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Can You Cut Wheat Production Costs?

*Economists Say That Cost of Production Must Come Down;
Ove F. Jensen Tells You How in this Article.*

ECONOMISTS believe that the coming year holds more of promise to the farmer than the past, because either the price of farm products must rise or the price of commodities purchased by the farm must decline still further. Even though the first of these probabilities should occur, it is doubtful whether we shall ever see \$2.20 wheat, barring unforeseen contingencies. In fact, President Jardine of the Kansas Agricultural College, makes the statement that wheat in the next few years must be produced at \$1.00 per bushel. He goes further in saying that the man who cannot raise wheat at less than one dollar had better stop producing wheat. Wisdom suggests that the 1922 wheat crop be produced on this basis—\$1.00 per bushel—cutting the costs wherever possible.

It is not always easy to reduce the costs, but all the signs indicate that every means must be taken to lower the cost of producing, not one acre of wheat, but one bushel of wheat. In this statement is implied the fact that higher acre cost does not necessarily increase the cost per bushel. This is admirably illustrated in some cost-accounting work by the Farm Management Department of the Kansas Agricultural College on sixty typical wheat farms in 1918.

Rotation of Yield and Acre-cost to Cost Per Bushel.

Yield per Acre.	No. of Farms.	Aver. Yield. Acre.	Aver. Cost. Bush.	Aver. Cost. Acre.
Fifteen bushels or less.....	12	13.31	\$1.90	\$25.62
Fifteen to twenty bushels.....	35	17.95	1.47	26.67
Twenty bushels or more.....	13	22.28	1.21	27.82

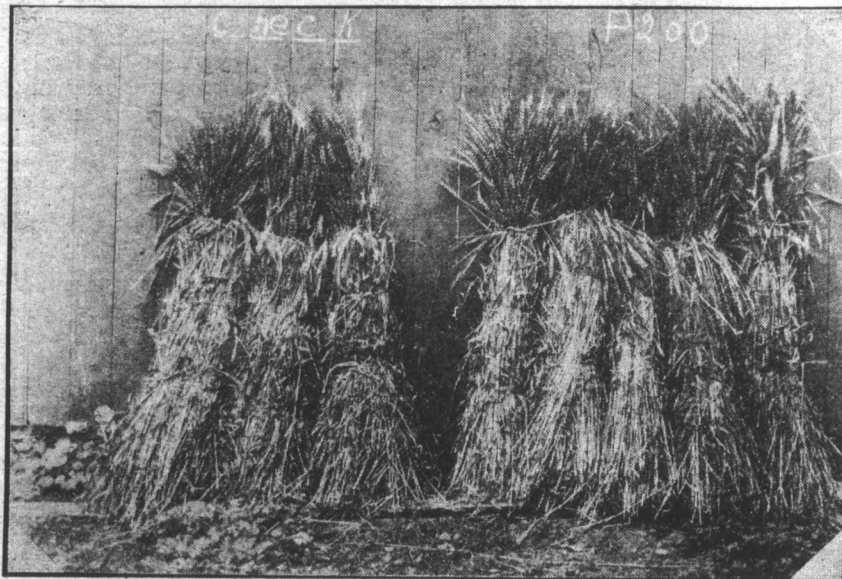
The cost of producing twenty-two bushels per acre was \$2.20 per acre more than where the yield was thirteen bushels, but the bushel-cost was reduced from \$1.90 to \$1.21.

Reduction of costs does not imply the omission of such practices as are known to be consistent with good farming. For instance, it may cost a

few cents an acre to treat the seed for smut, or it may cost a dollar an acre more to use a better variety of wheat, but the increase will far more than pay for the additional expense.

ence of several pounds per bushel. The quality of the wheat resulting through the use of fertilizer grades higher and commands a higher price.

The Michigan Experiment Station



Two Hundred Pounds Acid Phosphate to Acre Increased Yield Nearly 10 Bu.

Likewise the expenditure of two to five dollars per acre for fertilizer may prove highly profitable. The proper

has conducted many experiments on the use of fertilizers with striking results, both in increased yield and improved quality. In a test in Cass county, lime alone gave 8.26 bushels, while lime and complete fertilizer produced a yield of 23.2 bushels. In Kalamazoo county the following results were obtained—no treatment, 28.07 bushels; 200 pounds acid phosphate per acre, 38.03 bushels. Another test in Cass county compared acid phosphate with complete fertilizer, and resulted as follows:

Lime and acid phosphate, 24.11 bushels; lime, sodium nitrate and acid phosphate, 30.26 bushels; lime and complete fertilizer, 31.61 bushels.

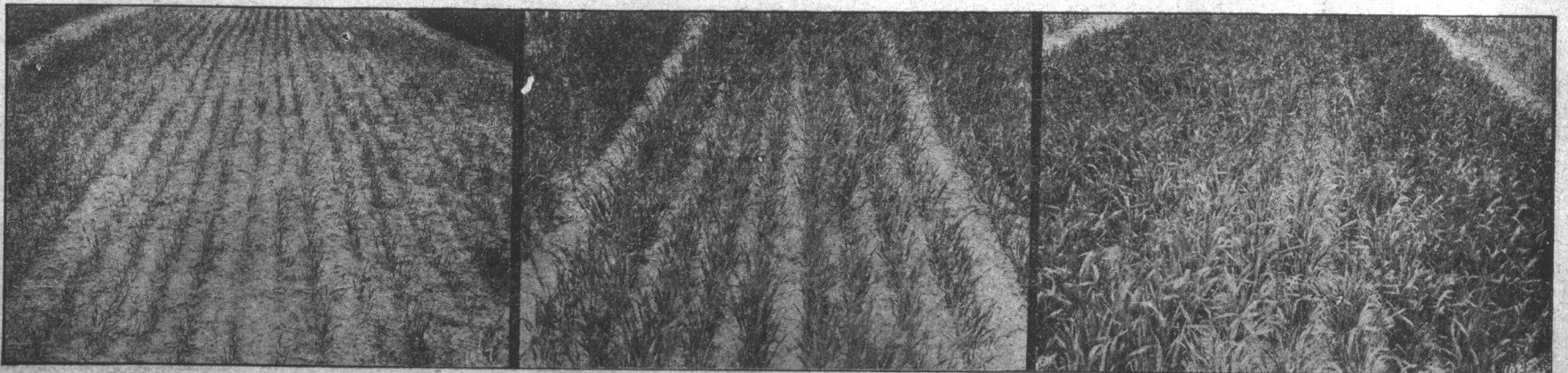
The Hessian fly is a serious prob-

lem in some sections of the state. It is well known that wheat growing in rich fertile soil withstands Hessian fly attacks much better than that growing in poor soil. Out of this knowledge has come the practice of sowing at a safe date, and fertilizing to make stronger wheat that is better able to withstand the attacks of the fly. To put it simply, the fertilizer acts as a crop insurance against excessive fly injury. The best example of this may be found in the famous Ohio five-year rotation experiments at Wooster, Ohio. Plots in this experiment are now in their twenty-eighth year. The years 1895, 1896, 1899, 1900, 1901, 1911 and 1912 were what is known as Hessian fly years, in which the injury from this pest was serious. In most of these years the unfertilized wheat was a total failure, or not worth harvesting. The average yield was three bushels per acre. On the plot receiving complete fertilizer the average yields for these same years was 14.6 bushels—an average increase for the fertilizer of 11.6 bushels. In eighteen non-Hessian fly years the average increase due to fertilizer was 13.0 bushels per acre.

Rain, dry weather, Hessian fly infestation—any one of these may cause delay in seeding. Fertilizer, by giving the young wheat plants a quick start, makes up for lost time, and produces heavy tops, and more extensive root systems, which protect the plants from winter injury. On an average, one out of every ten acres sown to winter wheat in the United States is each year abandoned on account of winter injury.

The effect of fertilizer on maturity is usually marked. Fertilized wheat ripens earlier, which often prevents injury from rust, scab, or other diseases. Finally, the residual effect on clover is often more than enough to pay for the fertilizer. Clover is won-

(Continued on page 100).



The Ohio Experiment Station Long-time Tests, the Three Most Famous Wheat Plots in the World. To the Left, Plot 1, no Treatment; Center, Plot 2, Acid Phosphate; to the Right, Plot 17, Complete Fertilizer.



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DETROIT, JULY 30, 1921

CURRENT COMMENT

The Growth of Farm Mortgages

THE publication of the new census figures on farm mortgages has excited a great deal of press comment, in which the editorial writers have analyzed them from many and varied points of view. These figures show that farm mortgage indebtedness in the United States has increased from \$1,720,172,851 in 1910, to \$4,012,711,213 in 1920.

As is the case with most statistics, these figures can be used in support of many theories, depending upon their application. One thing which they should prove conclusively to the often misguided urban resident, is the evident fact that the farmers of the country were not war profiteers, and that the comparatively high range of prices which they enjoyed for their products during the war period did not compensate for the handicap of the added cost of production incidental to that period.

But the story of this increase in the farm mortgage indebtedness of the country is not complete without a knowledge of how the money was expended, which knowledge statistics do not afford us. No doubt a considerable percentage of this increase represents purchase money for land bought by new investors in the industry during this period. A great deal of farm land has been purchased by city business men and speculators all over the country during the ten-year period covered by these figures, and a large percentage of this class of investors borrowed money on this available security to use in other lines of business. In other cases established farmers increased their holdings of land to some extent, as is apparent from the reduction of the number of farms in most states, including Michigan. In still other cases the money has been used for improvements, which were more costly than ever before, but which may have increased the earning power of the land so as to make the investment a profitable one. There is a marked parallel between the percentage of increase in mortgage indebtedness and the increase in farm land values, which was 117.6 per cent during the same period.

From a sound economic standpoint, assuming that the money represented by this increase in mortgage indebtedness was used for investment purposes rather than to liquidate current expenses, the loss to the borrowers, if loss there be, will accrue to them in the shrinkage of values which has oc-

curred since these loans were made, or which may occur before they are paid. As a matter of fact, this proportion of increase in indebtedness is probably far less than the increase in commercial obligations during the same period, and it is a fairly safe bet that the borrowers have more liberty bonds as a liquid asset than have any like number of commercial debtors. The increase in farm mortgage indebtedness should be looked upon as one of the results of inflation, rather than as an evidence of a permanent decline in the economic status of American agriculture.

The Best Nitrogen Factory

MUCH interest has been shown in the agricultural possibilities of the new process of manufacturing nitrates,

through the fixation of atmospheric nitrogen by an electrical process. This interest was revived by the proposition that the government should operate the large factory built at Muscle Shoals, Alabama, by the federal government for the manufacture of nitrates for war purposes, for the production of nitrates to be used for fertilizing purposes. It has again been revived by the proposal of Henry Ford to purchase the Muscle Shoals development from the government under contract to operate it as a fertilizer plant and hold it as a reserve source of supply for the government for one hundred years.

While there is no question regarding the desirability of the use of chemical nitrogen for special purposes in the growing of crops, yet as a main dependence the general farmer in

Michigan and other sections of the country has right at hand the best possible and most economic factory for the manufacture of needed nitrogen right where it is needed for the use of succeeding crops. Nature has made a wonderful provision to this end in the power given to leguminous plants through the bacteria for which they act as host to fix atmospheric nitrogen in the soil while producing a profitable forage crop for their grower. Every farmer knows this, but in too many cases their soils have gotten into an acid condition which is unfavorable for the development of the nitrogen-fixing bacteria. Their nitrogen factories are "down," to use the commercial term to designate an idle factory. They should be put into commission again at the earliest possible date by the use of lime and green manure crops where needed. This is undoubtedly the best investment which any farmer can make who finds that the clovers are failing to "catch" well on his land. It will pay to go to considerable expense for soil correctives and chemical fertilization to accomplish this result, which is possible of accomplishment on every soil where legumes have been successfully grown.

THE WOOL TARIFF.

THE present tariff bill as passed by the house is far from satisfactory to wool growers. Like the skirting clause in the Payne-Aldrich bill, the thirty-five per cent ad valorem proposition is the disturbing element. This means around three and a half cents per pound on quarter-blood wools.

At the present time seedy, burry quarter-blood wools are being bought

in South America at seven cents per pound. This wool can be scoured and carbonized in Germany and Austria and laid down in the United States for twenty cents per pound, scoured basis. The duty of not to exceed thirty-five per cent ad valorem would make the tariff on this wool three and a half cents per pound.

To understand how this is done one has but to note the value of the pound sterling in our money. Three dollars and fifty-eight cents will purchase a pound sterling, of \$4.83 face value, or at a discount of twenty-five per cent. The \$3.58 sent to South America will buy sixty-nine pounds of wool because seven cents per pound is divided into \$4.83 and not into \$3.58, which would be fifty-one pounds bought at the same price here. So the transaction starts in with eighteen pounds more wool from South America. With this advantage, and wages measured in our money, of seventy-five cents per day, we are in no wise protected by the proposed tariff.

This same situation is approximately true of every European country. Where the exchange is not at a parity European countries are not particularly worried about our tariffs as long as the exchange neutralizes the duty we levy.

There is now on hand enough wool to last two years in the United States, and as the emergency bill extends only until late this fall, there is strong possibilities that we may have a period of free wool. This will be the opportunity for more foreign wool to come in. If the delay in passing the tariff bill occurs, or if it is not given immediate effect, then the imports will be enormous. It should be the business of the senate to amend the tariff bill as it came from the house and make a flat rate per pound on wool of eleven to fifteen cents per pound without any limitation by ad valorem duties. The emergency tariff met no emergency in wool because foreign wools were brought in and the damage was already done.

The inadequate protection afforded by the proposed tariff bill will be of little benefit to the sheepman. So great is the resentment that a meeting of wool men has been called by the American Farm Bureau to meet in Chicago August 2, and make a fight for just treatment.—J. N. McBride.

News of the Week

Wednesday, July 20.

ONE thousand convicts in the western Pennsylvania penitentiary started rioting and set fire to prison. Eight were killed in an effort by the guards to quell the riot.—Sixteen-year-old Brooklyn boy will recover after having four stitches taken in his beating heart.—Henry Ford's railroad, the D., T. & I. reduces freight rates twenty per cent.—Payment on Michigan soldiers' bonus has started. Checks will be mailed at the rate of one thousand a day.—Bureau of Labor report shows that employment conditions improved during June.—Five are victims of the Ku Klux Klan in Texas.—A sudden clap of thunder caused the revival of shell shock symptoms in Oklahoma soldier.—The city commission of Bay City wipes old blue laws off books.

Thursday, July 21.

REPORTS from Tokio indicate that Japan is about to evacuate Siberia.—Philadelphia police department makes successful experiment with a gas to quell mobs. The gas leaves no bad after effects.—Over 45,000 applications for patents were filed at Washington during the first six months of this year.—The Michigan legislature repeals auto headlight law requiring special lens.—The recent census reports show that there are one hundred and ten men to every one hundred women. It also shows that the negro population has increased two hundred and fifty per cent since 1910.—Deck officers of ships sailing under American flag take fifteen per cent reduction in wages.—Kalamazoo county sheriff's report shows thirty times as many men as women criminals.—The cost (Continued on page 102).

