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## Does Your Farm Need Lime?

*Dr. McCool of M. A. C. Tells Where in Michigan Lime is Essential to Successful Crop Production*

IT is now well known that there are large areas of the lighter soils, or the loams, and sands, of Michigan that require the addition of lime in order to secure seedings and satisfactory growths of alfalfa and clovers, especially the June clover, sweet clover and mammoth clover. Crops other than the legumes when grown on some of these lands are also benefited by the addition of this material. There is a gradual but constant increase in the use of lime on the heavier types of soil, especially those that have been farmed for a number of years. Those who have studied this situation usually agree that it is not possible to secure satisfactory stands of the clovers and alfalfa on many of the heavy lands without the use of lime in some form.

The sketch map of Michigan that appears on Page 41 outlines in a general or broad way the lime situation as we have found it in the lower peninsula. Within each of the divisions indicated on this map there are numerous exceptions, for example, in group one the soil as a whole produces the clovers without lime, yet the sandy plains are usually sour and the use of lime should be profitable. The soils of group two, as a general rule, are deficient in lime yet the till plains carrying heavy subsoils are sweet. The soils of group three have a medium lime requirement although the low-lying lands that are high in organic matter, such as the ash and elm soils and some gravelly hill-sides or slopes, as well as some of the fields that have been under cultivation only a short period of years are not in need of lime at the present time. In group four occur some very sour soils and the exceptions are similar to those of group one although not so extensive. In the Old Lake Bed which includes the Saginaw, Thumb and south-western Michigan areas, the lime requirement of the deep sands is usually quite high.

Where the sandy layer is shallow over the heavy subsoil the lime requirement is not so great, and usually the heavy soils of this area produce luxuriant growth of clovers and alfalfa without the addition of lime. The heavy soils of these areas show some very striking and important conditions. Usually there is a high percentage of carbonate of lime that lies within fourteen to eighteen inches of the surface, whereas the carbonate of lime is not found in the deep sandy soils.

### Lime Benefits the Rotation.

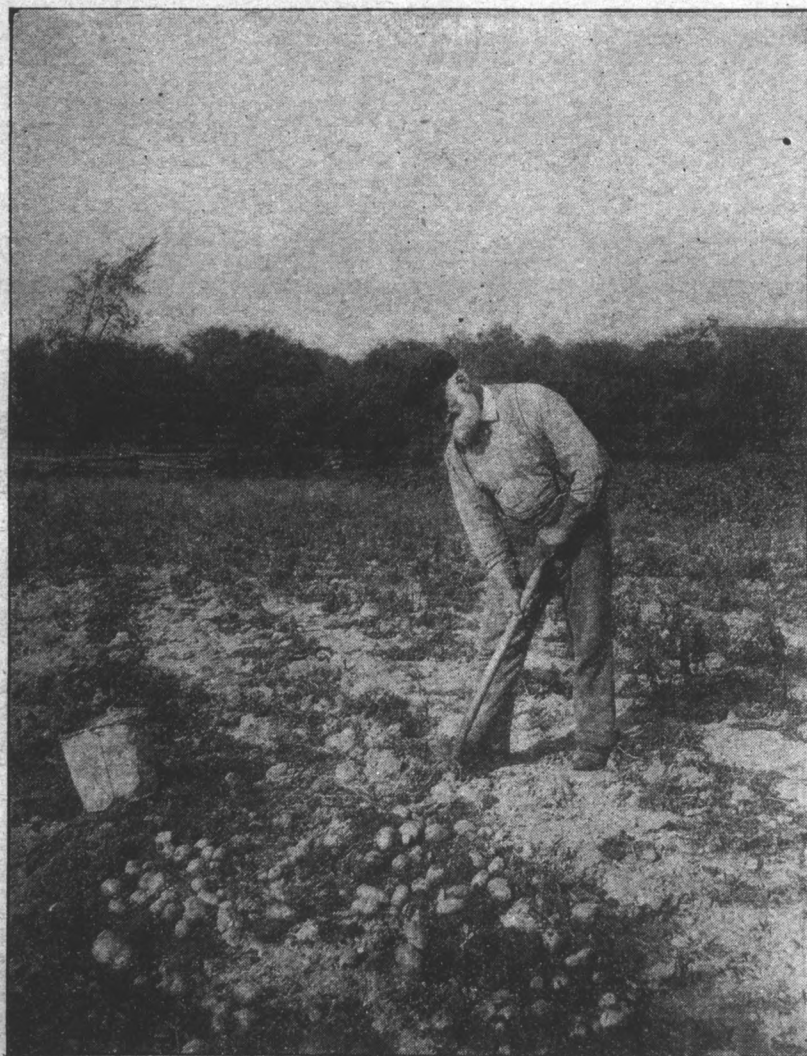
It is usually advisable to lime the soil for

the entire rotation of crops, or perhaps more than one rotation, rather than for a particular crop unless one is to grow alfalfa for a number of years on the same piece of land. In numerous instances lime applied to the soil has not resulted in very striking increases in yields of the grain crops and some users have been disappointed or discouraged in the results thus obtained. Under such conditions the use of lime, if looked upon primarily for the benefit of such crops, would be a losing investment. On the other hand, when it is considered that the leguminous crops must have it for their production and that the presence of these in the rotation result in great benefit to the other crops it must be concluded that the lime is beneficial, both directly and indirectly, throughout the rotation.

### Lime May Not Bring Best Results First Season.

The amount of rainfall has an important bearing on the results that may be obtained from lime the first season it is applied. If the lime is applied to a very sour soil in the spring of a low precipitation, the results are sometimes disappointing. We must recognize that in order for the lime to benefit the soil by decreasing the sourness and by improving the tilth or structure of the soil that suitable amounts of water must be present, and if deficient the season the lime is applied, the benefits may not reach their maximum.

We recently had this very strikingly called to our attention in some of our experiments on the Cass County Fertility projects. In 1916, G. M. Grantham treated several portions of this field with three tons of pulverized limestone per acre. No applications have been made since that time. In May, 1920, an adjacent area was limed at the rate of three tons of this material per acre, and both areas were plowed and the



Although Too Heavy Applications of Lime May Encourage Common Scab on Potatoes, the General Effect of its Use in the Rotation on Most Soils is Highly Beneficial to this Crop.

(Continued on page 41).





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## CURRENT COMMENT

### Tax Exempt Securities

THE question of tax-exempt securities is coming to be a serious one in this country. Economists are directing attention to the alleged fact that capitalists are very generally investing their funds in this class of securities at the favorable interest rates now available in preference to investing them in industrial enterprises, for the reason that for the man with a large income tax-free securities which will return from five and a half to six per cent interest are more attractive than an industrial investment which returns fifteen to seventeen per cent. This is undoubtedly true in view of the fact that securities of this class are generally in the absolutely safe class, while industrial investments are dependent upon many and varied business factors over which the investor has scant control for the revenue which they may produce.

This matter has recently been brought forcibly to the attention of Michigan people through the soldiers' bonus legislation. The soldiers' bonus bill passed by the first special session of the legislature did not make the bonds by the sale of which the money for the payment of soldiers' bonuses was to be raised, fully tax-exempt. Apparently the financiers to whom the governor appealed for the subscriptions needed to make funds available for payment to soldiers, made it quite clear that there would be nothing doing until this oversight had been corrected, with the result that the legislature was again called in special session for that purpose. Incidentally in this connection the legislators made the session profitable to themselves by fixing the date for final adjournment so far ahead as to give them about \$100 each for the two days' work of the special session, which, in addition to the legal mileage collected has made a notable addition to their "economy" record. True, the session has been technically extended by making July 19 the date of final adjournment in order that they may be called back if necessary in case suitable bids for the short term noted to provide immediate funds for the payment of bonuses are not forthcoming, hence they will be technically in session until that date and thus "earning" their extra compensation.

This is but one incident of thousands which shows the trend of the

times in the matter of tax-exempt securities, billions of dollars' worth of which have been issued annually during recent years for public purposes. It is mentioned as the most recent example of this trend and not as a basis for criticism for the action in this case. Unquestionably, the soldiers' should be paid their bonus money at the earliest possible moment, in accord with the expressed desire of a large majority of the electors of the state, and unquestionably this could not be accomplished without making these securities tax exempt. It is unfortunate that this fact was overlooked when the bill was passed, but if the incident serves to direct public attention to this question of the indiscriminate issuance of tax-exempt securities for the general purpose of making public improvements it may be a fortunate circumstance. This question is one worthy of the most careful economic analysis, particularly

its relation to the industrial prosperity of the country.

### Controlling Twig Blight

DURING the past few years comparatively little time has been devoted to fighting twig-blight in the orchards of the state. This has been due in part to the limited evidence of the disease and perhaps in a larger measure to the lack of labor for performing what at best is a disagreeable task. Dr. Coons, bacteriologist of the Michigan Agricultural College, has just returned from several days' inspection of orchards in the fruit-growing sections of the state where he observed that trees are unusually hard hit by the disease this year, due to a lack of care the past few years and to the heavy growth of wood the past two months. He is preparing a special article for this jour-

## Permanent Tariff Bill

### The Agricultural Schedules

THE permanent tariff bill was introduced in the house of representatives on June 29th by Congressman Joseph W. Fordney, of Michigan. In bringing the bill before the house, Mr. Fordney said: "The members of the ways and means committee have worked industriously every day, Sundays excepted, since the sixth day of January in the framing of this bill. I hope when it is finally enacted into law it will be generally accepted by the people." This bill is expected to yield as high as \$700,000,000 in revenue a year. In the agricultural schedules the farmers did not get all they asked for, but it is evident that they are given all they could expect from the present congress. Here are the provisions in which Michigan farmers are more or less directly interested:

The dairy interests wanted adequate protection from coconut and soy-bean oils, but they got two cents per pound. On milk, fresh, the duty is one cent per gallon; sour milk and buttermilk, one-half cent per gallon; cream, having less than thirty percentum of butter-fat, five cents per gallon; having thirty per cent or more of butter-fat, ten cents per gallon.

Milk, condensed or evaporated, unsweetened, one cent per pound; sweetened, one and a half cents per pound; all other, one and three-eighths cents per pound; whole milk powder, three cents per pound; cream powder, eight cents per pound; malted milk and compounds of or substitutes for milk or cream, twenty per cent ad valorem.

Butter, eight cents per pound; oleomargarine, eight cents per pound. Cheese, valued at less than thirty cents per pound, five cents per pound; valued at thirty cents or more per pound, twenty-five per cent ad valorem.

Poultry raisers are fairly well taken care of. A duty of two cents a pound is levied on live poultry, and four cents on dressed poultry. Eggs in the shell, six cents per dozen; whole eggs, egg yolk, and egg albumen, frozen or otherwise, four cents per pound; dried whole eggs, dried egg yolk, and dried egg albumen, fifteen cents per pound.

Live stock and meat schedules are as follows: Cattle, less than two years old, one cent per pound; two years old or over, one and one-fourth cents per pound; oleo oil and oleo stearin, one cent per pound. Sheep and goats, one cent per pound; fresh mutton, one and one-fourth cents per pound; fresh lamb, two cents per pound. Swine, one-half cent per pound; fresh pork, three-fourths cents per pound; bacon, hams and shoulders, one and one-quarter cents per pound; lard, one cent per pound; lard compounds and substitutes, twenty per cent ad valorem. It is provided that no meat shall be imported into the United States unless it be healthful, wholesome and fit for human food, and contains no dye, chemical, preservative or ingredient which renders it unhealthful, unwholesome, or unfit for human food, and unless the same complies with the rules and regulations made by the secretary of agriculture.

The principal items in the wool schedule are as follows: Wools, not improved by the admixture of merino

or English blood, twenty-eight per cent ad valorem up to seven cents a pound. Such other wools imported on the skin, twenty-four per cent ad valorem up to six cents per pound. Other wools imported in the grease or washed, twenty-five cents per pound of clean content; imported in the scoured state, twenty-six cents per pound; imported on the skin, twenty-four cents a pound of clean content; provided that none of the foregoing shall pay a higher rate of duty than thirty-five per cent ad valorem. The same rates are provided for hair of the Angora goat and similar animals. Wool waste, twenty-five cents per pound; noils, carbonized, twenty cents per pound; not carbonized, sixteen cents per pound; shoddy and wool extract, fourteen cents per pound; woolen rags, six cents per pound.

All these wool and shoddy items were free under the Underwood tariff.

Manufactured wool, valued at not more than forty cents per pound, sixteen and two-thirds cents per pound, and in addition, ten per cent ad valorem; valued at more than forty cents per pound, twenty-seven and one-half cents per pound, and in addition, ten per cent ad valorem. Yarn, twenty cents per pound and fifteen per cent ad valorem; woven fabrics, weighing not more than four ounces per square yard valued at not more than \$1.25 per pound, thirty cents per pound and twenty-two per cent ad valorem; blankets, twenty cents per pound and twenty per cent ad valorem.

The tariff on barley is fifteen cents per bushel; buckwheat, thirty cents per 100 pounds; corn, fifteen cents per bushel; oats, ten cents per bushel; rye ten cents per bushel; wheat, twenty-five cents per bushel.

Apples, twenty-five cents per bushel; evaporated, two cents per pound; berries, one cent per pound; dried, two and one-half cents per pound; cherries, one and one-half cents per pound; grapes in barrels or other packages, twenty-five cents per cubic foot of the capacity of the package; peaches and pears, one-half cent per pound; plums, one-half cent per pound.

Seedlings, layers or cuttings of plants for apple, cherry, pear, plum, quince and other fruit stocks, \$2 per thousand plants; grafted or budded fruit trees, cuttings and seedlings of grapes, currants, gooseberries, and other fruit vines or bushes, twenty per cent ad valorem.

Grass seeds: Alfalfa, two cents per pound; alsike clover, three cents per pound; crimson clover, one cent per pound; red clover, three cents per pound; timothy, two cents per pound.

A tariff of eighty cents per ton is placed on sugar beets; forty-two cents per one hundred pounds on potatoes; one and one-fourth cents per pound on dried beans; seventy-five cents per pound on onions.

The hay rate is \$4 per ton; straw, \$1 per ton.

Agricultural implements, animals for breeding purposes, skins and hides, leather, boots and shoes, oil cake and oil-cake meal, sodium cyanide nitrate, sulphate and niter cake, barbed wire and several other articles are on the free list.

It is predicted by men in congress who are in position to know, that the Fordney bill will become a law before the end of July.

nal covering the present situation. In the article methods of control will be carefully dealt with. Every fruit man and farmer who has trees that are, or are likely to be, affected with this disease will do well to read carefully what Dr. Coons has to say in next week's issue of this journal.

## News of the Week

Wednesday, June 9.

COURTS of New Jersey refuse to stop the Dempsey-Carpentier prize fight in Jersey City.—Disabled American veterans of the World War, in convention at Detroit, threatened to "go over and mop up" the national convention of the American socialist party, also in Detroit.—Reports that the railway workers refused a wage cut effective July 1 have proved unfounded.—Taxi fares in Detroit are cut twenty-two per cent.—Coal miners' strike in England has been ended. Lloyd George asks parliament to grant ten million pounds subsidy to mining industry.—The Ulsterites accept Lloyd George's invitation for conference to bring about Irish peace.—Despairing of United States aid, sick war veteran walks 1900 miles from New York to Colorado in search of a cure for tuberculosis.—Heavy rains cause considerable damage throughout the state.

Thursday, June 30.

DAIRY cows near Hot Springs, Ark., eat mash from which moonshine whiskey is made, causing wierd antics and death to some of the cows.—New boat line scheduled to start July 11 will give Detroit ocean traffic.—Canada demands right of veto on British-United States treaties.—Japan makes big cut in army budget.—Homing pigeons flying from Vitchfield, Ill., to Detroit, maintain an average speed of thirty-four miles an hour against a northeast storm.—The house of representatives at Washington passes bill that beer and light wines shall not be used as medicine in the United States.—It is reported in Washington that President Harding will appoint William Howard Taft as chief justice of the United States Supreme Court.

Friday, July 1.

THE United States Department of Labor reports 16.7 per cent decrease in cost of living from June, 1920, to May, 1921.—Owing to protracted drought Paris is threatened with a shortage of water.—Elizabeth Rine, of California, defeats English opponent in women's singles tennis champion match in England.—Secretary of State Hughes and congress entertain delegation of Japanese parliament touring this country.—Banks of Prague, Austria, have suspended operation because clerks have gone on strike.—Arbitration agreement has been signed by striking paper mill employes and employers of this country and Canada.—War veterans in convention ask Japanese be barred from this country.—Peace with Germany is expected by July 4, the house already having adopted the compromise bill.—Aeroplanes, in bombing test, fail to destroy the radio controlled ship Iowa.

Saturday, July 2.

A COMPROMISE resolution ending the state of war between this country and Germany and Austria is sent to President Harding for his signature, following its enactment by congress.—Ore shipments from the upper lakes for the month of June are about fifty per cent of what they were for the same month a year ago.—A number of automobile companies announce a substantial reduction in prices for standard cars.—Jack Dempsey, American, is given the decision in the world's championship heavyweight pugilistic honors against Georges Carpentier of France, at Jersey City, N. J.—President Harding signs the resolution declaring war with Germany and Austria at an end.

Sunday, July 3.

PRESIDENT HARDING is expected to support the proposed soldiers' bonus resolution.—At the University of Michigan search for a lighter metal to replace steel is being made along scientific lines.—Many men are believed to have been killed in fighting, following the ambush of a police patrol at Dromore, Ireland.—Organized labor is preparing resolutions protesting the proposed shipment of hydro power from Canada to Detroit.—General Pershing in a conference of army officials urges every possible economy in the conduct of army work.—The public welfare department of Detroit reports a steady decrease in the number of needy families.—A new revolu-

(Continued on page 46).



# Controlling Insect Enemies of Potatoes

*The Spray Determines the Yield of the Tuber Crop and Its Profit.*

By Earle W. Gage

**T**HERE are, roughly, four controllable factors governing the yield of potatoes, namely, fertilizer, cultivation, seed and spraying. Many growers obtain the best seed available and fertilize and cultivate in the best possible manner, and yet neglect the spraying, which is most important of all. Experiments demonstrate beyond a doubt that \$12 spent in spraying is worth twice as much as a ton of 4-8-10 fertilizer in increasing the yield of potatoes.

According to experiments held last year at the Annapolis Royal, Nova Scotia Station, around one hundred bushels per acre increase was obtained from the use of \$40 worth of fertilizer, or the increased crop resulting from the use of fertilizer cost forty cents per bushel. The increase in crop due to spraying ran over two hundred bushels per acre and cost less than \$14, or an increased crop due to spraying cost around seven cents per bushel on the acre plots.

The unsprayed field gave 221 bushels per acre and the sprayed 398. A difference due to spraying of 177 bushels, or the increased crop was obtained at a cost of less than nine cents per bushel. Although there are some in the modern farm ranks who decry the value of fertilizer in boosting potatoes along, we do not need to take that position exactly, but rather to appreciate the fact that the spray is more valuable than the fertilizer, the latter being, however, useful in its place.

We may believe in the use of plenty of high-grade fertilizer, but let us not fail to emphasize the value of spraying, which costs less than one-fifth as much per acre as fertilizer and gives twice as great returns or is ten times as valuable, considering the amount of money invested by the grower. The results mentioned were achieved in the Maritime district of Canada, where late blight is prevalent, and the difference would not be so marked in sections where this disease is not found, though the proportions would still favor spraying.

Bordeaux mixture is, of course, the spray for the potato. During the past few years many growers have found it advisable to increase the strength of the mixture as the season advances. Starting with 4-4-40, the second spray should be 5-5-40 and the third and later sprays 6-6-40. The spraying should start when the plants are six inches high in order to control the potato beetles and blight. As an absolutely safe and fool-proof poison for potatoes there is nothing better than arsenate of lime, one and one-half pounds to forty gallons of Bordeaux. There are two brands of arsenate of soda on the market, arsenoid and sol-arsato. Both are excellent poisons in Bordeaux and cost about the same as arsenate of lime. White arsenic, also, is a good potato poison.

White arsenic and hydrate lime, equal parts, is the cheapest of all arsenicals. The value of such a mixture has been thoroughly demonstrated on several farms. The directions for making this new mixture must be followed closely, for there is danger in using poison straight or not in conjunction with Bordeaux, or in any manner but exactly as recommended. The great saving, however, that results from its use makes it worth while for all potato growers to learn how to use it. The cost is about one-fifth that of other poisons or, to put it another way, one can make a white arsenic Bordeaux and the total cost of the white arsenic, bluestone and lime, will be approxi-

mately that of Paris green or lead arsenate. In addition, one has a better sticker than Paris green, a more rapid killer than lead arsenate, and the fungicidal value of Bordeaux as well.

The method of procedure is as follows: To each ten gallons of water intended for bluestone stock solution, add two pounds of the mixture (equal parts of white arsenic and hydrated lime) poison, stir this in and then into this dissolve ten pounds of bluestone. This will make a green precipitate. Always stir before using. Use this green mixture as if it were a solution of bluestone, each gallon containing one pound in solution. Add the proper quantity of lime and test with litmus in making Bordeaux just as though no poison were in the bluestone solution. All growers who use enough solution, seventy to one hundred gallons per acre per application of white arsenic

Bordeaux, control the potato beetles.

Apply at least eighty gallons of poisoned Bordeaux in the strength mentioned per acre, and apply the spray at intervals of from ten days to two weeks from the time the plants are six inches high until they die of old age or the frost kills them. If the weather is damp and rainy, spray oftener; if dry, make the intervals two weeks. If your sprayer will only apply sixty gallons per acre per application, use it at intervals of from seven to ten days apart. If you have a hand-sprayer that only applies forty gallons per acre, go over the field twice at each application.

When using poison, apply the poisoned Bordeaux when the bugs are just beginning to appear. It takes a lot less arsenic to kill a small bug than a half-grown one. Above all, use common sense and judgment in spray-

ing. Don't think that applying forty gallons per acre once or twice through the season will grow a large crop of potatoes. Such spraying often eases a man's conscience and enables him to say that he has sprayed, without breaking any of the commandments, but in order to control insects and blights successfully there must be a certain amount of copper and a certain amount of arsenic applied to each acre, and it must be renewed often enough so that a continuous protection is afforded to the plant.

## Controlling Potato Aphids.

In 1918, and again during 1920, there was a very severe outbreak of potato aphids in northwestern states, which went as far north as New Brunswick. The potato aphid not only does a great deal of damage in the years when it is present, but it is the carrier of mosaic, so its injury continues for years after outbreaks through the increased amount of mosaic caused by it. Potato aphids also render plants susceptible to Bordeaux injury, and in 1920 there were many complaints in various sections of Bordeaux mixture and copper arsenic dust burning plants. This injury is all secondary, and as a matter of fact, when a plant becomes so infested with aphids as to be susceptible to Bordeaux burning, it is past storing tubers, and therefore useless. Although there was burning there was no monetary loss.

Potato aphids hibernate for the most part on the rose plant, both wild and cultivated. Root out all of the wild rose bushes in the neighborhood of potato fields and spray cultivated roses in the spring, about the time the first potatoes are coming up, with black leaf 40 at the rate of a tablespoonful to a bucket of water.

The potato aphid is one of the insects, in the control of which steps must be taken before the outbreak occurs. In other words, controlling potato aphids is like insurance—you buy your protection not knowing whether you will need it or not.

