice little cracker to serve with the soup; they are very much like bread sticks.

Liver and Bacon.

I am going to prepare some liver and bacon and bake it in a paper bag. The liver will need to be parboiled, then it will be rolled in seasoned flour and baked with bacon in a paper bag. The water must be boiling when the liver is dropped into it, as it must cook quickly.

I think the paper bag cookery will appeal to the emergency cook, because it is something that is attractive, and if you prepare your meat before, that is, cut it in serving size, the bag can be placed upon a platter and not opened until the guests are seated, just breaking open the top of the bag you have a piping hot dish, which is one of the most favorable features of paper bag cookery, everything can be so very, very hot and kept in such a compact form, and it looks nice when it is served. We do like to have our food attractive in appearance.

Question—Miss Maxwell, will you kindly give us the cost of the bags?

Miss Maxwell—These bags come in packages of assorted sizes, twenty-five cents each. They cost a little more than a cent apiece. There are several sizes; this is one of the smaller sizes. They are nice for serving small steaks and chops. Then we have a still larger size that will take in an eight-pound turkey.

The bag is buttered and the oven is hot when the bag goes in, of course. We follow the same system in cooking as we do in any cookery. We want to start with the oven fairly hot and then lower the heat and let

it cook slower. The bag holds all the fine flavor of the meat, and another great advantage, too, is that you lose very little in the weight of the meat. A three-pound roast will come out three pounds, less about two or three ounces. If you put a three-pound roast into the oven to roast in the ordinary way, you lose four or five ounces, so you save enough in the meat to pay for two or three paper bags. Another advantage is that we have no soiled, greasy baking dishes to wash, we simply burn the bag and do not have a dish to wash.

Question—Do you have the oven any hotter than for roasting?

Miss Maxwell—Usually just a very little hotter. You have to heat it quickly, there is not much difference about the heat, but there is one thing we must bear in mind very clearly, and that is that we do not touch the bag after it has been laid in the oven. It will be very brittle, even if it does not get brown, and will crack and the juice will escape, and you have lost the very thing you are working for. Sometimes without touching it a bag will crack, then lift it out, slipping a dripping pan under it, or take it out and slip the bag into another one.

One of the criticisms on paper bag cookery is that you do not get the nice brown gravy that you get when roasting in a pan. That is a good criticism, and yet you have a very fine gravy which has a most delicious flavor, and by browning a little flour you can add that to your gravy, thickening it just the same as you thicken any meat sauce.

Question—When would you add the salt?

Miss Maxwell—We must add the salt when we put it into the bag.

Question—Doesn't it extract the juices?

Miss Maxwell—Yes, that is a good point. Salt does extract the juices, but we put the meat so quickly into such a hot oven and so quickly sear it over it does not have time for the juices to start.

Question—Would you advise flouring the meat?

Miss Maxwell—Yes, that is very good, but we do not like to flour meat in a paper bag. I have not had as good results when doing that as I have without flouring it, although it is a good plan to do so if you are cooking it in the roaster. I think that is simply a matter of taste. Then, too, flour is apt to stick to the bag and will tear your meat when removed, and it is not nearly so attractive when it is served. I think the flavor of meat cooked this way is so superior to the flavor of meat cooked in any other way. I was just as skeptical as anybody possibly could be when I first began to use the bags, because I thought it was just a fad, but the more I use them the better I like them.

When we are preparing the bacon and liver, as the liver is laid on the bacon in the bag we season the flour with salt and pepper and roll the liver in this mixture, when we do not need any more seasoning. You see we cannot season things in a paper bag, we have to do it before we put it in, or just as we take it out. With tough steak you can season the steak just as you take it out of the bag.

Question—How long will it take beefsteak to cook in a paper bag?

Miss Maxwell—Just about the same time as for broiling, twenty or twenty-five minutes if you like it well done; ten or twelve if you like it rare.

Question—Would it take longer for round steak?

Miss Maxwell—Yes, that should be cooked a little longer than that. By the way, you know that round steak has more flavor than porterhouse, it is cheaper and if we cook it carefully it is every bit as good as the more

tender but more expensive portions of the meat.

Another thing, the tenderness of the meat depends upon the time of cooking, too. If you have a thin cut, not more than an inch, it does not take as long to cook it as it does if it were thicker. We like to have our steak two inches thick, it makes a nice steak for serving.

This flour has been seasoned with pepper and salt and the liver has been parboiled.

Another nice way of serving liver is to parboil it, put it through the meat chopper, season it with a little bit of onion juice or grated onion, and a few slices of bacon and make it into little patties and cook them in a greased paper bag, or you can cook them in the oven. It is a very appetizing way of serving liver and bacon.

I am going to put just a suspicion of onion with the liver, just enough to take away that rank taste which we often have in liver, even after it has been parboiled.

Question—Are meat drippings good to grease paper bags with?

Miss Maxwell—Yes, meat drippings of any kind. Olive oil is good, because it has such a high burning point. Butter burns very quickly and is not as desirable for greasing bags as suet.

Question—What about pork fat?

Miss Maxwell—That is good. Lard is all right, if any one likes the flavor of lard.

I will lay in the slices of bacon and put the liver on them, the bacon keeps the floured liver from sticking to the bag.

Apple dumplings are delicious baked in a paper bag. There are so many nice dishes that can be prepared by using the bags that when you once get to using them I am sure you will all be very fond of them.

We put the bacon on the bottom to give flavor and the fat that is needed for the liver, because the liver is dry. We will add a very little onion, so very little that if your husband does not like onion he will not know it is there, but you know it is better because you have it there.

The liver and bacon is ready to come out. This is the condition of the bag as it comes out of the oven, a good, rich brown. It is always well to have a platter the size of the bag to just slip under it.

Potatoes.

In cooking potatoes, you never realize what potatoes taste like until you cook them in a paper bag. I am going to prepare some this afternoon.

First you parboil the potatoes.

Question—Do you have to parboil all vegetables?

Miss Maxwell—No, it is not necessary to parboil them unless you want to hasten the cooking, but I like to take off a little of that strong taste of the potato, though it is not necessary.

One great trouble with most housekeepers is that they are apt to prepare things in the same old way year in and year out. I wonder if I asked how many different ways you prepare potatoes how many of you would say you prepare them in ten ways; how many could say they prepare them in five ways?

There are about two hundred different ways of preparing potatoes. If we were to count them all up we could find that many, and I hope many of you women here will be as ready to learn new ways as the man was who said, "I am going to learn all of them, I already know two." Now, you see you are very much in advance of him.

I suppose you all prepare potatoes with your roast, called Franconia potatoes, put them around the roast and baste them with the fat in the pan when you roast your meat, and you prepare potato balls and croquettes, fry and mash them, and I

presume now some of you are saying "but I do not count those". There are any number of ways to serve potatoes and we really ought to get out of the rut of preparing mashed potatoes on Sunday, boiled potatoes on Monday, baked potatoes on Tuesday and escalloped potatoes on Wednesday, then go right around that same circle, mashed, boiled, baked and escalloped year in and year out.