Detroit Area Dairymen Meet

A MASS meeting of delegates from locals of the Michigan Milk Producers' Association in the Detroit area was held in Detroit on Friday, July 22, with a large attendance. The primary purpose of calling the meeting was to permit the representatives of one of the large distributors to present a plea for the lowering of the July price to meet the conditions with which they are confronted in the way of reduced consumption and consequent surplus. This plea was first made to the officers of the association who refused to consider it on the ground that the contract now running to the end of October was entered into by agreement with the distributors, on the latter's suggestion as to the period for which the contracts should run, after they had refused to go ahead on the plan of having the price fixed from month to month by the milk commission on the plan which had been followed for the past three years. The officers of the association agreed, however, to call the mass meeting and give the representatives of this distributor a chance to present their plea to the producers direct.

Messrs. Kennedy and Dessert appeared for the Detroit Creamery Company, the only distributors who made a plea for a change in the contract terms. They failed to convince the delegates present, just as they had failed to convince the officers of the association that the terms of the contract should be changed, the opinion of the producers being unanimous on this point.

Michigan Dairy Company Plans Discussed.

The plans previously noted in these columns for the establishment of a model factory for the manufacture of fancy dairy products, probably at Adrian, with the idea of later establishing other similar factories around the outside of the Detroit Milk shed were then taken up, and further explained by President Hull, of the association,

Helmer Rabild, dairy expert formerly of Michigan, and for many years with the Dairy Division of the United States Department of Agriculture, under whose supervision the plans are being developed, and Attorney Gittings, under whose guidance the plan of incorporation was developed.

Mr. A. J. Glover, editor of Hoard's Dairyman, was present at the meeting and made a powerful plea for the development of a chain of high-grade factories about the Detroit area as a means of developing a degree of independence on the part of the producers of milk and enabling them to make a fair bargain for the production of market milk in future years. He cited the history of the dairy development in the Elgin district, which was one of prosperous development so long as the local factories were maintained and changed to an era of discouragement and difficulty when these factories were allowed to decline and there was no other outlet for the market milk supply. He called attention to the fact that the milk producers of Wisconsin have no such market problem to solve, on account of the great number of cheese factories and creameries in the state.

Hon. Milo D. Campbell, president of the National Milk Producers' Association was also present, and told the delegates what his organization has been doing to secure adequate protection for dairy products in the new tariff bill. Mr. Campbell and his associates have also been active in promoting the Volstead bill which will permit collective bargaining.

Before closing the session, the delegates adopted a resolution condemning the manufacture and sale of filled milk as a milk substitute and favoring the Fordney bill, which would license the manufacturers of this product and impose a tax on same. They also endorsed the plan for the establishment of a factory at Adrian, to be the first of a chain about the Detroit milk shed by a practically unanimous vote.

What Natural Sciences Do for Farmers

By R. S. Shaw, Director Michigan Experiment Station

THOUGH the soil is the basis of the support of all animal and vegetable life, it has been generally regarded by those who have not studied it as an uninteresting inanimate substance devoid of scientific interest; on the contrary, however, fertile soils are veritable laboratories teeming with myriads of living organisms of great variety, many of which aid directly in the production of available plant foods. These same soils during the growing seasons especially become active natural chemical laboratories producing results beyond comprehension. Then the science of physics has an important relationship to the physical condition of the soil, which the farmer may influence and in some measure control, and which may materially stimulate or retard, both chemical and bacterial activities. To those who give the matter little thought, chemistry, bacteriology, physics and entomology have little significance in their relationship to agriculture. Hence we propose to summarize briefly the results achieved at the Michigan Agricultural Experiment Station by its workers in these sciences since the time of its establishment in 1887.

What the Bacteriologist Has Done for the Michigan Farmer.

A specially trained bacteriologist, Dr. C. R. Marshall, was the first in this profession to become associated with the work of the veterinary department of the station about 1896. The work at first included investigations relating to animal diseases, particularly tuberculosis and several problems relating to dairying. Two or three years later, however, a bacteriological department was established and in 1903 a commodious laboratory was erected and equipped until it was unexcelled in the country.

The first publications of results appeared in 1887, four bulletins in all, by the end of that year. Up to the present time the bacteriological department has published over sixty bulletins giving results from the investigation of a great variety of problems relating to agriculture. Twenty of these bulletins related to tuberculosis of cattle and fowls, contagious abortion, hog cholera, and foot-and-mouth disease, etc., and were referred to in the second series of articles.

As already intimated, bacteriological investigations are basic to the solution of soil fertility problems. The initial bulletin by Marshall, No. 139, dated 1896, was entitled "Bacteria—What They Are, What They Do and How They Are Cultivated." This has been followed by over twenty bulletins giving the results of investigations relating to dairy problems including the following, viz.: Ropiness in cream and milk, bacteria and the dairy, pasteurizing milk, a popular discussion of pure milk supply, gassy curd and cheese, aeration of milk, care and handling of milk, discussion of the milk problem from the standpoint of production, practical use of starters, associative action of bacteria on the souring of milk, lactic cultures for dairy purposes, keeping qualities of butter, cream ripening, pasteurization and the influence of certain acid-destroying yeasts upon lactic bacteria.

Several bulletins presented the results of investigations relating to soil fertility and fertilizer problems and were mentioned in the third article of the series. Other subjects reported on included the following, viz.: Some essential soil changes caused by micro-organisms, solvent action of soil bacteria upon insoluble phosphates of raw

bone meal and natural raw rock phosphate, bacterial action in soil as a function of grain size and moisture content, nitrogen-fixing bacteria, pure cultures of bacteria for alfalfa and other legumes. As early as 1912, the bacteriological department was making and supplying nitro-cultures to farmers at a cost of about twenty-five cents for sufficient material to treat one bushel of seed. This action gave the farmer protection against the commercialist who was then charging

at the rate of \$2.00 per acre, or over thirty times as much.

Still other lines of bacteriological investigations included: Bacteriological diseases of plants prevalent in Michigan, influence of the products of lactic organisms on bacillus typhosus, bacterial diseases of the June beetle larvae, study of heat resistant organisms in cold-packed canned peas, vinegar making, etc.

Dr. C. E. Marshall, the founder of the Michigan Agricultural College Bac-

teriological Department, continued in charge until 1912. His name appears on no less than a dozen and a half of the bulletins during his period of office.

In times past many people have been inclined to associate botany with the study of flowers only, something attracting mainly the fairer sex and those devoted through fancy to the specialty. On the other hand, however, botany, through its important branch of plant pathology (plant diseases) has become a science of great importance to the farmer by way of affording means of relief from diseases of his field crops, orchard and small fruits, garden plants and even roots and tubers grown in the soil. The farmer is now confronted with plant diseases more or less frequently in connection with everything he grows.

For purposes of illustration: The wheat, oats, rye and barley crops in Michigan last year totaled 84,647,000 bushels; the losses to which these crops may be subjected in a single year may rise in fields or localities to as high as twenty per cent from smuts alone, depending on seasonal conditions and lack of treatment for prevention. The pathological botanist after investigating these disease organisms has given to the farmer methods of prevention easy to apply if he will but use them. Between 1892 and the present, no less than seven bulletins relating to prevention of grain smuts were issued accompanied annually with suggestions in the press. Michigan has long been one of the leading bean producing states of the country; during years of unfavorable weather conditions the losses run high from bacteriosis and anthracnose. Pathologists of the department of botany have spent much time investigating these two diseases and published their findings in 1914 and 1917. The problem is still unsolved in part.

Michigan is a great potato state. Last year's crop was reported at 35,700,000. Many people rely on this crop as their principal source of revenue and yet tops, stems and tubers are menaced in their growth by many forms of plant diseases. The Michigan Agricultural College plant pathologists have long been busy investigating potato diseases and disseminating information relative to their control and prevention. Several bulletins have been issued, most notable among which were two by Dr. Coons on Michigan Potato Diseases. The spray calendars distributed annually have nearly always contained information relating to the prevention of potato diseases.

Michigan is noted for orchard fruit production with the following rating compared with other states, viz.: All orchard fruits, third; apples, second; peaches, fifth; pears, third; plums ninth; cherries, fourth; grapes, third; and small fruits, fourth. Almost without exception these horticultural products are subject to possible attack from plant diseases which may cause great loss. The plant pathologist of the botanical department is the scientist who investigates and has produced so many valuable preventive or control measures. For more than two decades the botanist, entomologist and horticulturist have either singly or in cooperation furnished to the farmer and fruit grower, the latest information relating to spraying. Michigan grows a very large variety of crops, fruits, vegetables, roots, tubers, nursery stocks, flowers, etc. All of these are subject to the ravages of plant

(Continued on page 103).

Farmers' Auto Tour Plans

By J. H. Brown

WHEN the tourists gather in the George B. Horton meadow on his large and fine farm at Fruit Ridge, on Sunday afternoon, August 7, it will be a wonderful sight. Besides over seven hundred and fifty tourists there will be several thousand people in southern Michigan who are planning to meet us there on Monday, August 8, for a big Grange and Farm Bureau Celebration. The mayor and city officials of Adrian, the Adrian Chamber of Commerce, under the leadership of Secretary Sletten, will join with us in the day's program and the Adrian City Band will play all day. In fact, that city and Lenawee county will be our hosts, and our tour official chairman of the program committee, George B. Horton, will act as chief mogul, master of ceremonies and host-in-chief to us all.

This great automobile tour camp on the Horton Farm will stand for some time as the most unique and enjoyable agricultural round-up ever held in the country. Brother Horton was Master of Michigan State Grange for eighteen consecutive years and is one of the most prominent and beloved of Michigan's progressive and energetic farmers.

The afternoon program on Monday at the Horton Farm will be somewhat varied in detail and topics. Brother Horton will preside and will be assisted by Master A. B. Cook, of the State Grange; Burt Wermuth of the Michigan Farmer, and Mrs. Dora H. Stockman. There will be three or four moving picture machines in the tour all along the route, and they will be in operation Sunday and Monday evening at Fruit Ridge.

When the cars drive into the Horton camp they will line up into three sections facing the camp square, an open space sixty-six feet wide and three hundred feet long. The front of the camp will be on the south end of the meadow and back of the Fruit Ridge Grange hall, and a few rods northwest of the Horton Farm resi-

dence. The right and left sections or wings will have four rows of short stakes, each row parallel, thirty-three feet apart and each row three hundred feet long. Stakes in each row will be twenty feet apart, thus giving that much space frontage along the row for each car, tent and equipment.

At the rear of these rows will be a driveway thirty-three feet wide crossing at a right angle to the rows in the right and left wings. Back of this driveway will be four rows, each thirty-three feet apart and 280 feet long. Stakes in each row twenty feet apart. Cars in the rear section or wing will face directly to the south.

On Monday morning, August 8, the Adrian officials have arranged to send out to our camp a milk wagon, ice wagon, and a big gasoline tank truck. This plan will be followed all along the route. We have prepared official grocery and meat order blanks in pads for each car in the tour. Orders will be made out and sent ahead to the committee in charge at the next camp. When we reach that camp the delivery truck will stand in the center of the camp waiting for us. Each car owner will have his name and car number on his order blank and this will be wrapped with his package so that he can quickly get his groceries and meat and start dinner in short order.

The tourists can arrange with the folks at home to receive their mail in camp along the way. Mail should reach the Cleveland post office by Thursday morning, August 11, and be addressed to "General Manager Michigan Farmers' Automobile Tour." Instructions for later delivery will be given the tourists at the Horton Farm.

There will be a number of contests during the tour and valuable prizes will be awarded. Prizes range from \$5.00 to \$75.

The tour windshield records will be sent to car owners before the time of starting. There is still room for a few more cars.



Fruit Ridge Grange Hall where Auto Tourists will Hold Celebration.

LATE AGRICULTURAL NEWS

FRUIT GROWERS PLAN AUTO TOUR.

THE Michigan State Horticultural Society has planned its annual auto tour to take place in Mason and Oceana counties, August 3-4, where there are some very interesting fruit sections. Some of the best fruit growers in the state live in these counties and a visit to their farms will prove interesting and instructive. These counties also report very good crops of fruit, an unusual thing this year.

The tourists will assemble at the Graham experimental fruit farms at Grand Rapids at noon, Tuesday, August 2, for lunch. At two o'clock they will leave for Shelby and other points in Oceana and Mason counties. Wednesday will be spent in Oceana county and Thursday in Mason.

FILLED MILK INVESTIGATION.

A REPRESENTATIVE of a filled milk concern, with several plants in Michigan, asserted that while only eight million pounds of butter-fat were replaced with coconut oil last year, in the production of filled milk, if left unhampered the business will grow to vast proportions. The inevitable result will be, as one congressman pointed out, that there will be an over-supply of butterfat on the market, forcing down the price of butter, and condensed whole milk will be crowded out of the market by the cheaper filled product.

AGRICULTURAL CONDITIONS INVESTIGATED.

OPEN sessions of the joint commission to investigate the condition of agriculture closed on July 16, since which time several executive sessions have been held. Some interesting statistics were given during the hearing by Dr. Friday of the University of Michigan on the banking situation and the purchasing power of the farmers. It was shown by Dr. Friday that in 1899 the value of the product per person employed in agriculture was \$340; in 1909, \$550 and in 1919, \$1,540, while the value of the product per person in manufacturing in 1899 was \$930; in 1909, \$1,100, and in 1919, \$2,500. All persons in agricultural pursuits over fourteen years of age were counted. In manufacturers' salaried clerks, laborers and owners who work in the business were included in making these estimates. The banks, both state and national, earned an average of ten per cent on total capital since 1870.

FORD NITRATE PLANT PROPOSAL.

THE proposal of Henry Ford for the utilization of the Muscle Shoals nitrate plant has completely discredited the claims of the nitrate interests that the plant at Muscle Shoals is of little commercial value. Mr. Ford offers to buy the plant for \$5,000,000 and take a one hundred year lease on the dam when completed, at \$1,500,000 a year. He proposes to manufacture agricultural fertilizer, limiting the profits to eight per cent, an independent board embodying representatives of the American Farm Bureau Federation, the National Farmers' Union and the National Grange to certify the maximum.

Mr. Ford's proposition has been transmitted by Secretary of Commerce Hoover to Secretary of War Weeks, and the matter is being investigated by Secretaries Hoover, Weeks and Mellon. Since Mr. Ford's proposal was announced, Secretary Hoover says

that a number of chemical and power companies are considering the Muscle Shoals proposition.

LETTING ALFALFA GO TO SEED.

HOT, dry weather has made conditions especially favorable for alfalfa seed production, and while in the past the sacrifice of the hay crop has not been justified, many growers are taking advantage of the opportunity for harvesting seed this year.