To control aphids use one pint of black leaf 40 to each one hundred gallons of Bordeaux and apply at a high pressure and with an up-spray. The spray must hit the insect in order to kill. Apply black leaf 40 with the first two or three applications of Bordeaux. It is particularly advisable for growers of seed potatoes to spray thoroughly for potato aphids. In no other way can they hope to keep down mosaic in years of aphid outbreaks.

Few realize the immense amount of damage that is caused by the small, black flea beetles that are found hopping about the potato for the first few weeks after it comes through the ground, in districts where this pest is prevalent. This insect tends to stunt the potato's early growth, and when prevalent, will reduce the acreage yield by one hundred bushels. In one case, where the beetles were controlled beside a plot on which they were allowed to run wild, the increased yield was nearly one hundred and forty bushels, from flea beetle control alone.

The best treatment is to apply a repellent, and for this Bordeaux is the best yet known. No poison is required in flea beetle control as they absolutely refuse to eat a plant that is coated with straight Bordeaux.

If flea beetles are plentiful on potatoes when they first appear, apply a good coat of 4-4-40 Bordeaux. Continue this every week up until the middle of July. It pays as well to protect the young plant from injury as it does the halfgrown plant.



This Novel Outfit was a Feature of Last Year's Tour.

## Farmers' Automobile Tour

By J. H. Brown

**A** NUMBER of farmers and their wives, also several young people, on their farms in northern and southern Michigan, have repeatedly asked us to write more about the Michigan Farmers' Automobile Tour for next August, also about the tour association. Some of the farmer folks say they did not take the tour last, but they are greatly interested in the organization and wish to join, providing the new constitution and by-laws permit. They also declare that touring and camping is rapidly becoming the ideal vacation stunt looked forward to by nearly every farmer and his family who have an automobile.

The tour organization was completed June 22-23 was a wonderful treat and a complete success. There were seventy-three cars present on the camp ground. And since last August some of the 1920 tourists have made various improvements in their equipment. Visitors were astonished at the quality of the tents, beds and cooking conveniences, and the comfort provided in and around the cars of the tourists who went to Mackinac last year.

The tour organization was completed, a constitution and by-laws adopted, and the dues placed at fifty cents a year. There are no fees for joining, and each member who sends in his or her half dollar is fully paid up until June, 1922. A membership card is mailed to each paid-up member. Any one who is interested in touring and camping and in agriculture in some way, and is in good standing in his or her own community, can become a

member of the association upon application to the secretary.

The officers are: Elmer E. Ball, Albion, president; Mrs. Dora H. Stockman, Lansing, vice-president; J. H. Brown, Battle Creek, secretary-treasurer. These officers, with two members appointed by the president, make up the tour association board of directors. The two directors are W. H. Lovejoy, Perry, and H. H. Snyder, of Climax.

The place of holding the tour association reunion next summer was left to the board of directors. So many have announced their intention of going on the tour in 1922 that the manager seriously thinks of running the tour in two sections; one to go to Niagara Falls the middle of July, the other and main tour to go up the west pike of Michigan as was done last year.

Scores of Michigan Farmer readers ask if they can go to the George B. Horton Farm and camp out with the rest of the tourists, even though they cannot make arrangement to take the tour this year. They wish to camp and stay with us during the two days we will be at Fruit Ridge.

There will not be room in the tour camp formation, but there will be plenty of room outside the camp where you can set up your tent around your car and join with us in the two-day program. There is still room for a few more cars to register for the tour. Our camp sites in Cleveland, Pittsburgh, Uniontown, Wheeling and Columbus are so large that twice as many cars can be accommodated.



# ACTIVITIES OF FARM BUREAUS

*Latest News From Local, State and National Organizations*

## DIRECTOR OF STATE FARM BUREAU OF DAIRYING.

**M**R. H. D. WENDT, general secretary of the Michigan Allied Dairy Association, has been appointed acting director of the Bureau of Dairying of the new State Department of Agriculture in Michigan. To Mr. Wendt goes the credit for organizing and effecting the unity of purposes existing in the dairy industry in Michigan. No other state in the Union has such a complete dairy organization as that of the Michigan Allied Dairy Association which embraces all phases of dairying in the state. Mr. Wendt became connected with the State Dairy and Food Department in Michigan in 1913 in the capacity of a dairy manufacturing specialist, and in 1917 was appointed chief of the dairy division of the department. Mr. Wendt is a member of the board of directors of the National Dairy Council and superintendent of the dairy department of the Michigan State Fair.

## PROF. HUNT VISITS EUROPE.

**W**ATCH Russia. I do not mean politically but economically. The world, the human race is more dependent upon economic rehabilitation and direction of Russian agriculture than upon any other single material factor in the world," is the message to the American farmer from Thomas F. Hunt, of the College of Agriculture of the University of California, who has just returned from Europe where he spent considerable time studying European agriculture, especially its re-

lationship to the future of farming in America. Dean Hunt's statement was made before the executive committee of the American Farm Bureau Federation at its recent session at Chicago.

"I do not mean that the American farmer is necessarily going to suffer when Russia comes back," said Dean Hunt, "but the direction that our agriculture will take will be affected by the time and the way when Russia comes back. More than 150,000,000 Russian people are involved in that comeback. The American farmer who does not adjust himself to this new order is the one who is going to lose out. It is the most important thing. Watch Russia and study her.

"The greatest single need of the American farmer today is adequate credit. For the good of the whole nation he should have improved credit facilities. After most great wars, there has been an upset of agricultural ownership in the countries affected. Landlordism in England arose after previous great wars, primarily because the little farmer did not have sufficient credit to carry on his work economically."

## WOOL POOL ACTIVITIES IN OTHER STATES.

C. J. Fawcett, director of the wool marketing department of the American Farm Bureau Federation declares that the amount of wool pooled in the American Farm Bureau Federation or any other pool will be determined very largely by the financial condition, as the majority of sheep in the western country are covered by a mortgage

which is effective on the wool.

The Utah Farm Bureau wool pool has reached approximately a half million pounds and additional shipments are being made daily according to an announcement by D. D. McKay, chairman of the marketing committee of the Utah State Farm Bureau and Utah Wool Growers, Inc.

## WOOLEN MILLS MORE ACTIVE.

**W**ITH woollen mills of the country running at sixty per cent of normal capacity as a whole, many of them stocked up with orders which will keep them busy well into the winter and others putting on night shifts, things are looking better for the wool industry, says A. J. Hankins, director of the State Farm Bureau wool pool. Another cause for optimism on the part of wool growers, according to Mr. Hankins, is the fact that generally lower prices for clothing and the reappearance of quality fabrics at what the consumer considers a reasonable cost is fast breaking what has been commonly termed the buyers' strike. The result is an increased movement of raw wool.

Farmers are helping themselves by pushing vigorously the marketing of their own wool pool, both in the raw and manufactured form. Within the past two weeks the State Farm Bureau wool pool has sold 200,000 pounds of wool and is preparing to move large lots of the 1921 clip. Two million pounds of Michigan wool has been pooled and graded to date and the farm bureau now believes that the pool will go to 4,000,000 pounds. That would

mean that seventy-five per cent of the state's clip would be in the pool. The emergency tariff is declared to have stopped foreign wool imports and to have relieved the wool situation.

Six grading teams are now covering the state for the farm bureau. Wool continues to come in at the rate of 360,000 pounds a week. Grading dates for the week of July 11 follow:

Monday.—Kaleva, Gladwin, Holly, Chelsea and Marcellus.

Tuesday.—Cedar, West Branch, Holly, Dexter and Lawrence.

Wednesday.—Rose City, Oxford, Saline or Bridgewater and Martin.

Thursday.—Kalkaska, Prescott, Oxford and Hillsdale.

Friday.—Lake City, Pinconning, South Lyon and Montgomery.

Saturday.—Antrim County, Sterling or Standish, Plymouth and Adrian.

## FARM BUREAU MEMBERSHIPS

On March 4, 1920, which marks the launching of the national organization, the farm bureau membership totalled 456,000. On December 1 of the same year this total had increased to 744,401 and the last accounting on June 1 showed the remarkable total of 1,052,114.

Iowa has the largest farm bureau membership in the American Farm Bureau Federation which is 118,000. Illinois is second with over 110,000; Ohio and Texas each have over 100,000, while Michigan and Indiana follow with nearly 100,000 each. The American Farm Bureau Department of organization has set its quota at 1,250,000 members by December 1, 1921.

# OUR SERVICE DEPARTMENT

## TAXES A LIEN ON LAND.

A traded city property for a farm in August and in November a bill for paving the city property was presented. Should A pay the bill?—K. R.

Taxes for local assessments in cities become a lien July first and are therefore from that time an incumbrance on the land. Any sale of the property with a covenant for clear title would bind the seller to pay the taxes.

J. R. R.

## TREATMENT FOR LICE.

How is blue ointment made and where should it be put on chickens to control lice? I have chicks that dump around, their eyes swell and they scratch their heads with their feet, but when examined no lice can be found on them. Do you think it is lice or mites that are bothering them? A great many have died.—G. C. B.

The mercurial ointment commonly called blue ointment, can usually be purchased at any drug store or the druggist can order it from his wholesale house. The cost of the material can be reduced by mixing the blue ointment with equal parts of low-grade vaseline. Place a small dab of the ointment beneath the vent and rub it in thoroughly. Additional protection is secured by placing a light smear beneath each wing. Blue ointment is poisonous and must not be left where stock can reach it. We have found one application to give protection from lice for six months and often longer.

If young chicks have swollen eyes and seem lacking in vigor it may be due to colds caused by overcrowding. If they have head live but ten cents

worth of sweet oil and add about ten drops of carbolic acid. Shake the solution before using and apply a light dab to the head of each chick to kill the lice. Mites may become entrenched in brood coops and pester chicks or they may breed on the roosts in colony houses. They can be killed by spraying with one of the commercial coal-tar disinfectants.

## DRAINS ON HIGHWAYS.

The town graded a highway in front of my building, leaving a gutter two and a half feet deep. There are four driveways. Can the town be compelled to put in tile so it can be leveled up in front of the building, or can the town be made to put in tile for the driveways?—E. D. S.

The only provision we are aware of touching the question is Compiled Laws 1915, Section 4511, as follows: "When a drain passes along a highway, there shall be constructed at least one bridge or passageway across such drain connecting the highway with each enclosed field and with each farm entrance, which bridge or passageway shall also be charged in the first instance as a part of the construction of such drain, after which such bridge or passageway shall be maintained by the owner of the land."

J. R. R.

## STRAY DOGS.

Have I a right to kill all stray dogs found within my sheep enclosure?

F. A. A.

By the Dog Law of 1919, Public Acts 1919 No. 339, Section 19, it is provided: "Any person may kill any dog

which he sees in the act of pursuing, worrying, or wounding any live stock, or attacking persons, and there shall be no liability on such person in damages or otherwise, for such killing. Any dog that enters any field or enclosure outside of an incorporated city, unaccompanied by his owner or his owner's agent, shall constitute a private nuisance, and the owner or tenant of such field or other enclosure, or his agent or servant, may kill such dog while it is in the field or other enclosure without liability for such killing. Except as provided in this section, it shall be unlawful for any person, other than a police officer, to kill, injure, or attempt to kill or injure, any dog which bears a license tag for the current year."

## WASHING MILK BOTTLES.

I have been running a small dairy and am now increasing. I washed the milk bottles by hand but this is getting to be quite a job. I would like to know if a solution, or some system of washing that would save time and labor, and still give a clean and sanitary bottle.

Montcalm Co.

W. R.

There is no short way to wash milk bottles or any other dairy utensils. They have got to be washed clean with a cleansing powder or soda. There is no solution that you can use that will clean bottles. Of course, you could use some solution that would destroy the bacteria but this does not clean the bottles. Thoroughly washing and sterilizing is the only process that would be presumable. If you have a sufficient number of bottles so that

it will pay you to buy a bottle washer, then, of course, your labor is very much reduced, you can purchase a bottle washing machine from a dairy supply houses, but you must use cleansing powder instead of soap and after the bottles are washed they must be rinsed in boiling water or sterilized in some other way and allowed to dry without wiping. The water must be hot enough so that the bottles will dry without wiping.—C. C. L.

## RATION LACKS PROTEIN.

I have alsike clover, sweet corn stalks, ground oats and barley and roots. What more do I need to make a balanced ration for milch cows?

Huron Co.

L. J.

While the foods you mention are all good foods for dairy cows, yet the ration lacks protein, which can readily be furnished by adding cottonseed meal or linseed meal. Wheat bran would also be a splendid addition. I suggest that you feed all the alsike clover hay and sweet corn stalks that they will eat up clean, then you feed each cow two pounds of oil meal per day and in addition a sufficient amount of ground oats and barley so that each cow will receive one pound of grain for every four pounds of milk she produces a day.

Roots are a most excellent food to feed to cows in your ration if you have no succulent food, but I would not feed them too liberally. One-half bushel night and morning would be sufficient to furnish a succulency and I think will give you better results than it would to feed twice as much.—C. C. L.



## When Corn Eats Most

*Interesting Data on Feeding the Corn Plant*

**T**HE results of recent experiments on the effect of a varying supply of nutrients at different periods in the growth of the corn plant are reported in Missouri Research Bulletin No. 42. In this work corn was grown to maturity in large cylinders containing pure white sand. A standard nutrient solution was made and given to a part of the plants. Another solution of one-twentieth the strength of the standard was given to plants in other cylinders. The standard solution was sufficient to produce normal corn plants, while the weak solution was barely strong enough to keep the plants alive and produced very little growth.

At the end of thirty days' growth some of the plants receiving the standard solution were changed to the low ration while others receiving the weak solution were changed to the standard or optimum treatment. At the end of sixty days the solutions were again changed until all possible combinations of growing periods and strength of solution were obtained.

### When Most Food Is Needed.

The results of this experiment show that plants having a good supply of plant food during the middle period or from the time the plants were thirty to sixty days old usually made the best growth. This period, therefore is proved to be the time at which the corn plants need the greatest supply of plant food.

Where the plants had plenty of food during the first sixty days they would take up most of the mineral nutrients necessary for their development, only small additional amounts being required to bring them to maturity.

Where large amounts of plant food were present the stalks, leaves and ears were richer in protein and mineral matter than plants grown in the weak solution, but where excessive amounts of nutrients were present during the later stages the plants took up more than was necessary for their development and did not use the food materials, economically.

Plants stunted by a limited food supply at the beginning of the growth period and then given a standard solution during the last sixty days produced shorter stalks, with fewer leaves, and the time of maturity was delayed ten to twenty days. They did, however, come out and produce good plants and fair ears regardless of the early stunting.

Plants having a low supply of nutrients near the end of the growing period produced larger and more fibrous root systems than those well supplied with plant food. During early growth where the supply of nu-

trients was low the weight of roots was greater than that of the tops. Where plenty of plant food was available the weight of tops was twice that of the roots. At the time of maturity the weight of tops was from three to seven times as much as the roots, depending upon the amount of available plant food.

A low supply of available nutrients increased the proportion of nitrogen, phosphorus, and potassium found in the roots over that obtained where a plentiful supply of plant food was present.

Corn plants that were normal in growth contained more than half of the nitrogen of the tops in the ears.

### FARMERS' AID SAVES STARVING CHILDREN.

**I**T is to the farmers and millers of America, that fifteen thousand orphan children in far away Armenia, and seven American relief workers, owe their lives today. For months shut off from the outside world by the bolsheviks on one side and the Turkish Nationalists on the other, they saw their supplies daily dwindle until the meager rations were cut in half, and still no help came from the outside world.

Cables were sent the near-east relief director in Constantinople that the situation was critical. At once a cargo of flour in charge of eight American women was sent out via Batum to the beleaguered city.

A week later a second cable reached Constantinople. "No food at any price," it read. "Four days more and we are finished." On the fourth day, when the last day's half rations were all that stood between the deserted children and starvation, the eight American women arrived with their shipment of flour. Thanks to the people of America, the day was saved.

The sequel to the Alexandropol cables followed in the wire sent out by Chares V. Vickrey, general secretary of the near east relief. "Expect ship one thousand tons of rice," he cabled, "one thousand tons wheat flour, six hundred tons cornmeal, corn flour, hominy, thirty tons sugar, five hundred tons beans, five thousand cases corn syrup . . . Additional thousand tons wheat flour from Pacific Coast June first."

The farmers who have contributed so splendidly of their produce toward the cause of the near east relief may take great pride in the results of their generosity. For in this single dramatic incident is typified the life-saving work that day by day is being accomplished through the gifts of the American people.

## Consider Your Clothes

**H**AVE you ever stopped to think of the part petroleum plays in converting raw material into the fabrics which are used to make your suit of clothes? From the wool on a sheep's back to the clothes on your back is a long journey and petroleum shortens it at every step.

By machinery lubricated with petroleum, a man may shear from 175 to 200 fleeces a day. By the old method, 50 fleeces would be considered a big day's work.

After leaving the sheep, the wool passes through ten major processes before it is ready for the tailor. Each of these require the use of intricate machinery, having bearings which run at speeds varying from 350 to 12,000 revolutions per minute.

From the clipper to the last finishing machine, a diversity of mechanical conditions exist, each of which has been studied and experimented with, and a lubricant found which meets exactly the needs of the machinery.

In solving these lubricating problems, and manufacturing oils and greases which enable these machines to perform their work, the Standard Oil Company (Indiana) always has been among the leaders.

Its staff of carefully trained chemists, refiners, and lubricating engineers are constantly at work, devising new and more efficient means of reducing friction.

This Company computes its success not wholly upon its balance sheets, not wholly upon the number of useful products it manufactures, but rather upon the fact that many of the useful products of petroleum are made from material which otherwise would be wasted, and are made by processes which were evolved in the Company's laboratories.

**Standard Oil Company**

(Indiana)

910 So. Michigan Avenue, Chicago, Ill.

2476



Clinton County Farmers Delivering Wool Grading Day.



# LATE AGRICULTURAL NEWS

## FARM TENANCY SMALL IN MICHIGAN.

**FIGURES** on farm tenancy in the United States have just been published by the bureau of census. These figures show that while the average number of tenant farmers in the country is 38.1 per cent of all farms, that the average for the state of Michigan is but 17.7 per cent. Of the 34,722 tenant farmers in the state, 23,280 work farms on shares, 422 on the share-cash plan, 9,312 pay cash, while 1,708 are unclassified.

## BILLS TO INCREASE LOANS TO FARMERS.

**MANY** bills designed to benefit the farmers are now pending in congress, but their progress is slow and often discouraging. Up-to-date the emergency tariff is the only farmer legislation that has become a law, although the Haugen packer control bill and the Curtis-Nelson bill to provide larger capital for the Federal Farm Loan Board, have passed the house and senate. The house refused to accept the senate amendments to the packer bill, and Representatives Haugen, of Iowa, McLaughlin, of Michigan, Ward, of New York, Jacoway, of Arkansas, and Rainey, of Illinois, were appointed to confer with Senators Norris, Kenyon and Kendrick, with the hopes of reaching an agreement.

## WANTS GOVERNMENT SUPPORT FOR EXPORTERS.

**EDMUND D. FISCHER**, of Detroit, Michigan, a member of the Inter-American High Commission, and representing the banking interests, proposed that the government stand back of private capital in organizing a foreign export corporation under the Edge law. While the business would be under the control of private stockholders, with government supervision, the government would subscribe to one-half the stock. Any time the corporation wished to buy the government stock it could do so at book value. This it was claimed would give the corporation the benefits from private initiative. Mr. Fischer would not object to having the activities of such corporation confined to the exporting of agricultural products.

## RURAL CREDIT AND INSURANCE BILLS.

**THE** Kenyon rural credit and multiple insurance bill is receiving the support of senate agricultural section, and also has the approval of many leading economists. Its purpose is to provide a permanent system of rural credits, standardizing the farmers' paper for agricultural production in the open market, and giving them access to the financial centers for the sale of such paper, whereas today they are restricted to the local banks.

## WOULD REMOVE BUTTER TAX.

**REPRESENTATIVES** of the dairy-men's organizations appeared before Commissioner of Internal Revenue David H. Blair, asking him to rescind the neutralizer butter ruling made by Commissioner Williams in February. Commissioner Blair showed a very friendly attitude toward the dairy interests, and promised that he would consult with the secretary of agriculture before coming to a conclusion. The delegation that visited the commissioner was composed of the following: J. G. Walker, president Blue

Valley Butter Company, Chicago; Dr. George L. McKay, secretary American Association of Creamery Butter Manufacturers; M. D. Munn, American Jersey Cattle Club; Prof. Christ Larsen, chairman dairy division Illinois Agricultural Association, and A. M. Loomis, secretary National Dairy Union. Mr. Loomis told the commissioner that the reason he objected to the ruling was because it would compel seventy-five per cent of all butter produced in the United States to go onto the market stigmatized with the brand, "adulterated," in competition with oleomargarine in which all kinds of chemicals are used and which is not branded "adulterated" in any way.

## SENTIMENT AGAINST TAX-FREE BONDS.

**STIMULATED**, no doubt by recent action of the American Farm Bureau Federation in suggesting the submission of an amendment to the Constitution to the several states prohibiting the issuing of tax-free bonds, a strong sentiment is developing in congress against tax-exempt bonds. In a recent statement Representative Louis T. McFadden, chairman of the house committee on banking and currency, said "the creation of two classes, the wealthy, free from the burdens of taxation, and the workers, who are forced to bear the burdens of which the wealthy are relieved, through the purchase of tax-exempt securities, is a violation of social justice, which is crystallizing in broad public opposition and discontent, as the issuance of tax-exempt securities expands."

"Otto H. Kahn has estimated that \$14,435,000,000 of tax-exempt securities have been issued up to January, 1921, of which about half represents the debts of states, cities, school districts and other political subdivisions, while half represents the obligations of the government.

"In the last few years we have seen the personal wealth of the country so rapidly segregated into the tax-free class that whereas the taxable income of individual taxpayers under the federal income tax law, was \$992,972,985 in 1916, the amount decreased to \$731,372,053 in 1917, and to \$392,274,329 in 1918," according to Mr. McFadden. "It is a safe conclusion," he continued, "that they had converted their wealth into tax-free securities so rapidly that at a similar rate of conversion they would be 'scot-free' of all income tax by 1922.

"It is stated that more than \$1,000,000,000 of state and municipal tax-free securities were issued in 1920. If these securities are held by the wealthy, whose federal income tax is at the rate of seventy-three per cent, the total annual loss in this one form of tax alone is over \$35,000,000, if the interest rate on these bonds averaged five per cent. On a most conservative basis the government is now losing annually from \$175,000,000 to \$200,000,000 on tax-exempt bonds already issued. The wealthy investor receives as much net return from a five per cent tax-exempt bond as from a taxable industrial investment paying over seven per cent."

## EXHIBITS FOR STATE FAIR.

**EXHIBITS** divided into three main sections will represent M. A. C. and counties and farmers of Michigan at the State Fair at Detroit this year. The display from the college and experiment station will occupy the east half of the agricultural building, comprising the work of six divisions and

seventeen departments. Eighteen county exhibits under the supervision of county agricultural agents will take up most of the space in the west half, while in the center of the west portion will be arranged tables for farmers' crops exhibits.—H.