In cooking potatoes in a paper bag, they are to be peeled just as usual and then parboiled, just brought to the boiling point. It is not necessary to boil them until they are soft, but just simply bring them to the boiling point, then drain them and put them into a bag with a little butter, pepper and salt. If you use it, do not use black pepper on potatoes, use the white. They sometimes call it a "dust of pepper", an a good many times it is more than a dust. The white pepper does not show, and the red pepper is still more wholesome for use. Red pepper is said to be good for the liver. Most of us have livers, and need to have them quickened occasionally. It might be better to use a little more cayenne pepper than we do.

We cut the potatoes into halves and quarters and they will be served in this form when they are cooked.

I will parboil them, put them on in boiling water. We can add salt to that if we like, or season them as we put them into the paper bag.

Now the potatoes are parboiled and we will put them in a bag. We will put some butter with them; the amount of butter, of course, will depend on the number of potatoes you use, about three tablespoonfuls to three good-sized potatoes will be sufficient. I am sure if you like potatoes you will have to cook a great many of these, because the family will all like them. The bag is now ready to go into the oven.

The wires in the oven racks are often set so wide that they catch the bags and you have to be careful about getting them in so that the bag will not touch the oven.

Question—Can't you take the grate right out?

Miss Maxwell—Yes, you can do that with the gas stove, but with an oil stove the oven is so wobbly it takes two hands to hold the oven and another pair to pull out the grate. It is a good plan to take out the grate and put the bag right on it. I do that with a gas stove.

It is always a wise precaution, whether your bag has any symptoms of leaking or not, to put a dripping pan under it, but the paper bag is always laid right on the rack.

The only way to tell when the potatoes are done is to time them. You are not safe in taking out and opening the bag to see, because you are going to lose the fine flavor of your potato, but half an hour after they are put in for medium sized potatoes, cut in quarters, after they are parboiled, they will be done, ready to serve.

You see this oven has an easy rack to get out. Just slip the rack right out with the platter under it (if you are afraid of its leaking). It is always better to have it under anyway, for sometimes it breaks just being carried from the stove to the table.

For those of you who are interested in paper bag cookery I would like to have you look at this little book. It is gotten out by Nicholas Soyer, Chef of Brooks' Club, London, and one of the authorities on paper bag cookery, though not the originator, for it is very old. Years and years ago we used oiled paper to cook small birds, chops and small pieces of meat for invalids. They have slightly improved on the kind of paper that is used, made it more durable, and it lacks the flavor which so much of the paper gave to the food.

Spanish Meat Dish.

Recipe.

Into a baking dish put a layer of thinly sliced raw potatoes, over this a cupful of cold roast beef cut in small pieces, over this a finely shredded onion and a cupful of cooked tomatoes. Bake for forty minutes until the potatoes are soft, then add a tablespoonful of green peas scattered over the top. Serve in the dish in which it was cooked.

The Spanish Meat Dish which I will now prepare is another emergency dish that we can prepare for an occasion. You can have for the foundation cold roast beef, or other meat will do, chicken is very nice, anything of that sort, but roast beef is especially good with this combination.

We will put a layer of sliced potato in the bottom of the dish, then put in a cupful of the sliced cold roast beef. We have some here that was roasted in a paper bag and I took it from the center where the meat was the rarest done, because this has to be cooked about forty or forty-five minutes and if you take meat that is too well done it gets tough by the time it is fully cooked, so I took the portion that is undercooked. We will sprinkle that with onion and over all place a cupful or two of tomato. The amount will depend entirely on the size of the family which you are going to serve. You can enlarge on the dish. As the old couplet goes:

"Three were invited but here come nine,
Water the porridge that all may dine."

It does not change it at all to enlarge it, it will be just as good if you have the proportions correct.

We put a layer of this potato in the bottom of this casserole and then sprinkle over the onion, meat and tomatoes. Just a very little onion, just enough to give it a flavor.

Question—Can you cook onions in a paper bag?

Miss Maxwell—Onions are very good cooked in a paper bag. I should parboil them first. The only vegetable that is not as good cooked in a paper bag is cabbage. This needs to be cooked in a large amount of water and some of the strong flavor taken off before it is eaten. Cabbage should always be cooked in an open vessel. When you cook it in a paper bag you get a strong, disagreeable flavor, which is not good.

We will add a little seasoning, though, of course, this meat was seasoned before it was cooked.

Salad Dressing.

Now I will prepare a salad dressing that can be made and kept for weeks at a time. I have another salad dressing that I will give you the recipe for, and another that I will prepare. They are both salad dressings that you may always have on hand in case of an emergency, and I think most of you can remember how to prepare them.

Recipe.

Take equal proportions of egg, just the yolks if you are making angel food, and have the yolks left, the whites are not as good to use alone, and take an equal proportion of egg and vinegar, cook them together in the double boiler until they are smooth, being very careful to stir them so they will not curdle, and then set away, and whenever you are ready to make a salad dressing you have your foundation and by simply adding a little seasoning of oil, mustard and onion juice, or if you are making it for fruit, omit these and add sugar, then with the addition of a little whipped cream you have a most delicious salad dressing. This is always ready and very simple to make. Whenever you have a few egg yolks

left, measure them and add the same quantity of vinegar. If the vinegar is too strong, do not use it full strength, dilute it with a little water.

Question—How do you keep it?

Miss Maxwell—You can keep it in a glass jar in a cool place for two months. I used some today that had been frozen solid. It does not improve it to freeze it, but it does not spoil it.

Question—You do not add the cream until you want to use the dressing?

Miss Maxwell—No, you do not add anything until you are ready to use it. You see the foundation that you keep is just the egg and vinegar cooked together, equal parts of egg and vinegar. If you have the whole eggs, use them; if you have three yolks, use those, and measure out the same quantity of vinegar.

Sherry's Dressing.

Recipe.

Three-fourths cup olive oil, 1 small teaspoon onion chopped, ¼ cup vinegar, 1 tablespoon powderer sugar, 2 tablespoons chopped green peper, 1 tablespoon chopped parsley, 2 tablesoons chopped red pepper, 1 teaspoon salt, a few dashes of cayenne pepper.

Now, if you are using the ordinary red pepper, you have to be very careful, but if you are using paprika you can use a little more of that.

This is to be put into a Mason jar, when you do it properly, and shake it for about five minutes in the jar. This is very pretty if you can get the fresh red peppers instead of the canned ones we have to use in this season of the year. This is as pretty put over lettuce as any salad dressing could be.