In response to inquiries Professor Cox has advised that enough acreage be allowed to go to seed to furnish an

ample supply for plantings on individual farms next spring. From two to four bushels may be expected where a heavy bloom is noticed, he says. However, it has not yet been demonstrated that alfalfa seed production is on a commercial basis in Michigan.

"The unusual success of alfalfa during the last several years, combined with present market conditions for general crops, makes it appear advisable for Michigan farmers greatly to extend their plantings of alfalfa," says Professor Cox. "This is particularly true on soils which were hard run during the war years."

Farm Bureau Elevator Exchange

A Michigan State Farm Bureau Elevator Exchange as a commodity organization, to be operated in affiliation with the State Farm Bureau instead of as a department, was voted July 19 by delegates representing ninety-three member elevators at the first annual meeting of the organization, held at the Michigan Agricultural College.

The action was taken in accordance with the commodity control plan adopted by the State Farm Bureau at its third annual meeting early last February and was the direct result of joint recommendations made July 12, 1921, by the State Farm Bureau executive committee and the elevator exchange board of control.

Other changes made by the delegates in the rules and regulations governing the exchange provided that the elevator organization shall hereafter be known as the Michigan Elevator Exchange and that the board of control shall be increased from seven to nine members and shall be known hereafter as the board of directors. Principal offices of the exchange shall continue to be located in Lansing.

With the increase noted in the board of directors, it was decreed that eight of the directors should be elected by elevator members and that one should be appointed by the State Farm Bureau, all to serve for two years except four delegates elected in 1921 to serve for one year.

Directors were elected at the meeting and they in turn organized by re-electing James Nicol, of South Haven, president of the Elevator Exchange,

and re-electing Carl Martin, of Coldwater, as secretary: W. E. Phillips, of Decatur, a strong Elevator Exchange man, was elected vice-president. The directors are as follows:

Two years, M. R. Shisler, of Caledonia; W. E. Phillips, of Decatur; B. H. Ellis, of Albion; George McCalla, of Ypsilanti.

One year, Herb Horton, of Kinde; Carl Martin, of Coldwater; John Nicolson, of Marlette; Jacob Landis, of Scottville. James Nicol, of South Haven, president of the State Farm Bureau, represents the farm bureau on the board.

New rules and regulations for the exchange provide that the president, vice-president and secretary shall constitute the executive committee of the exchange and shall have the active management of the business affairs of the exchange in the interim between the regular quarterly meetings of the board of directors, subject to such limitations as the board may impose on the committee.

The executive committee shall meet at Lansing on the third Tuesday of each month at the exchange office in Lansing. Secretary Martin has authorized Secretary Brody, of the State Farm Bureau, to act as Michigan Elevator Exchange secretary during Mr. Martin's absence from the Lansing office.

Resolutions addressed to Michigan members in congress asked defeat of a proposed senate amendment to the Capper-Tincher grain marketing bill which would prevent all but dealers in contract markets from enjoying the

leased wire market quotations service. On July 12 the State Farm Bureau executive committee adopted a similar resolution charging that the amendment is an attempt to cut the throats of cooperative marketing associations by withholding from them legitimate marketing information.

Another resolution, similarly addressed, asked for a high tariff on beans to protect Michigan growers from Oriental competition. It was referred to the board of directors for correlation with the State Farm Bureau resolution asking for retention of the present emergency tariff rate on beans of two cents per pound. It is understood that the house ways and means committee has raised the proposed one and a half cents proposed permanent tariff to one and three-fourths cents.

NEW PROFESSOR OF ECONOMICS AT M. A. C.

IN response to a growing demand from farmers that marketing be emphasized in the agricultural course at M. A. C., John Truman Horner has been appointed associate professor of economics, effective with the new school year. He will have complete charge of courses in marketing, relieving Hale Tennant, extension specialist, and H. M. Eliot, professor of farm management, who have given instruction in this subject in the past.

Mr. Horner, since February 1 of this year, has been conducting special research for the United States Department of Agriculture, investigating "deterioration as an element of food marketing cost," in New York City. He is a graduate of Oklahoma State University and of Oklahoma Agricultural and Mechanical College. He has served as field agent for the Oklahoma State Market Commission and as instructor in accounting at Columbia University.

SUMMER GRANGE RALLIES.

AT the beginning of the year the Michigan State Grange organized an extension department and have been putting on a campaign to extend and influence the membership of the grange throughout the state. One feature of this campaign is a series of twenty-six regional meetings so located as to be within driving distance of every farm home. These meetings will be in the form of picnics or rallies held during the month of August. Each meeting will be attended by the State Master, A. B. Cook; State Lecturer Dora H. Stockman, and a speaker from the National Grange.

Conference of grange officers will be held at eleven o'clock at each meeting. Program in the afternoon. Ball games and other sports will close the day's outing. Problems of vital interest to farm people everywhere will be discussed at these meetings. Everybody is invited.

Following are the dates and locations of meetings:

- August 3, Ithaca.
- August 4, Caro, (fairgrounds).
- August 5, Flint, (Thread Lake Park).
- August 6, Armada, (fairgrounds).
- August 8, Fruit Ridge.
- August 9, Centerville.
- August 10, Berrien Springs.
- August 11, Battle Creek, (Willard's Park).
- August 12, Wall Lake.
- August 13, Lowell.
- August 15, Fruitport.
- August 16, Reed City.
- August 17, Tanner.
- August 18, Traverse City, (fairgrounds).
- August 19, Charlevoix (park).
- August 20, Gaylord.
- August 22, Alpena.
- August 23, West Branch.
- August 24, Pinconning.
- August 25, Coleman.
- August 27, Sault Ste. Marie.
- August 29, Manistique.
- August 30, Powers.
- August 31, Crystal Falls.
- September 1, Baraga Grange Hall.
- September 2, Marquette.

News From Cloverland

By L. A. Chase

GOGEBIC COUNTY FARMERS WILL HOLD PICNIC.

GOGEBIC county farmers plan the biggest picnic ever, to be held on the Ironwood fair grounds early in August. It may be held on a Sunday to insure a large attendance. Speakers from the Michigan Agricultural College and elsewhere are to be in attendance.

A SUCCESSFUL COW-TESTING ASSOCIATION.

THE Gogebic County Cow-testing Association has completed its year's work, and Mr. Gunderson advises that the practice of keeping account of each cow's output, which has featured the work of this association, should be maintained. The association has a goodly number of cows, reports the agent, which have yielded over two hundred and fifty pounds of butter-fat in the year. A less number have gone better than three hundred and fifty pounds, and a few four hun-

dred and fifty pounds during the past year. It is deemed wise that cows not reaching the two hundred and fifty pound mark should be got rid of.

CLOVERLAND WILD BERRY CROP.

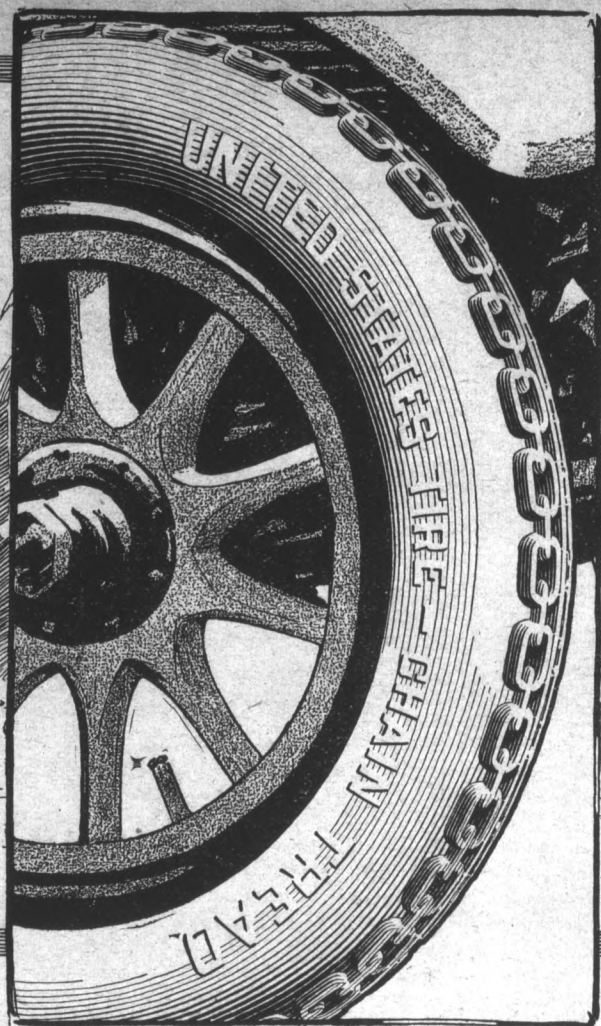
THE Calumet Chamber of Commerce is certain that a new canner for the canning of wild berries grown in that vicinity, is to be established there this summer, says the News. Containers have been ordered in quantity and operations are due soon. The upper peninsula produces enormous quantities of wild berries—red raspberries, blueberries, strawberries, and what our people commonly call the "thimble-berry," but what the botanists style the "salmon-berry," or the "white flowered raspberry,"—the latter not found in southern lower Michigan. At Calumet berries will be bought directly from the pickers, whoever they may be, and paid for immediately in cash, it is stated. They will be handled at specified re-

(Continued on page 101).

The U. S. CHAIN TREAD

One of the few tires of which it may be said that they deliver economy year in and year out and tire after tire.

The U. S. Chain Tread gives sufficient traction on all ordinary road surfaces. It is probably the handsomest, and by all odds the most popular, of the whole U. S. Fabric Tire line.



Whose business is it to see that you get service and economy out of your tire money? How do you as a car-owner judge tire values?

Car-owners often come to U. S. Tires after they have paid too much for experience elsewhere. After a few seasons of dickering in "bargains" and "discounts" they at last find satisfaction and economy in the *quality first* of U. S. Tires.

You'll always find a U. S. Dealer selling a U. S. Tire with every confidence in his product. Full conscious of the value you are getting and *deserve*. Knowing that U. S. Tire makers stand behind every U. S. Tire with an iron-clad policy of honest manufacture and selling methods.

United States Tires are Good Tires

U. S. USCO TREAD
U. S. CHAIN TREAD
U. S. NOBBY TREAD
U. S. ROYAL CORD
U. S. RED & GREY TUBES

United States Tires

United States Rubber Company



Fifty-three
Factories

The Oldest and Largest
Rubber Organization in the World

Two hundred and
thirty-five Branches

Fruit and Poultry Problems

INFLAMMATION OF THE EYES.

Can you tell me what causes blindness in young chicks? I have a flock of about 700, last May hatch, and have had several that would act sleepy at first, then a film would come over one or both eyes. At first there was no swelling or inflammation; head would be pale but no odor or pus. Later the eyes closed entirely.

Branch Co.

H. E. T.

Chicks may have inflammation of the mucous membrane of the eye and we believe it is usually caused by dusty litter or some foreign body striking the eye. In such cases washing the eye with a boracic acid solution might bring relief. If the chick is in the condition long it soon becomes devitalized and it is probably best to kill the bird and prevent further suffering.

Blindness in chicks is often caused by respiratory infections which soon spread to the eye. Then treatment would be the same as for colds and roup. Usually the chicks that go blind are those that are weak and of less value than the average of the flock. It pays to remove them promptly from the flock and destroy them if their condition will make treatment of little value.—R. G. K.

RASPBERRY VARIETIES.

I would like to put out a half acre of raspberries and want to know if it is too late to do it this year? Also, what variety of black raspberry is best adapted for this state?

St. Joseph Co.

T. J. B.

You are wise in planning to set out the half-acre of raspberries, as raspberries make a profitable early-season crop, but it would be advisable for you to wait until next spring before setting the plants.

Transplanting cannot be done successfully unless the plants are dormant. If you would endeavor to transplant berry bushes at this time, they would lose all of their foliage and would very likely die from the lack of moisture. If they should pull through the season, they would be so stunted that it would take a year for them to recover. It would be a good idea for you to get the ground in good shape this season and set out your plants next April or May.

The most popular blackraspberry is the Cumberland. The Gregg is also a very good variety, but it is covered with a white bloom which detracts from its appearance. The Plum Farmer is one of the newer varieties which is rapidly gaining popularity. However, if you are new in the business and do not want to experiment with new varieties, we would advise you to set the Cumberland as it will undoubtedly give you better results than any of the other varieties mentioned.

THE ROSE BUG.

Please inform me as to the best way to get rid of the Rose Bug. They have troubled my grape vineyard for a number of years, eating the bud and blossoms at blossoming time. Also where their eggs are laid, what becomes of the old bugs, and what attracts them to different parts of the vineyard each year?

Kalamazoo Co.

M. W. J.

There are two common ways of controlling this insect, the one being the hand-picking of the bug, and the other by the use of a poison. Various poisons have been tried and the following has proven the most effective: Eight to ten pounds of arsenate of lead to one hundred gallons of water to which one gallon of molasses has been added. The molasses is added to attract the bugs. Without this sweetening, the use of the poison has not given very good results.

Besides the grape the rose bug attacks apples, pears, plums, blackberries, raspberries and strawberries. It

also does damage to the rose and many of the wild trees, such as the sumac, elder and white thorn. The beetles emerge from the ground about the time the grapes are ready to blossom, which is usually early in June. They remain on the vines from ten days to two weeks and then migrate to other plants then in blossom. When the female deposits the eggs, she borrows into the ground from three to six inches. She usually lays about twelve eggs at a time, or a total of about thirty-six during the year. Most of the eggs are deposited during the latter part of June or early in July. The female usually selects light sandy soil in which to deposit the eggs. The eggs hatch in two or three weeks. The grubs in hatching are about one-eighth inch in length and feed on decaying vegetable matter in the soil. Later they attack the roots of various grasses. They become full grown by November at which time they descend to a depth of about a foot to spend the winter. The full grown grub generally resembles the common white grub of the June beetle.

If the beetles are very bad, a second spraying within a week may be necessary. Cultivating the vineyard while the insect is still in the pupal stage late in May and early in June has proven of value in keeping the bug in control.

CAPONIZING ROOSTERS.

Can roosters of a year old be caponized, and where can I get information and instruments for this operation?

Ottawa Co.

L. C. B.

We would not advise the caponizing of roosters a year old. If a cockerel is six months old, the operation of caponizing is a dangerous one and does not accomplish the purposes that caponizing is intended to accomplish. The meat of a rooster a year old has all of the characteristics of rooster meat, which cannot be entirely overcome by caponizing. Instruments for caponizing may be purchased from manufacturers, or from any large poultry supply house. Full instructions regarding the operation are included with each set of instruments.

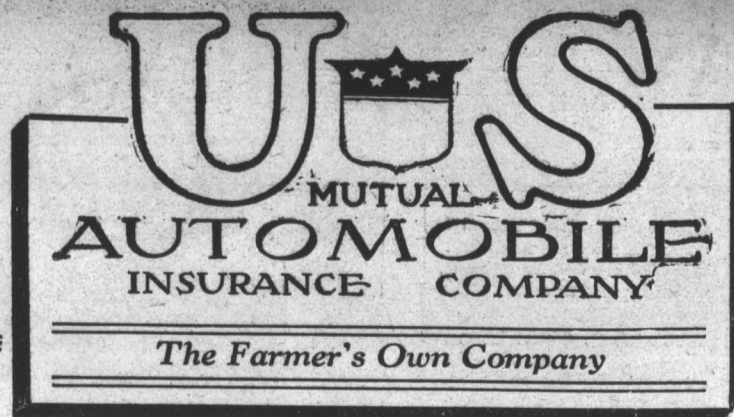
CARE OF MUSKMELONS.