## NO REDUCTION IN FREIGHT RATES.

**THE** Association of Railroad Executives has declared that there will be no reduction in rates on fruit, vegetables and melons at this time, says the State Farm Bureau traffic department, citing the decision of the executives at their recent meeting when the same complaints and petitions for lower rates as have gone before the Interstate Commerce Commission were laid before the railroad men.

The executives charged that the evidence submitted did not show that rail charges had affected the shipment of farm products and that contrary to complaints, more cars are being shipped now than were being shipped at this time last year. The complaints are now up to the Interstate Commerce Commission.

## GRANGE GROWS IN SOUTH.

**THE** Grange is making considerable progress in the south, several new subordinate granges having been organized this spring in Virginia and North Carolina. On July 4, Congressman John C. Ketcham, of Michigan, made an address at a joint picnic of the grange, farm bureau and farmers' union in Eastern North Carolina.

The executive committee of the National Grange will meet at the Washington Grange headquarters on July 6. The principal business will be the making of arrangements for the fifty-fifth annual session of the National Grange at Portland, Oregon, beginning November 16.

## AGRICULTURAL INQUIRY.

**THE** congressional joint committee of agricultural inquiry will begin its general hearings at ten o'clock on Monday morning, July 11. Farmers, stockmen, dairymen and representatives of farm organizations will be heard first. The commission desires that so far as possible the presentation be confined to facts with suggestions for specific remedies.

## FARMERS TO GATHER AT M. A. C.

**HOW** the M. A. C. farm looks when it is actually in operation in the growing months will be observed by agricultural dwellers of the state on July 29, when the fourth annual summer farmers' visiting day is held. This gathering correlates with farmers' week in February and has come to be regarded as one of the few big events of the year at the college.

Business and pleasure will be combined. The morning will be spent in inspection trips over the barns and crops experimental areas. At noon a basket picnic lunch will be held on the lovely M. A. C. campus, and in the afternoon a short meeting will be held, with addresses by one or two nationally known agricultural leaders. There will be games and sports for the kiddies and the big ninety-foot swimming pool in the college gym will be thrown open to the boys.

The farmers' wives will have their distinctive share in the day's activities. A special program for them will be held in the woman's building, which is to be their headquarters for

the day. Exhibits of foods, textiles and labor-saving devices will be on display.

In the 142 acres where crops are being tested experimentally, are twenty varieties of corn, eighty varieties of field peas, forty varieties of sugar beets, twenty-five varieties of clover, 125 varieties of alfalfa and a large variety of forage crops. Fertilizers for fall use will be featured in the soils department exhibits.

Beef and dairy cattle being prepared for the International Live Stock show may be seen in the college barns. Among the blooded animals that will be on display are the champion Holstein cow, 1920 Michigan State Fair; the junior champion Holstein bull, and the Guernsey cow, Carrie of Hillhurst, who held the Guernsey world's butterfat record in the double letter class. The Belgian horse Jupiter, first and reserve champion at the 1920 Ohio State Fair, and the Clydesdale, Prince Fortune, winner of first premium, will be on exhibition in the horse barns. A perfectly matched team of Clydesdale mares, each of which has stood first and reserve champion at Chicago, may also be seen. Altogether, more than 100 dairy cattle, eighty beef cattle, fifty-five horses, 200 sheep and 250 hogs will be shown.—H.

## BALANCED INDUSTRIAL SYSTEM.

**IT** is easier to prevent poverty than an epidemic of yellow fever, it was contended by Dr. Thomas Nixon Carver, professor of agricultural economics at Harvard, in his address, "A Balanced Industrial System," before the ministers' and laymen's conference at M. A. C.

"Every evil we find in our industrial system is due to a lack of balance among the factors of production," said Dr. Carver. The problem of poverty is this: Why can't poor people sell what they have to sell? Sometimes the reason is lack of land. Intensive cultivation and poverty go together. Sometimes the reason is an over-supply of unskilled labor. There is no such thing as an over-supply of labor in general, but there may be too much of one kind.

"Do we want to pay the cost of eliminating poverty? It will cost every one of us something. If you belong to the employer class it will cost you still more. Of course, the employer likes to be able to turn job seekers away, but poverty for some people is the result. We must thin out the unskilled labor by an educational system and restriction of immigration."

Dr. Carver declared our present industrial order is based on the repression of violence and can be overthrown only by restoring violence. Recurrences of industrial depression, he held, are the penalties we pay for living under such an order, the very blessings of which brings its evils.

In his discussion of intensive cultivation, he made the statement that success in farming should be measured by production per man and not per acre. "We have more scientific farming in the United States than anywhere else in the world, except possibly Canada and Australia," he said.

One of the most important provisions of the live stock marketing plan to be submitted to the producers of farm bureau states of the nation will be the establishment of farmer-owned and controlled commission companies. This was decided at the third session of the farmers' live stock marketing committee of fifteen held in Chicago recently.



# More Cash - Same Day for your cream



## Ship Direct From Your Farm to Fairmont--Detroit

**T**HE Fairmont Creamery—America's largest Independent Creamery—Detroit Branch, will pay you more cash on delivery for all your cream. Get acquainted with this great outlet for your butter-fat. Here is a steady market for every pound you can ship and you are guaranteed the highest market price and you are guaranteed a fair test. You get your money at once, for it is the policy of Fairmont to mail your check, covering full shipment, the same day your cream is received.

### You Make Bigger Profits

You save all commission charges. Your market is certain and you can ship in any quantity from a can to a carload. Railroad and electric line facilities from all Michigan points, direct to Detroit for prompt shipping were never better. So no matter where your farm is located you can ship to a Detroit market, get Michigan's best price—and promptly. Whether your shipment is large or small you get the same fair and square treatment.

### For Making "Better Butter"

From your farm direct, your butter-fat goes into the making of **Better Butter**—a quality brand of the finest butter that is possible for human skill and a modern plant to make. Its quality is such that it commands a price higher than ordinary grades. That enables us to pay you more for your butter-fat. We demand quality—we want the highest test cream you can produce and we will gladly pay you the price. The demand for Better Butter in the Detroit Market is ever growing—furnishing you through the big Fair-

mont organization a certain, steady market for all the cream you can ship at a guaranteed highest price.

### Your Shipments Protected By A Six Million Dollar Corporation

When you ship your cream to Fairmont Creamery in Detroit you are dealing with a \$6,000,000.00 corporation—a company of national reputation 38 years old, with branches in 18 big centers in the United States. Detroit is the Michigan Branch of this great organization—an ever ready market for your dairy products where you can get the most cash in good times or bad—year in and year out.

### No Loss—No Risk

It is actually an insurance to you when you ship to Fairmont as you are protected against loss of both your cream and your cans. Also the fact that this announcement appears in the Michigan Farmer assures you of the reliability of all statements we make. Your own banker will tell you who we are and give you details of our financial standing. Hundreds of thrifty

Michigan farmers are Fairmont shippers and we will be pleased to refer you to any near you at your request.

### Fair Grading—Square Dealing

Only because of Fairmont's exacting policy of a square deal all around could its business show such a wonderful development. Only by paying the highest prices promptly—giving an absolutely accurate and fair test on every pound of butter-fat we buy, could we satisfy the thousands of Fairmont shippers. The proposition Fairmont offers to you is so different—so satisfactory that you simply cannot afford to miss it.

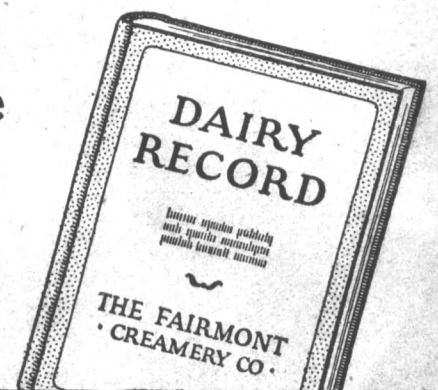
### Try One Shipment

Learn first hand how Fairmont deals squarely—how promptly Fairmont sends you the biggest check for your cream. Don't wait to write. Just mark your next lot of cans to Fairmont, Detroit. Drop us a line that you are shipping and your check will be mailed the same day your cream gets to Detroit. Try Fairmont once—send a can or a carload. No previous arrangements necessary.

## Dairy Record Book---FREE

Just fill out the coupon—this valuable book is **FREE** to every Michigan farmer. If you milk two or more cows it's 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. It's a copyrighted edition, the handiest dairy record and most valuable guide obtainable. Asking for it places you under no obligation. Just fill out the coupon and mail it today.

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Gentlemen:—  
Send me Dairy Record book and complete particulars of your company. Also send 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.

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County..... State.....



# Nut Trees for Michigan Highways

*State will Cooperate in Beautifying Michigan Trunk Lines  
with Nut-Bearing Trees*

By J. H. Mills

ONE of the really beneficial movements which concern a large number of farmers in Michigan is the one now being promoted to grow nut-bearing trees along the highways of the state. The idea is not new as thousands of farmers for several generations have planted trees along the main road upon which their farms faced, but I believe the present movement to encourage and foster the idea and bring action is the first concerted effort made in this direction. If carried out to a satisfactory conclusion it will become a big project, entailing the planting and care of millions of trees. The fact that nut-bearing trees are to be planted, preferably the black-walnut, lends an added interest to the rising generation from the prospect of abundant nut crops.

The whole project in this state has assumed form through the efforts of the Northern Nut Growers' Association, of which Hon. William S. Linton, of Saginaw, is president. The association was organized many years ago and has numbered among its members such prominent nature lovers as the late John Burroughs, the famed naturalist; Prof. C. A. Reed, Nutcultivist of the United States Agricultural Department; Dr. Robert T. Morris, a leading physician of New York City; T. L. Littlepage, prominent attorney of Washington, D. C.; W. C. Deming, secretary of the association, and others well known in public life. Mr. Linton has been an active member for the last ten years, and in the fall of 1919 was elected president of the association, which he has since held by re-election. Dr. J. H. Kellogg, of Battle Creek, has been the Michigan vice-president of the association for many years.

#### Legislative Action Being Taken.

The proper legislative action to legalize the planting of nut-bearing trees along the public domain, was recently taken by Senator Harvey A. Penney, of Saginaw, who is an active member of the Northern Nut Growers' Association. Cooperating with Mr. Linton, he caused to be introduced in the legislature a bill authorizing and directing the planting of nut and other food-producing trees, as well as ornamental

trees, along the highways, principally the trunk line highways of the state. This bill was duly passed and has attracted a great deal of attention from far beyond the confines of our commonwealth. The Penney bill is likely to become a famous one, calls for copies of it having come from all parts of the country; and similar bills will be introduced in the legislatures of many states to carry on a movement inaugurated in Michigan.

#### Bill Provides Benefits to Farmers.

One of the leading features of the Penney bill, which has caused widespread comment, is the provision for the payment by the state of twenty cents per tree, for a period of five years, to property owners who plant nut trees along the highways fronting their farms, the bonus to apply on the highway tax. This provision, it is believed, will act as an incentive to improve the roadways of the public domain and be of untold benefit to generations to come. There is nothing more attractive to a well travelled highway than a row of stately trees affording shade and protection from winds; and when these trees are food-producing their value to the people is greatly enhanced.

#### Trees Protect Highway.

Another important feature of the nut-bearing tree-planting movement is the benefit to the road surface by reason of the protection trees provide from the sun's hot rays in summer. It is well known that the sun's rays when directed from near the zenith have a great disintegrating effect on the road surface, and when motor vehicles pass along at even moderate speed, clouds of fine dust arise and are dissipated in the air. A row of huge trees well spaced along a road or street, spreading their branches far on both sides, obstruct the sun's rays and aid in nature's efforts to retain the surface moisture.

What is more restful and pleasing to the eye of any motorist who loves nature, than to enter from a sun-baked road, heavy with dust, a cool section

of road lined by big beautiful trees, their branches often meeting overhead, and the road surface cool and moist. It is like coming from an inferno into a refreshing arbor of bracing air. These restful places are frequently found in New England and some of our older states, particularly in the villages and small towns, and are a never failing source of delight to the tourist. There is no reason why such inviting vistas cannot be created in Michigan, and the present project is intended to bring this about. It is estimated that one million five hundred thousand trees will be required to plant the trunk highways of this state as at present planned.

#### A Great National Memorial.

Into the whole project is injected a living sentiment by the proposal to memorialize the soldiers, marines and sailors who served their country in the late world war. This is a very happy idea—the planting of trees in parks and along highways as a lasting testimonial of a grateful people to their defenders. The memorial tree planting which would be dedicated to every service man in the war, and which would be of great benefit in reforestation in the object lesson it would convey, has the approval of virtually every association of citizens. Their expressions approve the sentiment and the utility and it is fairly certain that the movement to get the trees, plant them, and inscribe them, one to each individual soldier and sailor in the service, will be carried on as the intelligence of the country will approve.

#### To Use Walnuts from Mt. Vernon.

Coupling up the sentiment for the soldier memorial with the use of black walnuts for the propagation of nut-bearing trees, secured from the national shrine of Mt. Vernon, is a very happy proposal. In this also does William S. Linton share in the credit for making public the idea and of taking steps to carry it out. At the annual meeting of the Northern Nut Growers' Association held in Washington, D. C., in September, 1920, the idea first as-

sumed form and a visit was made by those interested to Mt. Vernon to see what could be done toward securing a supply of seed nuts.

The ladies of the Mt. Vernon association became very much interested in the proposal, and agreed to collect a limited supply of prime walnuts to put the plan in operation. Only selected nuts grown on the estate are to be used in this great national movement, and owing to the lateness of the season when action was first taken, the collection amounted to only five thousand perfect seed nuts.

At this very limited supply would only make a start upon the big plan proposed, Mr. Linton wisely decided to confine the first distribution to Michigan and his home county; and thus Saginaw county has the honor of being the first county in Michigan, and indeed in the whole country, to plant the prime seeds from Mt. Vernon in this wide national movement.

#### Where the Seed Nuts were Planted.

Of the five thousand prime walnuts from Mt. Vernon, two thousand were planted in the nursery of Ezra Rust Park in Saginaw. These nuts are now coming up and promise to carry off the fullest expectations of the patriotic men who planted them. When grown sufficiently for transplanting the trees will be placed in beautiful spots in the city parks and elsewhere. The other lot of three thousand nuts was distributed to the public schools in city and county for seeding and planting in school yards, as a perpetual reminder of the great historic sentiment connected with the whole movement. This feature of the plan is of utmost importance as it couples up the most intimate events in our history with an utility of value to civic and rural life.

Another use was made of several hundred of the walnuts in planting them on the grounds of the new country club of the Masonic orders of Saginaw, at Bridgeport—a suburb of the city. The fact that General George Washington was a member of the Masonic order, gives this use of some walnuts from the shrine an appropriate and propitious setting.

## News From Cloverland

By I. A. Chase

#### A VACATION SPOT.

GRAND ISLAND, Lake Superior, is a large island of some fourteen thousand acres off the harbor of Munising. It is owned by the Cleveland-Cliffs Iron Company, and is an idyllic spot for a short vacation. The company has not permitted its resort features to be commercialized without reference to other considerations. It maintains a wild animal reservation, including a deer park containing a number of white deer, which continue to breed true to that color in captivity—white does mated with red bucks producing white fawns.

For many years the island was an important post of the Lake Superior fur trade, some evidences of which are still to be seen. A few miles to the eastward are the famous Pictured Rocks, stretching for miles along the coast. These quiet summer days, one can get in close to them and inspect their curious forms and remarkable coloring. Michigan people, who hover round their own habitats this summer, do not appreciate what they are miss-

ing in their own state, if they do not break away and see such beauty spots as these along the Lake Superior shore. If you can't get this far, try the "Garden Peninsula" of Lake Michigan, where there is also a magnificent shore-line and a gem of a harbor at Fayette, and some of the state's finest farming country to the very edge of the lake, where the limestone tableland breaks off abruptly at the water's edge.

#### ICE CREAM PLANT A MILK MARKET.

FARMERS of the Marquette district have an interest in the new ice cream plant recently opened in a former brewery building near that city by the Sanitary Dairy Company of Houghton. The Sanitary Dairy people have a large plant on the shore of Portage Lake in the copper country, where they take care of a large quantity of local milk for domestic use and for the manufacture of ice cream. A large amount of machinery is installed at the Houghton plant, including a

centrifugal machine for the removing of matter from the milk that does not belong there, while, by a new process, all the solids of the milk are retained in the ice cream, save such as ought to be removed in the cleansing.

At present, milk from the Houghton factory is being prepared there and shipped to the new Marquette plant for freezing and distribution. It is planned by Mr. A. J. Ruhl, president of the Sanitary Dairy Company, to develop a large market for local milk in the Marquette plant, when it will then presumably be worth while to duplicate the equipment of the Houghton factory. Marquette has hitherto lacked a large local ice cream plant, and our farmers have not had as good a market for their milk as they otherwise presumably would have had.

With its population of some 46,000, Marquette county affords an excellent market for ice cream, and in addition, the facilities for outside shipments are exceptional. It is to be hoped that the farmers of the district and the Dairy Company will find a mutually profitable basis for cooperation in

building up this industry, and Mr. Ruhl expresses an intention of finding such a basis. When I saw him recently, he was very hopeful about the prospects of the new venture.

#### STUDY OF WILD LIFE.

VISITORS to Grand Island will see some quite unique records of the wild life of the country. The mounted specimen representing a cross between a timber wolf and a dog, taken on the island, is not quite unique with us, but the wonderful photographs of animal life, taken by George Shiras will be hard to equal. Mr. Shiras, who is a son of Justice Shiras, formerly of the United States Supreme Court, has his residence in Marquette, but spends much of his time in the study of animal life out-of-doors. He sets his camera at night in positions where deer, for example, are likely to encounter it and automatically ignite the flash-light in such wise as to leave a permanent image of itself and its environment. Incidentally, the animal, if astonished by the performance, is unharmed.



## WORLD'S CHAMPION BUTTER COW.

BY F. E. ELLIS.

MR. T. A. BARRON, of Ontario, who is still a young man in his twenties, started farming a few years ago without farming experience and with limited financial resources. It was hard uphill work at first. He had only common, grade cattle. The local banker had a lot of faith in the gritty young man, however, and one day called him into his office and informed him that if he would buy a few head of pure-bred cattle, the bank would back him. He took the plunge and among his purchases was Bella Pontiac. She freshened as a four-year-old and finished that year under government inspection test with 20,129 pounds of milk and 1,018 pounds of butter. After being dry only a short time, she freshened again and started on her big year's work.

Bella Pontiac, a pure-bred Holstein cow, is the new champion butter cow of the world. For six years this honor has rested with Duchess Skylark Ormsby, the great cow owned by Senator Hackney, of Minnesota, with her wonderful production of 1,506.36 pounds of butter in one year. The new title holder is an obscure Canadian cow owned by a practically unknown breeder, Mr. T. A. Barron, of Ontario. The new high mark is 1,565 pounds of butter from 27,000 pounds of milk. And connected with this new record is a real, human-interest story.

Bella was housed in an ordinary farm barn and milked four times a day by the young farmer whose finances did not permit of neglect of field work to give superlative attentions to his cow. It was a farmer's test under farm conditions all the way through. Her production varied from 104.24 pounds of fat in July, her first month, to 124.3 pounds in November, her best month, and in the following March she produced 121.83 pounds of fat. The last of the silage had then been fed and, in spite of an increased allowance of roots, the fat dropped to 84.38 pounds and 73.51 pounds in April and May.

Bella Pontiac has nothing sensational in her breeding but it is good producing stuff all the way through. Her sire, Pauline Pet's Pontiac, is a brother of Calamity Snow Pontiac, 28,442 pounds of milk and 1,240 pounds of butter in a year, the third highest butter record in Canada. Maternally, Bella claims as grandsire one of the great transmitting sires of the breed, Brookbank Butter Baron, with thirty-eight tested daughters, one of them a former Canadian champion and the first thirty-three-pound cow in Canada. The absence of the ultra-fashionable from the new champion's breeding may well serve as a stimulus to other ambitious breeders who have well-bred cattle but nothing superlative.

In the meantime, Mr. Barron has been successful in making a few good records with other members of his small herd. He has made some good sales. He is not so hard pressed as he was when his banker advised him to get good stock or quit. He is in a position to choose between selling Bella and her two daughters, or of keeping all three and developing a great herd on this foundation. He has not yet had time to decide. He is too busy receiving congratulations from both sides of the international boundary.



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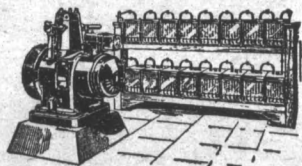
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It is large enough for lights and small power uses, and more important—it is low enough in cost for every purse and person.

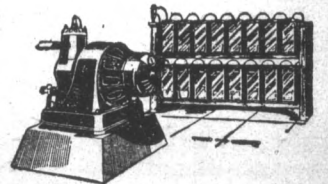
Neat, compact, made with the high quality which characterizes *all* Willys Light products—its very name is a pledge of satisfaction with nationwide service behind it. It has the wonderful Auto-Lite engine generator, and long-lived dependable battery.

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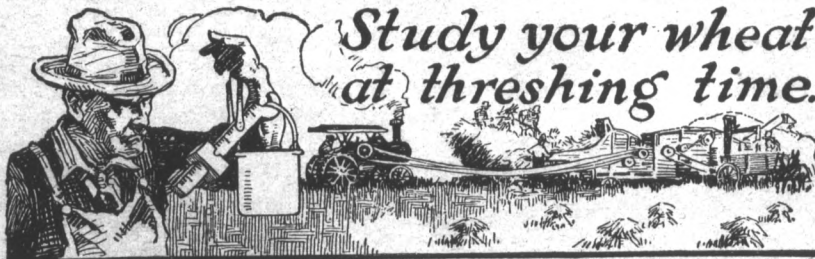
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## Cover Crops for the Orchard

By Earle W. Gage

IN most fruit-growing districts there is not enough barnyard manure to maintain the soil fertility, and some other method must be used. Cover crops add organic matter to the soil, and if they are leguminous crops, also add nitrogen. They do not altogether replace barnyard manure, but will do more toward keeping the orchard up to a high standard of production than any other one method we can use.

The maintenance of the productive power of soils depends in a large degree upon the upkeep of the vegetable matter in the soil. Humus is one of the last stages in the decomposition of the vegetable and animal matter in the soil, and its benefits may be summed up about as follows:

### Effects of Good Drainage.

A well-drained soil rich in humus is also rich in nitrogen; evidence shows that, in the process of the formation of humus, acids are produced which are capable of dissolving mineral plant-food, and in all probability this is how they become available to the plant; humus increases the water-holding capacity of light soils by consolidating them and making them less porous. It acts as a soil sponge; it ameliorates heavy soils, making them less liable to bake and puddle, so that proper aeration is secured; humus generally increases the warmth of the soil. The dark surface draws more heat than the lighter-colored one; humus furnishes food material for bacterial action in the soil.

Many writers have told us of the many valuable features of alfalfa as an orchard crop. Because of experience and observation with this crop, I must disagree with these men, and believe that too often their recommendation has been based upon theory rather than practice. Generally speaking, alfalfa has not proved to be a good cover crop for the average soil and orchardist. A few of the chief reasons are as follows:

### Alfalfa for Cover Crop.

When planted alfalfa is usually put in as a permanent cover crop, and had proved successful on a deep soil with an abundant supply of moisture during the summer months. The success on these soils had led many to sow alfalfa on the lighter soils where the moisture supply is already deficient. Some orchards have been transferred into hay fields, the alfalfa receiving more care and thought than the orchard itself. Too much of the crop is removed from the land.

