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Shelter Planting for the Farm

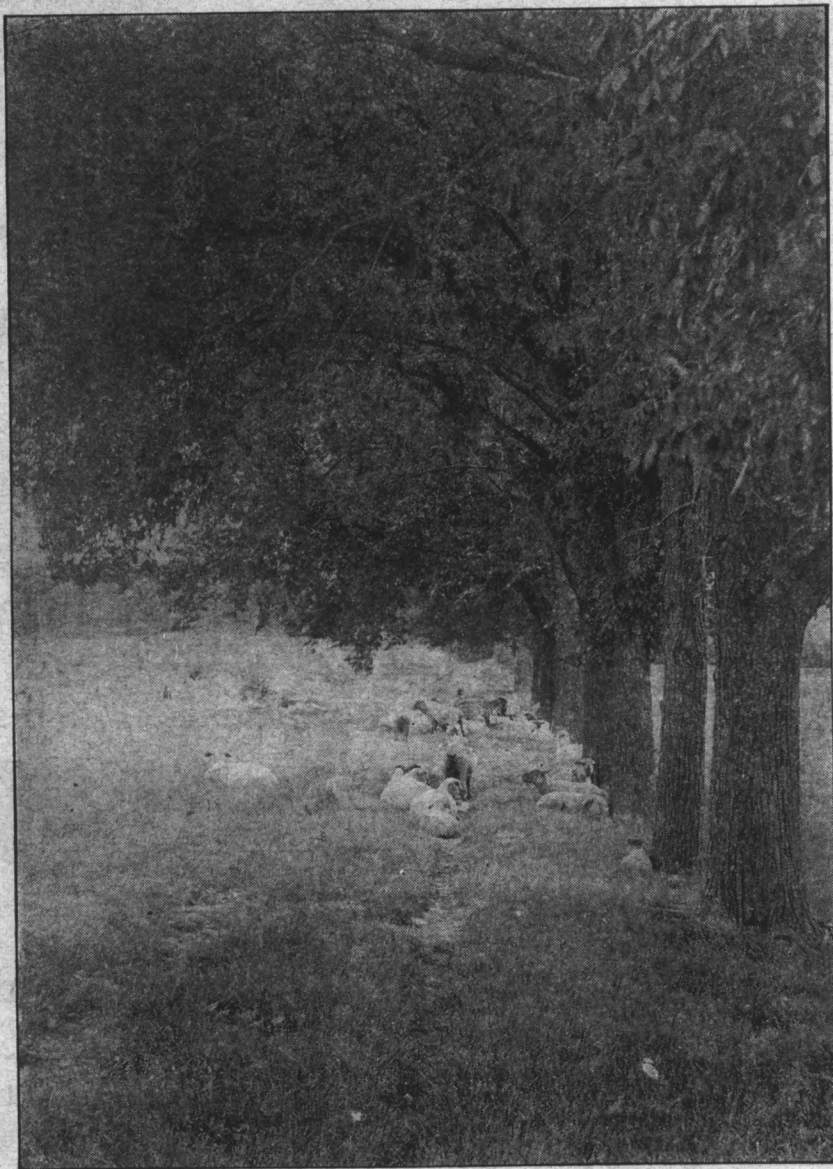
NOT one farmer in a hundred realizes the value of some kind of shelter planting to protect his home grounds and feeding yards from cutting winds. Yet, it is doubtful if he could make any investment that would pay better, even if the original cost was considerable; for a wind-break makes the house more habitable and comfortable and gives the animals a chance to enjoy the winter sunshine without being exposed to the chilling winds. It adds to the value and salability of one's farm—to say nothing of the beauty of the trees.

In years past shelter planting has been looked upon as a rich man's fad—that costs a mint of money to maintain and which runs down in appearance and value as soon as the trees are neglected for a few years. However, we are beginning to appreciate more and more what it is to combine the beautiful with the useful, and that we can make it of account in our everyday lives. Practical farmers are slow to be influenced by artistic values, therefore, I shall discuss only substantial shelter planting which increases in value yearly, and which costs far less to maintain than foul weed patches and unsightly back yards.

What the Wind Does.

What does the wind do? Have you ever studied the problem? If not, let us suppose that we are behind a clump of trees where the wind is blowing two miles an hour. Go out a little way and find where it is blowing four miles an hour. Did you ever stop to think that while the thermometer will show no difference it is really twice as cold there? That is, the increased velocity of the wind will take away twice as much of your body heat, or the body heat of your horse or cow, where the wind is blowing at the rate of four miles an hour as where it is blowing but two miles. This is a modest claim. Many of the most thoughtful scientists claim that the ability of the wind to cool things increases with the square of its velocity. Have you ever thought of that? Probably not, and if you did

Now is the Time to Make Plans for Next Spring's Planting.--C. B. Ford



Shelter Planting is Thoroughly Practical.

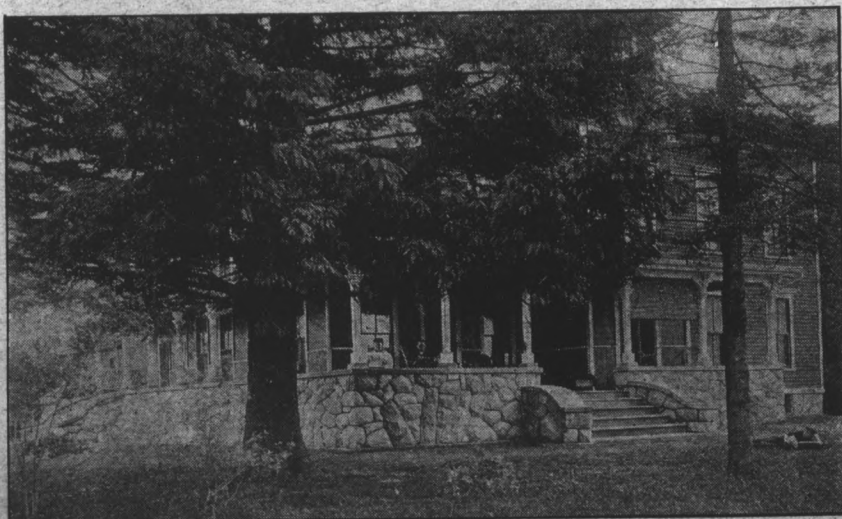
it never occurred to you that there was anything you could do about it. But there is something to be done. You can plant trees to take the place of the forests and break the winds of winter, and some day make good timber on the farm.

The kind of trees to be used for breaking the force of the wind is of great importance, and it is a local problem. Before deciding it, a man should study the best native trees of his locality, consult his neighbors and send a description of his soil with a diagram and full details of his place to his nearest nurseryman. In this climate of Western Michigan, the thermometer frequently drops to twenty degrees below zero and the winds are strong enough to break big limbs out of fruit and shade trees, if they have no shelter. Consequently, a dense, hardy evergreen is the proper thing, and the trees should be planted far enough apart, so that their lower branches will be retained, both for shelter and symmetry. If they are naturally of pyramidal habit, it may be well to plant some tall-growing deciduous trees among the evergreens so that the broad tops of the deciduous ones may fill out the spaces between the pointed tops of the conifers.

Some Excellent Species.

Three excellent species used for windbreaks in this latitude are the Austrian pine, the white pine and the white spruce, the last being considered the best of all. The Austrian pine is a coarse, heavy-foliaged tree which makes a thick-set branching tree, but is rather short-lived. The Scotch and pitch pines are of similar value and character. The Austrian pine is the dominant tree in many windbreaks, and attains an average height of twenty-five feet after being planted fifteen years. The white pine is lighter in color and general appearance than the Austrian, and therefore more acceptable on the sides toward the house. One of the most attractive trees in the whole list is the Colorado spruce.

(Continued on page 364).



Windbreaks Make the Home More Comfortable in Summer and Protect us from the Chilling Blasts of Winter.

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CURRENT COMMENT

Speed the Victory

THE reply of the German Chancellor to President Wilson's questions, and the President's reply to the original German peace note, have served to clarify the situation to the general satisfaction of the rank and file of loyal Americans.

Whether the German reply to the President's questions is wholly sincere in unconditionally accepting President Wilson's program as a basis for peace, or whether it is merely a background for their plea for an armistice to save their battered armies from a military disaster and give them vantage ground for negotiations looking toward a "German" peace, the President's reply is a satisfactory answer.

This reply plainly points out that any armistice which may be declared must be left to the judgment of the military advisers of the United States and Allied governments, and must safeguard the present military supremacy of the armies of the United States and the Allies in the field. To the lay mind this means that the only practical road to peace for Germany is the laying down of arms, which is another term for the unconditional surrender which was imposed on Bulgaria.

The President's answer makes it equally clear that no armistice will be considered so long as the armed forces of Germany continue the illegal and inhuman practices in which they persist, such as the sinking of passenger ships and even the boats in which passengers and crews seek safety, and the burning and looting of cities and villages during the enforced withdrawal of troops from Belgium and northern France.