I would like to have this salad dressing stand just as long as possible before putting it on the lettuce, because it is better seasoned. It ought to stand at least an hour after being made, stirring it occasionally, if you have it in a bowl, but in a Mason jar you can shake it.

Question—Don't you cook it?

Miss Maxwell—No.

The other dressing would probably appeal to those of you who do not like olive oil, but I hope you will all try to cultivate the taste for olive oil, even if you do not like it, because it is so wholesome, it is something we all need; it is good for little people, good for the middle-aged and good for old people; is a heat and energy giving food for the young people and limbers up the joints of old people.

I have all the ingredients in this bowl and now I will just set it away to season thoroughly, then I will serve it on the lettuce.

I would like to have you see this salad dressing before it is put on the lettuce. You see the white and the green and the red make it very pretty.

This salad dressing is very nice served, just a tablespoonful of it, on a nest of lettuce, but this time, of course, we are just going to serve it so you can all have all the taste of the dressing.

Another very simple salad that almost all farmers' wives can prepare is an egg and cottage cheese salad. This is prepared by putting the cottage cheese through the ricer, having it seasoned nicely, and make a border of the cheese around the dish, put hard cooked eggs, sliced and well seasoned, in the center, then you can use any kind of salad dressing you wish, the one I mentioned first could be used, or the French dressing if you like. This makes a very pretty salad served on lettuce, and a cheap one, too, when eggs are reasonable in price.

Sponge Pudding.

Recipe.

One-third of a cup of flour cooked until thick with a cup of milk, cool

and add the yolks of three eggs well beaten, then cut and fold in the whites that have been beaten until stiff.

I am now going to make a Sponge Pudding. This is a very simple little pudding, one that can be prepared and baked in about twenty minutes or half an hour.

We will take one-third of a cup of flour, mixed with one-fourth of a cup of sugar, and one cup of milk and cook them together until it makes a nice, smooth paste.

Just as soon as it has cooled enough, I will stir in the well beaten yolks of three eggs.

Now, I will fold in the whites of the eggs beaten stiff and turn this pudding into a buttered pudding dish, set it into water and cook it until when tested with a knife the knife comes out clean, the test we use for baked custard.

We set this in water to equalize the heat, so there is no danger of over-heating. Custard is something which should cook slowly.

The sauce for this pudding is prepared by creaming half a cupful of soft butter, add a teaspoonful of vanilla to the soft butter.

We will cream the butter and if it does not seem to get soft easily one can add a tablespoonful of boiling water. We add the vanilla to the butter before the sugar is added. It seems to season it better than it does to put it in with the sugar; a teaspoonful of vanilla.

This is sometimes called a hard sauce. It is just simply butter and sugar creamed together. If you want to make it very, very nice, you can add some cream to it. I just feel like saying to the farmers' wife, I hope you do not stint yourself in butter and eggs and cream, things of that sort, because if anybody should have all she wants of the things to cook with it is the farmer's wife. Sometimes she will say, "I cannot use so much cream because we sell it", but I think there should be an understanding that she should have as much of these things as she wants, not to be stinted. This is a nice enough sauce without any cream, but it makes a very delicious sauce with cream. I have some cream today, so I am going to add it to the sauce.

This pudding when it is done is just like a very delicate sponge cake, it is really a souffle, just a custard souffle, but the name when it was given me was Sponge Pudding, so we will not change it.

Question—How much cream do you use in the pudding sauce?

Miss Maxwell—About a half a cup of whipped cream.

Question—How long do you bake the pudding?

Miss Maxwell—Until a knife comes out clean when used to test it. The time depends on the oven, about twenty minutes.

Question—You do not cover the pudding?

Miss Maxwell—No, just set the pudding in a pan of hot water and bake it.

Question—Is this pudding good cold?

Miss Maxwell—Good, but better served hot.

SECOND SESSION.

Wednesday Afternoon, March 13, 1912.

THE USE OF THE CHEAPER CUTS OF MEAT.

Miss Edith L. Clift, Chicago, Ill.

Miss Clift.

Our subject for this afternoon is not a new one; in fact, it is a very old one, viz., the cooking of the cheaper cuts or tough pieces of meat. It is a problem that many women have tried to meet, and we think it should be more fully understood. We have such a quantity of tough meat in comparison with the tender meat that it should be every woman's business to know how to cook it, because when cooked in the right way it is just as palatable and as nutritious as the tender meat; the nutrition does not differ very much in porterhouse steak at twenty-five cents a pound and round steak at fifteen cents. The chief difference between the cheaper and more expensive cuts is not so much in their nutritive value as in their flavor. We pay the price for the tender cuts rather than take the trouble to prepare the tough meat.

This afternoon we will prepare some very plain meat dishes. Our work is mostly with the farmer's wife; not that she does not appreciate the fancy dishes, but because she has not the time to prepare them. Usually there is a great deal to do in a short time and then she cannot stop to fuss very much, so these dishes will be found particularly suitable for the woman who is very busy and wants to have something that tastes good and is easily digested with but little labor.

This afternoon we have on our program Potato Pot, Scotch Collops, Sausage with Batter and Ham Souffle.

Potato Pot.

Recipe.

Two pounds round steak, one pound lean pork (loin), three onions, two carrots, four teaspoons flour, pepper and salt, potatoes.

This is an old-fashioned English dish that we have found so satisfactory I think all of you may like to try it.

Cut the meat up in small pieces, say three or four inches, mix together the flour, salt and pepper, and by the way, it is a good plan to remem-

ber that most people like about two level teaspoons of salt to one pound of meat, and a quarter of a teaspoon of pepper (use rather less pepper than more, as we can always add when we cannot take away). Roll the meat in the prepared flour, cut up the onions in slices or quarters, also the carrots. If the onions are rather large you can take less if you are not fond of them; these things can always be arranged to suit individual taste. I like to put a layer of onion, then meat and carrots and so on until the dish is full, cover with boiling water and put in a moderately hot oven. If you use a gasoline stove, it is possible to lower the flame just as soon as the stew is boiling, whatever the fuel is to be sure it does not cook too fast or the gravy will all evaporate and the meat be dry and tasteless. I like very much to use one of the heavy brown earthen dishes usually called a "Casserole," such as we have here this afternoon, because then you can put on the close-fitting lid and keep in all the good flavor, but when there are eight or ten in the family something larger is needed and quite often we use an ordinary meat pan. When it has been cooking for one hour we put the potatoes, which have been pared, over the meat in the dish. If they are very large they may be cut in half, if not, leave whole. Part of the potato is in the gravy you see and the other part becomes quite brown; the result is a dish that gives one an appetite to see and smell. This time of the year we allow our potatoes to stand for about an hour in cold water before using. If you have any doubts as to the result just try it. Mutton chops may be cooked in the same fashion as the beef, but do not cut up the chops, leave them whole, be careful to trim off most of the fat.