I have two acres of muskmelons, three vines in a hill and six feet apart, which are doing well. Should I pick off part of the melons when they start, or what should I do to get the best results? I have sprayed three times with a prepared spray. Is it necessary to spray any more?

As your melons are doing so nicely we doubt very much the advisability of changing your method of caring for them. If you were to pick off the early melons, you would be destroying the most profitable ones, as the early melons are the ones which bring the highest price. You have plenty of plants in a hill, but the hills are set farther apart than usual so that I do not think you will have any bad results from crowding.

I think it advisable for you to continue spraying until within about a month of ripening time as it is quite essential for good results to keep your vines free of the common melon insects and diseases. Prepared sprays are good and will give you desired results, though it may cost a little more than the home-made sprays, it is more convenient. With continued good care we are sure that your melons will turn out as well as the prospects indicate.

The M. A. C. entomology department finds that the second brood of codling moth is three weeks early this year. Start spraying immediately if you haven't sprayed already.



The Other Fellow's Luck

He was one of Michigan's first farmers to purchase an automobile. And—until one fateful instance—any thought of accident was his most remote thought because, as he answered when reminded of driving hazard:

"Why borrow trouble? Haven't I driven for years without mishap? I buy cars to enjoy—not to continually worry about."

But the Inevitable Happens

He was recently motoring with his family to a nearby town. The roads being particularly good for a stretch, he decided to speed up a little. Directly ahead of him was a Ford Sedan, whose driver was apparently bent on keeping the lead. Suddenly—without warning—the Ford's left front tire blew out, causing excess strain on the steering rods. Its driver, who had been holding the center of the road for safety, did not have sufficient time to warn the farmer, whose car crashed into the Sedan. The Ford was over-turned and badly damaged and the farmer's car wrecked about the hood and fenders, only a miracle sparing the occupants' lives.

The Ford Was Insured

The collision was proven unavoidable, but the Sedan's owner had wisely insured his car against unexpected hazard, while the ordinarily careful farmer was compelled to pay out \$200 for repairs.

A U. S. FIVE POINT POLICY

would have PROTECTED him, just as it is protecting thousands of other farmers today. The FULL COVERAGE NON-DEDUCTABLE POLICY that positively guards you and your car against:

- 1--Fire 2--Theft 3--Collision
- 4--Property Damage
- 5--Liability

For only \$1.00 per Horse Power plus the small annual membership fee of \$1.00. The insurance that is based upon the just settlement of all reasonable claims.

If your car isn't insured, don't take further risky chances. Driving is too hazardous today.

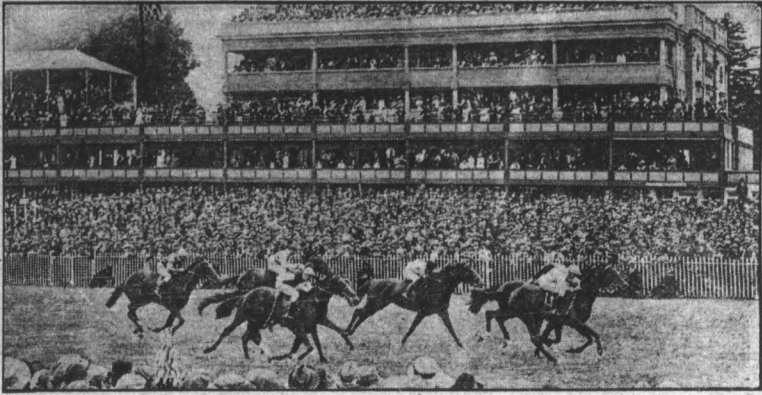
Just drop Col. A. H. Gansser, Bay City, Michigan, a postal at once and learn interesting facts about U. S. FIVE POINT POLICY PROTECTION, without in any way obligating yourself.

U S Mutual Automobile Insurance Company

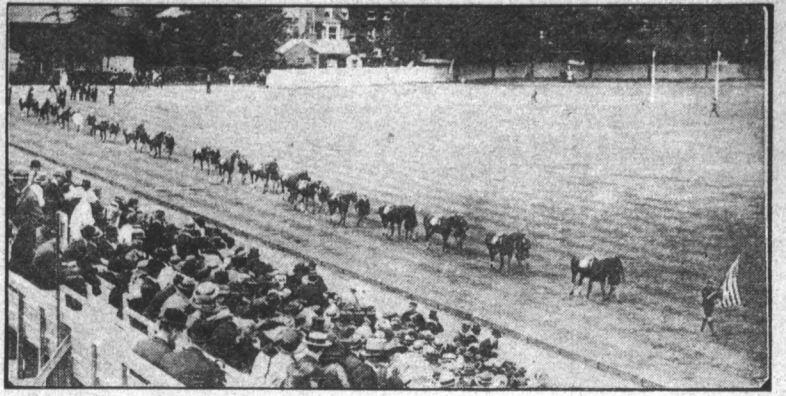
Executive Office
Grand Rapids, Michigan
Colon C. Lillie, Pres.

Home Office
Bay City, Michigan
F. F. McGinnis, Sec. and Treas.
Col. A. H. Gansser, Director and Gen. Mgr.

WORLD EVENTS IN PICTURES



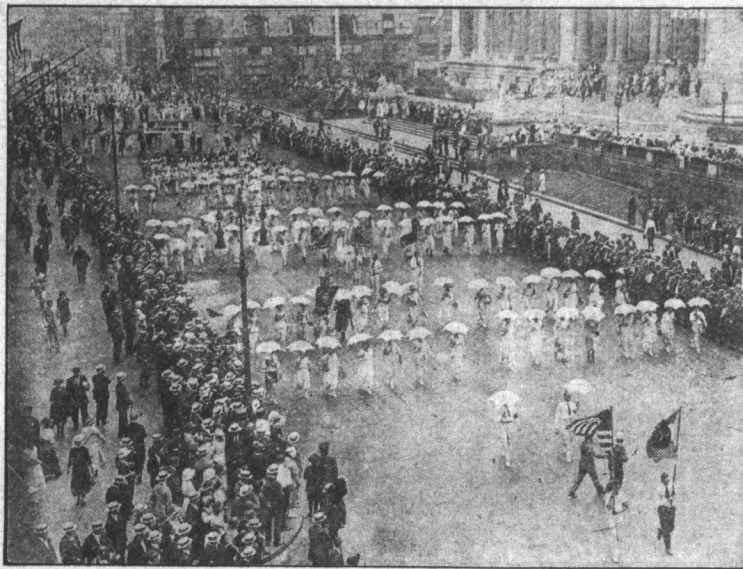
The Kings of England and Spain, and other notables, see Astor horse win at the Ascot races.



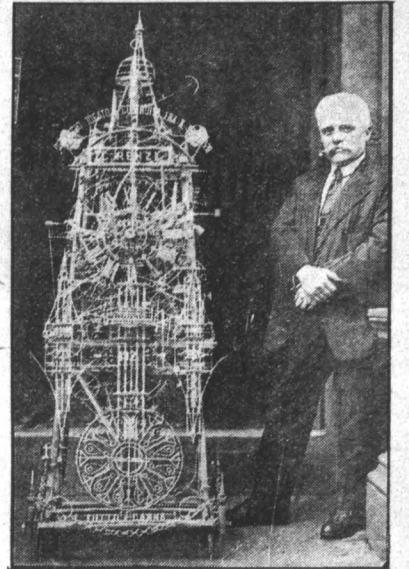
Parade of polo ponies before the international game in England, in which America won the trophy.



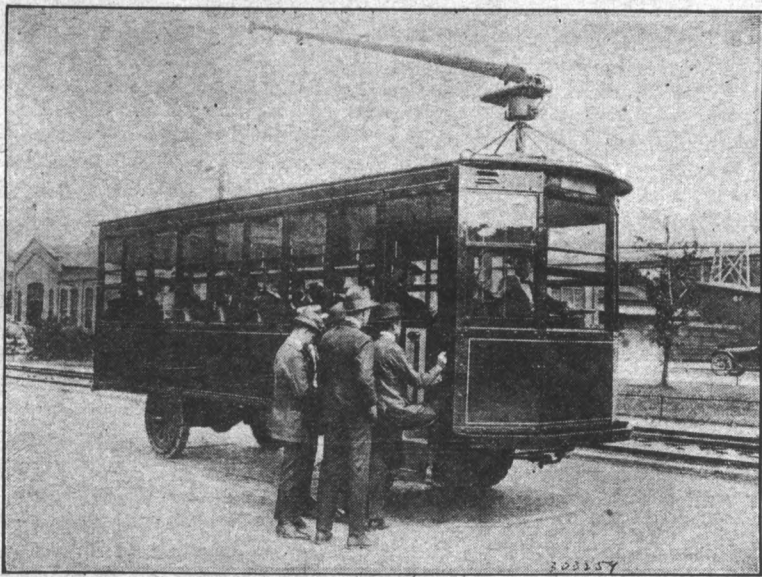
Leading batsman of the American League, Harry Heilman, Detroit.



15,000 Christian Endeavorers march in parade on Fifth Avenue, New York, during the recent convention.



Accurate clock made of bamboo, took three years to make.



A trackless trolley car that runs like auto bus, except that it gets power from wires above.



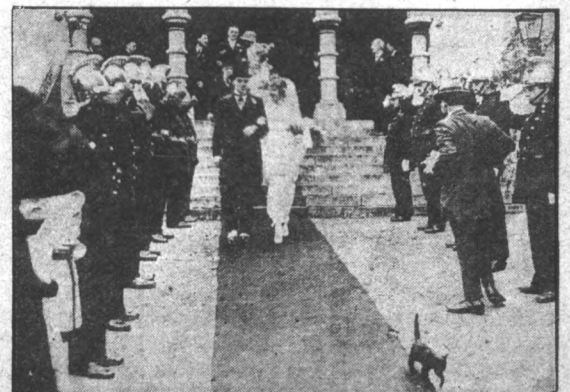
Mrs. William Moller Gilbert wins numerous honors for scientific attainments while raising a family of ten.



The landing of the Pilgrims is enacted at ter-centenary celebration.



"Stubby," mascot of the American forces, wins honors for heroism..



Black cat crosses path when Lloyd George's son gets married.

THE CLAN CALL

By HAPSBURG LIEBE Copyright 1920, Doubleday, Page & Co.

The twelve men filed slowly in and faced the judge, who turned austere eyes upon them and asked:

"Gentlemen of the jury, have you reached a verdict?"

They had. Elizabeth Littleford's head swam as she bent forward to catch the foreman's words—

"Not guilty!"

A wild shout rose from the leathery throat of the happy By Heck. The Morelands and the Littlefords cheered until they were hoarse. Sheriff Tom Floyers had difficulty in quieting the tumult. Bill Dale shook hands until his shoulders ached. The Balls and their relatives, bitter with resentment and hatred, stole out, were given their rifles, and went toward the big hills with the eye of the militia hard upon them.

Then the Morelands and the Littlefords and the Hecks, with Dale and his mining man Hayes, came out, and they, too, started for the big hills.

Dale had hired a horse and a side saddle for Ben Littleford's daughter, and the two rode in each other's company on the journey home. When they were well into the mountains, Dale drew his horse over close to that of his companion.

"As soon as I can build and furnish—" he began, when Elizabeth interrupted:

"We're ridin' too fast. We're too much ahead of the others. One o' them Balls might try to pick you off with his rifle gun."

"Not much danger of that," Dale replied. "The Balls have already been warned about sniping; your father told them that their very name would be scoured off the earth if there was any sniping. They would never attack the combined force of your people and the Morelands; even their white liquor couldn't make them do it. Besides, By Heck is acting as advance guard somewhere ahead of us."

He continued, "As soon as I can build and furnish a little house out near the mine, I want you to marry me, Babe. Will you?"

Elizabeth Littleford seemed not to have heard.

"Will you, Babe?"

She faced him sadly. He saw in her hazel eyes the same queer light of tragedy that he had seen there a day or two before; and now, as then, he wondered what it could mean. He rode still closer to her, and put his arm about her waist, and kissed her almost savagely. It was sweet to him—very, very sweet to him.

"Tell me, Babe!"

Her head fell forward. The sunlight found glints of gold in her thick chest-

nut-brown hair. She was silent for a moment; then her voice came dully:

"I'd better not marry you, Bill Dale."

Dale sat up straight and rigid in his saddle and stared hard at her solemnly beautiful profile. He could hardly believe that he had heard correctly. He knew she loved him. She had told him that she loved him. Then why wouldn't she marry him?

Often he had heard the old saying that to change her mind is woman's first privilege; often he had heard that women were never understood by men. He tried to reason it out, and the attempt made his brain ache; he was unable to reason. He knew only that she was all of the future to him, all of the world to him, and—that she had refused to marry him.

They rode silently along the winding and tortuous laurel-bordered mountain road, which led ever upward. When they were within two miles of home, Dale went suddenly white and caught her almost rudely by a wrist.

"Is it Jimmy Fayne?" he demanded hotly.

She gave him a reproachful glance and said nothing. He flung her hand from him angrily. His grey eyes were as cold as steel, and his jaw was set hard.

Dale did not speak again until they had entered the broad valley that was home to him. Somehow he felt limp now. The great wave of anger had passed.

"I guess you are too good for me," he said. There was weakness in his voice, and it was the first weakness she had ever known in him. He went on, and in tones so low that she barely heard:

"I'm a plain, rough, everyday sort of fellow, and you—to me you are the finest and most beautiful woman in the world. And I hurt your wrist! I can see it's still red. It was the savage in me, the primitive cave man streak that I could never account for. May the hand that hurt you wither."

"A letter from my mother told me that Jimmy had stopped drinking on your account. Be careful that he doesn't get back to it. His father drinks, and his grandfather drank himself to death; he has an inherited thirst, if there is such a thing. Jimmy is a capital fellow, I guess; but—if you let him get back to drinking, he's lost. And so are you."

Dale spoke with a certain piteous gentleness in his voice toward the last. Elizabeth noted it, and it was iron to her soul.

"Will you always think of me as the finest and most beautiful woman in

the world?" she asked.

"Always."

"It's the best I can hope for," murmured Elizabeth.

"What do you mean?"

"It's the best I can hope for," Elizabeth repeated as though she were talking to herself.

They rode on in silence.