Still further, to the end that there may be no possibility of misunderstanding the reply points out that one of the terms which the German note accepts, contained in the President's address at Mt. Vernon on July 4, provides for "The destruction of every arbitrary power anywhere that can sep-

arately, secretly and of its single choice disturb the peace of the world; or, if it cannot be presently destroyed, at least its reduction to virtual impotency." The note states clearly that "the power which hitherto has controlled the German nation is of the sort here described," and that "it is within the choice of the German people to alter it." Plainly the President's reply indicates that peace terms will not be concluded with a government which looks upon an agreement between nations as "a scrap of paper."

Unless the people of Germany rise to their opportunity to sue for peace on the terms so clearly outlined in the official reply to the German peace plea, the war must continue until compliance is forced, and all plans must be made on that basis. This will entail fresh sacrifices on the part of our people, due to the fact that our military success at the front has created larger demands for men and materials of all kinds, that these advantages may be followed up and the day of final victory speeded. These sacrifices should and will be cheerfully made for the support of our boys at the front.

In the meantime the President has well said in a plea addressed to the American people that "neither the reply nor any other recent events have in any way diminished the vital importance of the Liberty Loan. Relaxation now, hesitation now, would mean defeat when victory seems to be in sight; would mean years of war instead of peace upon our terms."

SPEED THE VICTORY.

Federal Farm Loans

A STRONG effort appears to have been made by the Farm Mortgage Bankers' Association of America to discredit the federal farm loan system by making it appear that rich investors would profit and the government would lose because of the tax-free features of the federal farm loan bonds. In this connection the claim has been made that the farmers borrowing through the federal farm loan bank benefit only one-half per cent in interest rates, or \$5.00 per \$1,000, while the investor in the farm loan bonds would profit \$31 by the tax exemptions enjoyed through the purchase of the bonds.

There are several defects in this argument, not the least of which is the statement that the borrower saves only one-half of one per cent. Any Michigan Farmer reader can prove this for himself by seeking a loan at his local bank which more than likely will ask him the full legal rate of seven per cent, and possibly seek to get usurious interest through a bonus or other evasive arrangement. As a matter of fact, also, the first \$30,000,000 of the federal farm loan bonds were purchased mainly by small investors, the average purchase being about \$5,000. Figures for later issues are not yet available, but these bonds are issued in denominations ranging from \$25 up, so that the small investor may avail himself of this safe investment at a fair rate of interest.

Experience shows that in many localities the federal farm loans have been the indirect means of lowering the interest rate charged on mortgage loans in the communities where federal farm loan associations have been organized. It would seem obvious to the casual observer that an attack on the system is an effort to remove this competition by money loaning interests.

If the system is in any way defective, and experience will doubtless show that it can be improved in various ways, the proper course is through an amendment of the act in accordance with recommendations of the Federal Farm Loan Board, rather than upon the recommendations of competing bankers or money loaners. The Federal Farm Loan system has been an

undoubted benefit to agriculture, and its mission in this direction has only just begun. The system has undoubtedly come to stay, as its opponents will ultimately learn.

Wheat Prices

THE reason for the inability of the government to clear wheat as rapidly as it arrives at seaboard terminals, is given the statement of the Food Administration published in another column. Wheat growers will be able to market their crop at the guaranteed price as rapidly as this situation can be overcome. In the meantime an order has been issued to all Michigan mills and elevators by Food Administrator Prescott, requiring that they pay to farmers delivering wheat at their plants not less than on the following basis: \$2.13 per bushel for No. 1, and \$2.10 per bushel for No. 2 Red Winter Wheat, based upon the Grand Rapids freight rate to seaboard, other grades according to differentials established by the Grain Corporation.

Attend the Milk Meeting

October 22, at the Capitol Building, at Lansing. The program for this meeting, which was published in our last issue, will prove of exceptional interest to milk producers of all sections of the state. Aside from the reports of the officers of the association, which will illustrate the important nature of the work already done, and the results secured by the organization, the addresses and discussions will give those present a first-hand knowledge of national and local conditions affecting the dairy business. There are no others in the country better able to speak with authority on these subjects than Prof. Anderson, whose investigations in the cost of milk production have won him deserved national fame; Hon. Milo D. Campbell, President of the National Milk Producers' Federation, who has been faithfully representing the dairy interests at Washington; Ex-Governor Warner, who was in attendance at the recent dairy conference at Washington, and Hon. D. D. Aitken, President of the National Hol-

stein-Friestian Association, to whom Michigan dairymen need no introduction.

Secretary Reed has well said that this is a critical time for the dairy industry of Michigan and that comprehensive organization is imperative to insure its prosperous future. Every local organization should send the four delegates to which it is entitled, to this meeting, and progressive dairymen in communities where no organization exists, should attend to acquaint themselves with the advantages of such an organization.

Our Style of Peace

A LASTING peace guaranteed by the joint power and action of a League of Nations is the big idea of the hour. When the war broke out this idea was mere theory. Since then its growth has been phenomenal and today the leaders of every nation dare not speak against this practical political question. With us Americans it is the very soul of our foreign policy. Our soldiers are imbued with the idea and it furnishes them with a zeal not to be compared with the spirit of conquest, and again one that even surpassed the high religious motives of the old crusaders. There is everywhere a deep conviction that our victory will be a mere camouflage unless it means two things, namely—the unquestionable defeat and discredit of Prussian militarism, and the establishment of a league of nations to enforce and preserve peace after it is won.

CALIFORNIA BEAN CROP SMALLER THAN EARLIER ESTIMATES.

THE rain has had a bad effect on the bean crop of California, which promised to be the greatest the state ever grew, according to the statement of G. A. Turner, president and manager of the California Bean Growers' Association, whose central headquarters are at Stockton.

Information comes that beans in many places where the effect of the drought prior to the rain had been particularly noticeable have started to grow again and that they cannot ripen before frost. How greatly this will curtail the crop naturally is a matter that cannot be ascertained for some time.

Keep Your Wheat for Michigan

To the Farmers of Michigan:

The following telegram was received from Mr. Hoover under date of October 7:

"Please give wide publicity to the following: Enlarged demands by General Pershing for material resulting from progress on the western front has necessitated temporary diversion of grain ships to his service. This temporarily curtails wheat movement from seaboard and has filled our seaboard and terminal elevators and thus checks movement. It is reported that some farmers have become panicky and are selling wheat at less than government prices. No occasion for this if holders will have a little patience. Wheat will be moved and full price assured to every grower."

The State Food Administration is aware of the fact that the marketing of wheat in Michigan has been unusually free this fall and that local mills and elevators have not been able to hold the wheat thus offered them. Michigan has only about fifty per cent of the normal crop and if this movement continues, Michigan mills will be compelled to run on short time and many of them will close down entirely.

The shipping out of the state of Michigan wheat will result in a serious shortage of mill feeds and consequent higher prices, resulting from the shipment of mill feeds from western points. These out-going shipments are requiring the use of thousands of cars

under present congested traffic conditions and if the mills of Michigan are to operate after the first of January, thousands of other cars will be required to ship wheat in under unfavorable weather conditions.

An appeal is therefore issued that Michigan farmers, where they are financially able to do so, hold their wheat until a later date, thus assuring the grinding of this wheat by local mills and retaining the mill feeds, to a very great extent, for use in the state. This will work to the advantage of the farmer in two ways, he will secure a higher price for wheat than is now ruling and will be able to purchase his mill feeds at the low price established in the fair price schedule for mills.

Do not market your wheat faster than Michigan mills can mill it, otherwise much of it will be shipped out of the state, thus increasing the shortage of mill feeds. The Food Administration of Michigan does not want this to happen and the Michigan farmer cannot afford to have it happen. A bulletin has been issued to all mills and elevators in Michigan establishing a price for No. 2 Red Winter wheat of \$2.10 per bushel, based on Grand Rapids freight rates to seaboard.

Your hearty cooperation in this matter will result in the mutual advantage of the farmer as well as the milling interests.

GEO. A. PRESCOTT,
Federal Food Administrator.

Coaxing the People to Eat Grapes

MICHIGAN being the third state in grape production, it will no doubt interest Michigan farmers to know that the only experiment on record in the advertising of grapes through the use of strictly up-to-date, twentieth century methods, proved eminently successful. The campaign in question was conducted over a period of six months, in newspapers of three cities, Chicago, New York and Boston, by the California Fruit Distributors, on its "Garden of Eden" grapes.

Circumstances which had no bearing on the merit of the advertising caused the discontinuance of the campaign, but it continued long enough to demonstrate the practicability of advertising grapes in the same way that oranges, apples, cranberries, walnuts, and other products are being advertised by other organizations. Thirty thousand dollars was expended for newspaper advertising, in the period mentioned, advertisements ranging in size from six full newspaper columns (nearly a page), down to two columns by eight inches. The campaign caused an active consumer demand and a decided preference for the brand by the trade, with the result that Garden of Eden grapes secured an average price during the season in the three cities of twenty cents a crate better than similar grapes which were unbranded and not guaranteed and for which no consumer desire had been created.