We are glad of questions, so do not be afraid of interrupting at any time.

Question—Would you cover the dish?

Miss Clift—Yes, until the potatoes are added, not after that, otherwise the potaoes would not brown.

Question—How much water do you use?

Miss Clift—Just enough to cover, about a pint and a quarter to a pound of meat, a pint is a little scant where there are children who are fond of gravy.

Question—Do you use hot or cold water?

Miss Clift—Hot water always. By doing so you keep some of the juices in the meat. When cold water is used the gravy is excellent but the meat very poor. This is also true of some people's roast meat.

Question—Can you use dumplings with this dish?

Miss Clift—Yes, if they are cooked in a separate pan or steamer. I sometimes cover the dish with biscuits instead of potatoes and they too are good cooked in this way.

Scotch Collops.

Recipe.

One pound round steak minced, one teaspoon onion juice, two teaspoons salt, one-quarter teaspoon pepper, two teaspoons flour, one pint of water. This is a good supper dish and needs very little attention when once started.

We will put the meat through the food chopper, using the next to the finest cutter. The object of putting tough meat through the grinder is that it removes all this connective tissue. If this piece of steak were broiled, you can imagine how tough it would be, but cooked in this way it cannot fail to be tender. If this were for an invalid. I would put it through the grinder twice to be quite sure it would be tender, then add a little pepper, salt and lemon juice, form into small cakes and

bake quickly in a hot oven, serve on a slice of buttered toast. This would make a good meal. Make the frying pan very hot, using a small amount of fat, not butter, a little bit of fat from the edge of the beef will do. Try that and when smoking hot put in your meat, brown it thoroughly, then just cover it with boiling water and let it come to a boil, set it on the back of the stove where it will simmer, and in about an hour you will have a very good tasting dish of meat. Do not add pepper and salt until it is quite brown, but thicken it later on.

I have no cover here to fit the frying pan so will use this pie pan turned upside down. This will help keep in the steam and also the flavor. It is well to have a lid that closely fits on your frying pan, as there are so many ways in which it can be used. I will use a little onion juice with this and will get it by cutting down the onion and scraping the onion with a sharp knife.

Question—Do you ever use the grater for getting the onion juice?

Miss Clift—Yes, I have but I have also tasted the onion in other things if I have not washed the grater myself. The grater needs to be washed thoroughly in cold water and I find that the knife is just as good for a small quantity.

Almost any cold meat may be warmed over in this way, but it does not need to be cooked very long. Eggs may be poached and placed on top of the meat if there is hardly enough meat; toasted bread cut in diamond shape adds to the appearance of the dish and will sometimes take the place of potatoes.

We will serve boiled rice with the collops today. Mashed potatoes, rice or macaroni may be used. The rice was picked over first and then washed in cold water, as you see, the moisture has all disappeared because it has stood awhile; if the rice is very wet, it will stop the boiling of the water for some time. Do not put your rice in a pan and then pour the water over it, because it is apt to stick. It is much better to sprinkle it in this fashion. We let this boil for a second or two and then put the lid on, place it in the cook-box and leave it in the box for an hour and a quarter; then we are quite sure it will be thoroughly done. I am using four cups of water to one of rice and one teaspoon of salt. Some people prefer to cook their rice in rapidly boiling water. That, too, is quite satisfactory.

We have a little parsley here, so I will cut up some to sprinkle over the rice when we serve the collops. This is not at all necessary, but it improves the appearance of the dish and also tastes well.

We should let this stew simmer, not boil. I think we can put it in the oven now, which will save our gas by cooking two things at one time, and we will have just as good results as if cooked on the open flame.

Sausage With Batter.

This is a dish I have been making in the Cooking School this winter that has been much appreciated. It is very easy to prepare and you may like to know how to do it.

We have here a pound of the link sausage. Cut them apart and prick them with a fork so the fat can escape. If you do not prick them the skins may burst and they do not look so well. An ordinary meat pan will do for this, or a casserole is nice. Remember to have your meat pan large enough as the batter will double in bulk. Place the sausage in the oven and cook for about five minutes, drain off some of the fat from the sausage and pour the batter over them. They will float to the top. We make this batter exactly the same as the Yorkshire pudding. I find lots of people have never thought of using

it in this way, but it makes a very nice supper dish.

Yorkshire Pudding.

Recipe.

Two eggs, one cup flour, one pint of milk, one teaspoon salt.

We allow one pint of milk to one cup of flour. I find some people allow only a cup of milk to a cup of flour for the Yorkshire pudding, but it is rather crisp and not so satisfactory as when using a pint. The recipe suggests to beat the eggs light and then add them to the milk and flour. We can just as well put our flour into a bowl, mix to a smooth paste and beat the eggs into that. Do not add too much milk until you get the batter perfectly smooth. This is one trouble very many people have. They use a good deal of milk in the first place and then the flour can never be rubbed quite smooth. It takes a little more than half a cup of milk to mix the one cup of flour smooth.

I like to make this pudding, because I find so many people are interested in pop-overs and this pudding is prepared in just the same way. The main trouble that people have is because they get the oven too hot. The pop-over will not pop and be light as it should be. Always remember that they should be fully raised before they begin to brown at all. If they brown at first they are usually too brown by the time they are taken from the oven. If your pop-over is perfectly light and no dough in the center you can depend on it being pretty good.

Beef steak can be cooked in the same way, brown it on each side and then pour the batter over it. If it is a good tender steak, it will be very delicious. If it is not tender when it is put in it will not be tender when it comes out, because it does not cook long enough or slow enough to grow tender during the cooking.

If this were for pop-overs, that would be the thickness of the batter, but we use another cupful of milk for this pudding.

Question—How much fat do you allow when making Yorkshire pudding?

Miss Clift—About two tablespoons. Be careful not to have too much.

Question—How long do you bake this pudding?

Miss Clift—About twenty minutes.

Question—How do you serve it?

Miss Clift—Take a spoon and fork and give a sausage and a portion of the pudding to each person.

Question—Would you use two cups of milk with the one cup of flour with the regular pop-over?

Miss Clift—No, one cup of milk to one cup of flour and two eggs is what we use for pop-overs. Never keep any egg mixture standing, but serve at once when baked.

Question—Will you give us some more ideas of cooking the tough pieces of meat?

Miss Clift—One of the best books on meat I have seen lately is the Farmers' Bulletin. It is a good one and is called "Economical Use of Meat in the Home", (Farmers' Bulletin No. 391). Send for it to the Department of Publication, Washington, D. C. There are a great many good things in it. I have tried a number of them. Some are new, others again are old ones.

One of the very good dishes that we have made this winter is what is commonly called Swiss steak. Take a steak an inch thick and pound seasoned flour into it on both sides, brown it thoroughly in a skillet and cover with boiling water. Let it simmer, not boil, for about two hours and I am sure you will enjoy it.