We must remember that we must have sufficient moisture to feed both the alfalfa and the orchard during the dry summer months. There are very few orchards with soils capable of doing this, since orchards are usually located on the hilly land, or land well drained, rather than on bottom lands. The crop might be well enough if it were turned under or disked into the orchard soil, but to think of harvesting both fruit and alfalfa is out of the question.

### A Good Soil Builder.

Clover is an excellent soil-builder, and if used as a cover crop, will supply nitrogen and organic matter to the soil. The same difficulties are encountered with clover as with alfalfa and must be guarded against. As a rule, clover should never be left in an orchard for more than two years without being turned under. Special care should be taken on light soils, where the crop should be turned under by all means, and will prove the best possible crop for this purpose. To purchase commercial fertilizer to replace the clover this green manured would mean several times the expense incurred in

this simple method. About ten pounds should be seeded per acre.

Clean cultivation in the early part of the season, followed by a cover crop later, is the most up-to-date and best method of handling orchard soils, and can be used with good results more generally than any other system of soil management.

### Legumes and Non-Legumes.

There are two main types of cover crops that can be grown, the legumes and the non-legumes. The legumes are all those plants which belong to the same family, as the peas, vetches, beans, clover, etc., and the non-legumes all plants not included in this family. Legumes are more valuable than the non-legumes, because they are capable of gathering nitrogen from the air, and when turned under increase the nitrogen content of the soil.

Rye is one of the best of non-legume. It grows readily on most soils, catches easily, is hardy, and furnishes a large amount of greenstuff to plow under in the spring, besides furnishing an excellent mulch during the winter months. About ninety pounds per acre should be sown.

Winter wheat is a good second, if rye be unavailable, sown at the same rate. Although buckwheat is a good cover crop on heavy land, it is a very poor winter protection. Rape is very good sown at the rate of six pounds per acre.

### Value of Vetch.

Hairy vetch is an excellent leguminous cover crop, and gives good results. It is extremely hardy, will withstand hot summer drought, and is a fast grower. Because of these features and its ability to gather nitrogen from the air, it is, perhaps, the best cover crop grown. It should be seeded at the rate of from twenty to twenty-five pounds per acre.

Crimson clover seeded at the rate of fifteen pounds per acre is also very good. Any crop that will make a good growth in the fall and early spring so as to give a large amount of organic matter to turn under is a good crop to grow.

July and August are the cover crop months, usually turning the ground and making it ready as early as possible, some giving it several cultivations, thus conserving moisture and getting the soil into an excellent state for the seeds to germinate. Where trees are not coming into bearing as soon as they should because of excessive growth, sowing down the orchard to one of the sod-crops is a good plan, or sowing the cover crop earlier in the season. This will tend to check growth and throw the trees into fruiting.

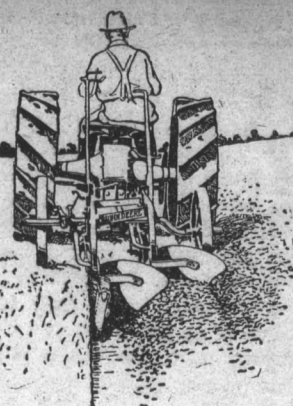
### Cover Crops Make Good Stand.

Many make the objection that the crop will not catch in the late summer. This may be true on soils very devoid of organic matter, but where a proper system of soil management has been maintained in the early part of the summer there will be little trouble in getting any of the crops mentioned to come. If a seeder can be used, the seed is thus sown below the mulch where the soil is moist and the percentage of germination will be increased.

The crop should be turned under as soon as there is a good amount of greenstuff to turn under. Do not wait for the fast-growing crops, such as rye, or they are liable to get ahead and give trouble.

Chinese cabbage or "celery cabbage" is best grown as a fall crop. Seed should be sown during the latter part of July so that the crop will mature during the cool fall months.

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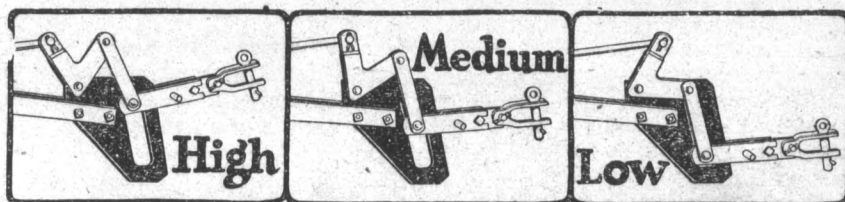
depths, doing good work and pulling light all the time.

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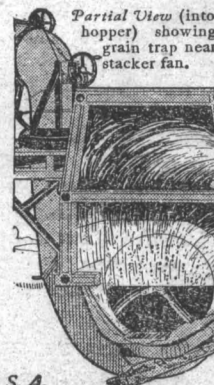
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Partial View (into hopper) showing grain trap near stacker fan.

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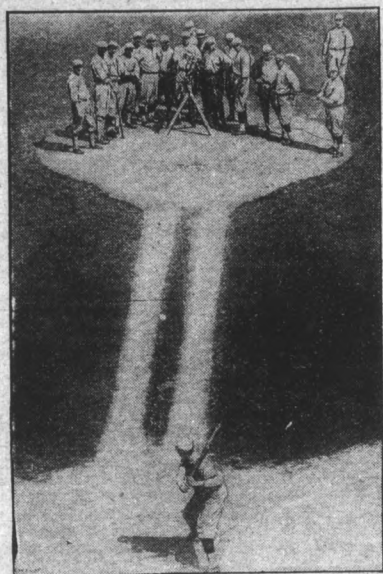
# WORLD EVENTS IN PICTURES



Cornell Varsity crews are in training at Poughkeepsie, N. Y., for the annual intercollegiate regatta. They expect to win.



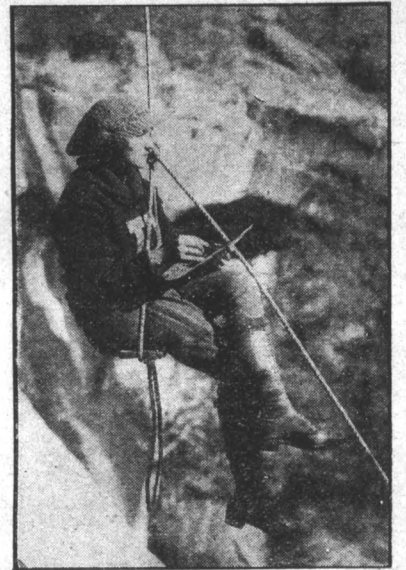
Chinese special mission to Washington arrives on S. S. LaParis, the new big French liner, on its maiden trip.



Babe Ruth baffled by new mechanical pitching machine.



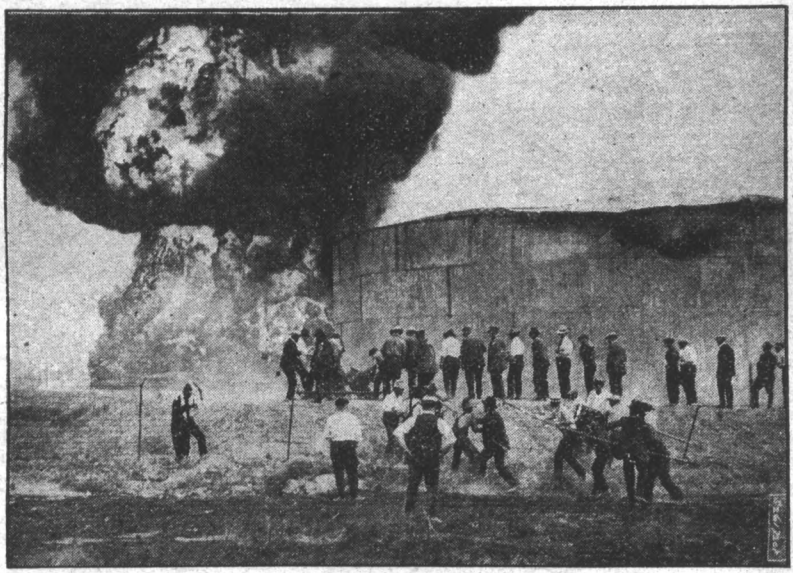
Biggest gun mount tractor is tested by U. S. Army officers at Stockton, Calif., where it was recently built.



Pretty artist displays nerve while sketching Grand Canyon cliffs.



U. S. Government seizes 495 sub-machine guns found aboard S. S. Eastside and consigned to Belfast for Irish Republic.



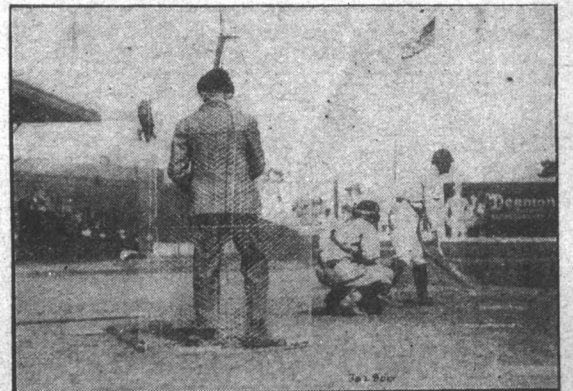
Lightning striking huge oil tank starts fire which causes death to fifteen and \$1,500,000 damage to property.



Camp Fire Girls present Indian moccasins and beaded scarf to President and Mrs. Harding.



Lady Surma to be president of the new Assyrian Republic.



A new safety device for umpires protects from balls, pop bottles and quarrels.



# THE CLAN CALL

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

"I'll see if you're all game," Dale said, and he smiled when he spoke. "I'll make you this proposition: I'll fight any ten of you, two at a time, with a five minutes' rest between fights; if I whip them all I go free, and if I don't whip them all I hang immediately. All parties to be bare-handed, no guns and no knives. Are you that game?"

Ordinarily, it would have been a thing wellnigh impossible to do, much as Dale knew of the pugilistic art, great as was his strength and endurance. But now most of those about Dale were drunk and therefore weakened, and he believed he had a chance if old Ball accepted.

But Judge Ball didn't accept. Doubtless he remembered his son Adam's fight with Dale.

"The' cain't be no fightin' in co'te," he said. "You sh'll hang by the neck ontel dead, at sunrise in the mornin'."

There was a mumble of approval from the others. Doubtless they, too, remembered that the young man whom they held captive had once whipped Black Adam Ball, the mountaineer Goliath, with his bare hands. They did not have the one good trait that Dale had hoped they possessed; while they must have admired him for his courage, they were afraid to fight him without weapons. Dale recalled the fact that the Balls were not originally hillfolk, but lowlanders who had taken to the mountains in order to avoid being forced to fight during the Civil War, a people without a principle. The Cherokee Torreys, of course, were even worse.

"Kitty, kitty, kitty!" Walt Turner called tauntingly again. "He walked into the trap like a pore little kitty!"

A ploughline of half-inch cotton rope was produced, and the condemned man was securely bound, standing on his feet and facing outward, to the big walnut. Desperate as was his case, Dale couldn't help being a trifle amused at that part of it. It was so very melodramatic. And yet, it was so grimly real, and his hopes seemed thin.

The Morelands and the Littlefords would eventually learn the truth and make the Balls and Torreys pay a dear price, no doubt, but that—that wouldn't give him back his life.

The men were divided into two watches. The first was to remain awake and go on guard until midnight and the other was to go on duty from midnight until dawn. The second watch, with which was the faction's leader, had a nightcap of the vitriolic whisky, flung itself sprawling on the ground, and went to sleep.

The first watch sat around the crackling brushwood fire and played cards

for chews of tobacco, cartridges, and pocket knives, sang strange and outlandish songs, and drank more whisky. One very drunk Torrey gambled away all his tobacco, all his cartridges, his knife, his rifle and his belt, his coat and his hat, his boots and his shirt—and offered to bet his trousers and his ears on the turn of a single card. It was funny, and it was disgusting, too. It was all the work of whisky, which Bill Dale had always hated because it made men fools, made them mouth their secrets and made them commit murder.

After some two hours of these worse than bacchanalian orgies, the first watch, heavy with drink, stopped playing cards, and singing outlandish songs, forgot all orders, and began to nod. Then it was that Dale thought of the man who had been his faithful guardian for many days, the lanky By Heck. Wy hadn't he thought of Heck before! He wondered if Heck had followed him to the trap, if Heck was near him even then, if Heck had gone for help. Soon his spirits had risen; he believed he had reason for hope.

By Heck had not followed Bill Dale to the little basin. But he had followed Henderson Goff, and Henderson Goff had followed Dale to the little basin. Goff had returned to the Big Pine Mountain country only that day, and he knew nothing of the plans of the Ball-Torrey faction until he witnessed the mockery of a trial. Goff was now crouching in the darkness on the low line of cliffs to the eastward from the walnut tree; and not far behind him, well hidden in the black laurels, watching him and watching Bill Dale, crouched By Heck.

Dale's guardian had not gone for help because he feared to leave Dale utterly unprotected in the hands of the gang of cutthroats. He believed that he could rescue Dale himself. When the first watch became a little more drowsy, he would steal up behind the tree and cut the cotton rope.

Then Heck realized that Goff had disappeared entirely. He crept forward silently, his eyes alert, and a moment later he saw Goff stealing toward the walnut tree. He climbed noiselessly down over the face of the cliff, and followed Goff like a shadow. When Goff's hands touched the tree, By Heck was within ten feet of it. Heck made sure his rifle was ready and took another step forward, watching, listening.

The shyster coal man leaned around the tree to the left. In the glow of the low-burned fire the blade of a small knife in his hand gleamed dull red. He whispered cautiously:

"You're in a fix, Dale. And it's none of my doing, either. Give me your

word that I'll get that coal property for fifteen thousand, and I'll slash the rope. How about it? Sick of this country, aren't you?"

There came a few seconds of silence save for the lusty snoring of the sleepers and the musical tinkle of the little creek, after which Goff muttered idly appointed:

"Well, then, hang!"

And Heck knew that Dale had refused to sell the Moreland coal for a song even to save his life. As Goff stepped backward, the muzzle of the tall hillman's rifle went against the small of his back, and the tall hillman whispered hoarsely, through teeth tightly clenched:

"Slash 'at rope! Slash 'at rope, or I wisht I may drap dead ef I don't shoot yore backbone into four thousand pieces, igod! Slash it!"

Goff straightened in surprise. The rifle's muzzle went harder against his back, and he knew it for exactly what it was. He moved a hand upward, then downward, and the cotton rope was severed in half a dozen places.

"Stiddy thar now!" whispered By Heck, and he began to back away. "Come along wi' me, ye dadslatted, banjer-bellied skunk. Bill he'll foller."

The three of them hurried into the deeper shadows. Soon Heck halted Goff and turned to Dale.

"S'arch him fo' a gun, Bill, old boy."

Dale lifted from Henderson Goff's right-hand coat-pocket a blued and stub-nosed magazine pistol.

"Dang my eyes and blast my forehead!" Heck exclaimed in a muffled voice. "He's plumb death on them little popguns, ain't he? Say, Goff, ef ever ye shoots me with a thing like that and I find it out, hanged ef I don't spank ye ontel yore nose bleeds! Now le's go, you'uns. And ef ye jest cheep out a noise, Mister Goff, the buzzards will pick the meat off yore bones afore tomorrer night."

"Move, shyster," frowned Bill Dale. By Heck led the way to the line of cliffs to the westward. They had climbed the rugged wall and were about to set out through the pitchy dark woodland, when a voice that they knew well hailed them softly from the laurels to their left:

"Hold on thar!"

"John Moreland, by jiggers!" muttered Heck.

Moreland hastened soundlessly to them. "I reckon ye didn't mean no harm, By," he said in tones that expressed a deep regret, "but yit I shore wisht ye hadn't ha' done it."

Samuel Heck was very proud of himself. He straightened there in the darkness.

"What'n the name o' the devil makes ye wisht sech a thing as that, John?" he demanded in a half angry voice.

"'Cause," growled the big hillman, "you went and sp'iled the main big picnic. We meant to wipe out all o' them thar lowdown Balls and Torreys, By. When they went to hang Bill Dale in the mornin', we'd ha' had a good reason fo' a-killin' 'em everyone—the weasels! Ye see, By, every man Moreland but Caleb, and every man o' the Littlefords, is hid here in these laurels, and has been ever sence that thar fool trial begun. We was jest a-waitin'. How did we happen to know it?"

"Aat's easy, By. Me and Ben Littleford was on our way attter more dynamite, when we seed Bill Dale a-follerin' that stranger man, and Goff a-follerin' Bill, and you a-follerin' Goff. We knowed somethin' ongodly mean was in the wind. So I follered you, By, a-breakin' off bushes as I went to mark the trail, and Ben he went back and got the rest of 'em and follered me."

Then to Dale, "Well, Bill, what're we a-goin' to do with this here cussed polecat Goff?"

Dale turned to the shyster coal man, who was still being closely watched by Heck.

"I told you I was pretty apt to thrash you the next time we met, didn't I?" clipped Dale. "Do you want to get out of this country for good, or do you want to fight me to a finish? I'm through talking right now, Goff."

"I'd guess I'd rather fade," acknowledged Goff.

"Then fade!"

Goff slunk off through the bush.

When they had covered a mile, John Moreland grasped Dale by an arm and said to him:

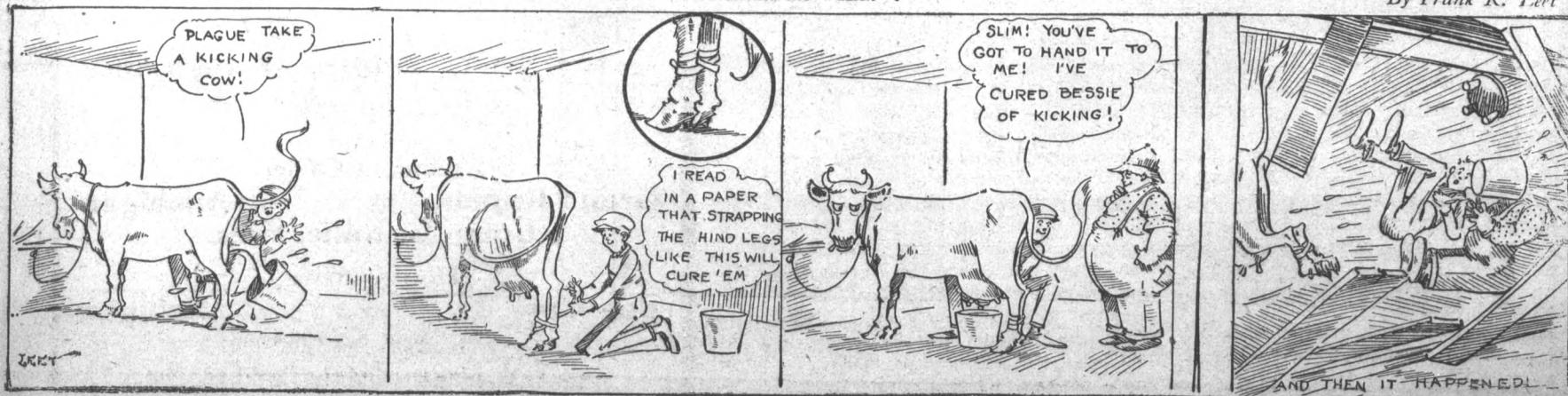
"I reckon you think we're sort o' blood-thirsty, by us a-wantin' to kill off that pack pack thar; don't ye? Well, we ain't blood-thirsty, Bill. Them Balls and Torreys ain't wo'th nothin' to themselves, nor to their famblies, nor to nobody else. The sooner they're dead the better off they'll be, and the better off their famblies'll be, and the better off everybody else will be. You ain't safe, nor I ain't safe, as long as they're alive. They're wuss'n rattlesnakes, wuss'n copperheads."

"We like you, Bill Dale," he continued gravely. "And you're shore wo'th it. You wouldn't sell out to that cussed polecat, even to save yore own life, and 'at's what I calls nerve and principle in ye. Bill Dale, the' ain't many men in this here whole outfit who wouldn't give ye the last drap o' blood in their bodies, ef ye needed it. To the right, Bill—ahead of us is a cliff."

(Continued next week.)

AL ACRES—AP's Experience Indicates that it is Sometimes Hard to Eliminate the "Kick".

—By Frank R. Lert





## Helping Youth to Find Itself

*Our Weekly Sermon—By N. A. McCune*

**W**HY should anyone attempt to help a boy find himself? Don't boys know where they are, and where they are going? Don't American boys, in particular, know what they want to do? That is the prevailing impression. And like many other impressions, it is partly wrong, for many boys do not know what they want to do. Even seniors in college confess they spend a good deal of time singing, "Where do we go from here?" This is most unfortunate, for it means much time will be lost, and there may be bitter disappointments ahead, on account of one's indecision. One is happier and works with definite purpose, when he has a goal toward which he is making.

It is for this reason that in many parts of the country group meetings are being held, for the purpose of assisting high-school boys to make their choice of life-work. These meetings are sometimes conducted by church leaders, and sometimes by the Young Men's Christian Association. A convention, or institute, of this kind was held in Michigan a few months ago. Ninety-one boys gathered, from different parts of the state. They remained two days. The convention began with a banquet, of course, for what would a convention amount to, that did not have a banquet? And what would a high-school banquet be, without songs and yells? Such ebullient tokens are only signs of vigorous life. Boys are not expected to conduct themselves like bank directors, or a general convention of a religious denomination.

**A**FTER an address by a college president on what life ought to mean to a boy who wanted to make his life count, each boy was given a blank to fill out carefully. This was called a "self-analysis blank." To fill this out in detail takes time and thought. It is put up to each boy to answer the questions about himself in a perfectly honest and square way. Some of the questions are: "Am I independent and self-reliant; do I like best to lead, in work, games or stunts, or am I happier when another leads and I follow and help?" "Would I rather be captain, the directing head? Or would I just as soon have some leadership but not too much responsibility? Or would I rather do the actual work myself as mechanic, farm worker, salesman, and let someone else do the directing and worrying?" "Am I a team man, can I cooperate? Is it hard for me to make my mind stick to a particular thing at a particular time?" There are many more such questions, each designed to bring out some important fact about the boy's mental processes, and his aptitudes. Judging by the answers, one concluded that the boys were fair to themselves and honest in their replies.

**T**HE particular object of these conventions is to take time by the forelock, and to point out to boys the worthfulness of the Christian callings. If a lad was attracted to the ministry, he was asked to check that. If he was drawn toward the Y. M. C. A. as a life work, he put that down. If the prospect of being a medical missionary or an agricultural missionary, or an industrial or an engineering or an evangelistic missionary filled him and thrilled him, he had an opportunity to say so, for these callings are all suggested to him. And when the self-analysis blank is filled out, he is assigned to an interviewer, with whom he meets the next day. His interviewer is selected with an eye to meeting the boy's particular needs. Some of the interviewers are Christian business

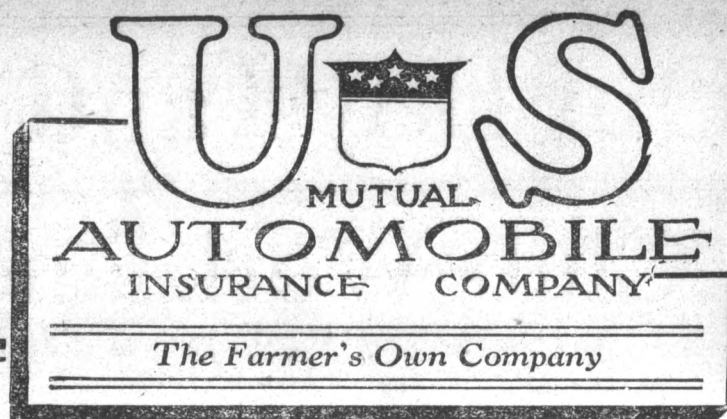
men, some are ministers, some college professors, and others are secretaries of the Young Men's Christian Association. If the writer's experience is typical, it indicates that there are a good many serious-minded boys in the high-schools. Not every boy is dreaming of the movie and its heroes, or of his "frat," or of his girl. Many boys want to make the right decisions for life, and they think about these things a great deal. And the high-school period is the natural time to make these decisions. Happy the lad—or lass—who resolves aright in those years!