The campaign followed the general methods of other big fruit campaigns. It advertised new and tempting ways of serving grapes, offerings recipes to those who would write for them. "New handy-sized baskets" were a feature, and each basket bore a tag representing six coupons, these coupons being redeemable for Rogers silverware, silk hose, and cut-glass.

Few People Appreciate the Health-Giving Properties of this Delicious Fruit.

By CHILTON GANO

A health appeal was also featured, one advertisement saying, "They satisfy the 'sugar hunger' of childhood and give the fruit-acid needed at this time of year. So let your family eat grapes for health."

The Garden of Eden brand has been retained, and the advertising will no doubt be resumed in time. Many factors enter into the subject of advertising advisability. This season, for example, at least three established fruit advertising campaigns have been cut

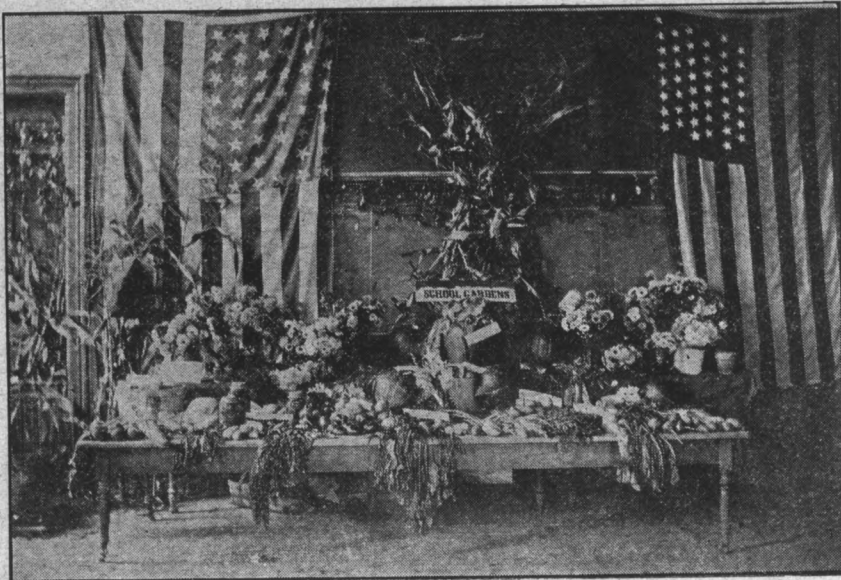
down practically fifty per cent because of the condition of supply.

The California Fruit Distributors is one of California's dozen or so huge fruit associations, and has handled at times as high as seventy-five per cent of the small fruit tonnage of California, confining its membership to growers of deciduous fruits exclusively. It was formed in 1902, when less than one hundred markets were taking California deciduous fruits in carload lots. Its aggressive sales policies have been

a great factor in improving the situation, and today probably three hundred markets are ordering by the carload from this association. In addition to grapes, it handles cherries, apricots, peaches, plums, and pears.

While Garden of Eden Grapes are the red and white California grapes, and Concord grapes have never been sold under the brand, there is little question that Concord grapes, such as compose probably ninety per cent of Michigan's grape crop, if properly graded and packed, branded and advertised, would command a premium at market. The trade know from experience, the value of advertising, and the rule has held good in the case of oranges, lemons, cranberries, walnuts, and apples. The attractive picturing and description of any edible product whets the public appetite for it; and people always prefer a brand that they have read about and that they have been told is extra quality and also one that is guaranteed.

To the writer it seems that Michigan grape growers, already so well organized, have, in advertising, a wonderful potential opportunity. There is a great potential demand for the product. If the growers would follow the recent example of Michigan maple sugar producers, for instance, and adopt one single uniform label for all first-grade grapes, and a dependable system of grading and inspection, so that all fruit bearing the label could be safely guaranteed—this alone would surely prove a big step in the right direction. If then a very small tax per crate were voted for advertising purposes and a campaign tried in a single city, the experiment, judging from experience, would have a ninety-nine to one chance of proving a success.



A Michigan Rural School Display—The Teacher and Scholars of this District Are Certainly on the Job.

High Production at Low Cost

THE only true method of ascertaining the digestibility of dairy feeding materials is to feed them to the cows and note results, rather than base their value upon chemical analysis entirely. The chemist can tell how much crude protein, fats and carbohydrates a feed may carry but he cannot tell until after definite experiments with his animals how much of these are available for nutrition. We should not only know the composition of a feeding material, but we should know how it nourishes the animal. Many claim that alfalfa is fully as valuable, pound for pound, as wheat bran, because it carries about as much protein as we find, or should find, in a ton of bran, and that it may be used to take the place of bran and other concentrates that carry a like quantity of protein. This is a proposition that is not true in feeding dairy cows. A comparison of closely allied feeds is a fair measure of their comparative values, but it is not when one is comparing the different kinds and classes of animal foods. Alfalfa and wheat bran carry about the same percentages of protein, but in wheat bran eight-tenths of the protein is digestible, while less than seven-tenths of the protein in the alfalfa is digestible. Protein in oat hay is not the complete finished protein in grain oats. Protein in corn stover is not as nutritive as the protein in the grain of the plant. The chemist tells us that corn silage and alfalfa will make a balanced ration and that the milk yield should be satisfactory. But practical feeding experience proves that the milk yields can be very largely increased by feeding a few pounds of concentrates. Hence, it pays to feed some of the more easily digested grain feeds along

The Successful Dairy Farmer Must be a Master of Feedstuffs as Well as Dairy Cows

with corn silage, alfalfa and clover hay when the cows can utilize them to advantage. For the cow's health and economical production one should feed twice as many pounds of roughage as grain. If one feeds twenty pounds of roughage to ten pounds of grain there is little danger of overfeeding. When feeding corn silage it is customary to figure that three pounds is equal to one pound of dry roughage. The great danger in forced feeding consists in feeding an excess of concentrates, and not enough roughage.

In making up rations for heifers and

dry cows, one should feed a variety of grains and roughage. Various kinds of feed furnish the elements needed to build up the animal's system and supply the unborn calf with proper nourishment. If the calf is raised one can not afford to cut down the cow's food or compel her to exist on too narrow a ration. How much to feed and the kinds of grain and coarse feeds must be worked out according to the condition of the animals and the supply of feed stuffs at hand. Some dry cows need nearly as much food as they do when giving milk; others will keep in

a vigorous condition with plenty of roughage and a very little grain. The dairy cow goes dry that she may build up her system and that of her unborn calf. If she gains at this period one need not be alarmed, for if she is a good milker, she will convert part of the flesh from her body into milk after she freshens. If she does not do this she is not as good a cow as she ought to be. It is very important that one have dairy heifers and dry cows in a vigorous, flesh-gaining condition before they begin their milking period.

Some may say there is more danger of milk fever if the cows are in good condition. Perhaps there is, but if one has an outfit for treating milk fever, as every breeder of dairy cattle ought to have, there is no need of worrying. As a rule, it can be prevented by giving the animal the right kind of care. About one month before it is time for calving leave out the heat-forming feeds and give her a ration of clover hay, bran and oats, which are rich in minerals and bulky. Feed a moderate amount of good corn silage and roots with the dry roughage and grain feeds, because they are naturally laxative and help to keep the cows in a good, thrifty condition. Heifers and dry cows should not be half starved to prevent milk fever, it is well to take precautions by withholding heat-forming foods for a few days or weeks before freshening.

Just after the cow freshens continue the same ration as fed a few days previous to calving. A drink of warm water, some warm oats and a bran mash will do the first day. A few roots will help to keep her bowels in good condition. It is safer to continue the bran, oats and clover hay ration for a few



Michigan Has More than Nine Hundred Breeders of Registered Jersey Cattle.

(Continued on page 369).

Kimball Talks to Mich. Bean Growers

PROBABLY no department of the Food Administration came in for more severe criticism from the Michigan growers and shippers than my bean division. First, on account of the assistance given the farmers of Colorado to market their crops, and second, because we refused to make large purchases of Michigan wet stock for army, navy or allied requirements.