There was no sleep for Bill Dale that night. The sweetness of his liberty had all been taken away by Babe Littleford's refusal to marry him. He became bitter toward her again. She had been exceedingly unfair to him: while she really loved him, she was going to marry Jimmy Fayne because he had so much money. She was ungrateful to him: it was through him that she was being educated, being lifted out of her uncouth and illiterate self and set on a higher social and intellectual plane. All he had ever heard of the so-called unfathomable mystery of womankind he now believed, and more. All this, of course, was unworthy. But Bill Dale was intensely human, and to be human is to be unworthy.

It turned cold that night. A little before noon of the next day, By Heck, with a pair of bright red suspenders lying like twin streaks of fire over his faded cotton shirt, stepped into the Moreland Coal Company's office. Heck was inordinately proud of these suspenders, because they were so red and because Bill Dale had given them to him.

"I've got 'em on, ye see," he grinned, setting the butt of his rifle carefully between his toes.

Dale looked wearily up from his littered desk.

"Yes," he replied irritably, "I can easily see that. You're going without a coat, and half freezing, for the sake of showing those suspenders. I am very much obliged to you for shooting Adam Ball, By."

"It's hell, Bill, ain't it?"

"What?"

Heck leaned over and rested his knotty hands on the muzzle of the inevitable rifle.

"Whatever it is you're grievin' about o' course. Babe Littleford she went back to yore home town this mornin', Bill. Sort o' quare, I thought, 'at you never went with her over to the Switch. Sort o' quare, too, 'at she never rid over on the little ingyne instid o' walkin'. But mebbe she was afeard o' gittin her fine city clo'es all smutted up. Say, Bill, old boy, I wisht, I may drap dead in my tracks ef you don't look like a corpst. It haf to be bad, or you wouldn't grieve about it. 'Smatter? Babe?"

Dale rose. He put his hands on his hips and glared at By Heck.

"I'm going to have the truth, By; now get that. Did you, or did you not, kill Adam Ball to save me?"

By Heck realized that he would have to be very cunning if he evaded the question now. Bill Dale, his god, would not be put off longer.

So By Heck answered: "I wisht I may drap dead this minute and turn into a cross-eyed mink with a green tail and pink eyes; I wisht the devil may take me and spend ten thousand eternities a-stickin' red-hot, pepper-pepper-coated pitchforks in me and not let me have any tobacker; I wisht I may be struck blind and deaf and dumb and paralyzed and ha' my tongue cut out and my ears and toe-nails wore off—ef I killed Adam Ball to save you or anybody else."

And then, having answered, he favored Dale with an odd look, took up his rifle and strode out of the office humming:

"When I die don't bury me deep
Put no tombstone at my head and feet
Put a bear's jawbone in my right hand—"

"But he's the biggest liar in the state," muttered Dale, turning back to his desk.

He closed his desk, and he didn't work any more that day. Babe Littleford had gone without even bothering to tell him good-bye.

(Continued next week.)

WASTED ENERGY.

BY LEROY W. SNELL.

"I aim ter keep it goin'."

Ter me says Uncle Alf.

And every night he wound the clock
Upon the mantelshelf.

No matter if his rheumatiz

Was twitchin' in his knee.

At half-past eight he'd mount a chair
And fumble for the key.

For nine long years he wound it
Every night, but what a shock
He got when finally he found out
It was an eight-day clock.

AN OLD-FASHIONED WORD ANY WAY.

A certain humorist said he objected to young women being called "skirts," as in these days of short skirts there isn't sufficient reason for using that name.

A FOREIGN VIEWPOINT.

After a Swede had made a trip through this country he was asked what he found to be the outstanding American characteristic. He said: "I think Americans love lazy."

—By Frank R. Leet

AL ACRES—Slim's Solution of the Problem Would Mean More Solution in the Boat.



A Community-Building Book

Our Weekly Sermon—By N. A. McCune

A FRIEND of the writer, Dr. A. E. Holt, has recently published a small book, "The Bible as a Community Book." It has less than one hundred pages, but there is more in it than in many books of three times its size. The view of the Bible that is presented is a one-sided view, but one of the greatest importance. There is no claim that this phase of the good book covers the whole ground. But it is a phase that few of us have thought of, and it explains many things. It is of particular interest to farm folk.

The Bible opens with scenes of the soil. The descendants of Abraham were owners of flocks and herds. There were no cities, scarcely any towns. But for four hundred years the people were serfs. Many of them were slaves. It is good to live on the soil, but it is not good to be a slave. The longing for independence was fired and organized by a wonderful leader. Moses was the real founder of the Hebrew nation. They leave Egypt to enter the "Promised Land." There the people continue to own sheep, cattle and asses, but they develop more and more into tillers of the soil. They live a simple life. Again there are no large cities. Each clan owns its property in common, and a man is known by being a member of the clan. He is a member of the tribe of Judah, Benjamin, or some other. The people are united and led very largely by religious leaders, the prophet Samuel being the greatest of the early heroes, after the day of Moses and Joshua. At this point the people desire a king, and a king is chosen, a big, magnetic, upstanding man, Saul. All his days Saul, and, after him, David, are what may be called democratic kings.

BUT when Solomon comes almost everything is changed. The people more and more tend to dwell in the towns. City life gets an impetus. The king lives in unexampled luxury. The book of I Kings tells the story, with absolute frankness. It is the pathetic story of the decay of a great people. "Solomon had twelve officers over all Israel, who provided victuals for the king and his household; each man had to make provision for a month in the year." "And Solomon's provision for one day was ten fat oxen, and twenty oxen out of the pastures and a hundred sheep, besides harts and gazelles and fatted fowl." "And Solomon had forty thousand stalls for his horses and chariots, and twelve thousand horsemen. And King Solomon raised a levy out of all Israel; and the levy was thirty thousand men." This latter looks very much like conscript labor, with a certain system of bosses, three thousand of them, to oversee the work. The simple, hardy, freedom-loving folk of the hills and valleys, whose fathers owned their flocks and herds, are oppressed, taxed beyond endurance, and subjected to virtual slavery. Can this continue? Not forever. The moment Solomon is dead, the people come to his son and ask him to reduce the taxes and introduce a bit of the old democracy. He is too stupid to see the danger that lurks in their request and gives them a contemptuous reply. From that day the nation is split in twain, the northern kingdom has its king and the southern kingdom its king. They are never reunited. And in division there is weakness.

AS the years go by, and the centuries, the tendency toward the concentration of wealth and power in the cities becomes more marked. Rich men buy up the farms and keep the

people on the farm to work them. The country districts become more impoverished, while the families of wealth live more and more in idleness, luxury and wickedness. The country folk are largely a peasant class. Against this tendency, the Hebrew prophets raise their voice as one man. They are the defenders of popular rights. The great prophets are for the people and against the aristocracy. The first of these is Ahijah, who secretly anoints a king to oppose the one on the throne and urges Israel to revolt from Judah. But the most picturesque of the prophets is Elijah. The scene where he denounces Ahab for murdering Naboth and seizing the dead man's vineyard is immortal, as is the scene on Mount Carmel. In both instances the prophet is taking the people's part and is fighting autocratic privilege. The same is true of the great prophets that follow—Amos, Hosea, Isaiah and Micah. They are against monopoly, against the centralization of wealth, against the seizing of natural resources by the few. To build a nation at the top while it decays at the bottom is folly. Such a nation cannot endure. "Woe to them that plan mischief on their beds and work out evil; as soon as morning breaks they put it into execution, for it lies in the power of their hands. They covet fields and seize them, houses, and lift them up. So they crush a good man in his home, a man and his heritage."

What the prophets predict happens. The nation is invaded and has not strength to resist. The people are carried away, Jerusalem is left as an ash heap behind. In the fifth century B. C., Nehemiah comes with a permit from the Persian king, to rebuild Jerusalem. Nehemiah is one of the great community builders. First, he gives the people a vision, and turns their eyes toward a common purpose. Next he reorganizes business, putting it on a just basis, and finally he inspires the whole community with the religious motive. The people understand that they are building the city for the glory of God. And there is no other motive on which a civilization can be permanently built.

THE centuries pass, and Jesus Christ appears. He is the world's greatest community builder. He plans his community on a world scale, and builds it on good will. Society cannot exist if men suspicion one another. Love is the only foundation that will endure. "This is my commandment, that ye love one another." But also, we must have this love for those who may not be of our class, or nation, or of our "set." When his mother and his brethren came one day, calling for him, he asked, "Who is my mother and who are my brethren? And looking round on them that sat round about him, he saith, Behold my mother and my brethren! For whosoever shall do the will of God, the same is my brother, and sister, and mother." Jesus called the community he came to build, the Kingdom of God, or the Kingdom of Heaven. He said that a man ought to sacrifice anything he had, even to leaving his parents, for the sake of his kingdom. "Seek ye first the kingdom." This small volume would be of great value to use in Bible classes, during the fall and winter. And do we not agree with its presentation of Bible truth? If our rural population decays, will not the whole nation decay with it? Can we exist if the farmer is not prosperous, and just, and farming is not honorable? And are we not still building on the foundation Christ laid? Society as He planned it is the only society that can endure.



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*Wouldst thou know thyself, observe the actions of others.
Wouldst thou other men know, look then within thine
own heart.—Schiller.*

Woman's Interests



After the Eighth Grade, What?

By Mrs. Clark H. Hull

I SPEND much time thinking about you, little girl, of fourteen or sixteen, you have finished the eighth grade with flying colors, as your dearest girl friends have become freshmen in the local high school. But your parents do not see how they can spare you or the money with which to send you. You can not understand why they can go on to school and have such "glorious times," while you must remain at home "doing the dishes" three times per day. Tears will fill your eyes at times in spite of your effort to be brave. You see, I know what you are thinking for I was a little girl just like you not so many years ago. As I was so dreadfully unhappy and made so many blunders before I finally become adjusted to my proper place in the scheme of life, I hope that I may help you ever so little.

After the first cruel disappointment has worn off a little you begin to wonder if there is not something that you can do, since high school is out of the question. You have not the slightest intention of letting Mae or Dora lose sight of you, why, your grades were even better than theirs). This is what I did to some extent, though I want you to go much farther than I did. Mothers usually have a lot of sympathy for daughter's real or imaginary grief, so if you are willing to assist her all you can mornings and evenings, she will gladly allow you to attend the country school this winter. The teacher will loan you her old algebra, English Literature or any text book she has. You will derive a lot of benefit from a careful study of these books with a little assistance from the teacher. The review of the grammar school subjects will require only a little of your time every day. When the next teachers' examination is held at the county seat you go up and try that examination, even though you are too young to teach or have never cared about teaching. It will give you confidence in your ability to do things "for yourself." Mark my word, the examiners will notice your short skirts and girlish face, and if they do not come up and talk with you they must be very preoccupied men indeed.

During this time you are also helping mother in the home. Learning to cook a good meal and bake wholesome bread and pastry is no mean accomplishment and one which will serve you many times in whatever calling you choose to take up. And remember that most of us are finally destined to become wives and mothers whatever our attitude upon the subject may be at sixteen.

So if each day finds us learning something new in the home and school you may look back upon that winter as a true foundation of your future work. Ask Mae or Dora to loan you the recipes that they have used in "Domestic Science" and try them at home, also new ones found in the magazines. In nine times out of ten you will find that mother's method is much better and in the tenth you will find out something new all by your-

self. It is the things that we find out and do ourselves that help so much. When spring comes get your father to let you have a little garden of your very own, he will only be too glad to do so. There is a joy in growing things that soothes many a heartache. That garden will probably be your "hobby" for the summer and you will rise a bit earlier every morning to have a peep at the garden wet with the dew, before you begin the morning meal. Take what appeals to you,

lot of hard work is always at the bottom of real success.

I shall take up teaching first as it lies nearer the home surroundings in which you have always lived. Parents are usually more kindly disposed toward your ambitions if you can carry them out "at home." In the teaching profession you are doing a real service for humanity which I would not have you overlook. Mere salary may satisfy some but I would like to have you a positive factor for good in the



Home Economics will Probably be the After-school Choice of these Girls. They are the Champion Cannors of Saginaw County. Some of their Products Have Been Sent to the National Museum at Washington.

most, flowers, vegetables or fruit, or a little of all of them. Mine was a raspberry and strawberry garden. Only one harvest did I reap from my cherished bit of earth. Before another season had come, life had opened up such new and, to me, glorious vistas that it was all but forgotten. It became a source of joy to those left behind.

All this time you are planning upon what you will do when you are eighteen and more or less free to choose your own life. Make every little opportunity about the home serve to help you to become a useful member of society. But just one DON'T. Because I could not choose my friends among the high school students, I refused all other means of social life. I spent many hours just moping. Now if you have learned a little, read a little and played a little each day of your life, and above all, have reached the age of eighteen "heart whole" you may begin to "do something" and not just dream about it.

We wish to consider a few of the occupations open to women with a limited education such as mine was, and I assume is yours. Nearly all of the openings for women in a small town are of the blind alley sort, i. e., no opportunity for advancement in your mental self or in economic consideration. But in teaching, nursing and to some extent in a business course, a broad field opens up. In one of these three a girl of ordinary ability can succeed if she is willing to work. A

work of the world. The hours that you spend in the school room are not so long but they do use up a lot of nervous energy. But after the restless feet have started for home at four o'clock you may relax and the papers are soon corrected and lessons prepared for the next day. The salary is fairly good when you consider that your expenses are not nearly so great as those of the teacher in towns and cities. There is almost no limit to the amount of ingenuity you will be called upon to use. Sometimes you will vainly wish there was a set rule which you could follow in the many problems that inevitably come up when dealing with twenty-five or thirty individuals of various ages. To me the first grade seemed the most important and I derived much pleasure from their society. They were so eager to learn the many new things that you had to tell them. Your first check made out in your very own name will give you another pleasure. There is sure to be a generous gift for mother from that first bit of money. At the end of the school year you will have enough money to attend the summer session at your normal school. Many new experiences will be awaiting you here.

I was twenty-three before I returned to school. Many girls are through college at that age. My friends and parents thought me very foolish to spend the money I had worked so hard to earn. But that did not deter me one bit, I think it only made me a bit more determined. They could not

know the longing that had never left me for a minute. Never, I think, did the actual writing out of a check for tuition and books give more pleasure. I seemed to be living in a rarer atmosphere that year. I knew I was there by my very own effort. But I was not alone, and the many, brave girls that I met there have given me the courage to send this little message to you. Some came for only ten weeks and worked for board during the time, but they must have been infinitely richer for that ten weeks. So I would advise the country girl to try teaching for a year first of all. You can never tell whether you will like it until you give it a trial.

However, if teaching is not to your liking perhaps a course in a nurses' training school would prove more attractive. Here you are taken absolutely out of the home for two or three years. You have only a week or two every year to be at home. Your health must be very good as the work is very hard and the surroundings not always to your liking. But the country-bred girl has always known what long hours were. Some over-careful friend will say you are walking right into danger. Let not this alarm you as you are a soldier in a good cause. There is a little danger perhaps, but not enough to cause any alarm as you learn how to care for yourself. Then the probation period of two or three months gives you a glimpse of what the work is like. During this time you get the most unpleasant part of the whole course. As soon as you put on the official uniform, life becomes more interesting.