There are so many ways of cooking tough meats that we do not always have to cook them in the same fashion. Often we have cold meat on hand and it is nice to know of a "different" way to use it. I am using ham today,

but you can use almost any meat you like, although I have not yet tried pork.

Here is the rule for it:

Ham Souffle.

Recipe.

One cup cold chopped ham, one-half cup bread crumbs, three eggs, one pint milk, pepper and salt if needed.

Beat the eggs light; mix the ingredients very thoroughly together and bake twenty minutes in moderately hot oven. Serve with tomato or cream sauce. If you are having scalloped potatoes, it will not be necessary to serve a separate sauce.

In a usual way we separate our eggs when making a souffle, but I find this works out very well, so why take so much trouble?

These crumbs were dry crusts of bread put through the meat grinder. Sometimes I think it would be advisable to give a whole lesson on what to do with dry bread. One of the things we like best to use it for is to bake it in the oven until it is light brown, put it through the meat grinder, using the coarse chopper, and serve it for breakfast with sugar and cream. If you have no dried crumbs but some stale bread, soak the bread in milk and then break it up with a fork.

I am using a teaspoonful of parsley for flavoring in this. Do not try to turn this out but serve it in the dish in which it is baked.

Question—Is the cook-box good for stewing meat?

Miss Clift—It certainly cannot be improved upon for stewing purposes.

Question—Can paper bag cookery be done in the fireless cooker?

Miss Clift—Yes, in the patent boxes that have the soap stone, but not in this home-made box.

Question—Do you have soap stone in that box?

Miss Clift—No, you cannot use soap stone in a wooden box. If you want to roast as well as stew, you must have a patent box. They are very fine. I have not a word to say against them.

Question—Will cereal cooked in the cook-box be hot enough to serve in the morning?

Miss Clift—I have found that oatmeal is hot enough to serve, but this box is quite well packed. All boxes are not as warmly lined as this is.

I have not explained anything to you about the different cuts of meat and where you will find the cheaper cuts. One thing I know and that is you will not have any trouble in finding tough meat to experiment with. I would like it to be understood that it can never be made juicy and tender by furious boiling.

Sometimes we find chicken dropping off the bones because it has been rapidly boiled. Corn beef will be torn apart and yet not tender—all because it has been cooked rapidly. Long, slow, steady heat is the solution of this problem.

We will now pass around the dishes prepared before serving, so you may see how they look as well as taste.

THIRD SESSION.

Thursday Afternoon, March 14, 1912.

SOME DESSERTS.

Mrs. Nellie Kedzie Jones, Auburndale, Wis.

The lesson this afternoon is on desserts. Now, there is always a question in every woman's mind as to what desserts to serve for company dinners. I have a friend who was so fortunate as to dine with Miss Helen Gould, that woman whom we all love, all admire, who has so much money at her command, and this friend tells me that the dinner served in her beautiful home was this. She had a simple, clear soup first, then there was a leg of lamb served with vegetables, then a lettuce salad with a French dressing, and a dessert of baked custard. I think I have loved and admired Miss Gould more since I knew that than I did before, because a woman who would invite guests to her table and serve them that kind of a dinner must have a great fund of common sense, as well as a fund of all sorts of other things.

When we are planning a dinner, I think the tendency is to have too many kinds of things on the table. I remember going to a dinner once in a southern state and we had several kinds of meat on the table; there was a roast turkey at one end and baked ham at the other, a great dish of sweet potatoes in the middle and on the other side cold boiled tongue, there were seven kinds of meat on that table, and we never half enjoyed that dinner, because we always wanted to taste the other kind.

It is worth our while to think over our dinner and decide whether we want a dessert or not, it is not necessary every day, often the dinner is ample without a dessert. Along in the winter, when we have roast chicken or turkey, and have a good salad (we can have the crisp cabbage and fresh lettuce and so on in most of our homes in the winter) it is ample to serve for a dinner. If you want to serve a soup, all well and good, then your turkey or chicken and your salad, that is enough for anybody. Another time if you do not want soup, have a roast, some sort of vegetable, perhaps, and then serve a dessert if you like. Again, if you have any sort of fish and no juicy vegetable, serve a dessert with that, but do not serve too many kinds, and look out that when you serve a heavy dinner you have a light dessert. If you are going to serve a heavy dessert, have it when you have a light dinner. For instance, many times we all know that we have a dinner that is made of left-overs and we may have a chicken-pie made from the pieces, or perhaps you have a few pieces of roast pork, put those with your chicken, or perhaps some roast beef, then put it on the stove and stew it until it is perfectly tender, put that with the chicken and make a meat puff out of it. That is delicious, but that is a very light dinner and will stand a heavier dessert and then you can have a steamed chocolate pudding, or a steamed suet pudding, or a good heavy rice pudding will go well with that kind of a dinner, and your people will not over-eat. Do not tempt your people too much, because I suspect that many Americans suffer more

from over-eating than from under-eating. Many people do not eat wisely, so it is worth while to look out to have a light dinner with a heavy dessert and vice versa.

Really, perhaps the best dessert for any of us is the fruit, fresh fruit, just as it comes along. In the autumn we still have a good many fruits, the berries and peaches, we have apples, the delicious eating apples, and I do not know of any better dessert than simply to cut up apples into about eighths and serve them with a little sugar on them and eat them with bread and butter. That makes such a good dessert when you have good eating apples.

Again, along in the spring, when the strawberries are good, and followed up by other fruits, we have the fresh fruit, and this time of the year the oranges, and oranges just sliced with sugar on them with bread and butter or simple cake, make a delicious dessert which is very little trouble to prepare.

In the winter you have the canned fruit. Old housekeepers pride themselves on the number of cans on their shelves, and it is splendid for dessert any time to serve canned fruit with bread and butter, cookies or cake, or whatever you have in the house, or without, if you haven't time to make any. Dessert is entirely a matter of selection.

Caramel Pudding.

Recipe.

One quart milk, four eggs, one cup sugar, two tablespoons sugar burnt, one pinch soda, one teaspoon vanilla. Bake in water.

I am going to make first a caramel pudding, which is a type of all the custards. You can make a plain custard, cocoanut, caramel, chocolate, or a baked custard, and instead of putting that in the oven in one dish you can put it in the little cups and have a cup custard, all are made precisely the same way, and instead of stopping to make pie crust and make a pie, which at most would only serve five people and it would take you a good deal more time than it would to make custard for twenty people, you can make a custard and vary it in several ways. This is a type of all the custards. The foundation for custards is one quart of milk, four eggs, one cup of sugar and anything else you please. In the winter, when eggs are from twenty-five to forty cents a dozen, you can make three eggs do very nicely, but it won't be so nourishing. When you make a custard pudding, you are making a rather heavy dessert. If you have four people and a custard pudding made out of four eggs, each one is getting an egg, so you are getting a good deal of nourishment; the milk has a great deal of proteid matter in it, so this is a very good meal, especially for children; custards are heavy desserts.