A brief statement of the Colorado situation is in order. That section normally raised about five hundred cars of beans. The farmers as a rule are not well-to-do, as we consider in this state, but they are just as loyal as the farmers of this state. At the request and advice of the Department of Agriculture, county agents and their newspapers, that it was the patriotic thing to raise their limit of war food beans, they went to their banks and borrowed money at fifteen to twenty per cent, and even higher rates of interest, to buy seed (the western bankers don't need lessons from some of our banks on getting mortgages on land, buildings, machinery and stock). They raised a crop of approximately three thousand cars and found themselves with a good food but no market, and banks threatening foreclosure. The case was submitted to the Food Administration by their senators and representatives, if they could not realize on their crop, they would lose their land, and certainly they could not grow another crop; they promised if assistance was given them, to raise an equally large crop this year. The Food Administration, realizing the necessity of maintaining production, moved the crop—and the farmers, even with the same labor troubles as yourselves, kept their promise. The shippers of this state charge that the advertising of this purchase and its movement to eastern terminals was the main cause for the slump in prices of Michigan beans and the cause for the carry-over of wet stock. We maintain that if this crop had not been purchased it would have been forced on the country at prices as low as three and four cents per pound, which prices were bound to compete with Michigan rain-damaged beans and force even lower levels than resulted, and, further, this country

Hoover's Representative Promises No Other State Will Receive Preference Over Michigan this Year.

would have had a very short Colorado crop this year. We maintain further that the slump in Michigan demand was caused primarily by the quality and moisture content of the choice hand-picked article which our state elevators and jobbers were unloading on the unsuspecting grocer and canner—a quality which they now admit they knew would not keep without getting musty.

Answering Michigan's second criticism, that we refused to make large purchases of wet stock, a brief statement of the situation devolves this fact. Last year Michigan, as a state, had the poorest quality of beans in the United States and asked the highest prices. I knew what would happen to our half-matured wet stock if it was shut up close and shipped in the holds of vessels to Europe. The facts which are on file in my office show the correctness of this knowledge. There is not a market in the United States that purchased beans last year from Michigan that did not have musty stock this summer—one large market paid a drayage company for hauling out and dumping several cars that completely spoiled, and hundreds of cars were shipped back for reconditioning. We are glad and believe that you are glad that no musty stock ever got to our soldier boys. We do claim that we gave Michigan the only real assistance that was available. We put the canning of dry beans under embargo in every state and gave permits and priorities on cans for the canning of wet beans. Our records show that we issued permits for canning 1,988 cars of wet stock and 989 cars of so-called dry stock, and as the cars averaged in excess of one thousand bushels each, a total of three million bushels went into the tins. Cannerymen located in the far eastern and western territories charged the writer with giving the Michigan and middle west canners a preference. They were undoubtedly right, as we know of two cars shipped from Alma, Michigan, clear to San Francisco, but

we felt that the conservation of wet stock was more important and we held to our rules—even as we did in the Colorado case. We must use our best judgment from a world standpoint as we are given to see the right. We are only human as you are. We many times make mistakes, but we conscientiously try to do the right, and if you can show us where conditions can be improved, we will appreciate your efforts and try to carry them out.

Regarding the Situation This Year.

Early indications pointed to a twenty-million-bushel crop; a normal crop in pre-war times was ten million bushels for the United States. Early predictions in the big bean-growing states will undoubtedly be cut down, but even then we will have the largest crop on record. It speaks well for the patriotism of our farmers. Our domestic consumption is about ten million; so we are an exporting nation. We can build a fence around the United States and prevent cheap competition from the Orient and South America, but when we have to go out into world markets and sell nearly half our crop, we must meet world prices. I wanted to tell the farmers that last year when they set a price of \$8.00 per bushel, or thirteen and one-third cents a pound, but I was a shipper in the state that year and you would have questioned my sincerity. I got my start on the farm and helped pay off the mortgage on a farm near Jackson, with beans at \$1.50 per bushel, or two and a half cents per pound. I planted one hundred and two acres in northern Michigan last year that cost approximately \$3,500; all told, my expenses should be higher than yours, because I had to pay rent for the land and hire everything done. I sold the crop after the frost and rains, for \$291. On the basis you figured last year I would have to have received \$48 per bushel to break even. This year my expense per acre was \$37 per acre and the yield seventeen bushels per acre, or a cost of \$2.18 per bushel to grow the crop. I

tell you this that you may know I've had some experience and realize your troubles. The Food Administration has no right to dictate to you at what price you shall sell your crops. Congress fixed the price of wheat and at the same time they exempted farmers and growers from any rules of the Food Administration. Production matters all come under the Department of Agriculture. We only take control of your products after you have sold them and try to get them to the consumer without unfair profits being taken by the distributors. At the same time, I feel, as a grower, you should appreciate the situation as we see it. When I entered the bean business in 1901 Michigan produced sixty-five per cent of the white beans grown in the United States. New York and California only produced a small percentage of the crop. This fall I left Washington for a trip to the coast. I passed through nineteen states, going and coming, and found large bean fields in every state. In other words, the high prices of beans have encouraged competition in growing beans from nearly every state in the Union. We must, as farmers, determine what it costs to grow beans under an average yield basis, and if our expenses are too high compared to the income we can secure from other crops of equal food value, we must plant and sell accordingly. Today, Japan under an average daily wage of less than thirty cents per day can lay beans in the United States at three cents per pound and make money. I would like to see them shut out, but just now we need Japan's assistance in winning the war. Politically, "it can't be done" this year, but we must take even that kind of competition into consideration, and I hope in fixing your price this year you will not place it so high, that Michigan holds the umbrella for all other states to get out and leave her with a carry-over.

I promise you this from the Food Administration, that we know you have had three years of hard luck in bean production. You will receive every consideration possible in moving this crop and no other state will receive any preference over Michigan.

Crop Estimates and Other Spud News

THE most reliable reports from the potato growing states of the country indicate a general improvement in the condition of the potato crop during the month of September. This statement is borne out by the United States Agricultural Department report which shows an estimated increase in the 1918 potato yield of 6,750,000 bu. for month mentioned. With the exception of Wisconsin, Minnesota, and Iowa all the important producing states are included in those showing an increase. Michigan's contribution increased over 1,500,000 bushels for the month. The total estimated yield for the United States is placed by the federal crop reporters at 391,279,000 bushels, against 384,529,000 bushels, as estimated on September 1, and compared with 442,536,000 bushels for the 1917 crop, and 361,753,000 bushels as the average for the five years from 1912-1916.

The four heaviest producing states are: New York, Michigan, Wisconsin, Minnesota. The estimated yields in these states are close together, ranging from 30,000,000 to 33,000,000 bushels. Here are given the forecasted yields of the twelve leading northern commercial potato growing states as of October 1, and compared with the final estimate of 1917 and the five-year average:

How the Potato Crop Looked Oct. 1

	Oct. 1.	1917.	5-yr. Av.
Maine	24,246,000	20,250,000	28,561,000
New York	32,646,000	38,000,000	32,485,000
Pennsylvania	23,034,000	29,532,000	23,909,000
Ohio	11,284,000	16,000,000	12,834,000
Illinois	11,574,000	13,500,000	9,627,000
Michigan	30,287,000	35,910,000	30,140,000
Wisconsin	31,379,000	34,998,000	28,865,000
Minnesota	32,031,000	33,600,000	28,223,000
Iowa	10,539,000	13,110,000	11,248,000
Nebraska	8,961,000	12,495,000	8,752,000
Colorado	8,140,000	9,310,000	7,466,000
California	11,904,000	15,225,000	9,859,000
	391,279,000	442,536,000	361,753,000

The average jobbing price being paid for potatoes in the various markets of the country on October 1, was \$1.44 per bushel, as compared with \$1.22 a year ago, or an advance of twenty-two cents. The price in Michigan on October 1 averaged \$1.46 per bushel as compared with \$1.04 on the same date in 1917. These are jobbing prices as gathered by the representatives of the Bureau of Markets.

POTATO FLOUR MILL.

WHAT may usher in a new and important industry for Michigan are the efforts that are being made to establish potato flour mills at Greenville, Reed City and Cadillac. The

Cadillac proposition is almost sure to go through, we understand, it having the backing of Cadillac's leading business men.

Try It Yourself

IN common with other Michigan potato growers the writer was very sore on account of the potato grading rules enforced by the Food Administration last year. Although my potatoes were dug and marketed before the rule was enforced, I got the idea from what I read and heard, that if this had not been the case I would have been obliged to sell about half of them at a very low price or not at all. When I began to dig this year's crop

I determined to find out just what I was up against. I learned that the requirements for U. S. Grade No. 1, were for potatoes not more than five per cent of which would pass through a 1½-inch round-mesh screen and not more than three per cent of which were defective, and sorted them by trying to put all of the small ones through the hole in the pasteboard. All that would go through and were not rough or damaged were put into one crate and the discards into another. Then I weighed up three pounds of the small ones which might be included in No. 1 stock, and what rough ones there were (only one pound).

To say that the result was a surprise is putting it mildly. I quickly concluded that I had always sorted my potatoes to the present official grade, without knowing it.

My potatoes are Petoskey's and yield a little better than one hundred bushels per acre. They are free from scab and of good quality, but only of fair size—just a good average crop. I have concluded that where the sort was heavy, as reported in many cases last year, the dealers must have taken an unwarranted advantage of the growers. My advice to every grower is to try this experiment for himself, then he will be able to judge whether his spuds are fairly graded.—A. Wood.