You probably know that the larger training schools require a high school education, but many of the smaller ones do not absolutely insist upon it, though it is a great help in the classroom work. A recommendation from your family doctor will be of value to you. He will also be in position to advise you of the best school in your section of the country. Go to the biggest hospital that will allow you to enter. The prestige that follows the graduates from the large schools is over half of the battle to the private nurse in her practice. Another reason why I favor nursing for the country girl is that she may return to her home surroundings when she is ready for private work. Nurses are very commonly employed in country homes now. Here the pay is exceptionally good as you probably know.

Lack of experienced advice has always been a great handicap to me. One of the biggest mistakes that I made was to enter a small, run-down school. But it was my only opportunity and it led me into the busy life of the world.

Lastly, a business course is very popular with some girls. The salary varies a great deal, the hours are not too long, and you can always do a bit for humanity in general, outside of your working hours. In this calling you are taken entirely out of the home surroundings and must live your life in towns and cities.

The Boys and Girls

ANNUAL CLUB WORK AT M. A. C.

GREEN and white caps and the "4-H" four-leaf-clover insignia of Boys' and Girls' Club work held sway upon the M. A. C. campus last week when one hundred and twenty-five lads and lassies, champions in some line of work in their home counties, were entertained by the college at the third annual club week.

They lived like a real "college bunch" while they were there, too. The boys roomed in Wells Hall, men's quarters, while the girls occupied Abbott Hall and Howard Terrace, girls' dormitories. All had their meals at the Woman's Building.

Instruction and pleasure were mingled in the week's program. At certain periods in the day the boys and girls separated and the young housewives-to-be were let in on the secrets of scientific cooking, garment making, basketry and art work, while the embryo farmers spent their time in looking over the poultry plant, farm crops experimental areas, and potato and garden plots. Evenings were given over to social times, picnics and movies. On Friday night the state board of agriculture tendered them a banquet. Saturday a visit was made to the state capital.

CALF CLUB HOLDS FIRST CATTLE SALE.

THE Ward County, North Dakota, Boys' and Girls' Guernsey Calf Club sold forty-one head of stock at its first auction sale, twenty-three cows averaging \$240 and eighteen calves averaging \$92. All the stock remains in Ward county and practically every club member retained either a cow or calf, or repurchased stock. The original bred heifers were shipped from Wisconsin in May, 1920, and purchased at an average cost of \$147. Previous to the sale the stock was judged by H. E. Rilling, of the state club office, and cash prizes were given the winners. The calf club was organized by County Agent N. D. Gorman, cooperating with the Ward County Guernsey Breeders' Association.

NUTHATCHES' LITTLE WAYS.

HAVE you ever thought that birds and animals like boys and girls have different habits? Because they have, and if you watch them carefully you will see them.

If you happen to be near some old oak trees you may see some very pretty little birds called Nuthatches. Their feathers are blue-grey, they have rather square tails and they creep up the trunk of a tree in a very curious jerky manner. They are fond of eating insects and this is how they catch them: As he goes up the tree trunk he taps on the bark. This makes the insects, who live in and under it, drop out, and then he eats them.

Nuthatches are clever, too, in the way they make their nests. First they choose a nice hole in the tree trunk, and build their nest in this but, though it is out of sight they know quite well that jays and jackdaws, who are sharp birds, will soon find out and steal the eggs if the hole is left open. So they get some wet mud and plaster it over the hole, so that it makes a nice front door.

This, of course, is a very good thing to do, but then, you see they have to go in and out themselves, so when they are covering the hole with mud they leave a tiny space, just big enough for them to get through, but too small for the larger creatures.—M. MEREDITH.

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reasonable. Write or come to see them.
HENRY S. ROHLFS, R. 1, Akron, Mich.

"Top Notch" Holsteins

Buy a "milk" Bull of Quality from the Breeders
of the world's only cow to produce 800 lbs. milk in 7
days, having an 800 lb. daughter.
Our herd is rich in the blood of Colantha 4th Jo-
hanna, the only cow that ever held all world's records
in every division from one day to one year at the same
time. She produced 651.70 lbs. milk in 7 days. We are
offering for sale a bull, whose dam exceeds this record
by over 1/4 lbs. in 7 days.

His dam's records are:
Milk 1 Day 100.1 lbs.
Milk 7 Days 659.3 lbs.
Butter 7 Days 26.31 lbs.

His name is
KING VALE CORNUCOPIA WAYNE, No. 312599

Born February 6, 1920

His dam and sire's two nearest dams average
Butter 7 Days 33.02 lbs.

Milk 7 Days 607.3 lbs.

Handsquely marked about one third white.

2560 C. F. O. B. Howell.

McPHERSON FARMS CO., Howell, Mich.

All herds under U. S. Supervision.

A Good Note accepted in payment of finely bred reg-
istered Holstein bull calves. Quality
of the best, and at prices within reach of all. Write,
GEO. D. OLARKE, Vassar, Mich.

A Proven Blood Line

KING SEGIS transmitted to his sons the power to
transmit to their daughters the greatest of produc-
tion over long periods. It is his offspring that has
recently made the greatest yearly production ever
dreamed of, 37,381.4 pounds of milk in a year.

We have for sale at moderate prices.
Beautiful individuals of show type KING SEGIS
BULLS.

GRAND RIVER STOCK FARM,
315 N. East Ave., Jackson, Mich. O. J. Spencer, Owner,
Under State and Federal Supervision

Cluny Stock Farm

Only 2 Sons Of "Maplecrest" For Sale

Old price list cut 1/3 to 1/2 for prompt sale.

No. 1. 18 mos. old—Dam 19 lbs. 3 yr. old,

next dam 20 lb. 3 yr. old. \$100.00.

No. 2. 15 mos. old—Dam 22 lbs. 4 yr. old

sister to two 1000 lb. cows. \$150.00.

No. 4. 17 mos. old—Sired by my 30 lb.

Jr. Herd Sire. Dam a 24.9 lb. 4 yr. old

daughter of "Maplecrest," with 15,850 lbs.

milk and 714 lbs. butter in a year at 3

yr. \$250.00.

Don't delay—They sell at these prices.

Pedigrees on application.

R. B. McPHERSON, Howell, Mich.

The Traverse Herd

We have what you want in BULL CALVES, the large,

fine growthy type, guaranteed right in every way.

They are from high producing A. R. O. ancestors

Dam's records up to 30 lbs. Write for pedigrees and

quotations, stating about age desired.

TRAVERSE CITY STATE HOSPITAL

Traverse City, Mich.

7 Yearling Bull Bargains

Sired by Segis Korndyke De Nijlander a 32 lb. son of
a twice Michigan ribbon winner, her dam, 29 1/2 lbs.
Dams are daughters of King Segis Pontiac, a 37 lb.
son of King Segis. Records 16 lbs. to 20 lbs. Priced
at half value. \$100 up. Federally tested June 10. Write
for list. ALBERT G. WADE, White Pigeon, Mich.

Reg. Holsteins and Berkshires, most any age, either
sex, priced according to other commodities. Write
or come. B. B. REAVEY, Akron, Mich.

FOR SALE

20 Cows of extra quality and breeding, 12 of them

bred to our \$5200.00 son of Old Repeater, also

bulls not related.

Allen Bros. Paw Paw, Mich.

or 618 So. Westnidge Ave.,

Kalamazoo, Michigan

Thumb Hereford Breeders Association

now offering some excellent young males and fe-
males of choice breeding. Can furnish one or a

carload. Priced right. Your inspection solicited.

Jas. R. Campbell, Secretary, Bad Axe, Mich.

Registered Jersey bulls, some ready for

Oxford's Champion Fox 16881, out of Oxford Daisy's

Princess. Register Merit record 831 lbs. milk; 488

lbs. butter with first calf, milked 50 lbs. per day with

second calf. Sister to Sadie's Crown Princess 16578 lbs.

milk, 1031 lbs. butter in one year. The dams of these

bulls are high producers, many of them are prize

winners. Prices very low, quality considered.

C. S. BASSETT, Kalamazoo, Mich.

BUTTER BRED JERSEY BULLS

CRYSTAL SPRING STOCK FARM

Silver Creek, Allegan County, Michigan.

The Wildwood Farm

Jersey Cattle, Majesty strain, Herd on State accred-
ited list. R. of M. testing constantly done. Bulls for

sale. ALVIN BALDEN, Phone 143-5, Capac, Mich.

Thorobred Jersey Bull Calves Hood breeding State

and Federal accredited list, \$25.00 each. Also one

yearling bull ready for service. Pedigrees on request.

I. W. JAYNE & BEN BRAWT, Fenton, Mich.

JERSEY BULLS Ready for Service. Raleigh—Oxford

and—Majesty breeding. Meadowland Farm, Water-

man & Waterman, Packard Rd., Ann Arbor, Mich.

Lillie Farmstead Jerseys Bull calves from

R. of M. cows. COLON C. LILLIE, Coopersville, Mich.

Registered Jersey Bulls ready for service from

R. B. FOWLER, Hartford, Mich.

Jersey Bulls For Sale ready for service from R. of

M. dams. T. B. tested. Will give time.

SMITH & PARKER, R. 4, Howell, Mich.

BIDWELL SHORTHORNS

that will put weight on your dairy calves—the dif-
ference will soon pay for the bull. Now selling good

Scotch and Scotch-topped yearlings, reasonably priced.

We guarantee every animal to be a breeder. Federal

Test. One hour from Toledo, Ohio, N. Y. C. R. R.

BIDWELL STOCK FARM,

Box D, Tecumseh, Michigan

Milking Shorthorns Young bulls with excellent

pedigrees from best milk- O. M. YORK, Millington, Mich.

Richland Shorthorns

We offer a few choice Scotch heifers with calves

at foot. This is good foundation stock and the

calves are all from top sires. Prices reasonable.

Write your wants and see the cattle.

C. H. PRESCOTT & SONS,

Office at Tawas City, Mich., Herd at Prescott, Mich.

The Maple's Shorthorns

Kirklevington Lad, by Imp. Hartford

Welfare, in service. Stock for sale.

J. V. WISE, Gobleville, Mich.

Shorthorns. Bull calves for sale from the

best milking blood obtainable.

ROSEMARY FARMS, Williamston, Mich.

Huron County Shorthorn Breeders Ass'n.

offer for sale Scotch and Scotch topped males and

females of all ages. 300 head to select from. For

information address Jas. R. Campbell, Secretary,

Bad Axe, Michigan.

BUY SHORTHORNS of Central Michi-
gan Shorthorn
Breeders' Association at farmers' prices. Write for
sale list to M. E. Miller, Sec'y, Greenville, Mich.

Shorthorn cow 3 yrs. old white due in Nov.
to IMP. ROYAL PIONEER.
J. A. BARNUM, Union City, Mich.

Shorthorn Bull

For sale. Fames Pride

72472. Two yrs. old nice

roan with star in forehead. Very gentle and a fine

specimen of the breed. Price \$225.00.

W. E. BARTLEY, Alma, Mich.

We now have

FIVE BRED HEIFERS

that we will sell cheap if taken at once. Inquire

about them or better come and see them.

CARR BROS. & CO., Bad Axe, Mich.

Francisco Farm Shorthorns

and BIG TYPE POLAND CHINAS. Now offering 3

heifers, 2 bulls, all Scotch. Sows to farrow in Aug.

and Sept. Spring pigs. 60 head to choose from.

POPE BROS. CO., Mt. Pleasant, Mich.

Reg. Red Polled cattle, herd headed by Famous

Champion 75 1/2-same blood as Charnier 1919 Int. Ch.

Champion. Herd State and Fed. tested. No cattle for

sale at present. Westbrook Bros., Ionia, Mich.

HOGS

Place Orders NOW

for BERKSHIRE boars or sows 6 to 8 weeks old Reg.

and Trans. and delivered anywhere in Mich. for \$15.

or a fine large bred sow at \$40.00. I also have an ex-

ceptionally fine 400 lb. boar for sale at \$40.00. He is a

dandy and anybody in the market for him should

never pass this up. He is a good one.

O. H. WHITNEY, Merrill, Mich.

Berkshire spring pigs, either sex, \$10, \$12 and \$15

According to age. Also fall gilts and yearling sows.

CHASE STOCK FARM, Marlette, Mich.

Brookwater Duroc Jerseys

FALL BOARS. OPEN GILTS

All of the right type and the best of breeding.

Prices reasonable.

Mail orders a Specialty. Satisfaction guaranteed.

BROOKWATER FARM, Ann Arbor, Mich.

H. W. Mumford, Owner J. B. Andrews, Mgr.

DUROC JERSEYS: A few choice

bred gilts for

sale. OAREY U. EDMONDS, Marlette, Mich.

Duroc Jerseys

Gilts bred for fall farrow at reasonable prices.

RUSH BROS., Oakwood Farm, Romeo, Mich.

Write Me

at once I have just what you want

heavy bone registered Duroc Jer-

sey boars ready for service.

W. H. MAYES, L. B. 505, Durand, Mich.

DUROCS WITH QUALITY

Spring pigs by Walt's

Orion, First Sr. Yearling

Detroit, Jackson, Gd. Rapids and Saginaw 1919

Phillips Bros, Riga, Mich.

Collinsdale Duroc Jerseys

Lyons, Mich. R. 1, L. A. Burhans, Owner

Herd Boars

Wolverine Pathfinder by Pathfinder

Wolverine Sensation by Great Orion Sensation.

Wolverine Renown Wonder by Great Wonder IAM

Fall boar and gilts by the Sensation boar.

100 spring pigs from these boars.

Herd Sows breeding

O. C. K., Pathfinder and Big Bone Giant.

Duroc Bred Gilts

for Sept. farrow from prize winning stock, at \$25

and \$35. Spring boar and sow pigs of Orion Cherry

King, Col., and Pathfinder breeding.

W. C. TAYLOR, Milan, Mich.

DUROCS

A few choice, ready for service,

boars for sale.

HARRY FOWLER, Sturgis, Mich.

Woodlawn Farm Duroc hogs are from select breed-

ing stock, well mated for size, type and color.

Herd boars, sows and pigs, will ship C.O.D. and fur-

ish Reg. certificate. W. E. Bartley, Alma, Mich.

Duroc Jerseys Am booking orders for spring

pigs. Few fall gilts.

E. D. HEYDENBERG, Wayland, Mich.

DUROC SOWS

and gilts bred to

Orion King No. 169259 Son of the \$1000 boar owned

by Longview Farm, Le Summit, Mo. also young boars

ready for service out of good sows. Apply

THE JENNINGS FARM, Bailey, Mich.

Buy good hogs now, from one of the largest herds of

registered Durocs in the state. Open fall gilts at

\$25. Sows and gilts bred for summer and fall farrow.

Booking orders for spring pigs. Will accept a few

Write to-day for
your copy of—



If you are a wheat grower, or intend to grow wheat and want your crop to give you the greatest possible profit, this book will help you. It is up-to-date, scientific, yet simple and practical. It tells just what to do and how to do it in order to get the best results. Printed on enamel paper, profusely illustrated and with embossed cover. We have not spared expense in preparation or printing and it is sent free to farmers to show them that we want to give the most helpful information in addition to the most productive fertilizer.