**H**ERE are a few samples of the questions and their answers: Question, "What about these Christian callings appeals to you?" Answer by one boy, "Ministry, unselfish service, purely idea of service, great opportunity." Another answered, "Medical missionary—great chance for service—get at them better." How's that for a way of putting it?—"get at them better." Another answered, "Agricultural missionary—I like Christian work and farming." Another preferred "Y" work as a vocation: "Y. M. C. A. work—association with young people—to be among fellows—you have to be educated—you do something for someone else."

After each interview, the interviewer put down on a report provided for this purpose, his estimate of the youth he had just talked with. Here are one or two of these reports: "This is a lad who will put himself through college but considers it no real hardship and is determined to be of service to others." Another writes: "Wants to be a minister and I am sure he will make good if he goes on as now planned." Another, "He seems to hesitate between choosing to be a medical missionary, the Y. M. C. A. or business." Of the ninety-one boys at this conference, thirteen put down their preference for the ministry, twelve for foreign work, fifteen for the Y. M. C. A., two for Sunday School work and two for social service. There were eighteen miscellaneous vocations named, and twenty-nine did not know what they wanted to do.

**T**HE idea is stressed in all these meetings that a man does not have to be a missionary or a preacher in order to do God's will. It may not be God's plan for him to be a preacher or any kind of a religious worker. But the point is, to find God's will and do it. God wants and needs farmers and professional men, and a man can be of the greatest service in these callings. Some men are called to make money. They would be ludicrous failures as ministers or missionaries. But—God has a plan for the life of every person, and it is possible for the person to learn what that will is. Every locality has known some individual who has not been a professional religionist, but who has been a real Christian, and has been an inspiration and an example to young and old.

The cry goes up that young men are not entering the ministry. Well, this is one of the ways of recruiting men for the ministry. There are several lines of work today which are akin to the ministry, which draw young men, and these callings are of comparatively recent origin. But of this be sure—the time for helping the youth toward the right decision for life is the high-school age. More battles are won or lost before eighteen than most people imagine. Great visions come in those years, great resolutions are made. In fact, many a man is what he is, because of what he was before he was out of his teens.



## It Cost Him \$2500.00

Like many a driver, a well known Michigan farmer formerly believed he was exempt from automobile accident and consequently didn't need car insurance because, as he said:

"I always drive carefully."

True enough; he *was* cautious and had driven for years without mishap but history repeats itself and the inevitable happened. An unavoidable accident to be sure, but a collision in which he paid the price and paid dearly.

It all happened on a country road curve of extreme sharpness. Coming unexpectedly upon a motorcyclist at this point, he was unable to check the car's speed sufficiently to get on his own side of the road and his wheels, losing their grip in the loose gravel, threw him against the motorcycle, severely injuring its rider.

Suit was later filled by the plaintiff whose case was won on the strength of evidence presented by occupants of another car who, witnessing the accident, claimed the farmer was on the wrong side of the road. The verdict cost this farmer \$2500.00 damages in addition to the remorse accompanying every accident of this kind. And; this loss represented hard earned savings that had been accumulated for years.

No one can positively *avoid* accident, because unforeseen hazard is constantly lurking around. You can, however, positively protect yourself AGAINST accident by securing the liberal U. S. FIVE POINT FULL COVERAGE NON-DEDUCTABLE POLICY which faithfully guards the holder against:

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# Our Boys' and Girls' Department

## Club Work and the Rural School

By R. A. Turner, State Club Leader

NEVER has the truth of the statement, "A contented rural population is essential to the welfare of our nation," been more significant than now. That this so-called contentment is dependent upon a unity of community interest, as well as the character of life and the comforts of homes in the community, is apparent.

One of the functions of the institutions within a community is to develop in the minds of the boys and girls a sense of appreciation of their environment and a vision of the future possibilities of that community. The rural school holds a vital position in this regard. As an educational institution it assists in molding the thought and activities of the boys and girls.

That we are going through a period of educational adjustment, as regards rural schools, is not questioned. A new tendency is asserting itself. Perhaps the best manner of characterizing this new tendency is to use the words of John Dewey, who says: "Education is not preparation for some sort of life; it is Life itself." The new education insists on making the school a miniature democracy in which the entire community functions. The industries and the enterprises of the community form the background for the technical as well as the cultural elements of the curriculum. It is at this

point that Boys' and Girls' Club work enters as an auxiliary to the formal educational system. Club work implies that the children—a self-selected group—shall utilize the formal education of the school in carrying out a home of a community project. The school and the home are brought together on a common basis of educational function.

Club work may be said to be educative in the several ways following:

1. Each club member carries out a definite project, such as growing an acre of corn, raising a calf, etc. Instruction for carrying on the project are furnished by the agricultural college and the United States Department of Agriculture. This means that the club member must study these instructions, not as a lesson, but in order that he or she may actually apply the information given. Club work furnishes a definite motive for study.

2. In carrying out the project, the club member acquires a body of knowledge of a practical sort which cannot be acquired in any other way. He is learning to do by doing.

3. Each club member must keep an accurate record of the operations, costs and incomes from his project. This means a direct application of arithmetic of a practical type. At the close of the project, the club member writes a story of his season's work and experiences. This story becomes vital because it is the actual experience which he is relating and not some imaginary experience.

Since parents and children, teacher, patron, school and home have a common interest in the success of "their" club, community interest is promoted. Achievement has a very direct bearing on the lives of boys and girls. Club work furnishes a definite means whereby certain achievements may be accomplished. The training which the club member receives is of the "back to the home" type. It is apparent, therefore, that club work functions in a very definite way in the maintaining of a healthful community life.

To the rural school and the rural school teacher, Boys' and Girls' Club work provides an avenue for the attainment of common ideals.

### A Good Creed for Club Leaders

I BELIEVE in boys and girls, the men and women of a great tomorrow; that whatsoever the boy soweth the man shall reap. I believe in the curse of ignorance, in the efficiency of schools, in the dignity of teaching, and in the joy of serving others. I believe in wisdom as revealed in human lives as well as in the pages of a printed book, in lessons taught, not so much so by precept as by example; in the ability to work with the hands as well as to think with the head; in everything that makes life large and lovely. I believe in beauty in the school-room, in the home, in daily life, and in out-of-doors. I believe that every hour of every day we receive a just reward for all we are and all we do. I believe in the present and its opportunities, in the future and its promises and in the divine joy of living.—EDWIN OSGOOD GROVER.

## Boys' and Girls' Club Doings

### TEN THINGS FOR CLUB OFFICERS TO DO.

MR. R. A. TURNER, State Boys' and Girls' Club Leader, often reminds the officers of club groups that they are being looked to as leaders in the band of workers in their club to see that the following things are done in finishing up the year's work:

1. To see that every member of the club finishes his or her job.
2. That every member of the club harvests his crop or weighs his live stock properly.
3. That every member of the club is supplied with a report blank.
4. That every member of the club hands in (at least by November 1), his or her report blank.
5. That every member of the club shows a portion of his or her products or live stock at the club exhibit or fair.
6. To make out a complete report in the secretary's book of the work done by the members of the club.
7. That every member of the club is urged to remain in the work another year if possible.
8. To set a club goal for your community and always work toward that end.
9. Insist that club folks are "good losers."
10. Adopt the national club motto, "To Make the Best Better."—G. O. S.

### POLAND-CHINA PICNICS ARE A SUCCESS.

MORE than three thousand people interested in Poland-Chinas attended the five picnics held in Wisconsin the second week in June under the management of the Wisconsin

Poland-China Breeders' Association. These affairs were successful beyond all expectations and reflected a great deal of credit upon those in charge. Attendance was good at each place.

A well-balanced speaking program was carried out, but the real feature and the one that attracted the most attention was the giving of several pure-bred gilts as prizes to boys and girls between the ages of nine and nineteen. The pigs were furnished by the Wisconsin Poland-China Breeders' Association, local breeders and business men. The number of gilts dis-

tributed in this way was thirty-eight and will doubtless form the nucleus of very successful pig clubs in each locality. Wisconsin Poland-China picnics are quite certain to become annual affairs.

### COUNTY BENEFITED BY CLUB WORK.

THE beautification of the farm home itself, and of its surroundings, is the latest step in a consistently graduated plan among club workers in the southern states. The realization that

a widely extended effort was necessary to obtain satisfactory results made home and school improvement the object of a campaign conducted in April in Iredell county, N. C., under the direction of the home demonstration agent of the United States Department of Agriculture and the State Agricultural College. Hundreds of men, women and children throughout the county entered into the plan with zest. Numerous prizes were offered by business firms to stimulate interest. Snapshots were taken of schoolhouses, front and back yards, dining-rooms, living-rooms, bedrooms, "before" and "after" improvements were made.

### CLUB EXHIBITS AT INTERNATIONAL.

BOYS' and Girls' Clubs will be permitted to enter the competition for high prizes at the International Grain and Hay Show to be held in Chicago in connection with the International Live Stock Exposition. Mr. George S. Bridge, of Chicago, announced after a meeting of representatives of the various agricultural colleges that plans were agreed upon for the entry of junior grain and hay growers.

Preliminary lists for the big show, which is made possible through a ten thousand dollar contribution by the Chicago Board of Trade, will be ready soon. Nearly every agricultural college in this country and Canada, a score of big experimental stations and many agricultural associations will join with the United States Department of Agriculture in making the exhibition the largest ever held. Local club leaders are urged to foster the desire to exhibit at this show.



Some Farmers of Tomorrow Who Live in Chippewa County. They Are Building for their Own Future as well as Setting Examples to the Present-day Farmers, through their Interest in Club Work.



## DOES YOUR FARM NEED LIME?

(Continued from first page).

seed-bed prepared in the same manner and seeded on the same date to sweet clover. The clover was a complete failure on the recently limed land and very successful on the land that received the lime in 1916, or four years previous. We account for this situation on the basis of a very low precipitation subsequent to application of limestone in May, 1920, or in other words, there was not a sufficient amount of rainfall to assist in incorporating the lime with the soil and bring about the desired reactions. Such conditions do not occur very frequently but, of course, they are worth considering.

The lessons to be learned from these experiments are that wherever practicable lime should be applied to the soil the season previous to the seeding of clover or alfalfa, as this seems to be a very good insurance. In some portions of the country lime is applied on the cultivated crops, notably the corn crop. It may be done after the corn has been planted and the subsequent tillage operations assist, greatly in mixing it with the soil. One could apply the lime to other tilled crops, such as beans.

## Lime Materials Best.

The fifth year of our investigations on the effect of different forms of lime

between this very fine material, hydrated lime and the marl. It should be recalled that the marl was pulverized before it was applied to the land. At present sweet clover is growing and this crop shows a much better stand and a more thrifty growth on the portions of the field where the finely divided limestone was applied, very little difference occurring where the powdered material, hydrated lime or marl were used.

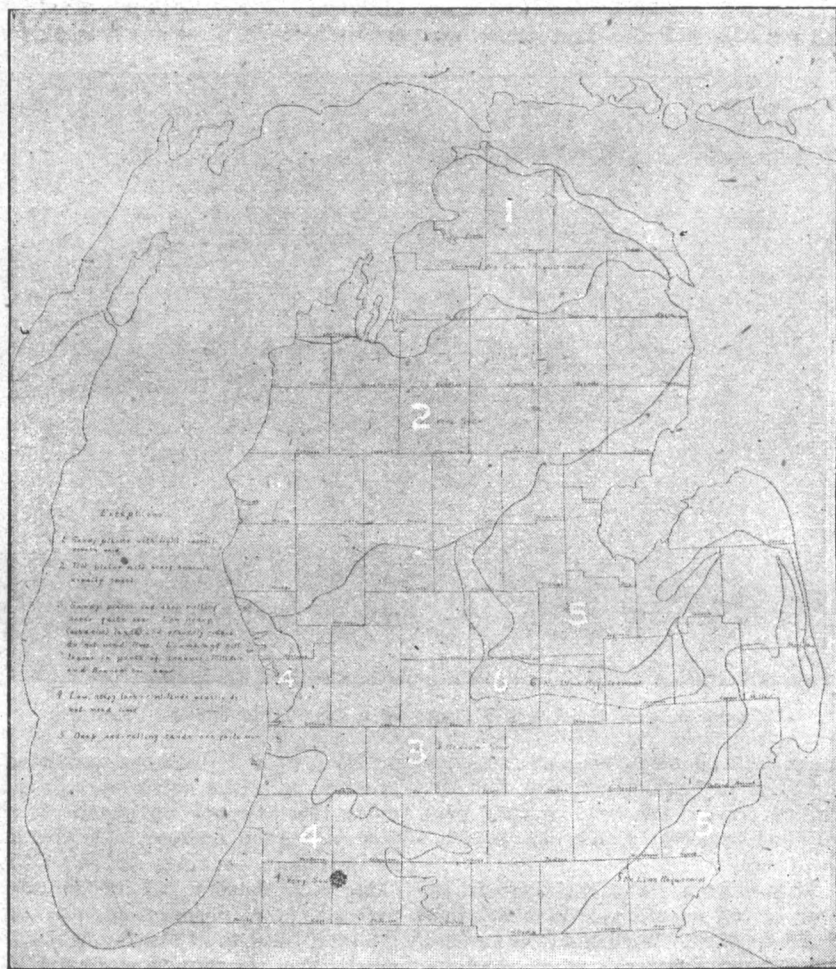
These results are in accord with those reported recently by the Rhode Island Experiment Station with regard to the efficiency of finely divided limestone.

## THE FUTURE OF THE POTATO.

THAT potatoes are likely to make up more and more of the American diet in coming decades when land becomes more limited, was the prediction of Dr. Thomas Nixon Carver, professor of agricultural economics at Harvard, in his address, "The Agricultural and Rural Life in this Country," delivered before the economic conference at M. A. C.

The northern strip of the United States, including Michigan, has a great future in the potato industry, he said, and this section may become more prosperous agriculturally than the corn belt itself. Because bulky crops

## Lime Map of Michigan



District No. 1 does not require lime. In No. 2 the soil is generally sour and lime is needed. In No. 3 the soils require moderate amounts of lime. District No. 4 is very sour and a full application is necessary. In No. 5 no lime is needed, and the same is true of No. 6.

applied to the soil shows results similar to those that have been reported previously. At the Cass county experimental field limestone of different finenesses of grinding was applied, that is, very finely pulverized material was applied to a portion of the field and to other portions was applied limestone carrying larger-sized particles. In addition, hydrated lime and marl have been used. Other treatments of the soil are identical with regard to cropping and fertilization. During this period the crop yields every year have been higher where the very finely ground limestone was applied to the soil. It is notable that there has been practically no difference in the yields

such as potatoes yield more food value per acre than dry crops such as wheat, America must turn to the bulky crops when its land becomes limited. For this reason he urged Michigan farmers to look into the future and think in terms of one hundred years instead of ten years.

Dr. Carver found himself facing a battery of promiscuous questions when an opportunity was given for discussion of his address. Farmers present sought the famous economist's opinion on topics ranging from Japanese immigration to farm accounting and at length heated arguments developed among some of the farmers themselves.—H.

## Barrett Everlastic Roofings

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Don't think of re-roofing merely as a matter of dollars and cents. Look at it, rather, as an opportunity to improve the appearance of your home.

The cost will be surprisingly small, and the attractiveness of the house will be immeasurably increased if you build the new roof with Barrett Everlastic Shingles.

For these shingles, surfaced with real crushed slate in rich permanent shades of red or green, lend distinctiveness to every building they cover.

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**Everlastic Multi-Shingles.** Four shingles in one. Tough, elastic, durable. Made of high-grade waterproofing materials and surfaced with crushed slate, red or green. When laid they look exactly like individual shingles. Fire-resisting. Need no painting.

**Everlastic Single Shingles.** Same material and art-hush (red or green) as the Multi-Shingles, but made in single shingles; size 8 x 12 3/4 inches. A finished roof of Everlastic Single Shingles is far more beautiful than an ordinary shingle roof and costs less per year of service.

**Everlastic Slate-Surfaced Roofing.** The most beautiful and enduring roll-roofing made. Surfaced with crushed slate in art-shades of red or green. Requires no painting. Nails and cement in each roll.

**Everlastic "Rubber" Roofing.** Thousands upon thousands of buildings all over the country are protected from wind and weather by Everlastic "Rubber" Roofing. It is tough, pliable, elastic, durable and very low in price. It is easy to lay; no skilled labor required. Nails and cement included in each roll.

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Good-Nature and good sense must ever join;  
To err is human, to forgive, divine.  
— Alexander Pope.

## Woman's Interests

# Money Out of Flowers

By Alta L. Littell

THE farm woman, or, in fact, any woman with a little plot of ground, who is looking for a way to make a bit of pin-money with a minimum of outlay and a maximum of pleasure and agreeable work, could not do better than to try her hand at growing hardy perennials. That is, if she loves flowers and is happy digging about outdoors in the dirt. Now don't right away begin to paint flower gardening as a rosy proposition and a sure-thing money-maker after you buy your first bulbs or young plants. For nature is no respecter of persons, and would play hard on your young plants with as unholly a glee as she would your neighbor's strawberry crop. And drought and insect pests are most impartial in their treatment of all forms of plant life. But take it by and large, flowering for a living has no more uncertainties than any other trade or profession which you might choose as your means of a livelihood. And, as I say, it takes so little to start with in the beginning, that is, the raising of hardy perennials. No hothouses are necessary, no cold-frames, no anything but the outdoors and some plants for the initial start.

The Lawson gardens, on the edge of Grand Rapids, grew out of a flower

garden five feet wide by twenty-five feet long. As a matter of fact, the gardens started out to be a chicken farm. Mrs. Lawson, like many another city woman, had a vision of a fortune to be made in \$1.00 a dozen eggs and high-priced broilers. So they bought five acres on the edge of the city, and Mrs. Lawson embarked on a career as a poultry raiser, while Mr. Lawson continued his work in town.

Of course, they had a flower garden, and you know, chickens and flowers won't mix. Or rather, they mix too well, that is, the chickens mix with the flowers too much for the good of the garden. It didn't take Mrs. Lawson long to decide that she'd rather give up her chickens than part with her garden, and the first thing she

The spring market is mostly plants. Everyone is fixing up the grounds, and plants for bedding are in demand. Later, during the summer, the trade is flowers. Just now the old-fashioned flowers are in demand, we have styles in flowers as well as in clothes. Larkspur, columbine—or honeysuckle—Linum, forget-me-nots, baby's breath, all the old favorites, are now favorites again. Baby's breath is in great demand for its cloudy blossoms which are so effective in decorations.

"How did I learn about flowers? Mostly from the garden. Of course, I studied every book I could get hold of and subscribed to numerous garden magazines, but after all, my best knowledge is what I have gained from experience. The reading was all rath-



Hardy Perennials Are the Basis of a Profitable Flower Business.

knew, instead of furnishing "registered" eggs to housewives, she was furnishing flowers for weddings and parties, and selling plants to aspiring gardeners.

"It just grew," she explained in answer to the question of how she happened to start. We both love flowers, and I must confess I didn't love the chickens. They are so much work, and work all the time, every day in the year and all the hours of the day, it seemed. And there is so much heavy dirty work connected with poultry raising. Now with flowers, while that is work, too, and there are lots of uncertainties and disappointments it is pleasant, clean work. And you needn't be at it the year round, with my sort of a garden, hardy perennials. Last year I spent the four cold months in California. I couldn't have done that with chickens.

"With hardy perennials your work begins in early spring, and keeps up until frost again. We have some flowers, arbutus for instance, that blossom before the snow is entirely gone in the spring. There are your young plants to start, and transplant, beds to clean out, perhaps new ones to plan, and the spring sale of plants for home gardens.

er blind until I went out and tried to practice it. One mistake taught me more than twenty volumes. O, yes, you can make mistakes in gardening as well as in cooking. It isn't all sunshine and flowers. It needs infinite patience and observation, and much thought. But it is pleasant work, and one of the pleasant things about it is meeting the people who come to buy. Of course, folks who want plants and flowers will be the sort you're glad to meet."

Certainly the gardens look as though working in them would be as near a perfect human employment as any form of labor could be to a descendant of Adam. Just at the edge of a grove of virgin wood they stretch away in masses of color, the dominant tone changing with the days. Today it is billows of Oriental poppies that command the attention, tomorrow it will be columbine, and next stately blue larkspur. Last week it was fleur de lis. And so it goes, as week follows week and the various beds come to blossom. The plants are set out in rows so that a wheel hoe may be used between them. Of course, since the gardens have grown to their present size, Mrs. Lawson has to have the help

## Will You Have A "Lift"

If you have reason to believe, as many have, that a change from coffee or tea would be wise, try

## POSTUM CEREAL

You'll find what thousands of others have found—complete satisfaction to taste, and freedom from harm to nerves or digestion

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Postum Cereal Co., Inc.  
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of a man in preparing the ground and for other work about the grounds.

In considering a business of this sort the first question to be asked is, what shall I grow? The second, where could I market? As to what you should grow, your location must decide that. Write to a reliable nursery and ask their advice as to plants best suited to your locality. Then start with them, and add to your list as you gain experience. With growing hardy perennials, it is better to grow big than to start big. Every locality can tell you a story of someone who started out to make a fortune with plants and failed the first year. How many dahlia farms and tulip farms have burned up or frozen up in a season? And there was the man who set out forty acres to Christmas trees, and retired to the poor farm the following year. I don't remember whether it was drought or frost that nipped the Christmas trees before Santa Claus time, but they went. So if you contemplate raising plants for the market, start with a five-foot plot, and watch it grow.

As to a market, of course, if you are near a fair-sized town there is your market. Any town of ten thousand should offer a market for flowers; and even a good-sized village will furnish customers for plants. In the case of the Lawson gardens, Grand Rapids is the market, and customers come and get their own plants. Of course, this is an ideal arrangement, as shipping your plants to other towns or to R. F. D. addresses, means crating and additional work.

#### MORE ABOUT VITAMINES.

HOW do we know we are getting the necessary vitamins, if no one knows what vitamins really are?" demands a woman who wants to know that her family is properly nourished.

Vitamins, as you know, are the undetermined food elements, recently discovered; vital to growth and health, yet not to be classed as a protein, starch or fat. Vitamins seem to be something like housework. Nobody notices it if you don't do it, but if it is neglected, O, my! So no one thinks anything about vitamins if the body gets its quota, but if one is omitted, then look out for disturbances.