Experience in Growing Fruit

THERE may be better varieties of strawberries for the hill and hedge row culture in heavy clay loam, than Marshall, Wm. Belt and Brandywine, but I have not found them, although I have a very good opinion of the Chesapeake. I want a plant that has a large tap root, so it will stool out and become well established and bear good crops for three or four years, and produce fruit of quality. I have not been able to get maximum crops with the hill system, unless the plants are as close together as sixteen inches each way, or with the hedge row system, unless the rows are eighteen inches apart, and the plants one foot apart in the row. The plants can be cultivated with a horse cultivator that closes up to one foot, with either system, and the results are practically the same with either. The strawberries mentioned are staminate, or bisexuals. The yield is not as large as with the best of the pistillates, but the berries are larger. My crop this year was very close to two thousand five hundred quarts per acre. The plants were mown in July, and then by August we were weeding them. We try to keep the beds clean, and keep ahead of the weeds.

The new beds are hoed about once a week; this keeps the runners cut off, and destroys weeds. On the richest portions of the beds where the growth was the largest, and many strong runners were thrown out, we bedded them to grow plants for setting this fall. I do not usually advise fall-setting of strawberries. The only way it can be made profitable is to set plants enough to make a crop next year. This means they must be at an average distance of not much more than one foot

A Successful Fruit Grower Writes of His Experience in Producing Fruit for Market

By W. H. JENKINS



A Convenient Spraying Outfit Used by Friend Kirby, of Ingham County.

apart. I set in rows sixteen inches apart, and about eight inches in the row. This enables me to cultivate with a horse one way. The plants being in young orchards it is not practicable to cultivate both ways or I should plan to do so when setting. The plants will be set in September, or early in October, on ground where early potatoes have been grown. The ground is rich, and the plants will be cultivated until winter, so as to start growth in the fall. The new roots will help hold the plants in place, and they

should be well mulched. The later the plants are set the better should be the covering to prevent them heaving out. There is only one thing in the way that makes my getting a fine fruiting bed of strawberries doubtful, and that is grubs. If the soil is full of them, one is helpless, and he may see half his field destroyed, and can do nothing. Liming the land the previous year, and giving thorough cultivation with some cultivated crop, are the only preventive means I know. There is much hard, disagreeable work connect-

ed with strawberry culture, but when weather conditions are favorable they are the most salable, and profitable crop I grow.

Raspberries.

We grow about all the fruits at Garden Place adapted to the climate, but the cane fruits we grow in small quantities. We have tried a wide list of raspberries, and have settled to a few varieties. Of the blackcaps, the Plum Farmer meets all the requirements, as does Columbian of the purples, and Cuthberts of the reds. It pays well to lay down raspberry canes in our New York climate, especially the reds. There is no winter-killing then, and full crop is obtained. It also pays to thin the canes in the rows to an average distance of one foot apart, and have the rows five to seven feet apart, according to variety. In some way support the canes, make the soil rich, give good cultivation until July, then mulch heavily. This culture will produce the kind of berries that have been selling in New York for \$10 for a thirty-two quart crate.

Blackberries.

What is said about the culture of raspberries will mostly apply to blackberries. I have the Snyder and Eldorado, which are the earliest kinds, and the Rathburn, which is later and larger, and full better quality, but no one can rightly judge the quality of blackberries until they are ripe. Most people who buy them do not know how delicious they are when they are left on the canes until they are nearly ready to drop off. Only the Eldorados and Snyders are bearing this year, except a few of the Rathburns which were laid down. The Rathburns will

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The "Working-Together" Idea Takes on New Life---By JENNIE BUELL

IN the annals of American cooperation this day, I believe, is destined to be as memorable as is now the date of the founding of English cooperation!" So declared Duncan McDonald, Secretary of The Cooperative League of America, in the closing hour of a convention that had organized a National Cooperative Society and provided for an American Cooperative Wholesale.

You remember, perhaps, that it was in 1843, at Rochdale, England, that twenty-eight poor weavers organized a cooperative society to keep themselves from the poorhouse? That pioneer effort resulted in what today is known as "true cooperation," or one-man-vote and dividends on patronage basis.

It was on September 25-27, 1918, at Springfield, Illinois, that there was held the first United States cooperative convention. The one hundred and sixty-two delegates who attended this meeting by common consent agreed that this American date will become historic as has the English date, made famous by the Rochdale weavers.

Leaders Themselves are Amazed at the Strides of Cooperative Associations in Recent Months.

The call for this convention was made by the Cooperative League of America, a non-profit, propaganda organization, formed within the past two years with headquarters at New York City. The object of the league is to encourage the hundreds of existing cooperative associations of various kinds and among many classes of people to unite in a strong national body. The president of the league is James P. Warbasse, who presided over the Springfield convention in a masterly manner.

Cooperative societies in widely separated sections must have felt the need of a closer bond and for machinery for more powerful activities. The national gathering immediately following the annual meeting of the Central States Society was composed mostly of miners who are rapidly establishing cooperative stores for their own patronage.

Besides these delegates from the Central States Association there came representatives from several other interesting groups. The Tri-State Cooperative Association Wholesale, centering in Pittsburgh, Pennsylvania, sent its bright young president, Dalton T. Clark. The Finns of northern Minnesota and Michigan, having twenty thousand members and one hundred and fifty federated societies, were represented by two experienced cooperatives who told us of the one hundred per cent efficiency of their people in working together. Carl E. Lunn, of Seattle, represented a hustling group of cooperators in the Puget Sound section who are branching out beyond cooperative stores and have cooperatively taken over several shingle mills, a bakery, a large laundry, a milk condensary, a cannery and a slaughter and meat-packing business. There

came Ernest O. F. Ames, from San Francisco, to tell how they have established a Wholesale Association for the local cooperative wholesale societies of California. Two delegates of a big cooperative wholesale enterprise, selling grain, wool and live stock, at St. Paul and Chicago, were present; another man from a similar business located in Milwaukee was present; a young Pole who said he had never spoken to an audience in English before, told of a wonderful cooperative movement that has rapidly developed among his people in Chicago in the past eighteen months—now having two thousand members and expecting to double that number in another six months. George Keen, Editor of Canadian Cooperator, was a valued advisor throughout the session.

In fact, every delegate, from whatever locality and no matter what language was native to him, told as best he could of growing cooperative interest and activities. Even those closest to the movement in our country were

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Some Things that Bring Happiness and Prosperity to the Home and Farm of Roy A. Goodrich, of St. Joseph County.

Bean Growers' Annual Meeting

FULLY two hundred representative bean growers gathered for the first session of the bean growers' meeting at Saginaw on October 10. In his opening address President A. B. Cook called attention to the fact that this is a critical period for the Michigan bean industry. Three years of low yields, with mounting production costs due to war conditions, have caused Michigan growers to seriously consider whether it would not be more profitable to materially reduce the bean acreage and turn their attention to other crops, unless they can get a price for their product which will cover the cost of production and yield a small profit to which they are entitled.

The first session, held on Thursday afternoon, was devoted largely to an informal discussion of production and production costs, as compared with last year. The reports from growers present, covering all of the more important bean-growing counties of the state, indicated a wide variation in the yield of the early harvested crop. While a number of crops yielding around twenty bushels per acre were reported, the average of these reports showed the beans already threshed to be around ten bushels per acre, with far lower yields in prospect for the late beans. The quality of the early crop was generally reported as excellent, while frost damage is almost universal with the late beans.

The Picking "System."

These reports revealed very general dissatisfaction with the system used by bean dealers in buying beans on a hand-picked basis, docking the price in accordance with the pick with the cost of hand-picking the total amount and keeping the cull beans in the bargain. This discussion revealed three main points of dissatisfaction with the system in vogue, viz., the retention of the cull beans, without compensation to the grower, the hand-picking charge for the full pick, notwithstanding the fact that a large proportion of the cull beans are removed at low cost by mechanical pickers, and the closer picking of the sample as compared with the choice hand-picked product sold by the dealers.

Federal Trade Commission Asked to Investigate.

While the dealers and the system found champions in a few of the speakers, the sentiment above expressed was so general that a committee was appointed by the chair to interview local members of the Bean Dealers' Association to get their viewpoint and report, or better still, have them come before the meeting and present it in person. At a later session Mr. M. H. Hart was present and at the invitation of President Cook spoke on this subject from the dealer's standpoint. After stating that the dealers as well as the growers have their problems and last year had their losses, which he estimated in millions of dollars, Mr. Hart referred to the invisible loss in handling beans which he declared would amount to one or more cars in the course of a season in any elevator doing a good-sized business. One feature of this invisible loss he declared to be in the good beans which the mechanical pickers put into the culls, which he declared to be a very considerable item. Mr. Hart asserted that mechanical pickers were used, not so much because of a saving in cost as because of the greater speed with which the beans can be handled by its use, thus doubling the capacity of an elevator during the marketing season.