In making any of these custards, be very careful not to overcook them, because when egg and milk are overcooked the albumen of the egg will thicken so hard that it is not easily digested. Whenever you see a custard that has coagulated, that has separated some of the casein of the milk, and the albumen of the egg through the water of the milk, remember that custard has become less digestible than it was before; cook your custard so it will be just solid, not so it will coagulate; you should always set it in a pan of water, because there is always steam around the outside of the pan, and the heat, instead of making the custard too hard on the outside, will be evenly distributed and the custard will be cooked through and not brown on the outside.

Because I am going to have this a caramel custard, I shall now make my caramel. I put two tablespoonfuls of

sugar into a little spider. While it is browning on the stove, I will put the rest of the custard together.

Put four eggs into a basin and whip them lightly, not enough to beat them very much, because if I do, the air getting into the albumen of the egg will cause it to rise to the top, and we do not want that on top, we want it in the custard. I will put it in a cup of sugar with the eggs and just beat them up enough to break up the eggs.

The caramel is browning pretty rapidly and melting and I shall have to watch that a moment now before I can finish the eggs. It is perfectly clear white sugar put into a spider and allowed to brown until it melts and burns. As soon as I think it is burnt enough to flavor it well (you must learn somewhat by experience because there is such a difference in the size of the dish) I shall put one cup of milk right into it and allow the milk to dissolve the caramel. I like to get it quite brown, because I want a good deal of the caramel flavor in the pudding. I pour in just enough milk to cover the caramel; it will make a real mess.

In just a few minutes this will be dissolved and it will do to flavor the pudding.

Now, if you want to make caramel ice cream, do this same way and put it right into the ice cream.

While it is dissolving, I am going to sprinkle a tiny pinch of soda in that. If I know perfectly well that my sugar had no acid in it, I would not use the soda, but sometimes sugar that has been refined, even though it is perfectly white, good sugar, will have enough acid to curdle your milk, particularly if it is not sufficiently fresh, so I put in this pinch of soda. I see it makes this foam a little, so I know there was acid in the sugar. It is well to put in this little bit of soda to counteract any acid which may be there.

Now that is ready to put into the rest of the custard. I will finish this up in the dish in which I serve it, the sugar and the egg, then I will put in the rest of the milk, and for this caramel custard I will put in a little vanilla. It is not necessary to put it in, some people like the lemon with the caramel, but I think I prefer the vanilla. Sometimes I just sprinkle a little cocoanut over it.

This is ready to go into the oven. I am going to set that in a basin of water, make a sort of double boiler. Now, that should cook in somewhere near half an hour.

Along in the spring, when eggs are cheap, there are no better things for the family than things made out of eggs. We are getting tired of meat and eggs come along just in time to make us good food at this time.

The caramel pudding should be served with whipped cream, if you have it. I like that very much with it, so I shall put some whipped cream on it and serve it to you. I like to mix it with a little bit of sugar and flavoring. Sometimes I serve it without anything at all.

People sometimes say, "How can you afford to use so much whipped cream"? and I often answer by saying that whipped cream goes twice as far as other cream. You can use whipped cream sometimes when you do not have enough of the other to go around, because whipped cream will double right up.

This is a very good dessert to use when you have a fish dinner, have no meat for dinner and have a baked fish maybe. This is a little heavier than some puddings, being a custard, and it gives a clean taste in the the mouth. Some people like fish very much, but often there is a lingering flavor left in the mouth which they do not enjoy, and this pudding is very good to serve after a fish dinner on that account.

Chocolate Bread Pudding.

Recipe.

Two eggs, one pint milk, one-half cup sugar, one cup bread, one square of chocolate. Bake thirty minutes. If your bread is very dry, one cupful is ample; if your bread is very moist; it will take more of it.

I am now going to make a chocolate bread pudding. This is a plain, old-fashioned bread pudding, a type we can use in so many different ways. We can make a plain one, another time we can add some raisins, another time spices, another time we can cut up some chocolate in it and call it chocolate bread pudding. Sometimes people will say, "I eat all my own crusts and I am not going to eat other people's in bread pudding", so you need not call it bread pudding, call it chocolate.

Then again, you can make a bread pudding, put in a tablespoon of molasses for each cup of milk and spices and you can have another kind of bread pudding. Sometimes I make it without anything except a little orange rind or a little lemon, there are numberless puddings, you can make a long list.

The bread pudding I make with the same foundation that I had for the custard, one pint of milk to two eggs, and add a cup of bread and a half a cup of sugar, and then add whatever I please for flavoring. I shall add the chocolate today.

I will put the pint of milk and two eggs into a dish and beat them up. You will notice I do not have to wash my cups, because I used one for the wets and one for the drys, and I use the same spoon over again. I couldn't if I had chocolate and did not want chocolate in my next pudding, because the chocolate would show.

Now, the pint of milk and the bread.

I will take the slices of bread about as thick as I want them, I rather think that that will make a half a cup anyway, then lay them down, quite a pile, if I want to make a big one, and cut them all once, then turn them around and cut them the other way, and you have a sort of dice, the small pieces which will fit in very nicely. This is the way I cut up bread for dressings, or anything of that sort. Sometimes I make a pudding like this in a ten-quart milk pan and it gets all eaten up, too.

Now the milk is hot and I want a pint.

I put the one cup of bread right in. I rather think that isn't enough. Now, you see that will make a difference; this bread is so moist it won't take up so much of the milk as dry bread would, so I put a cup and a half into the two cups of milk, because it is so moist it does not take up the milk as real dry bread does.

That will be just about enough bread for this. With real dry bread one cupful would have been ample. Now the chocolate goes in, one square of chocolate.

Every cake is marked off in little squares, each one is an ounce. I just shave one of these little squares with a knife into the dish of pudding. I do not care particularly to have it very fine, because it will melt when I stir it up in the pudding.

This is ready to go into the oven to bake. It will take a pudding of that size about half an hour in rather a slow oven; I do not want it to bake too fast.

This is considered an old-fashioned bread pudding with a little chocolate in it. While it is bakng the bread rises to the top and I want to stir it through the pudding so there shall be plenty of bread all through the pudding. It will be a sort of solid pudding when it is done.

I like to serve it with a hard sauce or a little bit of butter. It is

very acceptable with just a little bit of butter.

Question—That is served hot?

Mrs. Jones—Yes, I like it to be served hot.

Steamed Chocolate Pudding.

Recipe.

One egg, one-half cup sugar, one square chocolate, one-half cup milk, one cup flour, two tablespoons melted butter, two teaspoons baking powder. Steam in cups twenty minutes.