FREE—Tear off the coupon and mail it today.

F. S. ROYSTER GUANO CO.
Dept. A-15 Toledo, O.
Send free Wheat Book to

Name.....
P. O.....
Route.....
State.....

What's The Price?

You will be surprised at the big money saving reductions on the complete line of Saginaw Silos. We're down to rock-bottom.

Now is the time for you to buy—the price cut applies on our complete line—Saginaw Steel-Built, Saginaw Standard Stave, Saginaw Hollow Wall and Saginaw Tile Silos.

Write today for reduced price list.

Address Dept. No. 10B

The McClure Co.
Cairo, Ill. Saginaw, Mich.

H. Eikenhout & Sons Berry Boxes Baskets Fruit Packages

ONE
or
CAR
LOAD

Grand Rapids,
Mich.

Hoosier
Yellow Pine or Oregon Fir, with or without hinged doors. Best Anchoring system on the market. We can furnish one-piece staves in Pine up to 24 feet long. Fir up to 32 feet long. Prompt shipment from stock.

Steel Roofs, Chutes, and Paints
Complete line of steel roofs and chutes for silos. Paints for all kinds of farm buildings at money-saving prices direct from manufacturer to buyer. Write for prices and special agents' proposition.

HOOSIER SILO CO.
Dept. M-39 Albany, Ind.

CLOVERLAND WILD BERRY CROP.

(Continued from page 92).

ceiving stations. A good market is assured, either locally or in Chicago. Incidentally, this venture, it is expected, will assist the unemployment situation in the copper country.

It must be said, however, that the drought conditions in some portions of the peninsula, this season, have badly affected the wild berry crop, reports of this character having come from the copper country, while the Evening News of Sault Ste. Marie states that Chippewa county is likely to have a bumper crop of raspberries, especially in the valley of the Taquamenon River and on Sugar Island, where favoring rains have occurred. Blackberries are said not to be much in evidence in the county at any time.

GRANGE ROUND-UPS.

A SERIES of Grange round-ups is scheduled for various points in the upper peninsula, this summer, as follows: At Sault Ste. Marie, August 27; Manistique, August 29; Powers, August 30; Marquette, August 31; Baraga, September 1.

UPPER PENINSULA FARMERS' ROUND-UP.

THE Third Annual Upper Peninsula Farmers' Round-up will be held at the Upper Peninsula Experiment Station, August 11. A busy day is planned. Starting at eight o'clock in the morning there will be something scheduled for every hour until six in the evening. There is sufficient variety to the program to keep everyone interested until the closing hour. In fact, it may be likened to a three-ring circus as there will be several programs going on at once.

The general program will consist of land clearing, home and dairy and other demonstrations. The speaking program, which is held in the afternoon, will include talks by Director of Experiment Stations R. S. Shaw; L. Whitney Watkins, member of the State Board of Agriculture, and J. A. Doelle, manager of the Development Bureau.

The woman's program will consist of talks and demonstrations on home work, lunch clubs, nutrition, clothing, etc. And the boys' and girls' program will contain poultry culling, live stock judging, and athletic contests.

Preceding this program the boys and girls will enjoy a four days' camp, the first three days of which will be given over to special training under competent instruction. The fourth day will be the round-up, at which prizes will be given the winners of the contests.

CHIPPEWA COUNTY FAIR.

THE Chippewa County Agricultural Society is going ahead with plans for the county fair, with the assurance of an appropriation of the \$4,000 by the board of supervisors in October. The dates for this event—the fortieth fair of the county—are September 27-29. Prizes are due on 1,397 separate items, says the Soo Times. This is an increase over last year. A new department is to be floriculture, while the Indians of the county, who are fairly numerous, are to be afforded an opportunity to gain prizes for articles of Indian workmanship, especially baskets. The premium books are now being published, the grounds at Cloverland Park are being made ready, with repairs to buildings and general improvement of the place. Racing will feature the fair, and much interest in the occasion is reported.

Are you using more horsepower per man-power this year?



GRAND RAPIDS, MICHIGAN

This Trademark in Your Protection

No Remorse

One of Michigan's well-to-do farmers recently underwent the misfortune of serious fire loss. In fact—some of his most valuable property was positively gutted.

Several of his friends extended their sympathies and were surprised to hear him answer: "Tough all right boys, but fortunately I am FULLY INSURED. I was recently advised to re-invent my buildings at present values and did so."

Characteristic of this farmer, his good business judgment spared him the nerve-racking remorse accompanying such disaster.

Would a Fire Cripple You?

You have, no doubt, worked hard and long in the accumulation of your house, household goods, barns and other buildings, and owe it to yourself and family to see to their protection.

If you are only partially insured, investigate liberal Peninsular Policies. Policies that protect your holdings on a city property basis with buildings rated according to location, condition and general improvement. And—unless you know that you are FULLY COVERED, you are taking risky, avoidable chances.

Just drop our Farm Department a postal today and without obligation, our answer will show you the way to POSITIVE PROPERTY PROTECTION.

And—Expert CROP PROTECTION advice will also be included.

PENINSULAR Fire Insurance Company of America

Capital \$1,000,000.00

GRAND RAPIDS, MICHIGAN

COLON C. LILLIE,
President.

J. FLOYD IRISH,
Sec'y and Managing Underwriter.

O. I. C. HOGS

all ages sired by Callaway Edd 1918 world's grand champ. boar and C. C. Schoolmaster 1919 world's grand champion also Wonder Big Type and Giant Buster. Write your wants, all stock shipped on approval.

CRANDELL'S PRIZE HOGS,

Cass City, Mich.

HOGS

O.I.C's Choice gilts for April and May farrow, also fall pigs. Booking orders for spring pigs. A. J. BARKER & SON, Belmont, Mich.

O. I. C. Swine Strictly Big Type with quality. A few gilts bred for last of April, and May farrow. A few Sept. and Oct. Extra good ones. Of our State Fair prize winning blood lines. Will ship C. O. D. and record them free. NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C's. one yearling boar, last fall gilts bred for next fall farrow; this spring pigs not akin, big growthy stock, reg. free. City's phone. 3/4 mile west of Depot, OTTO B. SCHULZE, Nashville, Mich.

O. I. C's. Special prices on spring pigs from prize winning stock. Must be sold to make room. WEBER BROS. Phone R. O. 408, 10 mile Rd. W., Royal Oak, Mich.

Central Mich. O. I. C. Swine Breeders Ass'n.

Hogs of all ages of popular blood lines. Every sale guaranteed by association.

DR. H. W. NOBLES,
Sales Mgr. Coral, Mich.

O. I. C's. Special prices on choice pigs of March and May farrow by C. O. Big Callaway. O. J. Thompson, Rockford, Mich.

O. I. C's. choice boars and spring pigs at farmers prices. CLOVER LEAF STOCK FARM, Monroe, Mich.

O. I. C. GILTS Bred for June and July farrow. H. W. MANN, Dansville, Mich.

L.T.P.C. \$15, \$20 & \$25

Our top notch stretchy boar pigs are weaned and ready to ship. They are sired by such boars as Harts Block Price Cline's Big Bob, Right Kind Olan and Leonard's Big Bob. HART, FULCHER AND OLIN, Address P. T. Hart, St. Louis, Mich.

Spotted Poland Chinas

The hog with more outcrosses than any other breed. Which insures vitality and prolificacy. Why breed and feed grade hogs when you can buy registered hogs at special low prices. Write me your wants in bred gilts, boars or spring pigs. Cholera immuned. Satisfaction guaranteed.

SAMUEL GERBER
R. 4, Bluffton, Ind.

Big Type Poland Chinas. Choice spring boar pigs \$15 bred gilts all sold. Also a grandson of the Clansman and Harrison Big Bob. Also gilts bred for Sept. Farrow for \$40 and up. Guarantee Satisfaction. DORUS HOVER, Akron, Mich.

L. S. P. C. a few choice boars bred gilts all sold. Also a grandson of the Clansman and Harrison Big Bob. H. O. SWARTZ, Schoolcraft, Mich.

Big Type P. C. some very choice boars double immune, out 100 lb. sire and mammoth sows from Iowa's greatest herds, E. J. Mathewson, Burr Oak, Mich.

Big Type Poland Chinas. A great litter by Checkers; dam a grand-daughter of Giant Buster, are for sale now. They were farrowed Mar. 11, and were purchased of Jim Bloemendaal, Alton, Ia. in dam. Do you want the best bred products? Come over and see them. Wesley Hile, Ionia, Mich.

Leonard Farm BIG TYPE P. C. boar pigs at weaning time, \$25 from Mich. Champion herd. Satisfaction guaranteed. Call or write. E. R. LEONARD, R. 3, St. Louis, Mich.

Big Type Poland Chinas at lowest prices. Both sex, all ages, and bred G. A. BAUMGARDNER, R. 2, Middleville, Mich.

Cows bred for spring litters all sold. Have some choice gilts bred for Aug. litters, also some Sept. boars for sale. Clyde Fisher, R. 3, St. Louis, Mich.

T. P. C. few choice bred gilts sired by T's Clansman L. Mich's 1920 Gd. Cham. bred to Smooth Buster 1st Jr. yearling 1920. A. A. Feldkamp, Manchester, Mich.

L. T. P. C. Nothing for sale at present. W. J. HAGELSHAW, Augusta, Mich.

Hampshire bred gilts now ready for Aug and Sept. farrow; spring and fall boar pigs at a bargain. JOHN W. SNYDER, R. 4, St. Johns, Mich.

Pine Grove Hampshires

Bred sows all sold. We are offering 100 spring pigs of excellent breeding and quality. Either sex, order early. GEO. COUPAR & SONS, Marlette, Mich.

SHEEP

INGLESIDE SHROPSHIRE

During the past 30 years Ingleside Farm has produced over a 1000 Shropshires of sustained excellence, but never before have we been able to present to our ever-widening circle of satisfied customers such an attractive offering of Shropshires of all ages.

In rams we have a strong assortment of lambs, yearlings and aged rams—splendid individuals of the choicest breeding obtainable. We have young ewes of quality for exhibition or foundation stock. We can supply 2 or 3 fitted flocks for show at county fairs.

Write your wants—or better yet, come and inspect this stock personally. H. E. POWELL & SON, LONIA, MICH

LATEST MARKET REPORTS

GRAIN QUOTATIONS

Monday, July 25.

Wheat.

Detroit.—Cash No. 2 red \$1.25; September \$1.26½; No. 2 mixed and No. 2 white \$1.20.

Chicago.—No. 2 red \$1.20½@1.20¾; No. 2 hard \$1.21@1.22; September at \$1.23½.

Corn.

Detroit.—Cash No. 2 yellow 69c; No. 3 yellow 68c; No. 4 65c.

Chicago.—No. 2 mixed 62½@63½c; No. 2 yellow 62¾@63¾c.

Oats.

Detroit.—Cash No. 2 white 44c; No. 3 white 42½c; No. 4 white 39½c.

Chicago.—No. 2 white 37@38c; No. 3 white 35@35½c.

Beans.

Detroit.—Immediate and prompt shipment \$3.50 per cwt.

Chicago.—Market held unchanged and about steady. Hand-picked Michigan beans choice to fancy \$3.80@4.15; red kidney beans \$9@9.15.

New York.—The market is steady without much change in prices. Choice pea \$4.50; do medium \$4.75; red kidney \$11.85@12.

Rye.

Detroit.—Cash No. 2 rye \$1.20.

Chicago.—No. 2 \$1.25¼@1.26¾.

Seeds.

Detroit.—Prime red clover \$13.50; October \$13; alsike \$12; timothy \$3.

Hay.

No. 1 timothy \$22@22.50; standard and light mixed \$21@21.50; No. 2 timothy \$19@20.50; No. 1 clover mixed \$16@18; No. 1 clover \$14@15; rye straw \$13.50@14; wheat and oat straw \$12@12.50 per ton in carlots at Detroit.

WHEAT

Receipts of new wheat again made an enormous increase during the past week and are much larger than at this time last year. Stocks at terminals are accumulating, and the disposition is to sell as fast as cars can be obtained. Car shortage is reported in certain sections of Kansas and Oklahoma. Even if car shortage should become widespread, it will be due mostly to extreme anxiety to ship and will not prevent the terminal markets from being heavily supplied for the next three months. Wheat being a money crop in most sections producers are disposed to convert it into cash as soon as possible in order to make necessary purchases and pay old obligations. Crop news has been decidedly mixed in the last few days. Threshing returns from Oklahoma and Kansas show the yield is about 15,000,000 bushels higher than the government's estimate. Nebraska yields also are larger than expected but disappointing results are reported from Illinois, Missouri, Indiana and Ohio. Spring wheat prospectuses are exceedingly spotted. Canada seems to have lost its prospect for a bumper crop although most reports point to a yield somewhat larger than last year. Based on private estimates of the spring wheat yield the probable export surplus from the United States is about 200,000,000 bushels. If Canada harvests a crop of 290,000,000, she will have a surplus of about 200,000,000 bushels for export. This quantity will provide for large clearances from North American ports during most of the next twelve months.

CORN

Seven weeks of hot weather with sufficient moisture in most sections, forced the growth of the corn crop so that many places even as far north as Nebraska have reported it as practically made. Other sections will need a rain or two in order to prevent damage from dry weather. At present another 3,000,000,000 bushel crop appears certain and the August 1 estimate is expected to be considerably above that figure. Receipts of corn are gradually decreasing but terminal stocks are large, with the visible supply the largest for this season in a number of years. Prices have held within narrow limits recently with a fairly strong

undertone due partly to large export sales.

OATS

The market outlook for oats during the coming year is rather strong. The crop yield is not expected to be much above 1,250,000,000 bushels compared with average domestic consumption of about 1,350,000,000 bushels. In addition export trade is expected to increase as a result of drouth in Europe. The new crop averages four to five pounds per bushel lighter than last year which will still further decrease its lasting power. Stocks of old oats in market centers and on the farms are large but prospective demand appears able to absorb them. Old heavy weight oats are bringing a big premium over the new.

FEEDS

Feed markets show irregularity, some advancing for the week while others are slightly lower. Linseed oil meal and cottonseed meal are considerably higher than a short time ago and are in the strongest position. In general the feed market outlook is developing strength.

SEEDS

Cloverseed markets scored a moderate advance during the past week, due largely to adverse reports on the new crop.

HAY

Demand for hay is not increasing sufficiently to take care of expanding receipts due to new crop shipments. The market appears, however, to be very near the bottom as there is little left for the producer after shipping expenses are paid.

WOOL

Slight improvement has been noticeable in the demand for wool during the past week. This is considered a favorable augury as it comes on the eve of the opening on spring wools by the leading manufacturer and seems to indicate that a large volume of orders is anticipated. Foreign auctions have again strengthened under

lighter offerings. Boston quotations show primarily no change. Wool probably has already passed through its worst period. Prices are extremely low, some degree of tariff protection is a practical certainty, and the revival in wool manufactures has been in progress long enough to make sure that it is more than a temporary spurt.