In passing, he also noted the cost of the equipment and its maintenance as a factor of no small moment. Being asked as to the practicability of handling individual crops separately and returning the culls, the speaker de-

clared it impracticable, since necessary divisions of farm products now taxed the capacity of every elevator in this regard.

Following Mr. Hart's talk the point was made by Mr. C. H. Bramble, that the discussion had brought out the apparent fact that the system in vogue operates to the disadvantage of the grower who is unfortunate in having beans which pick heavily, as compared with the grower who has a clean sample. He thought this fact and the general dissatisfaction expressed by the growers made it most desirable that an impartial official investigation of the practice be made. To that end he presented the following motion, which was unanimously adopted:

The officers of this association are hereby instructed to lay before the Federal Trade Commission and the Federal Food Administration the methods and practices of those engaged in buying beans, whereby the whole cost of picking beans is based on the labor and machine work, without regard to the saving that ensues by machine work over that paid for hand labor, and in addition retain the cull beans which have a value of at least two cents per pound.

Production Costs.

The figures presented by growers relating to production costs, were largely comparative, as related to labor and threshing costs the reports showed the prevailing day wage to be \$3.00 per day with board. Threshing charges vary greatly from the reports made, ranging from ten to twenty-five cents per bushel, fifteen cents being the figure most generally reported.

Some growers, however, presented definite cost figures. The itemized cost sheet presented by Elmer McKinley, of Newaygo county, was submitted to the meeting by State Market Director McBride, and the items were generally approved as representative costs by the growers present. This itemized cost sheet follows:

Cost of Growing One Acre of Beans.

Plowing, half day.....	\$3.00
Rolling, one hour.....	.60
Disking, two and a half hours....	1.50
Harrowing, five hours, (four times)	3.00
Rolling, one hour.....	.60
Seed beans, one bushel at \$8.....	8.00
Planting, one and a half hours....	.90
Cultivating, one day (three times)	6.00
Hoeing and weeding, one day....	3.00
Pulling, one and a quarter hours	.75
Bunching, half day.....	1.50
Turning, half day (five times)....	1.50
Drawing, one and a half hours,	
(two men).....	1.35
Threshing, three-quarters of an	
hour (seven men).....	3.15
Boarding crew.....	1.00
Threshing bill, seven bu. at 15c..	1.05
Use of land.....	7.00
Tax.....	1.50
Depreciation of machinery.....	1.66
Marketing.....	2.00

Total.....\$49.06

Mr. Graves, of the Farm Management Bureau, addressed the meeting on the subject of production costs, emphasizing the fact that estimates are of little value, as compared with actual production costs, studied in relation to the general farm business. He stated that in the time given to the study of this problem he had been unable to get actual figures on a sufficient number of farms to make the figures of great value, but from the data at hand he estimated the acre cost of production of beans for this year to be some cents over \$46 per acre. He offered to cooperate with Michigan bean growers in making actual cost figures on next year's production, urging them to take the matter up with their county agents who would be supplied with the necessary blanks for the data. Later Mr. Graves agreed, upon request of the convention, to collect data upon which an accurate estimate of production costs for this year could be made, which estimate the officers of the association were instructed to present to the Food Administration and the army

and navy purchasing boards as a basis for price stabilization as noted in the resolutions adopted by the convention, published herewith.

The Food Administration's Position.

Mr. K. P. Kimball, chief of the bean section of the Food Administration addressed the convention on Friday morning. His address is of special interest to bean growers, in view of his responsible position as head of the bean section, and is reproduced in full in another column.

In connection with the action taken to secure an investigation of bean handling methods by the Federal Trade Commission, Mr. Kimball assured the growers present that he would gladly second their request to that body.

Indorse Chamber of Agriculture.

Upon request, I. R. Waterbury, of the Michigan Farmer, spoke briefly upon the advantages which would accrue to the country's agriculture from the organization of a National Chamber of Agriculture along the lines recently advanced through these columns and called attention to the need for a farmers' organization with no other aim or object than to speak for the farmers of the country during the reconstruction period following the war. This plan was later endorsed by the convention, in one of the resolutions adopted, and a committee was appointed to serve with President A. B. Cook as chairman, to promote such an organization in this state. The members appointed were I. R. Waterbury, S. S. Smith, E. Snyder and C. H. Bramble.

Bean Diseases.

Bean diseases and their control was the subject of an instructive talk by Mr. Meckarath, of the United States Department of Agriculture, who described the methods used in the production of disease resistant strains of beans, along which line gratifying progress is being made. He invited bean growers to visit the experimental farm near Saginaw, where this work is being done.

The last, but not the least, interesting address on the program was given by Ezra Levin, of the Extension Department of M. A. C. So greatly was this address appreciated that its publication was requested by the convention and it will appear in an early issue of the Michigan Farmer.

The bean growers were disappointed in not hearing State Food Administrator Prescott, who attended the morning session on Thursday, but could not remain for the afternoon session.

President A. B. Cook and Secretary Alex. Pullar were unanimously reelected. S. Snyder, of Montcalm county, was elected treasurer.

The meeting was adjourned with the understanding that the bean price committee appointed at the first session would be convened by the president if thought desirable after the production cost figures had been presented to the government authorities.

Resolutions Adopted.

Resolved, that it is the sense of this meeting that Mr. Graves, of the Farm Management Bureau, be requested to collect and summarize data on the cost of bean production in this state, and that the president of this organization and the State Market Director be requested to present this data to the United States Food Administration and the army purchasing board, with the request that the market be stabilized on a fair production cost basis.

We reaffirm our patriotic purpose to continue the production of food stuffs to the limit of our ability so long as this may be essential to the proper support of our boys at the front and the maintenance of our people and the people of our European allies and the winning of the war for universal liberty and a just and lasting peace.

Resolved, that we commend the work of the United States Food Ad-

ministration and the State Food Administration, and hereby express our appreciation and thanks to Mr. K. P. Kimball, of the United States Food Administration and Hon. George A. Prescott, State Food Administrator for attendance at this meeting.

Whereas, the exigencies of war have clearly demonstrated the need of a medium for the collection and dissemination of information relating to agriculture, and particularly to production costs of food stuffs grown upon American farms, as a means of directing public opinion and government control along fair, just and equitable lines, and

Whereas, in the period of reconstruction following the war, the need of a public information service of this character will be immeasurably greater, in view of the necessary determination of public policies which will be as vital to the future of American agriculture as to American industry; be it therefore

Resolved, that the bean growers of Michigan here assembled favor the organization of a National Chamber of Agriculture, to be an affiliation of state organizations of like character, said state organizations to be based on the county farm business as local units. Be it further

Resolved, that a committee, composed of the president of this organization and four members to be selected by him, be appointed to aid in the promotion of such an organization in this state.

GOOD POTATO CROP IN CANADA.

THE official report from Canada shows the present potato crop to be a very good one. The estimated total for that country is placed above the final estimates of 1917. The increases are most apparent in the producing sections of New Brunswick, Prince Edward Island and Manitoba. In other Provinces the yields are fair to good.

GUARANTEES FARM-GROWN SEED POTATOES.

FARMERS of Chautauqua county, N. Y., having three acres or more of one variety of potatoes from which they expect to offer seed for sale may take advantage of the offer of the farm bureau arranged by special cooperation with the New York State College of Agriculture to inspect potato fields with the view of issuing a list of growers whose potatoes may be recommended for seed. This inspection takes into consideration the yield, purity of the variety, and freedom from disease. Any grower who receives the recommendation of the county farm bureau for his seed potatoes will be greatly aided in selling them at prices suitable for good seed. By this means the farm bureau is able to determine which farmers are growing a crop which has merit for seed purposes, and then to let everybody know who these men are.

AVERAGE PRICES PAID FOR POTATOES BY ARMY.

THE average price paid for potatoes for October army requirements was \$2.68 per cwt. delivered, compared with \$2.70 for September, \$3.01 for August, and \$2.84 for July.

DAIRYMEN MEET AT LANSING.

At a recent meeting of the Board of Directors of the Michigan Dairymen's Association it was decided to hold their convention this year at Lansing, in the Capitol Building on December 3, 4 and 5.

This convention will include all the allied associations. These allied associations will hold joint meetings as well as individual meetings at this time and it now looks as though we might have a very large gathering, in fact, the largest convention which has ever been held in Michigan. The object of holding our meeting in December this year is to avoid the bad snow storms and the extreme cold weather which we have had to contend with in past years.

News of the Agricultural World

SOME PRACTICAL TESTS.

SEVENTY-EIGHT different lots of seed grain were treated with copper sulphate, formaldehyde, and hot water, and 8,500 germination tests have been made by federal experimenters to determine the resultant injury. It has been found that of all the small grains, barley is the least susceptible to injury by any of the standard treatments. Oats may be injured in many cases, though not always, by copper sulphate, but seldom by formaldehyde or hot water. Wheat and rye are considerably injured by the hot-water treatment and the longer method described in department bulletins is recommended. Copper sulphate is the only fungicide showing a marked tendency to injure seed grain, though liming prevents this injury to a large extent. Holding seed after treatment by any of the methods recommended and practiced does not have any appreciable bad effect on the germination, but it is advisable, the specialists say, to sow immediately after treatment with formaldehyde and copper sulphate.