Sauce.

Recipe.

Two eggs beaten separately, then beat them together; one-fourth cup sugar, one teaspoon vanilla.

I want next to make a steamed chocolate pudding. This kind is a type of all the steamed puddings. Those who come from New England and have eaten the blueberry pudding know what an old-fashioned steamed pudding is. One of the very best kinds I know of is a simple batter with a little sugar in it, put into cups with home canned berries and steamed, or, if you want to steam it in a big pudding, put layers of fruit and layers of pudding. I expect some of you people do that with your blueberry pudding. I have made a baked batter pudding in the same way. There are so many delicious blackberries, red raspberries are not so good, and cranberry pudding made in the same way is very delicious, so this type of pudding simply means one of many kinds.

In the winter time for this pudding I usually use one egg and I shall beat it up pretty thoroughly. I want it just as light as I can make it. I have been known to beat it separately, first the yolk and then the white, but I am not going to today. It makes it a trifle lighter perhaps, but I do not think it pays for the extra time.

I think I will mix the whole thing in this bowl. In the meanwhile I will put the chocolate on to melt and I will put that in my cup that I am using for the wets, one square of chocolate put on the stove with just enough water to make it shiny. That will mean about a tablespoonful probably. Some days you will find a difference in that, a difference in the heat of your kitchen, some days it will take a little bit more, but I will put that on and see if it gets shiny.

Half a cup of sugar, half a cup of milk and two tablespoonfuls of melted butter, and that I shall have to put into the chocolate, I guess, to melt with it. I do not want to use any more dishes than I have to, and if I measure it off carefully, level it off, it will measure no more melted, but if I am not pretty careful I will get too much butter, because melted butter rises up very easily. Chocolate is fifty per cent oil, so I want to use my butter very carefully. Chocolate is a good thing to put in children's lunches, and it is very good for one to put in when going on a journey, for there is nothing that will help a traveler like sweet chocolate if he is hungry or tired or worn.

I will put the butter right in with the chocolate and it will melt right up with it.

I want a cup of flour and two teaspoons of baking powder. The two teaspoons of baking powder mean even spoons.

I shall beat them up and then stir in the chocolate. I have got to be a little careful about the flour. I will have to watch it. There is quite a difference in flour and as I do not know this I will have to watch it so as to get the right proportion to the quantity it makes. At home a cup of flour is sufficient, but I went up to Houghton, Michigan, and made some in the home of my friend and I had

to use one-sixth of a cup more of flour than I did at home. You must always look out for that. I have a suspicion that I will have to use more flour here than I would at home. Perhaps the chocolate will make a difference. If I have too strong a suspicion I will add it.

All of these steamed puddings should have just enough flour to keep them from falling. Now, you know that is not true about cakes. I had rather have my cake fall a trifle in the middle than to have it round up, because if it falls just a trifle I know it had almost enough flour in it and it has a very delicate, pleasant texture, but if it is rounded up I know it had too much flour in it and it very soon dries out.

Now, I am going to try that. It looks a little light, but in a case like that it is very easy to put one on and try it.

I will put a little one on and let it steam just to see about the flour. I do not want to put in enough to be absolutely certain, because it will make my pudding too stiff.

Question—How long will that have to steam?

Mrs. Jones—The little one not more than ten minutes. The others will steam in about twenty minutes and be a half or three-quarters of an inch above the mold.

Question—Did you tell the amount of water that you put in your chocolate for that recipe?

Mrs. Jones—No, I did not. Put in a tablespoonful of water. It needs just a trifle to melt the chocolate and make it smooth. If you put it over the fire it will be hard and lumpy. It happens some days it will fluctuate, so you will have to put in more. I do not think one tablespoonful will ever hurt it any, so I think that will be safe.

Perhaps some of you noticed how much of the batter I put into the little mold. I do not think I showed it to you, but the dish is full and the pudding is done. I think my dough will do very well, so I shall not worry about how it is getting done. I told you I had a little fear of the flour, I feared it was a little too soft, but I think it will be right.

I will buter these little molds and get them on to steam as soon as possible now.

I do not dare fill these very full, because they will pop right up over the top. I will fill them perhaps two-thirds full, I could let it stand two or three hours and perhaps the next meal cook it.

I have been very glad to find how many thinks I could let stand. I do not think the minute the baking powder biscuits are made they should go into the oven. They could stand an hour. I have made a cake and let it stand over night and cooked it in the morning, not the beautiful white cake, but an ordinary spice cake or ginger bread. I have stirred the cake up, put it into the pan and then put a cover over the pan, so the top will not get hard, then the next morning when getting breakfast put the cake in and it will be baked when you are well along in your breakfast dishes, and your cake is done.

Now I shall take the pudding off. Can you see it, see how it is puffed up? I will let it stand where it will keep hot until I get my sauce made.

For the sauce I will take two eggs and beat them separately. The whites do not need to be beaten dry, just stiff, to mix with the yolks. You will notice I use the beater in the whites first, because I can use it in the yolks afterwards, but I could not use it in the whites after using it in the yolks, because the oil of the yolk goes into the whites and spoils the beating quality.

Now then, I want to beat them together to make that sauce, and I will put in a quarter of a cup of sugar, then I beat it up thoroughly, and that

makes the sauce for the chocolate pudding. You can use any kind of sauce. Sometimes I use an ordinary pudding sauce, one even tablespoonful of flour, a cup of water, two-thirds of a cup of sugar, and flavor as I like, and that makes a very good sauce for this pudding, but this makes a very, very nice one.

Now, the steamed chocolate pudding is ready to serve.

Question—Do you boil the egg sauce for the chocolate pudding?

Mrs. Jones—No, I do not, just beat the eggs and then stir in the sugar and vanilla.

Tapioca Pineapple.

Recipe.

You can put in any kind of fruit you please. Soften tapioca and use two parts fruit to one of tapioca. Sweeten to taste.

I will now prepare the tapioca pineapple—minute tapioca. Another kind of pudding you can make is apple tapioca, by putting two layers of fresh apples and tapioca which has been soaked, or apricots can be used, dried apricots are much better than the canned ones after soaking twenty-four hours so they will be tender like new apricots, canned pineapple, maybe canned berries, can be used to very good advantage; they are very delicious, indeed, and in the fall when you have plenty of peaches, tapioca and peach pudding is very good, so you have a long list of these to make. I shall butter the bottom of this dish. Minute tapioca, as you know, needs only a little soaking and while it is being soaked the pineapple will be opened. I will use four tablespoons of the tapioca and I will put on half a cupful of water to it, stirring it until it is just warm, I do not want it to be hot, but I would like it to be warm.

This comes in slices. I take my knife and cut it into small pieces. Cut right across all the pieces at once and then in just a little while you will have them all cut up. I want them in as small pieces as is convenient.