Boston quotations are as follows: Michigan and New York.—Delaine unwashed 31@33c; fine unwashed 26@27c; half-blood unwashed 28@29c; three-eighths blood unwashed 25@26c; quarter-blood unwashed 24@25c.

EGGS AND POULTRY

Total holdings of case eggs on July 1 were 7,550,000 cases compared with 6,844,000 cases a month previous and 6,747,000 on July 1 last year. Present holdings are larger than last year but smaller than two years ago and cold storage operators expect a fairly profitable season which should mean a good market for fresh eggs during the coming fall and winter. Poultry markets are slightly lower than a week ago. Latest quotations were as follows: Detroit.—Eggs fresh candled 20@31c. Live poultry, spring chickens 35c; hens 28c; light hens 24@25c; roosters 14c.

BUTTER

The upward trend in the butter market was checked during the past week due to withdrawal of stocks from storage, and cooler weather. Consumptive demand is still brisk but has turned to lower grade butter at cheaper prices. Prices for 92-score butter as quoted by the bureau of markets on July 23 were: Chicago 40½c; New York 42c. At Detroit fresh creamery in tubs is quoted at 37c per pound.

STATE BEE MEN TO GATHER AT ALPENA.

THE summer meeting of the Michigan Bee-keepers' Association will be held at Alpena on August 3-4, announces R. H. Kely, secretary and treasurer of the association. Besides

an auto tour of the surrounding bee-keeping territory, the program will include addresses by such well known bee men as E. W. Atkins, of the G. B. Lewis Company; B. F. Kindig, state inspector of apiaries, and either Ernest Root or George Demuth, of the A. I. Root Company.

COMING LIVE STOCK SALES.

Guernseys.—October 19, Michigan State Sale, Lansing, Mich. F. E. Fox, Waukesha, Wis., Sales Manager.

Aberdeen-Angus.—September 23, Eastern Aberdeen-Angus Breeders' Association Sale, Eastern States Exposition, Springfield, Mass. F. W. Burnham, Greenfield, Mass., Secretary.

Aberdeen-Angus.—October 12, Indiana Aberdeen-Angus Breeders' Association Sale, Indianapolis, Ind. Prof. C. F. Gobble, Lafayette, Indiana.

NEWS OF THE WEEK.

(Continued from page 90).

of food to the average family declines .03 per cent during June.

Friday, July 22.

BECAUSE of lack of cars, twenty-two grain elevators in Kansas and Oklahoma have been closed.—In the bombing tests, conducted by the navy, airplanes, have been successful in hitting and sinking former German warships.—Detroit coal dealers believe prices of fuel will go up.—Fifty-eight Japanese fruit workers in Stanislaus county, California, were driven out and warned not to come back.—Russian newspaper sees downfall of the Soviet government, unless means are found to prevent starvation of large numbers of people.—Three thousand five hundred postmasterships are to be filled within a month.—Secretary Hughes announces that the United States will keep hands off in Silesia row.

Saturday, July 23.

PRESIDENT HARDING wants the Yap and Shantung questions between the United States and Japan settled before the coming disarmament conference.—A Mr. Wanger, of Chicago, was held by the post office authorities for selling physical culture courses to fat women. He charged \$20 for telling them to bend down and touch the floor twenty times a day.—The government is planning a wireless telephone service for farmers and business men.—Despite Great Britain's attitude, France will aid Silesia forces.—Recent tests show that it takes six hours to convert a growing tree into a newspaper printed and sold on the streets.—The National Federation of Business Women's Clubs will incorporate.—The governor of Illinois is charged with embezzlement and fraud.

Sunday, July 24.

CHICAGO youth, seventeen years old, swindles farmers of middle west out of more than \$500,000 in securities.—Flint boys steal more ice cream than they could eat and had a snow ball battle with what remained.—Methodists deny that ministry is unpopular, candidates for christian service having increased this year.—A Chicago negro was found driving city street sprinkler during the day and running whisky still at night.—Japan cuts navy appropriation in economy move.—Controller of Currency Crissinger believes establishment of international money exchange standard would help American business.—The Scottish people of Detroit present to city a statue of Robert Burns.—The authorities in Japan say that that country will agree to eastern country conference.

Monday, July 25.

IT is reported that the ex-emperor of Austria will make another attempt to gain the Hungarian throne.—President Harding spends the week-end in woods with Ford, Edison and Firestone.—Hoover tells Russia that all American captives must be free before this country will give aid to the starving.—Population of Michigan will show natural increase of fifty thousand during the year.—The peach and grape crop in the Niagara district will be light.

Live Stock Market Service

Monday, July 25.

DETROIT

Cattle.

Receipts 1,093. Good cattle steady; common slow.

Best heavy steers	\$ 7.00@ 8.00
Best handy wt bu steers	7.50@ 8.25
Mixed steers and heifers	6.50@ 7.00
Handy light butchers....	5.50@ 6.50
Light butchers	4.50@ 5.50
Best cows	4.75@ 5.50
Butcher cows	4.00@ 4.50
Common cows	2.00@ 2.75
Canners	1.50@ 2.00
Best light weight bulls...	5.00@ 6.00
Bologna bulls	4.50@ 5.50
Stock bulls	3.75@ 4.50
Feeders	5.00@ 6.00
Stockers	4.00@ 5.00
Milkers and springers....\$	45@ 75

Veal Calves.

Receipts 502. Market steady.
Best\$10.50@11.00
Others 3.00@ 8.00

Hogs.

Receipts 816. Market steady.
Mixed hogs\$10.75
Pigs 11.25
Heavies 10.00

Sheep and Lambs.

Receipts 741. Sheep steady; lambs 50c lower.
Best lambs\$ 10.50
Fair lambs 8.50@ 9.50
Light to common lambs.. 6.00@ 7.00
Fair to good sheep..... 4.00@ 4.50
Culls and common 1.50@ 2.50

BUFFALO

Light hogs on this market were 15c lower; others steady. Lambs 50c lower; calves \$11. Cattle steady.

CHICAGO

Hogs.

Estimated receipts today are 46,000; holdover 3,912. Market steady to 15c

lower. Bulk of sales \$9.10@11; tops \$11.10; heavy 250 lbs up medium, good and choice \$9.80@10.65; medium 200 to 250 lbs medium, good and choice at \$10.45@11.05; light 150 to 200 lbs common, medium, good and choice \$10.60@11.10; light lights 130 to 150 lbs common, medium, good and choice at \$10.50@11.05; heavy packing sows 250 lbs up smooth at \$8.90@9.35; packing sows 200 lbs up rough at \$8.35@8.90; pigs 130 lbs down medium, good and choice \$10.25@10.85.

Cattle.

Estimated receipts today are 13,000. Cattle are mostly 15@25c lower. Beef steers medium and heavy weight 1100 lbs up choice and prime \$8.75@9.50; do medium and good \$7.50@9; do common \$6.50@7.50; light weight 1100 lbs down good and choice at \$8.75@9.75; do common and medium at \$6@8.75; butcher cattle heifers, common, medium, good and choice at \$4.25@8.75; cows common, medium, good and choice \$4@7; bulls bologna and beef \$4.75@6.75; canners and cutters cows and heifers \$2.50@4; do canner steers \$2.70@4; veal calves light and handy-weight medium, good and choice at \$9@11; feeder steers common, medium, good and choice \$5@7.25; stocker steers common, medium, good and choice \$4@7; stocker cows and heifers common, medium, good and choice \$2.50@5.50.

Sheep and Lambs.

Estimated receipts today are 19,000. Market steady. Lambs 84 lbs down medium, good, choice and prime \$8.25@10.50; do culls and common \$5@8; spring lambs medium, good, choice and prime \$6@8.50; ewes medium, good and choice \$3.25@5.50; ewes cull and common \$1.50@3; breeding ewes full mouths to yearlings \$3@6.50; yearling wethers medium, good and choice at \$6@7.15.

WHAT NATURAL SCIENCES DO FOR FARMERS.

(Continued from page 91).

diseases, thereby creating an unusual demand upon the botanist for relief. Some of the numerous problems investigated include: Yellow and black knot, some ginseng troubles, celery blight, tomato leaf spot, spraying to control anthracnose on black raspberries. Experiments relating to the control of root knot nematode, etc.

The achievements of the pathological botanists of the experiment stations are wonderful in view of the part they have played in solving plant disease problems and mostly within the past three decades. The evolution of spray machinery has occurred since 1885. The work of the plant pathologist is not nearing completion, on the contrary his services are becoming more and more necessary to the tiller of the soil as plant disease menaces constantly increase as this country extends its commercial relations to all parts of the globe.

Reference to botany at M. A. C. would not be complete without mention of Professor Emeritus W. J. Beal, who for a period of forty years directed the affairs of the botanical department and championed the cause of horticulture and forestry in their beginnings.

What the Entomologist Has Done for the Michigan Farmer.

Long before the establishment of the Michigan Experiment Station entomological investigations and teachings were in progress at the Michigan Agricultural College, largely under the leadership of the late Prof. A. J. Cook, the discoverer of kerosene emulsion. From the establishment of the station up to 1893 the thirteen entomological bulletins were issued by Professor Cook and treated on the following subjects, viz: Codling moth, bark louse, carpet beetle, plant lice experiments with insecticides, spraying with arsenites, plum curculio, kerosene emulsion, insecticides and fungicides, spraying, etc.

In 1897 with the re-establishment of the entomological work, a second active area of research, education and extension began. From this period on up to the present time, under the direction of Prof. R. H. Pettit, the department issued thirty-two bulletins on a variety of topics, of this number the name of the head of the department appears on twenty-two, though in several instances there was association in the work.

The work and usefulness of an entomological department cannot be judged alone from the extent of its researches and publications as there is a constant call by letter for aid in emergency calls to the field to demonstrate and render assistance. The showing of M. A. C. in entomology is comparable with the best institutions of her class.

Science of Physics in Relation to Agriculture.

Training in this science and its application to agricultural practice is becoming more and more apparent every day. The success of the farmer is becoming more and more dependent on his ability to maintain the efficiency and durability of the machine. The principles of physics are being constantly applied in farm mechanics, farm engineering, in relation to power and field machinery, heating, lighting, water supply, sewage disposal, land drainage and many other modern practices in agriculture. The physics department at M. A. C. has always cooperated in a very useful way and it is the plan to stress the application of this science more and more in its relation to the work of the technical departments.

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You save all commission charges. Certain market at Michigan's highest price. Your cream makes Better Butter—Fairmont's better brand. Quality brings bigger price—we can pay you more. Every shipment protected by a six million dollar corporation—a company 38 years old—with branches in 18 big centers in United States. It's an ever ready market where you get most cash—good times or bad.

No Loss No Risk

Fairmont protects you against loss of cream or cans. Also the fact that this advertisement appears in this paper assures of the truth of all our claims. Your own banker will tell you of our standing and responsibility. Its a guaranteed square deal to ship your cream to Fairmont. Hundreds of thrifty Michigan farmers deal with us.

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This valuable Dairy Record book is FREE to every Michigan farmer. If you milk two or more cows its a guide to a better herd and bigger profits. It enables you to keep accurate daily record of every cow—and build a herd of money makers. It contains many helpful suggestions for the improvement of cream—to make it worth more in cash to you. Just fill out the coupon and mail it today.

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THE FAIRMONT CREAMERY COMPANY, Dept. A-13, 2453 Market Street, Detroit, Mich. Send me Dairy Record book and shipping instructions, tags, etc., to enable me to ship a trial lot of my cream to you if your proposition is satisfactory. Sending me the Record Book, understand, places me under no obligation. I milk.....cows.

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Address.....



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Cuts 2030" UP. Cuts 2032" UP. Cuts 2034" UP. Cuts 2036" UP.

Limestone Lessons #1 Winter Wheat

Without Limestone

50 Acres of Wheat
20 bu. to Acre
1000 bu. Yield
\$1 per bu.
\$1000 gross profit for 1 yr.
4 years
\$4000 gross profit for 4 yrs.
on all rotating crops
\$2300 cost of Production for 4 yrs.
\$1700 net profit for 4 yrs. work

With Limestone

50 acres
30 bu. per acre
1500 bu. yield
\$1 per bu.
\$1500 gross profit for 1 yr.
4 yrs. (Limestone will last
at least 4 yrs.)
\$6000 gross profit for 4 yrs.
\$2300 cost of production
\$3700
\$400 cost of Solway Limestone
- 2 tons to acre
\$3300 net profit for 4 yrs. work

\$3300 with Limestone
\$1700 without Limestone
\$1600 Profit on investment of \$400 in Limestone
during course of 1 crop rotation

The Value of Limestone in Dollars and Cents

Practically every progressive farmer today realizes the need for limestone. They have read the Agricultural Department reports—they have heard of the convincing experiments carried on by the Agricultural College—they have listened to lectures by institute men and by their county agents—all agreeing that limestone is necessary, particularly to Michigan farmers, and that it will prove the most profitable investment they can make.

Of course, it is impossible to promise exactly what profit any one farmer will get out of an investment in limestone. Soil conditions, crops, and methods of handling differ so radically.

In the above lesson, we have, however, attempted to show in terms of dollars and cents the return which the average farmer can reasonably expect from an investment in limestone.

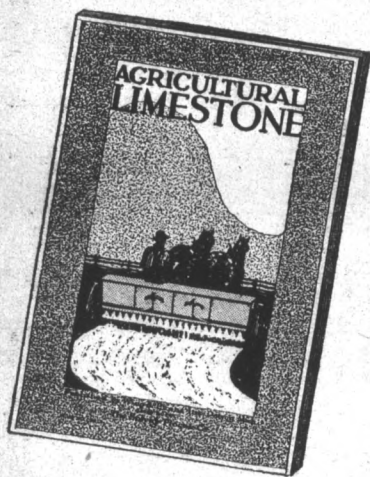
Fifty per cent increase in the yield of winter wheat is not at all unusual following a limestone application. And similar increases are continually being proven in the case of other crops included in the crop rotation.

We don't show this lesson as a promise of what you can expect to get. Your profit on a limestone investment may be more or it may be less. But we do promise you that, with very few exceptions, every Michigan farmer will find that the actual cash profit on the money which he invests in limestone will make its application well worth while.

We show this lesson in an attempt to convince every farmer in Michigan that this is a subject of real importance to him—that he cannot afford to go on another season without knowing the facts regarding limestone and its uses.

We want to induce every Michigan farmer who has not already done so to write for a copy of our free book, "Agricultural Limestone". Over 50,000 copies have already been distributed. And we have the word of hundreds of farmers and county agents as to its real value.

Decide now that you will go into this question of limestone thoroughly—that you will apply it for your fall planting. Your labor cost, your seed cost and your overhead are fixed. For a comparatively small additional investment you can vastly increase your returns on this labor and expense.



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