The first, known as fat soluble, is not only necessary for growth, but its absence causes a serious disease of the eye. The second, known as Water Soluble B, is also most important for growth, and prevents beri-beri, a disease common in the Orient, which is characterized by paralysis. Water Soluble C, the third vitamin, not only is important for growth, but it prevents scurvy. It might almost be called a cure for scurvy as well, for where this disease has been prevalent it has frequently been cured by feeding raw vegetables known to contain Water Soluble C. This vitamin is easily destroyed by heat, so it is at its best in uncooked vegetables. Too long cooking kills the power of all the vitamins, so in cooking any vegetable the time allowed should be just enough to admit of thorough cooking.

Now, as to where the vitamins are found.

Fat Soluble A is found in the following foods:

1. Butter, cream, milk; 2, egg yolks; 3, fish oils; 4, green vegetables, cabbage, dried spinach; 5, glandular organs of the body, as liver and kidneys; 6, carrots, sweet potatoes; 7, tomatoes; 8, germs of seeds; 9, oleo oils.

Water Soluble B is found in the following foods:

1. Yeast; 2, eggs; 3, grain embryo; 4, whole grain; 5, beans; 6, peas; 7, whole or skim-milk; 8, fruit and vegetables; 9, powdered and condensed milk; 10, nuts; 11, cheese.

Water Soluble C is found in the following foods:

1. Orange juice; 2, lemon juice; 3,

tomatoes, raw or canned; 4, raw cabbage; 5, raw turnip juice or raw turnips; 6, lime juice; 7, raw carrots; 8, milk; 9, string beans; 10, beets; 11, other fruits and vegetables.

Canned tomato is the exception to the rule that this vitamin is destroyed by cooking.

This list is sent out by the extension department of the Michigan Agricultural College.

#### TOMORROW'S DINNER.

Jellie Veal                      Creamed Potatoes  
Green Peas  
Parker House Rolls  
One-crust Cherry Pie

Most of the work on this dinner may be done the day before.

**Veal Loaf.**—For this any piece of boiling veal will do. A shank is nice but any piece for stew will make the loaf. Cook until tender, remove from the broth, which should be strained and allowed to cool. Remove meat from bone, and discard all gristle and shred into small pieces. If the broth hardens, no gelatine need be added. If it does not thicken to a consistency to mold, add a little gelatine softened in cold water. The broth must be reheated to melt the gelatine. To one quart of broth allow four cups of meat, two olives chopped fine, two radishes sliced, and two sprigs of minced parsley. Combine, and mold in a deep bread tin. When ready to serve garnish with radish roses and parsley.

**Green Peas.**—Allow only enough boiling water to cover, so that none need be poured off when the peas are tender. They should cook in twenty minutes. Season with salt, pepper and butter. Three or four tablespoons of cream makes a nice addition.

**One-crust Cherry Pie.**—For one pie allow a quart of cherries before stoning, one generous cup of sugar, three level tablespoons of flour and the yolks of two eggs. Sift sugar and flour and beat into the egg yolks. Stir this mixture into the cherries, and pour into the prepared crust. Put into a cool oven and gradually heat. Frost with egg whites.

The following proportions make exactly enough crust for one pie or two shells, if ingredients are carefully mixed: One cup of sifted flour; two rounded tablespoons of lard, three tablespoons of water.

**Parker House Rolls.**—To one pint of bread sponges add a half cup of butter, melted, two tablespoons of sugar, and flour to knead. Knead twenty minutes, let rise till double its bulk, then shape into small round rolls, cut half-way through with a dull knife, brush one half with melted butter, and fold the other half over. Place in greased pan and when light bake for about fifteen minutes.

#### HOME DEMONSTRATION WORK EXPLAINED.

AN open meeting at the court house for all women of Saginaw county rural communities, was addressed by Mrs. Campbell took a vote of the audience to learn whether they wished an agent here to demonstrate canning, dietetics and home economics, and was very agreeably impressed with the unanimous approval given the project.

The state had offered to pay \$1,000 toward the salary of a home demonstration agent for the summer and fall months; and the local farm bureau board had agreed to pay the balance, providing the women at this meeting expressed a desire for an agent here. The result of the meeting was very satisfactory to all present, and the home demonstration agent will probably take up the work here about the first of June.—M.



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Ask your dealer for Sterilac  
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This coupon signed brings you enough Sterilac to make 10 gallons of disinfecting solution.

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References: Any bank or business firm in Toledo

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### 200-Acre Farm With Crops

3 Horses, 17 cows and

Heifers, bull, 20 poultry, machinery, wagons, sleighs, household furniture, etc.; convenient advantages; 65 acres machine-worked; 30-cow pasture; 50 cords wood; timber; 100 apple trees, sugar maples; 10-room house overlooking village; 90-ft. barn, silo, poultry house for 200 birds; all for \$4,000, easy terms. Details Page 9 Spring Catalog 1100 Bargains. Just out. FREE. SHROUT FARM AGENCY, 514 Bu Ford Bldg., Detroit, Mich.

60 acres near macadam road, 8 room frame dwelling, outbuilding, conveniently located, only \$4,000. Catalogue. J. W. RUSSELL, Chestertown, Md.

#### MICHIGAN FARMER PATTERNS.

Send fifteen cents in silver or stamps for our up-to-date spring and summer 1921 catalog, containing over five hundred designs of ladies', misses and children's patterns, a concise and comprehensive article on dressmaking, also some points for the needle, (illustrating thirty of the various, simple stitches).

No. 3556.—Boy's Suit. Cut in four sizes, 2, 4, 6 and 8 years. A six-year size will require 2½ yards of 36-inch material. Price 12c.



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## Royal Baby Chicks



S. C. English White Leghorns 9c  
S. C. American White Leghorns 9c  
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Place your order now for some of these high-grade chicks from pure-bred stock that has been bred to lay for the past 10 years. Just the kind of stock you need on your farm to bring you a good profit. Our many years of hatching experience enable us to give you chicks that are started right and will grow right. Any size orders accepted. Safe arrival guaranteed. Order direct to save time, or send for catalog.

Royal Hatchery, R. 2, Zeeland, Mich.

## Day Old Chicks \$9 per 100

FROM

### Standard Bred Brown Leghorns and Standard Bred White Leghorns

The stock has been bred to lay for the past twelve years, and are now good laying strains. We also have English type White Leghorns which are a little heavier, and have very large combs and lay a large white egg. Those looking for the English type and a heavy laying strain, make no mistake when ordering from us. 100% safe arrival guaranteed by parcel post. Write for our catalog.

Order Direct from Ad. and Save Time.

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## CHICKS 7c and Up CHICKS

20,000 large, strong, well hatched chicks every Tuesday hatched from eggs laid by selected hens on free range insuring healthy, vigorous chicks that will live and grow into money for you.



Barron S. C. White Leghorn heavy weight and heavy layers American S. C. White Leghorns heavy laying strains S. C. Brown Leghorn the most beautiful Leghorn and a good layer. S. C. Anconas great layers.

PRICES FOR JUNE AND JULY	Per 25	Per 50	Per 100
S. C. White Leghorns	\$2.25	\$4.00	\$8.00
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We Ship By Parcels Post and Pay the Postage to Your Door.

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WYNGARDEN HATCHERY, Box M, Zeeland, Mich.

## Baby Chicks Pure Bred 800,000 in 1921

To your door Prepaid by us. Guaranteed live delivery. All our stock is of the Standard and free range and of heavy egg production at the price to meet times. And they are all No. 1 only



S. C. White Leg. } 10c each  
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18c each

Give us a trial order and you will always come back for more of our chicks get our big offer on chicks and brooders. Order direct from this ad and save delay. Circular Free.

WOLF HATCHING & BREEDING CO., Dept. M, Gibsonburg, Ohio.

## Big Special Stock Sale

Yearling Hens and Male Birds. Pullets and Cockerels from 6 Weeks Old on Up.

We have several thousand to select from. Can furnish stock of Utility, Exhibition and Laying Quality, at reasonable prices. When you write us, plainly state just what you want. Now if you want stock that is bred for high egg production and quality don't fail to grasp this opportunity and don't wait too long to order. We can more than please you for the money, guarantee you satisfaction.

Huber's Reliable Hatchery, East High St., Fostoria, Ohio

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**Barred Rocks** Hatching eggs from Parks 200-egg strain. Rich in the blood of Parks best pedigree pens. \$2 per 15, \$6 per 50, \$12 per 100. Prepaid by parcel post in nonbreakable containers. R. G. KIRBY, Route 1, East Lansing, Mich.

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**Fowler's Buff Rocks** Egg prices cut one-half for balance of season. R. B. FOWLER, Hartford, Mich.

## Turkeys as a Side Line

By G. K. Riley

THE farmer who has sufficient acreage can raise a flock of turkeys with a reasonable investment in feed. The small farm is not a good proposition for turkey raising as the birds will range on the neighbors' land and frequently eat quite a large amount of grain. The farmer with a large acreage will often have a woodland and clover field just right for the foraging of turkeys.

Young turkeys need feeding about four times each day until they are five or six weeks old. After that they will follow the turkey hen in her foraging and pick up much of their living from the woods and meadows. Turkeys have a ravenous appetite for bugs and seeds and it is very expensive to raise them properly unless they have the advantages of a broad range. The feed for the young turkeys can at first consist of bread and milk squeezed nearly dry. Later rolled oats will be of benefit to the young birds. As they grow older wheat screenings and cracked corn can be fed two or three times each day. When screenings can not be obtained very good results are obtained from the commercial scratch grains such as are used for the laying hens.

When turkeys are strong and well feathered they will spend much of their time on the range and may wander far from the house. They should be encouraged to roost near home as a safeguard against thieves. If they are only given one meal a day during the summer season it should be at night, as this helps to coax them home to roost.

If the turkeys roost in a colony house it should be open clear across the front to insure a plentiful supply of air. Enough roosts must be provided to prevent overcrowding. If the roosting place is not satisfactory to the birds, their instinct will soon send them to the trees at night and then it will be very difficult to teach them to roost in any kind of a house. Some turkey breeders build a roof on poles and then cover the sides with fine-mesh wire. This keeps the rain from the birds but furnishes an abundance of fresh air. If such a house is closed at night it should be opened in the morning before starting to milk or do other farm work as the birds find their best hunting in the cool morning hours when the insect life is not so active as later in the day.

Turkeys are an asset on the farm that is troubled with grasshoppers as the amount of these insects which they will clean up in a few weeks is very large. Many of the losses in turkey raising are due to turning the birds on the range too early in life without giving them any grain to supplement the feed that they gather for themselves. When grain is high there

is a temptation to cut it out of the turkey's ration, at least until fattening time. Young turkeys frequently receive no attention as soon as their crop seems to contain enough food which they have found on the range. A regular growth should be promoted from the time they are hatched. If young turkeys are stunted it is very difficult to bring them back into thrifty condition, even with the best feeding methods. Turkeys are discouraging to the farmer that endeavors to raise large numbers of them without work, but they are profitable in the hands of the grower who will keep vigorous unrelated breeding stock and feed enough grain to give the birds a chance to grow.

### BIG LOSS FROM BAD EGGS.

BY conservative estimate the annual loss from bad eggs in one state alone is at least \$5,000,000. And a large percentage of this loss could be prevented by the simple expedient of removing the roosters from the summer flock.

The rooster is a very necessary part of the flock during the hatching season, but as soon as the last setting has been made his usefulness is ended and it is time to bid him good-bye. Roosters eat considerable feed during the summer and do not add to the egg production. This puts them in the same class with the cull hens and they should be given the same treatment.

At least ninety-nine per cent of the roosters should be either sold or eaten as soon as the breeding season has passed and all others should be carefully penned away from the hens. Dealers are glad to buy discarded males and often pay a good premium in order to get them out of the country.

Only the exceptional rooster is worth saving for the next year's breeding pen. Yearling males are more active and give better fertility than the older birds and are to be preferred except by the man who is practicing line breeding. If a rooster is to be saved for the next year's breeding, then he should by all means be penned during the summer to keep him away from the laying hens. The infertile egg is the only quality egg in summer and to produce infertile eggs all mature males must be kept away from the laying flock.

Here are seven safe rules for getting the most money from the summer flock:

1. Produce infertile eggs by removing the roosters from the flock in the summer time.
2. Provide clean nests and keep the eggs clean.
3. Do not wash eggs.
4. Gather eggs twice daily during



One Cannot Begin Too Young to Get His Poultry Education. Youthful Curiosity Begets Knowledge.



the summer to prevent them from being heated by the hen.

5. Keep them in a cool, dry place, away from the flies.

6. Market them at least twice each week.

7. Insist that they be bought on a quality graded basis.

#### CHOLERA OR COPPER POISONING.

I have a disease among my hens. The symptoms are the same as diarrhea, only of a green color. When taken by the disease they weaken fast and soon die. What can be done to prevent, and cure?—P. B.

The diarrhea of your chicks is undoubtedly caused by copper poisoning or cholera.

In copper poisoning the feces are either greenish or bluish and this diarrhea, accompanied by violent pain, which is followed by collapse, convulsions or paralysis. The circulation and respiration are weak. The disease is usually fatal in a few hours. The only remedy is to give large quantities of white of egg, muscilage or sugar water as that will correct the effect of the poison. The chicks may get this poison by having access to some spray material.

Cholera is a very highly infectious and fatal disease. The feces of this disease are usually colored green or yellow. Urates, or that part of the excrement which are expelled from the kidneys are bright yellow, the rest are bright green.

A bird affected with this disease will soon separate himself from the rest of the flock and the feathers are roughened, the wings droop, the head is drawn down toward the body, there is also great weakness, and the bird becomes drowsy and sinks in a deep sleep from which it is almost impossible to arouse it.

The disease may be acute or may be sub-acute. The former is fatal in a few hours or days. In the latter case it may live for several days before it dies.

There is no certain cure for this disease. The only remedy would be to kill off all the birds that show symptoms of it, clean the house and disinfect it. Also clean and disinfect the runs and yard.

In killing these birds one precaution is necessary, and that is, do not kill the birds around the barnyard or poultry house, as the blood contains germs which would infect the other birds.

Constant vigilance in killing off the birds which show symptoms of the disease, and thoroughly disinfecting the surroundings will in time eliminate the trouble.

#### GREASING CHICKS.

My little chicks had blackhead lice when a couple of days old. Was told to grease the hen under the wings and under where the chicks cuddle mostly, so I did. The next morning I found twenty dead under one hen and the rest died during the day, totaling fifty-eight. I would like to know if I really greased them too much, as they did look next morning as though pulled out of a grease can. My twenty-six chicks, three days old, had blackhead lice also. So I greased only the heads and around the ears with part lard and part lard. The lice have left them but now I notice there is something the matter with their little legs. They act as a new chick just out of the shell, only they seem to shiver all over and can hardly walk. They seem to be in pain, as once in a while they will peep out as though someone was killing them and either will squat down or stretch both legs back. I have them in a V-coop, home-made, spray them once a week and move coop and wire run, which is 12x4x2 feet high, every day to a clean spot so they can have fresh grass. Chicks have free range. I feed them about five times a day. They have free access to cracked bone, oyster shell and charcoal, also dry mash of corn meal, meat meal and bran, also all the sour milk they can drink, and cottage cheese about once a day. Before setting hens I always rub them with lard or blue ointment and give them clean hay to set in and away from the

hen coop. Setting hens have feed and fresh water all the time, and can dust themselves at any time they are off the nest.

F. J. S.

You have undoubtedly used too much grease on your hens and chicks. It is advisable when applying the grease to rub it in quite thoroughly, and then wipe off what excess grease there may be.

What may cause serious trouble is the allowing of the chicks to run out in the warm sun after they had been greased. This frequently causes symptoms similar to what you have described.

When applying blue ointment be sure to rub it in thoroughly. It is very essential to do this as any surplus of blue ointment may be picked at by either the hen or the chicks, which would thereby become poisoned by it. Blue ointment is a poison and would cause serious trouble if gotten into the digestive system of the chicken.

Your method of feeding and the care of the chicks seem to be all right, so the cause of the trouble is no doubt your method of applying the grease.

#### GOSLINGS DIE SUDDENLY.

My young geese from eight to twelve weeks old are dying. They will seem all right and in perhaps a few hours be dead. The first three weeks I feed bread and milk, after that they run in pasture field that has a creek flowing through, and are there from morning until night. They seem to get weak in legs and can not walk; will sometimes die sitting in creek. Can you tell what is the matter and what to do for them?

W. H. F.

The symptoms indicate that the goslings died of congestion of the brain. This is often said to be caused by parasitic worms in the intestines. If worms are found in the droppings give each gosling a half teaspoonful of turpentine. Place this down in the throat with a medicine dropper or the bird will not get the benefit of much of it.

If the birds have stuffed with something that has produced acute indigestion give each gosling two tablespoonfuls of castor oil. If the goslings appear weak it might pay to keep them in a small fenced range where the ration can be controlled until they become stronger.—R. G. K.

#### GOING LIGHT.

We have lost several hens, and while they did not appear sick, the combs get pale, and they haven't much life toward the last. Several neighbors are having the same experience. Our flock are White Leghorns. We feed oats, wheat and screenings in the morning middlings and sour milk at noon, and corn in the evening. What can I do to prevent further losses?

C. L. B.

The symptoms indicate that the hens have the disease commonly called "going light." It is not tuberculosis but is caused by worms or bacteria in the small intestines. It is often due to mites and lice sapping the strength of the birds. The comb becomes pale and the body emaciated and the bird may live several weeks.

A bird suspected of having worms may be given a mixture of turpentine and olive oil. The dose consisting of about twenty-five drops. Two hours later give a tablespoonful of castor oil. Clean soil on the range, spraying the house with coal tar disinfectants and a clean water supply help to keep down infestations of worms and keep the hens vigorous.

The sudden death of a bird that has appeared healthy is often due to hemorrhage of the brain. In a flock of eighty hens which have been laying heavily all winter, a few of the hens may break down and die from various causes. Of course, hens are subject to a normal death rate the same as all farm animals and several hens might die each year out of a flock of eighty without causing undue alarm. However success with poultry depends on keeping this death rate to the lowest minimum.—R. G. K.

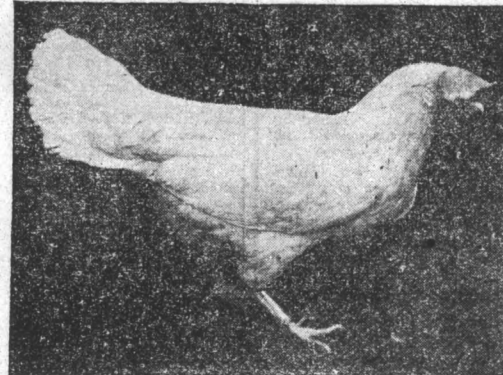
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Order direct from this Ad. and save time. We do not ship C. O. D.

English  
White  
Leghorns,  
Anconas  
at  
9c  
each  
Broiler  
Chicks  
seven cents



American  
White and  
Brown  
Leghorns  
at  
8c  
each

Ship any  
amount 25  
to 5000

Trap-nest record of 278 Eggs in one year.

**SUPERIOR POULTRY FARM & HATCHERY,**  
Box 205, Zeeland, Michigan,

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### Pullets Pullets

Good April hatched pullets. Will lay next winter when eggs are high and your hens are taking a rest.

It surely does not pay to keep poor quality old hens when they can be replaced at practically the same price, with our American English strain of bred to lay Single Comb White Leghorn pullets.

These pullets are produced from our own stock and are fully guaranteed. Choice breeding cockerels and yearling hens. Price on application.

**Macatawa White Leghorn Co.**  
R. 1, Holland, Mich.

#### CHICKS AT REDUCED PRICES

after June 15th and during July S. C. W. Leghorns \$10.00 per 100; Barred Rocks \$12.00 per 100. Parcels Post paid 100% safe arrival. Circular.

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\$16.00 per 100 and up. Hatching eggs, \$2.00 to \$15.00 per setting and \$9.00 to \$15.00 per 100, from 25 varieties of pure bred, farm raised fowls: Chickens, Geese, Ducks, Turkeys and Guinea. Price list and circular free. Plenty of nice breeding stock. Book now for early spring delivery. WILMINGTON HATCHERY & POULTRY CO. Wilmington, Ohio.

**S. C. WHITE LEGHORN CHICKS**  
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**Barred Rocks** egg contest winners, eggs from strain with records to 280 a year. \$2.00 per setting prepaid by P. P. Circular free. FRED ASTLING, Constantine, Mich.

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Great price cut for July deliveries to lower than pre-war prices. Better chicks at a real bargain price. LOOK

Pure S. C. W. Leghorns \$8.00 a 100, \$4.00 for 50  
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Pure S. C. Anconas 10.00 a 100, 5.00 for 50  
Pure B. P. Rocks 12.00 a 100, 6.00 for 50  
Assorted chicks 7.50 a 100 3.75 for 50

Hatch every Tuesday in July, order direct. Prompt shipment on all varieties by Parcel Post mail. Full count strong lively chicks on arrival. For quick service and an entirely satisfactory deal send us your order. 13 years reliable dealings. Fine instructive catalog and price list free.

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**Barred Rocks** 8 to 12 week pullets, cockerels, hens and cock birds. Leading pen at M. A. C. for December averaging 22 eggs each. 1 pullet laid 27 eggs in both Dec. and January. 1 pullet laid 80 eggs in 91 days, winners at largest shows in state. Write for price list. G. Caball, R. 4, Hudsonville, Mich.

#### LOOK. BABY CHICKS

at 8 cents and up. Announcing our summer prices for 1921

W. Leg. 10 cents Buff Leg. 11 cents  
Br. Leg. 11 cents Anconas 12 cents  
Barred Rocks 13 1/2 cents Reds 13 1/2 cents  
Buff Rocks 13 1/2 cents W. Wyandottes 15 cents

Deduct 5% for orders of 500 or more, 10% for orders of 1000 or more. We prepay parcel post charges and guarantee live delivery. Send for free catalogue and earliest delivery date.

Ohio Poultry Yards & Hatchery, Marion, Ohio

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If you want some good Eight Weeks Old Pullets, write us for description of White and Brown Leghorns and also yearling hens.

Also we have a limited number of three months old pullets—White and Silver Laced Wyandottes, White and Barred Rocks, S. C. Reds and Buff Leghorns.

Let us make you a price on what you want.

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Desk 1, Kalamazoo, Mich.

#### APRIL COCKERELS Winter Laying Pullets

now eight weeks old. Anconas and White Leghorns, Brown Leghorns, Buff Leghorns, Rocks, R. I. Reds, Wyandottes, Black Minorcas. Dollar and up as they grow older.

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Our Hi-Grade profit paying Bred-to-Lay, M. A. C. tested and exhibition chicks, at reasonable prices. Hatching eggs, 8 varieties, Circular FREE. Lawrence Poultry Farm, R. 7, Grand Rapids, Mich.

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Postage PAID. 95% live arrival guaranteed. FREE feed with each order. 40 breeds chicks, 4 breeds ducklings. Select and Exhibition grades. A hatch every week all year. Catalogue free. Stamps appreciated. NABOB HATCHERIES, Gambier, Ohio

**100,000 CHIX 11c UP.**  
Best selected utility trapped exhibition stock ever produced. Always 2,000 chicks on hand 5 to 15 days old. 18 varieties. Hatching eggs. Hens, ducks. Early bookings, avoids disappointment. Catalog. Beckman Hatchery, 26 E. Lyon, Grand Rapids, Mich.