Question—Do you ever use the shredded pineapple?

Mrs. Jones—Sometimes I do, but I do not like it as well as I do the slices.

Question—Do you drain the juice from the fruit when you are using your own canning for the tapioca?

Mrs. Jones—No, I use all the juice in that. You will notice I used quite a little water besides and softened up the pineapple, because I want this to be quite soft and I want all the juice that I can have with it.

This is very sweet, so I do not have to put in a great deal of sugar, I shall put in some, but not a great deal. This is hardly enough yet.

Question—How much pineapple do you use?

Mrs. Jones—I am going to use about half of a little can and the four tablespoons of tapioca, and that will serve at least five in an ordinary family. I do not know whether it would serve five people or not at my table, because there are several farm hands. It depends a little upon your dinner, and so on, on how much you have. The tapioca has taken up all the water.

I like to put this in a buttered pan, because it slips out so much easier, and nobody likes to wash a dish after there has been tapioca in it unless it has been well buttered, it is a great nuisance to stick, so I put enough butter in to make it real greasy.

This tapioca, which has softened up, I shall put in layers, a layer of tapioca first and a layer of pineapple and sugar, not very much, because this pineapple is very sweet. Perhaps in the main a tablespoonful of sugar will be ample, then I will put on another layer of tapioca. I am going to have pineapple on top, because I

want the juice and the fruit right on top of my pudding.

I want the tapioca spread over it just as well as I can. If I am using apple, I cover up the dish, because the apple needs so much more cooking, but the pineapple or the home canned berries will not shrivel up and become hard and dry as the apples will if not covered. Sometimes I cover it and let it brown down a little.

Question—Do you use more water with the tapioca?

Mrs. Jones—No, I used the four cups of water and then there was juice enough with the pineapple so it looked juicy enough. It wants to look sort of creamy as it goes into the oven. When it comes out I want it to be almost running off the spoon. It will be something like gumbo.

Question—How long do you bake the tapioca pudding?

Mrs. Jones—It should be done in a half an hour. When the tapioca looks clear it will be done.

The pineapple tapioca should be served cold with whipped cream, or you can use ordinary cream on it, but as I said, the whipped cream goes farther every time. I sweeten the whipped cream just a trifle.

Date Pudding.

Recipe.

Two eggs, one-half cup sugar, four tablespoons flour (even), two teaspoons baking powder, one cup nut meats, one cup dates. Bake in mild oven from twenty to thirty minutes; it should not be in the oven more than thirty minutes. It should be just a nice delicate brown when it is finished.

For the date pudding that I am going to stir up, I have a cupful of dates cut up fine and I want a cupful of English walnut meats. This pudding is just as good as candy, it is as dainty and sweet, I would rather have it than most candies; once in a while I think it is nice to have this sort of thing.

When I make this I take the nuts into my fingers and shave them with a knife, (I do not like them put through the grinder,) it shaves them in sort of long chunks, so you will eat them just as you do a piece of candy, or cake perhaps.

The two eggs beat up well with the sugar and flour. I mix the flour and the sugar, then beat up the eggs and beat them in. You know if you are going to use the sugar and flour and want to put wetting on them, if you will stir the two together you will never be troubled with lumps where you are going to use flour and sugar.

Question—You do not separate your eggs, do you?

Mrs. Jones—No, they are beaten together.

Question—Is it necessary to roll the dates in flour?

Mrs. Jones—No, I mix the flour right up with the sugar, then stir the dates and nuts right in together.

Question—What kind of nuts are they?

Mrs. Jones—These are English walnuts I make it sometimes with hickory nuts and I like it better, but you cannot always get them. Many people have them at home over in central Wisconsin and I tell them this is better with the hickory nut meats than it is with the English walnuts.

It just makes a soft dough and it should be put in a very mild oven. I spread it out in the pan. You will be surprised to see what a funny way it will rise in the pan, it will be all lumpy on top. It will get a pretty brown if the oven is right.

This is to be served with whipped cream. It must be cooled before it is served.

Chocolate Sauce.

Recipe.

Two squares chocolate, one cup sugar, one-half cup milk, one cup water,

two even tablespoons flour, a dash of salt, one teaspoon vanilla; cook until smooth.

I want to put on the stove some material to make hot chocolate sauce for ice cream. I will put it in the double boiler and have it cooking in short order.

I will put in two squares of chocolate. I want to cut them up just a little, just as I did before, not grate them fine, but cut them so they will not be in large chunks, then I will add a cup of sugar, a half a cup of milk, one cup of water, two even tablespoons of flour stirred in the sugar, and that goes right in, a dash of salt, and one teaspoonful of vanilla.

This sauce should be sent around the table in a pitcher. Serve your ice cream and then the hot sauce in a pitcher, and everybody can serve his own then.

Frozen Desserts.

I want to talk just a little bit about frozen desserts for summer. I find that there is no dessert in the summer that is so easily made, so easily served and so much appreciated in hot weather as frozen dessert. I have a big ice cream freezer and a good big ice house. I live on a farm ten miles from town and we put up a good big ice house for this winter, so I shall have all the ice I want, and I expect to make a good many frozen desserts this summer, as I did last. I can make a frozen dessert before I have to have it ready for dinner or supper, or both, and I usually get it in the can before the men go off to the field and let them do the turning. The men can do it in just a little while.

If you do not want to use cream, and we do not want to all the time, it is not good for us to eat frozen creams all the time, then when butter is thirty cents a pound even the farmers who have cream think it is an extravagance to use cream all the time, use milk, it makes a very good frozen dish; milk and sugar and lemon juice, or orange juice, or you can strain in currant juice when you have it, or currant jelly, or any of those things. The milk should be warmed, as we have to make the sugar dissolve, then put it in the freezer and add your fruit.

I like a mixture made with two eggs to a quart of milk, then you can put in nuts or fruit, or anything that you have. You can press out strawberries or raspberries and put the juice in, or in strawberry time you can take equal parts of cream and milk and mashed strawberries, sweeten to taste, I cannot tell just how much, they vary so in sweetness, but a good general rule is a cup of sugar to a quart of milk to put into the freezer. Do not be afraid to try things in your freezer. Those of you who have ice, use a great many frozen things, they are good for us in the summer and they are very easy for the housewife.

This afternoon I have brought a little ice cream and will serve it with the hot chocolate sauce. It makes a very much heartier dish than the plain ice cream, and sometimes, like in haying time, the men will be glad to have a simple dinner if they can have a good, big dish of ice cream with hot chocolate sauce on it. The sauce will give them good, wholesome oil which would be supplied with the hot meat, and the ice cream will cool them off.

This is plain vanilla ice cream. I think it will have to go around very rapidly, because it will be melted the first thing you know.

While it may not be that I have given you your "just desserts", I hope I have given you some that will help you to be comfortable and happy in the days to come.