SHEEP CLUBS IN THE SOUTH.

FOUR sheep specialists of the United States Department of Agriculture are cooperating with colleges in the southern states in organizing sheep clubs. This year 1,263 boys were enrolled in sheep clubs in seven southern states, and in other parts of the south the sheep industry has made substantial progress. According to the August report of the Bureau of Crop Estimates, the percentage of sheep in the fifteen southern states on August 1, 1918, as compared with the same date in 1917 was 118.4, while that of the entire United States was 116.5.

EVERY COUNTY ORGANIZED.

WITH an organization in every county planning a food-production campaign in harmony with the national agricultural program, Iowa is now a one hundred per cent state in farm bureaus. On July 1, 1917, there were twenty-nine farm bureaus in Iowa. The remaining sixty-eight counties have been organized as a result of the provision for emergency agricultural extension work.

FIBER CONTAINERS MAY SAVE TIN.

EXPERIMENTS having in view a general substitution of wood fiber containers for tin are to be made by the Forest Service. Relief for a decided stringency in the tin-can market seems possible only through restricting the use of tin to containers of commodities that can not be satisfactorily packed otherwise.

ORDERED NOT TO BUY IMMATURE TURKEYS.

THE United States Food Administration has issued the following notice to produce buyers: "In order to discourage the marketing of immature turkeys, it is desired that until November 1 country dealers and shippers will not purchase of farmers and dealers in the markets will refuse to handle young hen turkeys, weighing less than seven pounds, and young toms weighing less than nine pounds, live weight."

SHIPS FOR AUSTRALIA.

RECENT information from Australia is to the effect that the people there do not propose to fold their hands and wait for the United States or Great Britain to provide shipping needed to move their products. They

have set about it to build ships of their own. They are developing their iron ore and limestone quarries, and expect to build steel, concrete and wooden vessels at three different ports. They have found petroleum in New South Wales, and are drilling elsewhere. Their zinc, copper and gold mines are being developed.

It is hard to say just how long it will take for them to get their ship-building program under full headway; but they are an energetic people, and with several hundred million bushels of wheat piled up waiting for the market, no doubt they will use all due diligence. It is stated further that in New Zealand there is a vast accumu-

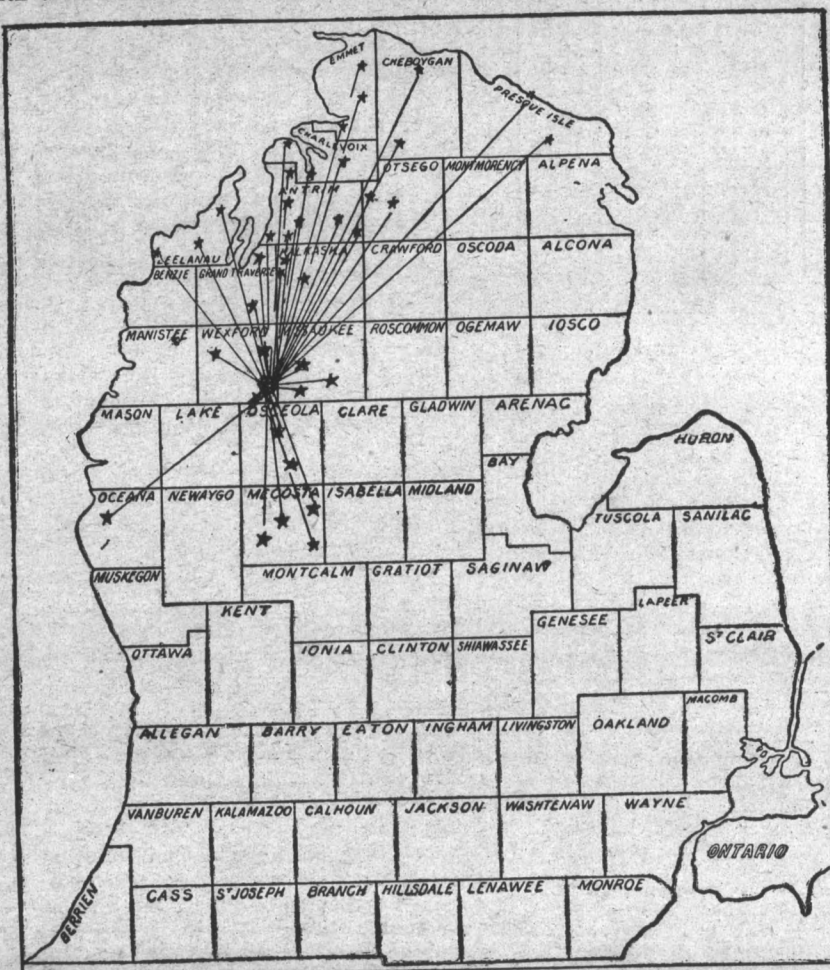
lation of fresh beef, and that Great Britain has advanced in the neighborhood of fifteen million dollars to help care for this meat, with the expectation of getting it as quickly as shipping conditions will permit.

Perhaps this is one of the reasons why Mr. Hoover intimated in his London speech that he was not worrying about a beef shortage; and perhaps the hope of tapping the supplies of grain in Australia and South America is one of the reasons why there has been such determined and insistent opposition against increasing the wheat price in the United States.

Michigan Potato Growers' Exchange

THERE is just one way for the potato growers to care for their business, and that is through cooperative marketing associations managed by the growers themselves. The farmers of northern Michigan, with their backs to the wall, have de-

Elmira, as president and general manager; H. Curtis, of Jennings, as vice-president, and A. P. Large, of Bellaire, as secretary-treasurer, is going to have a lot of business to do. It is conservatively estimated that the growers now organized will have not less than two



This Map Shows the Location of the Forty-three Local Associations of the Michigan Potato Growers' Exchange and their Relation to the Central Office at Cadillac.

cided that the only hope they have of making the potato industry permanent is through their own cooperative organization. Their faith in this course is shown not by words but by deeds. They have organized forty-three local associations. These locals have an average membership of about 125 growers, making in all over 5,000 members living in fourteen counties who have affiliated themselves in this business enterprise.

These potato growers are not allowing themselves to be led by sentimental opinions. They are rather following the best business principles. They selected high-class business farmers as their board of directors; accepted the very helpful assistance of Mr. Tenant, of the Bureau of Markets, because of his experience in building sound organizations; put the responsibility of marketing for all the associations into the hands of the central office and then voted a substantial sum to get an experienced sales manager. In this regard the board of directors is certainly carrying out the wishes of the best business men among the growers in the selection of Mr. George Prater, of Benton Harbor, as sales manager. Mr. Prater has been with the North American Fruit Exchange for nearly a score of years, and has spent practically his whole life in the buying and selling of farm products.

The Exchange with Dorr D. Buell, of

million five hundred thousand bushels of potatoes to market this fall. In order that this marketing may be recorded in a strictly business manner, Mr. Barfield has been called here from the Bureau of Markets, Washington, D. C., to install an accounting system for the central exchange and the various local organizations. Mr. Barfield has been busy at this work now for the past two weeks.

Mr. Buell tells us that a deduction of three cents will be taken from the sale of every hundred weight of potatoes, one cent of which is to be used for educational and publicity work, and the remaining two cents to go into a sinking fund to care for losses that are sure to occur in the transaction of business. Whatever remains of this sinking fund at the close of the season will be redistributed to the growers on a patronage basis.

The board of directors who are in charge of the Exchange consists of the following business farmers: E. H. Wilce, Empire; D. D. Buell, Elmira; C. A. Wood, Kingsley; A. P. Large, Bellaire; H. Curtis, Jennings; E. J. Smith, Cheboygan, and H. A. Arnold, Boyne City. The efforts of these men will be watched closely, not alone by potato growers but by all Michigan farmers who feel that the marketing end of their business is not returning them what it should. It is Michigan's first, big, purely cooperative effort.

RELIEVES HAY SHORTAGE.

A RECENT hay shortage in Williams county, North Dakota, was handled successfully with the aid of the county farm bureau. Aware of the county's need, the chairman of the section of the farm bureau on pastures and winter feeds called together the chairmen of the local committee and took up with them the needs of each section of the county. These community chairmen then made the rounds of their townships and in some cases called meetings where they secured estimates of the amount of hay that the farmers will need for next winter. A member of the bureau was delegated to visit northern Minnesota and other sections to see where hay could be secured. Through the cooperation of the farmers in securing information regarding the shortage and in locating hay, sufficient hay was obtained at a reasonable price to carry Williams county over the winter.

COMMUNITY MARKETS PREVENT FOOD WASTE.