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Both Combs. Michigan's Greatest Color and Egg Strain. We are offering some unusual bargains in Chicks and Hatching eggs for June and early July. Write for Free Catalog. INTERLAKES FARM, Box 39, Lawrence, Mich.

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win over all breeds at the egg laying contest. 30 eggs \$5; 50 \$8; 100 \$15 order from this ad. Some chicks, H. H. JUMP, R. 5, Jackson, Mich.

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hens and early hatched pullets and cockerels. Good laying strain. Willard Webster, Bath, Mich.

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bulls and heifers of the very best of breeding, from  
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Containing blood of world champions.  
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**Guernsey Bulls** of May Rose Breeding  
420 to 650 lbs. fat also a few cows and heifers are  
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Guernsey bulls, grandsons of Carrie of Hillhurst  
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Also a 2 yr. old out of a 3½ yr. old with a 500 lb. record.  
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Bull, his 5 nearest dams average 725 lbs. fat.  
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**Guernsey** Females of superior breeding, at reduced  
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We breed them to sell. If you  
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Estimates furnished by the Dairy Division of the  
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A good Holstein bull will increase the production  
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Let us help you find a good one to use on your  
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WHAT AN OPPORTUNITY

We are now offering a beautiful calf born Aug. 2nd,  
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sisters each with yearly records of over 1200 lbs. two of  
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**Holstein** Friesian heifer and bull calves, purebred  
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Splendid individuals and breeding. Write us your re-  
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**Reg. Holsteins** for sale at all times either  
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nearly 34 pounds of butter in seven days, write to  
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Buy a "milk" Bull of Quality from the Breeders  
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Our herd is rich in the blood of Olantha 4th Jo-  
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in every division from one day to one year at the same  
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offering for sale a bull, whose dam exceeds this record  
by over 7½ lbs. in 7 days.

His dam's records are:  
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His name is  
KING VALE CORNUCOPIA WAYNE, No. 312599  
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His dam and sire's two nearest dams average  
Butter 7 Days 53.02 lbs.  
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Handsomely marked about one third white.  
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KING SEGIS transmitted to his sons the power to  
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We have for sale at moderate prices.  
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A Good Note accepted in payment of finely bred reg-  
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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.  
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Old price list cut ½ to ¾ for prompt sale.

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

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Dam of No. 3 has 1031 lbs. butter 23543 lbs. milk in

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Don't delay but buy one of these ready for service

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Pedigrees on application.

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Sired by Segis Korndyke De Nilander a 32 lb. son of  
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Dams are daughters of King Segis Pontiac, a 37 lb.  
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**Registered Jersey** bulls, some ready for  
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Write your wants and see the cattle.

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Kirklevington Lad, by Imp. Hartford  
Welfare, in service. Stock for sale.

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Breeders' Association at farmers' prices. Write for  
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**Shorthorn Bull** For sale. Fames Pride  
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We now have  
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Reg. Red Polled cattle, herd headed by Famous  
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Champion. Herd State and Fed. tested. No cattle for  
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**Shorthorn** cow 3 yrs. old white due in Nov.  
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**Polled Shorthorns** 3 extra good bulls, calved last  
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Price reasonable. Edw. Gunden, Pigeon, Mich.

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never pass this up. He is a good one.  
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Berkshire spring pigs, either sex, \$10, \$12 and \$15  
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CHASE STOCK FARM, Mariette, Mich.

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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.  
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**DUROC JERSEYS:** A few choice  
bred gilts for  
sale. CAREY U. EDMONDS, Hastings, 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.

**DUROC Jerseys.** Boars for spring service, heavy  
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reasonable prices. Partridge Rock eggs from best lay-  
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## DUROCS WITH QUALITY

Spring pigs by Walt's  
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Detroit, Jackson, Gd. Rapids and Saginaw 1919

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**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**  
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**DUROCS** A few choice, ready for service,  
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HARRY FOWLER, Sturgis, Mich.

**Maplewood Duroc Jersey Pigs**  
16 weeks, \$10.00. Sired by PROMOTION  
MAPLE FARM, Ypsilanti, Michigan.  
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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-  
nish Reg. certificate. W. E. Bartley, Alma, Mich.

**Duroc Jersey Boars** of all ages, big, heavy boned  
smooth kind, real herd boars and priced to  
sell. First check for \$50 gets a 400 lb. April yearling,  
a grandson of Panama Special. Write for pedigree  
or come and see. Visitors always welcome. Satisfaction  
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## Veterinary.

CONDUCTED BY DR. W. C. FAIR.

Advice through this column is given free to our subscrib-  
ers. Letters should state fully the history and symptoms of  
each case and give name and address of the writer. Initials  
only are published. When a reply by mail is requested the  
service becomes private practice and \$1 must be enclosed.

**Foot Soreness.**—We have an eight-  
year-old mare that seems to be sore;  
it seemingly relieves her to stand in  
a stretched out position, but she holds  
her head high. She has been worked  
by hired help, consequently had only  
ordinary care. Mrs. W. C. S., Marcel-  
lus, Mich.—Stand her with forefeet in  
wet clay for two hours daily.

**Worms.**—Have a mare eight years  
old that has too many worms. When  
hauling a heavy load she blows and  
breathes too fast. F. C. Alma, Mich.  
—Give her sixty grains of santonin  
and one ounce of ground gentian at a  
dose in bran mash twice a week for  
three weeks. Don't feed her too much  
bulky food.

**Thin Mare.**—We bought a nine-year-  
old mare last fall. She was exceed-  
ingly thin, fed her well for thirty days,  
then put her to work, but she has not  
gained in flesh. What can be done to  
build her up? Mrs. H. S., Williamston,  
Mich.—You should not expect her to  
lay on much flesh, if worked. It is  
not good practice to give a well ani-  
mal drugs. Increase her grain ration,  
she will pick up when cold weather  
sets in.

**Suppurating Lymphangitis.**—I have  
a three-year-old colt with a big leg.  
Six weeks ago the leg suddenly swell-  
ed; some time later leg opened near  
hock joint. Have applied poultices to  
make sore run. Exercise reduces the  
swelling. I have applied commercial  
remedies. L. S., Rodney, Mich.—Don't  
poultice leg, it will do harm. Apply  
equal parts of oxide of zinc and boric  
acid to wound twice a day. Give him  
sixty grains of potassium iodide at a  
dose twice daily.

**Collar Gall.**—There is quite a pouch  
or sack on shoulder, rest does it good,  
but when worked pouch swells consid-  
erable. The shoulder is not sore. W.  
B., Beaverton, Mich.—Dissolve quarter  
of a pound of acetate of lead and four  
ounces of tannic acid in one gallon of  
cold water and apply to shoulder three  
or four times a day.

**Grass Colic.**—Whenever we turn our  
three horses out to pasture they take  
colic, but soon recover. Soon after  
eating grass it causes pain or colic.  
Mrs. F. M., Hopkins, Mich.—If you will  
allow the horses to eat some grass or  
green feed with the dry they will soon  
get accustomed to it, then let them run  
in pasture.

**Garget.**—Can you publish a cure for  
garget? One-quarter of udder swells  
occasionally, but strange to say, the  
swelling soon leaves. When the udder  
is swelled she gives bloody milk. Cow  
is on pasture and seemingly in good  
condition. Subscriber.—Your cow  
bruises her udder, causing it to swell.  
Try to ascertain the cause, remove the  
cause and she will remain well.

**Tuberculosis.**—One of my cows took  
sick some time ago, gradually grew  
weaker and I killed her. Cut her open  
and found the lungs filled with yellow  
spots. What ailed her? E. R., Sut-  
tons Bay, Mich.—Doubtless she suffer-  
ed from tuberculosis, an incurable dis-  
ease. Have the rest of your stock test-  
ed with tuberculin. This is work for  
four local or state veterinarians.

**Infected Udder.**—We have cow that  
has udder trouble which is making  
milking quite hard. Two of the four  
quarters are affected. The bag is caked.  
J. H. R., Concord, Mich.—Give her  
half-ounce doses of fluid extract of  
poke three times a day. Apply one part  
of fluid extract of belladonna, one part  
fluid extract of poke and six parts of  
lanolin to caked portion of udder twice  
a day. Use milking tube, this will make  
milking easier.

**Barrenness.**—Have a cow that came  
fresh last March; since then she has  
not been in heat. W. W. F., Douglas,  
Mich.—Give her one dram of ground  
nux vomica at a dose in feed twice a  
day.

**Skin Irritation.**—I have some spot-  
ted Poland-China sows and pigs that  
are troubled with sore skin. They were  
all right a week ago, when I turned  
them into rape and oats. I am told  
it will not do to turn white hogs into  
this kind of pasture. A. J. McC., Hom-  
er, Mich.—The white skin is much  
more likely to become inflamed than  
the dark-colored skin. Apply one part  
oxide of zinc and ten parts petrolatum  
once a day. Take the sows and pigs  
out of rape field.



# Stock Farming

## MAKE ENTRIES IN SHORT-FED SPECIAL CLASS.

APPLICATION for entry in the short-fed special classes at the International to be held in Chicago on November 26 to December 3, must be filed between August 1 and August 15. Blanks for making entry may be secured by addressing the General Superintendent, International Live Stock Exposition, Union Stock Yards, Chicago, Illinois.

## PURE-BRED BULLS ONLY.

MOVEMENT is afoot to eliminate all the scrub and grade bulls from the herds of members of the cow-testing associations of some of the western states. Already eight of these associations have entirely eliminated the scrub and grade bulls. Would not a movement among the associations of Michigan to this same end aid materially in the general campaign to oust the inferior sires from the state?

## ACCREDITED HERDS IN MICH.

THERE were 191 accredited herds, with a total of 4,279 animals added to the list in Michigan, according to a report of the bureau of animal industry of the federal department of agriculture. At this time there are 2,321 herds consisting of 42,574 animals under supervision of state and federal inspectors.

## HORSE POPULATION.

THE United States Census figures, which give a grand total of 27,676,939 horses and mules on January 1, 1920—an increase of nearly a million in the last decade. Of the total 20,667,319 horses and mules were of working age—coming four years and over. Approximately 17,000,000 were in harness doing farm work, and 2,000,000, in round numbers, actually at work in cities, towns and villages. These 19,000,000 horses and mules in service, require 9,500,000 sets of harness of equivalent.

## HOT-WEATHER RULES FOR HORSE USERS.

THE following rules prepared by the Work-horse Relief Association are worthy of careful study by every person who owns or works horses. A good plan is to tack the rules up in the stable where they can be referred to frequently.

1. Load lightly, and drive slowly.
2. Stop in the shade if possible.
3. A sponge on top of the head, or even a cloth, is good if kept wet. If dry it is worse than nothing.
4. Water your horse as often as possible. So long as a horse is working, water in small quantities will not hurt him. But let him drink only a few swallows if he is going to stand still.
5. When he comes in after work, sponge off the harness marks and sweat, his eyes, his nose and mouth, and the dock. Wash his feet but not his legs.
6. If the thermometer is seventy-five degrees or higher, wipe him all over with a damp sponge, using vinegar water if possible. Do not wash the horse at night.
7. Saturday night, give a bran mash, lukewarm; and add a tablespoonful of saltpetre.
8. Watch your horse. If he stops sweating suddenly, or if he breathes short and quick, or if his ears droop, or if he stands with his legs braced sideways, he is in danger of a heat or

sun stroke and needs attention at once.

9. If the horse is overcome by heat, get him into the shade, remove harness and bridle, wash out his mouth, sponge him all over, shower his legs, and give him two ounces of aromatic spirits of ammonia, or two ounces of sweet spirits of niter, in a pint of water; or give him a pint of coffee warm. Cool his head at once, using cold water, or, if necessary, chopped ice, wrapped in a cloth.

10. If the horse is off his feed, try him with two quarts of oats mixed with bran, and a little water; and add a little salt or sugar. Or give him oatmeal gruel or barley water to drink.

11. Clean your horse at night, so that he can rest well, and clean him thoroughly. The salt dandruff drying on his skin makes him uncomfortable, and often produces sores under the harness.

12. Do not fail to water him at night after he has eaten his hay. If you don't he will be thirsty all night.

13. If it is so hot that the horse sweats in the stable at night, tie him outside, with bedding under him. Unless he cools off during the night, he cannot well stand the next day's heat.

## INDIANA MAN BUYS RANCH.

THE man who has once been a farmer never gets the love of the soil entirely out of his system," is the comment of S. L. Eisler, of Indiana, who recently purchased twelve hundred acres of wild land in Alcona county, and is spending thousands of dollars in developing it to a point of production.

In addition to planning on developing the ranch, Mr. Eisler is trying to instill a "back to the land" spirit in some of his countrymen. He comes from the "steel city" of the mid-west, where thousands of foreign laborers are employed and where they have earned big wages for several years, but he says many of them have saved practically nothing.

"I am trying to show two of them that they can make more money out of the land than they can in the mill," he said. "I sold two men a one-seventh interest in this ranch at cost of the land, and they have gone on it to work it. I have agreed to give them back their money at seven per cent interest if, at the end of two years, they are not satisfied, and in the meantime I am providing them with a living and paying the cost of equipping the ranch, from fencing to buildings, and providing all needed machinery.

"These men had worked in Gary for ten to fifteen years, and one of them had nothing, while the other had a \$3,500 equity in some real estate. They will both have more money at the end of five years than they have been able to save in their long years in the steel mills, and they will get it with less hard work, provided they stick to their jobs.

"There are many more workmen who, in the old country, were farmers, who would be glad to get back to the land if it were not for the fear that they would be "stung" by buying worthless land. Some of them have been caught in that way and this has given others the impression that there is no good land to be had in Michigan at a price they can afford to pay. I went over a good deal of northern Michigan before buying in Alcona county, and I know there are hundreds of thousands of acres of the finest soil in the territory, and wherever I find a man who is 'land hungry' now, I am telling him where to find it."—M.

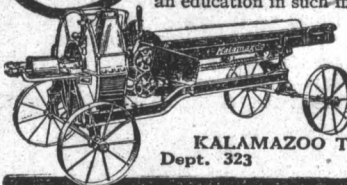
## Record Holders

Wood Silos—Tile Silos—Silo Fillers

The Kalamazoo is the only wood silo made that holds record of 30 years service without a flaw. We make both wood and tile. Special construction keeps silage in most nutritious condition; no waste. Kalamazoo Cutters are the world's standard. None better in any way.

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## 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.

## FOR SALE

Having sold 2 of our farms on account of poor health, we have for sale 40 head of pure bred Shorthorn Cattle of various ages, and you can have your pick from over 100 head. 30 Pure Bred Duroc-Jersey sows and gilts to farrow in September and 70 head to pick from. 20 Head of pure bred Percheron and some grade horses and colts. A span of mules over 16 hands high 4 and 5 years old brothers and a perfect match. Our herd bulls are imported Sir Haymaker Chaslen and Ideal Fortune, son of Cumberland Fortune. Herd Boars are Hi Pathfinder, son of Pathfinder, Long Wonder, son of Colonel High Model and Giant, son of Giant Invincible. All our hogs are Cholera Immune.

**CHASLEN FARMS, NORTHVILLE, MICH.**  
Our farms are located 3 miles south west of town, if you can make better connections by way of Salem we are 3 miles east of there on the Salem Road. If you need anything in these lines, it would pay you to come and see us.

## HOGS

**DUROC SOWS** and gilts bred to Jacks Cherry Orion King No. 18929 Son of the \$10,000 boar owned by Longview Farm, Le Summit, Mo. also young boars ready for service out of good sows. Apply **THE JENNINGS FARM, Bailey, Mich.**

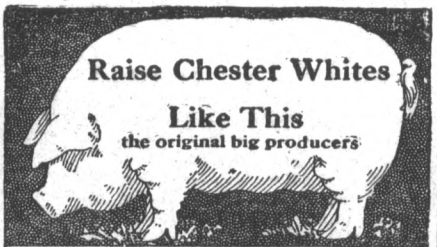
## Duroc Bred Gilts

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.**

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 sows to be bred to good sons of Great Orion Sensation and Duration. Michigan Farm, Pavilion, Mich.

**Duroc Jerseys** Am booking orders for spring pigs. Few fall gilts.  
**E. D. HEYDENBERG, Wayland, Mich.**



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at 8 months old. Write for my plan—More Money from Hogs.  
**G. S. BENJAMIN, R. F. D. 10, Portland, Michigan.**

**Chester Whites.** Bred gilts 250 lbs. \$40. Sept. farrow. Spring pigs \$12 to \$25.  
**ALBERT DORR, Clinton, Mich.**

**Chester Whites** Big stretchy, spring pigs for sale. These are good ones. George D. Springer, R. 6, Grand Rapids, Mich.

**Chester Whites** Choice March boars; new blood for old customers; cholera immune; price right. F. W. Alexander, Vassar, Mich.

**O. I. C's.** Last fall gilts bred to farrow in Aug. boars for service, also spring pigs for sale. M. L. O. H. PETERSON, Ionia, R. 2, Mich., Elmhurst Farm.

**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 April farrow. Both sexes. Sire C. C. Callaway Boy. Good long ones the kind that fills the Pork bbls. Some good Jersey bull calves of the Albertas Jubilee kind. All stock reg. in buyer's name. **VILLAGE STOCK FARM, Jeddo, Mich.**

**Write for Prices** on O. I. C. pigs of March and April farrow. Both sexes. Sire C. C. Callaway Boy. Good long ones the kind that fills the Pork bbls. Some good Jersey bull calves of the Albertas Jubilee kind. All stock reg. in buyer's name. **VILLAGE STOCK FARM, Jeddo, 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. Clitz's phone. 1/2 mile west of Depot, **OTTO B. SCHULZE, Nashville, 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 spring pigs from prize winning stock. Must be sold to make room. **WEBER BROS.,** Phone R. O. 488, 10 mile Rd. W., Royal Oak, Mich.

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

**O. I. C.** Big type serviceable boars, weigh from 150 to 250 lbs. Gilts bred for May and June farrow. Write for prices. **G. F. Andrews, Mason, 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 Clan and Leonard's Big Bob. **HART, FULCHER AND CLINE,** Address F. 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 immune. Satisfaction guaranteed.

**SAMUEL GERBER** R. 4, Bluffton, Ind.

**Big Type Poland Chinas.** Choice spring boar pigs \$15 each when 8 weeks, sired by Clansmen Buster and their dam being a prize winner at the State Fair. 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 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 producers? 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. 2, St. Louis, Mich.**

**Big Type P. C.** some very choice boars double immune, out 1100 lb. sire and mammoth sows from Iowa's greatest herds. E. J. Mathewson, Burr Oak, Mich.

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

**Sows 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.**

**L. 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. Thanks to my customers.  
**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.**

## Hampshires

**1914 1921**  
A few choice boars of this spring farrow that sure will improve your herd if used for herd boars. They are bred right and are right, and will produce right. Write for description and prices. We are glad to answer inquiries.  
**Steuben's Hampshire Farm, Angola, R. 3, Ind.**

## 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, Marquette, Mich.**



# LATEST MARKET REPORTS

## GRAIN QUOTATIONS

Wednesday, July 6.  
Wheat.

Detroit.—Cash No. 2 red \$1.25; July \$1.23; No. 2 white \$1.20; No. 2 mixed \$1.20.

Chicago.—No. 2 red \$1.20@1.24½; No. 1 hard \$1.28@1.28½; July \$1.17; September 1.15½.

Corn.

Detroit.—Cash No. 2 yellow 62½c; No. 3 yellow 60½c; No. 4, 57½c.

Chicago.—No. 2 mixed 57½c; No. 2 yellow 57½@59c.

Oats.

Detroit.—Cash No. 2 white 39½c; No. 3 white 38c; No. 4 white 35c.

Chicago.—No. 2 white 34½@36½c; No. 3 white 32½@34½c.

Beans.

Detroit.—Immediate and prompt shipment \$3.45 per cwt.

Chicago.—Market is steady and demand easy. Hand-picked Michigan beans choice to fancy at \$4@4.25; red kidney beans \$9@9.25.

New York.—The market is slow with values a little easier as follows: Choice pea \$4.50@4.60; do medium at \$4.75; red kidney \$11.50.

Rye.

Detroit.—Cash No. 2 rye is lower at \$1.19.

Chicago.—No. 2, \$1.16½.

Seeds.

Detroit.—Prime red clover \$13.50; October \$11.50; alsike \$13; timothy at \$3.10.

Hay.

No. 1 timothy \$19@20; standard and light mixed \$18@19; No. 2 timothy \$16@18; No. 1 clover mixed \$14@15; No. 1 clover \$13@14; rye straw \$13.50@14; wheat and oat straw \$12.50@13 per ton in carlots at Detroit.

## WHEAT

Spring wheat has been severely injured by dry weather in the northwest which, starting in South Dakota, has spread into North Dakota, Montana and also into Canada. The movement of new wheat has not gotten under way as rapidly as expected two weeks ago, due to rains which have delayed threshing and which have also reduced the quality through sprouting in the shock, especially in Oklahoma. Old wheat, however, is still coming forward at a surprising rate, averaging about 1,000,000 bushels per day, which is an unusually large total for this season of the year. All reports indicate that new wheat will be sold rather freely as soon as threshed. Prices declined early in the week and as low as 90 cents was paid to growers in Kansas. Producers are less willing to contract new wheat on this basis, especially with the spring wheat crop deteriorating from drouth. Foreign crop reports have become more discouraging. The United Kingdom, Russia, Roumania and Argentina all reported drouth while the French drouth is said to be the worst in forty-seven years. It has been hinted that Russia may need to import twenty to thirty million bushels instead of becoming again the world's leading exporter.

## CORN

Corn prices remain low as stocks on farms and in terminal markets are large and the movement to primary markets is ample. Both industrial and eastern shipping demand are rather slack and Argentina appears to be caring for the foreign outlet. Thus far crop prospects are flattering. Rains are needed in large areas west of the Mississippi river or damage will occur in the next few weeks. Seldom has the corn market faced such large supplies of old corn together with such a large new crop. Private reports point to a yield of a little over 3,000,000,000 bushels on the basis of present prospects.

## OATS

Reports of oat crop damage have been more numerous during the past week. Oklahoma rains have prevented cutting about twenty-five per cent of the acreage while hot dry weather in the north has prevented the filling of the grain. The supply of old oats is unusually large. A great deal of new oats is likely to arrive at terminals during July but crop reports indicate that much of it will be light in weight. Demand is dull. The east has a poor crop of oats as well as hay, so that the demand from that section may increase later. France has been buying

Canadian oats freely recently as a result of the drouth in that country and our export trade may enlarge during the coming crop year.

## FEEDS

Feed markets continue weak, especially bran and standard middlings. Middling prices are low compared with corn and do not seem likely to decline much further. Stocks of all feeds are abundant with demand comparatively light.

## HAY

Hay markets are dull affairs for the most part, with receipts light and demand extremely limited. Alfalfa and timothy hay prices are high compared with other feeds but prairie hay is quoted so low that large areas are expected to remain uncut and further declines in this division are not probable.

## EGGS AND POULTRY

Egg prices have been on the upgrade during the past week due to gradually declining receipts which are now running far below those of the same period last year. Receipts at the four leading cities since January 1 total 9,549,147 cases compared with 8,378,853 cases during the same period last year. Poultry prices have remained high compared with the price levels of other meats but the long expected decline started during the past week, hens losing five cents and broilers 12 cents per pound in two days at Chicago. Latest quotations were as follows: Chicago.—Eggs, fresh firsts 25@26c; ordinary firsts 23@24c. Poultry broilers 30c; hens general run 22@23c; roosters 12½c; ducks 24c; geese 18c; turkeys 30c.

Detroit.—Live poultry, hens at 25@27c; roosters 15c; geese 15c; ducks 30@35c; turkeys 25c; broilers 40@42c.

## BUTTER

Butter markets remained rather firm during the past week. Consumptive demand along with speculative buying kept receipts well cleaned up, even of undergrades, the percentage of which was increased by hot weather. Movement into storage continues heavy. Prices for 92-score fresh butter as quoted by the bureau of mar-

kets on July 1 were: Chicago 35½c; New York 35½c; Boston 37c; Philadelphia 36½c.

## CHEESE

Trade in cheese distributing markets improved during the past week as consumptive and speculative demand readily absorbed all receipts. Speculative buying was particularly strong on twins and longhorns. White cheese is in good demand with light offerings since cheesemakers prefer to produce colored cheese as the quality does not need to be quite so high to obtain top prices. Hot weather has reduced the average quality considerably and undergrades are abundant but even these have found a fairly ready outlet.

## WOOL

Woolen mills continue to take their time in the purchase of raw wool, although they are carrying lighter stocks than usual. They are evidently using a nearly normal amount of wool, but supplies are too large to cause any immediate concern on their part over an advance in the market. Prices show little change. Foreign auctions are not quite so brisk as two weeks ago and some apprehension is expressed lest the large stocks in Australia, New Zealand and Great Britain cannot be withheld from the market long enough to maintain prevailing quotations. The proposed duty in the permanent tariff bill is 25 cents a pound upon the actual wool content and 26 cents upon scoured wool. It is rather difficult to make comparisons because of the different basis used but the duty upon wool in the grease is believed to be slightly higher than the old Payne-Aldrich tariff, while the duty upon scoured wool is seven cents lower than formerly.

## POTATOES

Old potato supplies are practically absent from the market partly because prices are too low to justify shipping. New potato shipments are running heavier than during the same period last year. Prices on new stock range from \$3.50@4 per barrel wholesale on midwestern markets and from \$1.50@3 per barrel on eastern markets.

## HOGS SURPRISINGLY STRONG.

The hog market has surprised its friends by a sharp advance to the highest point in nearly three months. Receipts have not been light but consumptive demand both domestic and export, shows no abatement. Lighter receipts are to be expected during July and August unless past history is to be reversed. Since the market has advanced rapidly under present runs, there is abundant reason for believing that higher prices will be seen before summer is over. The market probably has advanced about as far as can be expected for the present and a moderate setback will not be surprising, but an upward trend is to be expected during the next six or eight weeks.

The premium on light weights increased materially during the past week as packing sows were more numerous and advanced but little, also eastern shippers who buy light hogs principally were an important factor in causing the upturn. The spreads will undoubtedly widen much more during the next two months.

The provision situation shows little change but it is becoming more and more evident that the supply of cured meats can be disposed of before the fall run of hogs starts and if the demand for lard broadens as much in the late summer and fall months as it usually does, the immense holdings will largely pass into consuming channels before the end of the year.

## HOLIDAY DULLNESS IN HORSE MARKETS.

The horse markets invariably experience an extended holiday period at this season of the year. This year it is likely to be more marked than usual. Receipts at all points are light but demand is still more limited and there is no prospect of an early change in conditions. Only an occasional individual sells above \$200 at Chicago and choice 1700-pound drafters have sold for \$175@185 or about \$100 per head less than a few months ago. The prices paid to farmers for horses are about 30 per cent below the five-year pre-war average.

This year the emergency tariff will retard or prohibit the movement of cattle from Canada. In the ten months ending April 30, 309,000 head of cattle were imported into the United States from Canada and Mexico. During the same period of the preceding year imports were 532,000 head.

## NEWS OF THE WEEK.

(Continued from page 26).

tionary plot is reported to have been disclosed among leaders in Petrograd and along the Polish frontier.—The cost of running the United States government during the fiscal year ending Friday was \$5,624,932,960.

Monday, July 4.

IT is predicted that a new peace treaty based on the Versailles pact may result as the next step following the declaration of a state of peace by congress which the President signed Saturday.—Two million railroad workers accept the decision of the United States labor board which provides for a reduction of twelve per cent in their wages.—Hostilities between forces of the provisional government in Vladivostok and leader of anti-bolshevik forces in Eastern Siberia are reported.—Soviet Russia is seeking peaceful relations with Turkey and is not planning the occupation of Constantinople.—The Japanese ambassador at Washington declares that the Anglo-Japanese alliance is not in any way aimed at the United States and that the treaty with England prevents any pledge for war.

Tuesday, July 5.

WITH peace restored the disposition of the American troops in the occupied territory of Germany bids fair to become an important issue.—Steel companies announce another decrease in steel prices.—It is rumored that the Spanish cabinet will resign.—Railroad companies are fighting hard to establish the necessity for maintaining the present freight and passenger rates.—Former President Taft is nominated as chief justice of the United States Supreme Court.

## Live Stock Market Service

Wednesday, July 6.

### DETROIT

Cattle.

Receipts 185. Steady on good; common very slow.

Best heavy steers.....	\$ 7.00@ 7.25
Choice dry-fed yearlings.....	8.25
Best handy wt bu steers.....	7.00@ 7.25
Mixed steers and heifers.....	5.50@ 6.25
Handy light butchers.....	4.50@ 5.25
Light butchers.....	3.50@ 4.50
Best cows.....	4.75@ 5.00
Butcher cows.....	3.50@ 4.50
Common cows.....	2.50@ 3.00
Canners.....	1.50@ 2.00
Best light weight bulls.....	4.50@ 5.00
Bologna bulls.....	3.50@ 4.50
Stock bulls.....	3.50@ 4.75
Feeders.....	4.50@ 6.00
Stockers.....	3.50@ 4.50
Milkers and springers.....	\$ 40@ 70

Veal Calves.

Receipts 258. The market is \$1@1.50 higher.

Best.....\$12.00@12.50

Others.....5.00@10.00

Hogs.

Receipts 653. Market 20c higher.

Mixed hogs.....\$ 9.75

Pigs.....9.25@10.00

Sheep and Lambs.

Receipts 328. Lambs are 50c higher; sheep steady.

Best lambs.....	\$ 11.00
Fair lambs.....	8.00@ 9.50
Light to common.....	5.00@ 7.00
Culls and common.....	1.00@ 2.00
Fair to good sheep.....	3.00@ 4.00

### CHICAGO

Hogs.

Estimated receipts today are 16,000; holdover 7,100. Market is 25c higher; light weights active; others slow. Bulk of sales \$9@9.75; tops \$9.75; heavy 250 lbs up medium, good and choice at \$9.25@9.65; medium 200 to 250 lbs medium, good and choice at \$9.50@9.70; light 150 to 200 lbs common, medium,

good and choice at \$9.50@9.75; light lights 130 to 150 lbs common, medium, good and choice \$9@9.75; heavy packing sows 250 lbs up smooth \$8.50@9; packing sows 200 lbs up rough \$8.15@8.50; pigs 130 lbs down medium, good and choice \$8.75@9.35.

Cattle.

Estimated receipts today are 8,000. Market steady to strong. Beef steers, medium and heavy weights 1100 lbs up choice and prime \$8.50@8.85; do medium and good \$7@8.50; do common \$6@7; light weight 1100 lbs down good and choice \$8@8.75; do common and medium \$9.25@9.50; butcher cattle heifers, common, medium, good and choice \$4.25@8; cows common, medium, good and choice \$3.75@6.75; bulls bologna and beef \$4@6.25; canners and cutters cows and heifers \$1.50@3.75; do canner steers \$2.25@3; veal calves light and handyweight medium, good and choice at \$7.50@9.50; feeder steers common, medium, good and choice \$5.75@7.50; stocker steers common, medium, good and choice \$3.75@7.25; stocker cows and heifers common, medium, good and choice \$2.50@5.50.

Sheep and Lambs.

Estimated receipts today are 8,000. Market 25c higher. Lambs 84 lbs down medium, good, choice and prime \$8.75@11; do culls and common \$5@8.25; spring lambs medium, good, choice and prime at \$6@8.50; ewes medium, good and choice \$2.75@5.15; ewes cull and common \$1@2.25; breeding ewes full mouths to yearlings \$2.50@5.75; yearling wethers medium, good and choice \$5.75@6.75.

### BUFFALO

Heavy hogs sold here today at \$10@10.25; others \$10.50@10.75; lambs brought \$12.50; calves at \$12. The trading in dry-fed cattle was on a steady basis, but nobody seems to want grassers.



## We've Cut The Price

Get your silo now while Saginaw Silo prices are way down—terms to suit your convenience. Your silo will pay for itself—cut down the cost of feeding—help you to meet lowered market prices.

Send for new price list. It will save you money.

Address Dept. No. 10A

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

## The PERFECT CORN HARVESTER

Sold Direct \$23.50 JUST THE THING FOR SHOCK OR SILO CUTTING



Works in any kind of soil. Cuts stalks, doesn't pull like other cutters. Absolutely no danger.

Cuts Four to Seven Acres a Day with one man and one horse. Here is what one farmer says:

WORKS IN ANY KIND OF CORN IN ANY SOIL.

Gentlemen:—The Corn Harvester worked fine in medium corn on sandy land. Although I am an old man 65 years old, I cared for ten cows and cut 150 shocks a day. I recommend your machine for work in any kind of corn in any soil. Yours truly,

SILAS SHALLENBARGER Colon, Mich.

**SOLD DIRECT TO THE FARMER**

Send for booklet and circulars telling all about this labor-saving machine; also testimonials of many users.

LOVE MANUFACTURING COMPANY

Dept. 1 Lincoln, Illinois

## ABSORBINE STOPS LAMENESS

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. \$2.50 a bottle delivered. Horse Book 9 R free.

**ABSORBINE, JR.**, the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; heals Sores. Allays Pain. Will tell you more if you write. \$1.25 a bottle at dealers or delivered. Liberal trial bottle for 10c stamps.

W. F. YOUNG, INC., 288 Temple St., Springfield, Mass.

## \$54.50 PUTS THIS NEW MILL ON YOUR OLD TOWER

Albion steel and wood mills are quiet and powerful. One-third the working parts of any other mill. Only main Pinion bearing subject to wear. This is oilless, and easily replaceable. Covers by dependable weight without springs. Fits any 4-post steel tower. Why not shorten your chore hour now with a good Windmill? This is your chance—an Albion direct from the manufacturer, fully guaranteed. Write today for catalog.

Union Steel Products Co. Ltd.

No. 525 N. Warren Street, ALBION, MICHIGAN, U. S. A.

## Eli HAY PRESSES

Durable, easy to operate, great capacities. Many sizes. Engine, belt, horse power. WRITE postal for catalog, price TODAY on "ELI"—King of Balers.

COLLINS PLOW CO.

111 Hampshire St., Quincy, Ill.

## CORN HARVESTER

cuts and piles on harvester or winrows. Man and horse cuts and shocks equal Corn Binder. Sold in every state Only \$28 with fodder tying attachment. Testimonials and catalog FREE showing picture of Harvester. Process Harvester Co., Salina, Kansas

Please Mention The Michigan Farmer when writing to advertisers

## TRADING PURE-BREDS FOR SCRUBS.

THOUGH the itinerary for the "better sire train," to be run through a number of Michigan counties in August, is still not definitely arranged, plans are already being laid for the distribution of pure-bred bulls through a four-fold method of exchange.

To make certain that an adequate number of these high-class animals is placed within reach of dairymen of the state, one blooded sire will be traded in every county visited, for a scrub, animal for animal. If possible, it is hoped to persuade groups of men to pool their resources and own the pure-bred cooperatively.

In addition, all scrub and grade bulls of breeding age will be bought at a one cent premium per pound over prevailing Detroit market prices and in return registered Holstein bulls will be provided at a special low price. According to a third proposal some local group such as a chamber of commerce interested in stimulating the dairy industry will be persuaded to buy the pure-bred sire. It may then be placed with a suitable farmer by means of tickets numbered and given out by merchants. The fourth part of the plan calls for the formation of bull associations. This idea is the one most favored by dairy leaders in the state. If carried out, the tour will be under the joint auspices of M. A. C., railroads and the Michigan Holstein-Friesian Association.—H.

## REFORESTATION WORK IN THE UPPER PENINSULA.

THE work of reforestation which the Cleveland-Cliffs Iron Company is carrying on on Grand Island is interesting. This is a matter with which, I understand, the president of the company has at heart. This work has been carried on during the past four years, and some nine hundred thousand white pine seedlings have been set out. Those I saw were doing very well, as one should expect, as there is still considerable virgin white pine on the island. The process of transplanting is a simple one. An axe blade makes the hole in the ground, which, after the roots are in position, is closed by the two feet of the operator, which, placed on either side of the plant, press the earth tightly about it. The seedlings are set out promiscuously among the standing timber, where this is not already too dense. The two enemies of the forest—fire and the assessor—are not likely to intrude here, and we are likely to see a new white pine forest arising on the ruins of the old. It would be sheer stupidity to discourage such plantations through an immediate increase of assessments, as has at some points on occasion taken place. These seedlings cannot for many years have any commercial value. When they do become commercially important, the present officers and the owners of this concern will not be here to enjoy the fruits of their foresight. It is a splendid work they have inaugurated, and it should have every encouragement. If work of this character had been begun in Michigan a half century ago, our standing timber situation would now be much more favorable than it is.—CHASE.

## 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, Holsteins.—October 21, Howell Sales Co., Eighth Annual Sale at Howell, Mich. Wm. Griffin, Secretary.

# Has Made Bumper Crops Since 1760

There are only four foods that your crops demand of you—**FertilEarth** supplies three of them: sulphur, calcium, nitrogen. Since 1760 agricultural gypsum has never failed to produce bumper crops on soil needing these three foods; and on soil needing phosphorous it has always increased crops if this other food was also added. **FertilEarth** also preserves nitrogen in manure; keeps stables sanitary; aids in disease prevention in stable, barnyard and field; assists crops to live through drought. Try it on a small plot.

Write for booklet. **FertilEarth** is sold everywhere.

## GRAND RAPIDS PLASTER COMPANY

Established in 1856 Manufacturers of

<b>FertilEarth</b> Agricultural Gypsum "Makes Crops Grow"	Climax Wood Mortar "For Plastering Fine Homes"	Hercules Wall Plaster "For Plastering Larger Buildings"
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## Start the Young Pigs Right

By Giving Them

# Semi-Solid Condensed Buttermilk

This buttermilk is pure and fresh, taken direct from our churns. It is pasteurized and concentrated to about one-seventh of its original volume by boiling it down at low temperature under a vacuum. Every pound of it is solid food. It contains no indigestible matter. This is the best feed known for hogs or poultry. Send for our descriptive booklet and price list for any quantity desired. Manufactured and sold direct by

**J. A. LONG COMPANY, 304 E. Elm Street, Union City, Ind.**

# TRACTOR FOR SALE

This machine will handle a 28 to 30-inch threshing machine and a 14-inch insilage cutter. It is in first class order. It burns kerosene without trouble and gives more power. It is not a high speed machine and will last a long time. It will pay for itself this fall threshing and filling silos and have a lot of money left—sold with a guarantee at a very reasonable price. Box 275, Lansing, Michigan.

## 2 SILK FINISH PONGEE SHIRTS FOR \$2.85

Six dollar value at today's reduced prices. 2 elegant, snappy, specially finely woven Silk Finish Pongee Shirts. Only \$2.85 for both. Smart button-down attached collar. 6 button coat-front. Soft turned-back double cuffs. Double yoke and collar. Flap button pocket, handily sewn extra fine stitches. Masterpiece of one of the biggest Philadelphia shirt manufacturers—with \$100.00 to \$150.00 Bradstreet rating. Guaranteed by thirty years of shirt making for leading stores of East. Send order today. Pay C. O. D. or if you want shirts quickly, send P. O. Order. Give collar size. **YOUR MONEY BACK IF YOU DON'T LIKE THEM.** We won't even ask why. We pay postage. Light tan or all white. Collar sizes 14 to 18 inches. You can have same shirt, with laundered neckband without pocket. Send for big lot of FREE SAMPLES. Newest stylish colors, patterns and materials in gentlemen's shirts from \$1 up. Also Pajamas and Night Shirts.

**TUTELMAN BROS.**  
749 Spring Garden St., Philadelphia, Pa.

## 12 Months to Pay

Enjoy your 1921 "Ranger" at once. Earn money for the small monthly payments on Our Easy Payment Plan. Parents often advance first small payment.

**FACTORY TO RIDER** wholesale prices. Three big model factories. 44 Styles, colors and sizes in our Ranger line. Delivered FREE on 30 DAYS TRIAL. Select bicycle and terms that suit—cash or easy payments. Etc. prepaid.

**TIRES** lamps, horns, wheels, parts and equipment at half retail prices. **SEND NO MONEY**—Simply write today for free Ranger Catalog and marvelous prices. Special Rider Agents offer.

**Mead Cycle Company**  
Dept. H 77 Chicago

# \$24.95

## Upward CREAM SEPARATOR

On Trial. Easy running, easily cleaned. Skims warm or cold milk. Whether dairy is large or small, get handsome catalogue and easy monthly payment offer. Address

**AMERICAN SEPARATOR CO., Box 5061 Bainbridge, N.Y.**

**Barn Paint \$1.35 Per Gallon**  
Get factory prices on all paints. We guarantee quality. We pay the freight.

**FRANKLIN COLORED WORK, Dept. M, Franklin, Ind.**

## McCaffrey's Hay Manager

Now With

# Geo. E. Rogers & Co.

We solicit your consignments. Liberal advances on all shipments.

**Geo. E. Rogers & Co., 601 Wabash Bldg., Pittsburgh, Pa.**

## Eggs

Our trade on fancy poultry farm eggs is increasing daily. Therefore we are in a position to pay liberal premiums above the Chicago market for fine new laid stock.

We solicit your shipments. Ship via Express.

**AMERICAN BUTTER & CHEESE COMPANY,**  
2034 Howard St. Detroit, Mich.

## Holmes, Stowe Co., 2429 Riopelle St.

Commission Merchants. Dressed Beef, Hogs, calves, Poultry, Live & Dressed, Provisions, etc. Correspondence Solicited. Ref. Wayne County & Home Savings Bank. Bradstreet, Detroit, Mich. Cad. 2887

## HAY

Ship E. L. RICHMOND CO. Detroit. ESTABLISHED 1893. Highest Prices—Prompt Returns

Death to Heaves or refund

Newton's for Heaves, Coughs, Distemper, Indigestion, Conditioner, Worm Expeller. Three large cans guaranteed for Heaves. 6c and \$1.30 per can, at dealers or by mail.

**Newton Remedy Co., Toledo, O.**

## Agricultural Lime

High calcium hydrated lime in 50 lb. paper bags, in car lots of 20 tons or more. Delivered, price promptly mailed on request.

**Northern Lime & Stone Co. Petoskey, Mich.**

## Kentucky Tobacco

3 years, old, aged in bulk, the best and cheapest smoke on earth. 5 lbs. \$1.00 postpaid. Freight and express shipments, 50 lbs. \$6.00; 100 lbs. \$10.00.

**S. ROSENBLATT, Hayesville, Ky.**

## For Sale

Case farm tractor 9x18 used one season, good working order. farm too rolling for practical tractor work. Excellent belt power.

**B. E. SMITH, Howell, Mich.**

## Saw Mill Machinery

Portable Mills for Farm use. Make your own lumber. Send for new Catalog. **HILL-CURTIS CO., 1506 No. Fitcher St., Kalamazoo, Mich.**

## FARM HELP

**Wanted** Experienced man on small fruits, vegetables without fear of work, ambitious, inglo, good pay. **PAUL BOCK, Pinckney, Mich.**

Mention The Michigan Farmer When Writing Advertisers





## Speed, Speed, Speed

### The year's profits are at stake!

AT THE HEIGHT of the season the harvest moves north at the rate of many miles a day. Time is the all important matter. Tractors must keep working to assure a profitable year.

Unless you are using scientific lubrication you are to blame if your tractor breaks down under the heat of service. Scientific lubrication does not mean "just oil." Scientific lubrication means the correct grade of Gargoyle Mobiloils as specified in our Chart of Recommendations for your particular make of tractor, truck or automobile.

You may think that cheap oils are economical because they cost less per gallon. We have proven in hundreds of tests that Gargoyle Mobiloils effect a saving in fuel from 17% to 25%, and savings of oil from 50% to 70%.

You may think that cheap oils are not very much inferior to high grade oils. Yet promi-

nent engineers agree that over 50% of all engine repairs on tractors, trucks and automobiles are due to careless lubrication.

Without lubrication your tractor would be ruined in a few minutes. Incorrect lubrication, just as surely ruins your machinery.

The Vacuum Oil Company are specialists in the manufacture of lubricants. Gargoyle Mobiloils are manufactured from crude stocks, selected for their lubricating qualities and not because they yield a high percentage of kerosene or gasoline.

Special treatment gives Gargoyle Mobiloils exclusive lubricating qualities and the ability to withstand the terrific service that tractors demand.

Gargoyle Mobiloils are put up in 1- and 5-gallon sealed cans, in 15-, 30- and 55-gallon steel drums, and in wood half-barrels and barrels.

Write for "Correct Lubrication," a booklet containing complete automobile and tractor charts and other valuable data.



# Mobiloils

A grade for each type of motor

In buying Gargoyle Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyle on the container.

DOMESTIC  
BRANCHES:

New York (Main Office)  
Kansas City, Kan.

Philadelphia  
Pittsburgh

Detroit  
Chicago

Minneapolis  
Indianapolis

Boston  
Des Moines

## Chart of Recommendations

How to Read the Chart:

THE correct grades of Gargoyle Mobiloils for engine lubrication of both passenger and commercial cars are specified in the Chart below.

A means Gargoyle Mobiloil "A"  
B means Gargoyle Mobiloil "B"

E means Gargoyle Mobiloil "E"

Arc means Gargoyle Mobiloil Arctic

Where different grades are recommended for summer and winter use, the winter recommendations should be followed during the entire period when freezing temperatures may be experienced.

The recommendations for prominent makes of engines used in many Tractors are listed separately for convenience.

The Chart of Recommendations is compiled by the Vacuum Oil Company's Board of Automotive Engineers, and represents our professional advice on correct tractor lubrication.

## Chart of Recommendations

How to Read the Chart:

THE correct grades of Gargoyle Mobiloils for engine lubrication of Tractors are specified in the Chart below:

A means Gargoyle Mobiloil "A"  
B means Gargoyle Mobiloil "B"  
BB means Gargoyle Mobiloil "BB"  
Arc means Gargoyle Mobiloil Arctic

Where different grades are recommended for summer and winter use, the winter recommendations should be followed during the entire period when freezing temperatures may be experienced.

The recommendations for prominent makes of engines used in many Tractors are listed separately for convenience.

The Chart of Recommendations is compiled by the Vacuum Oil Company's Board of Automotive Engineers, and represents our professional advice on correct tractor lubrication.

NAME OF TRACTOR

Age (Newark, O.)

Allen

American Six

Apperson (8 cyl.)

Auburn (6 cyl.)

6-10

6-12

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