FORTY community markets have been organized and are in operation in Massachusetts. By means of these markets large quantities of vegetables and fruits which might otherwise be wasted are utilized and townspeople can obtain the products while fresh and at a comparatively low cost. In most towns where the markets have been established old buildings centrally located have been utilized and furnished at little cost. In many of the markets canning kitchens are conducted and fruits and vegetables not sold in the first state are canned either for the owner at cost or to be sold later.

NEW YORK FARMERS IN WOOL POOL.

THROUGH information furnished by the farm bureaus, twenty-three counties in New York state marketed 456,766 pounds of wool cooperatively through county wool associations at full government prices. Farmers say they have saved from five to seven cents a pound by pooling their wool, and it is thought possible that next year the county associations will federate into a state organization, with all the wool being sold through a single committee. Official government graders visited the counties and fixed in the minds of the farmers a standard toward which to work, as well as demonstrating the value of keeping high-grade stock.

APPLE PICKERS WANTED.

A CALL has been sent out by the Farm Labor Sub-committee of the Monroe County Defense Committee for ten thousand apple pickers to help in the Western New York apple harvest. Steady work is promised from now on until November 1. The average pay is twenty cents a barrel, with board. It is said that an inexperienced man can pick as many as thirty barrels a day and as he proceeds his average increases.

A Combined Granary and Corn Crib

That Meets the Present Day Conservation Requirements.

THE farmer possesses no regulatory powers over the weather; but he can at least fortify himself against crop losses which often occur as a consequence of inadequate equipment and shelter. With grain dirt cheap any sort of a make-shift crib or bin was satisfactory as storage for the grain crops. Many farmers reckoned they could stand the losses of a few bushels of grain better than they could afford the cash outlay for the construction of dependable storehouses. The prevalent high prices of grains are pushing the props from under this outworn theory. The loss of several tons of corn or wheat, in view of present prices, mounts into the three-column figures, and it doesn't take many such losses to make this waste loom large as a mountain.

A highly efficient and relatively inexpensive crib and granary which merits the investigation of every grain farmer has been devised by the Department of Agriculture. This storage has made a hit with practical farmers who have subjected it to extensive use under a wide range of conditions. It is adapted for the general purpose farm and furnishes ideal conditions for drying, curing, and the storage of grains. It minimizes hand-labor in handling the crops, is free of waste space and equipped with detachable safeguards for protection against damaged grain in the way of ventilators and drying racks which can be removed when unnecessary.

Prevents Spoiled Corn.

Investigations have shown that corn which seems well matured at husking time may contain as high as thirty-three per cent moisture. If this corn is heaped together in unventilated cribs, it will rot and mold. On the other hand, if properly stored in ventilated cribs, most of the excessive moisture will evaporate in a few days. In order to facilitate the proper curing of the corn, as well as to permit of handling the grain in large quantities, specially planned drying racks are used.

This crib and granary is twenty-six

by thirty-six feet in floor dimension, with a capacity of 2,810 bushels of small grain and 3,540 bushels of corn. The overhead grain bin occupies space which otherwise would be wasted in an average crib. To give the building proper height and pitch of roof to favor the efficient use of either a stationary or portable elevator, this otherwise surplus space is necessary. It is occupied by the overhead wheat

bin. Economical construction necessitates the use of high studding in wooden structures rather than long, sloping roofs.

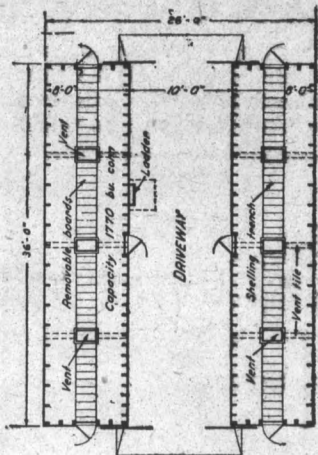
A special feature which has been devised consists of drying racks situated near the top of the crib where the corn can be suspended for from three to ten days before being dumped into the crib proper. On these racks conditions are favorable to the proper curing of

the corn. Furthermore, the crib is provided with removable ventilators which supplement the shelling trench in the floor, to provide a correct system of air drainage; this combats the tendency of moist, damp corn to damage in the crib. As the corn is dumped from the drying racks it falls in conical piles in the crib, where it is exposed to thorough ventilation and drying before more corn is dumped on top of it. These racks do not interfere with the maximum filling as the outer rack may be fastened back on the rafters while the inner rack can be raised and the space below filled.

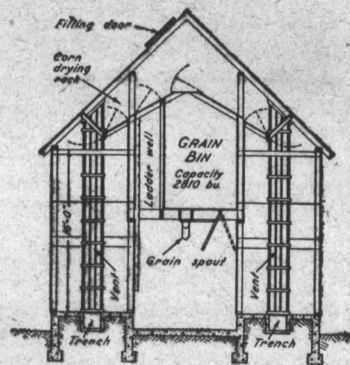
The Shelling Trench.

The shelling trench in the floor of the crib is another labor-saver because one man with a long-handled rake can roll the grain from the top of the crib into the drag as fast as the sheller can handle the grain. In this way he is able to prevent corn slides and jams in the drag. The bottom of this drag is at ground level and is smooth, so that the drag can be easily pushed under the corn. This trench is used as an inlet duct in the ventilation system by screening its ends to keep out rats and other rodents. At regular intervals tile extends from the shelling trench through the wall to provide for a cross draft of air into the trench.

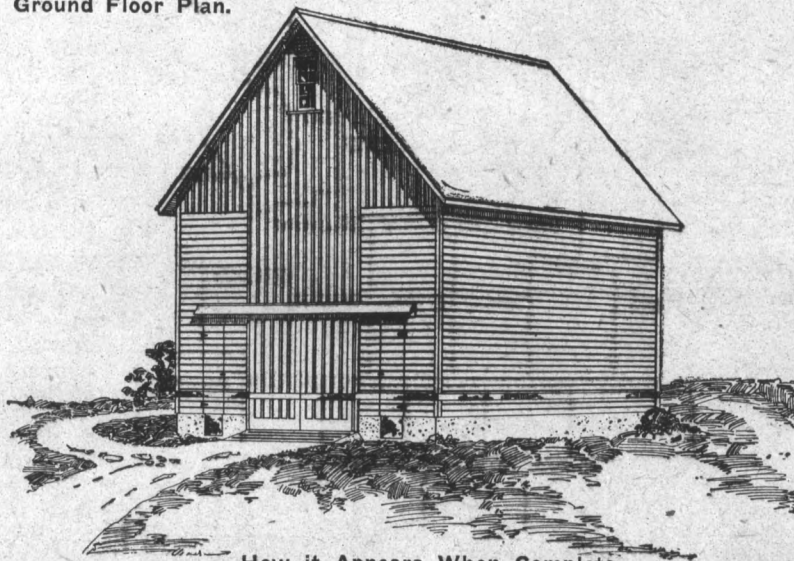
These suggestions may be incorporated into any crib of similar design. The expense would be repaid in one or two seasons of damp grain. The ventilators are readily removable while the drying racks are hinged so that they can be drawn back out of the way. The grain bins are easy to install, occupy what was formerly waste space in cribs with steep roofs and high peaks. Furthermore, a concrete feeding floor on which corn may be fed to hogs can be installed at the option of the owner. Complete plans and bills of material for this granary and crib will be furnished to any farmer who will direct a request for them to the Chief, Division of Rural Engineering, United States Bureau of Public Roads, Washington, D. C.



Ground Floor Plan.



Front Elevation.

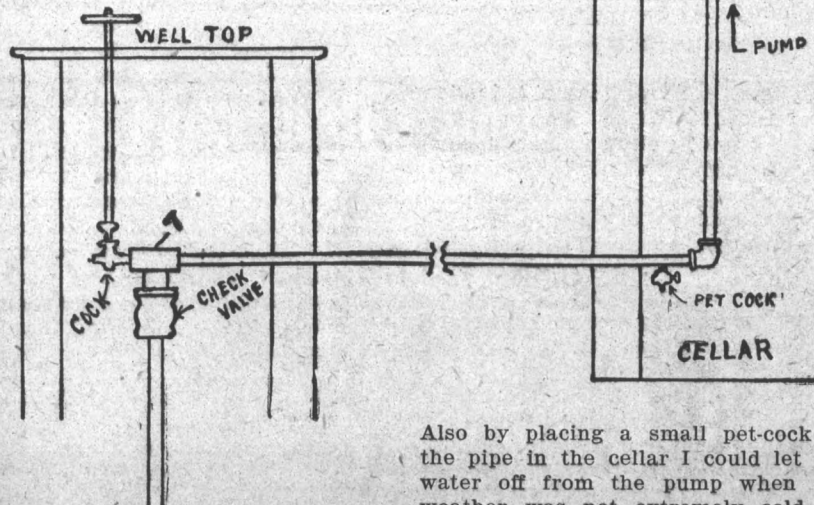


How it Appears When Complete.

Some Ideas for the Handy Man

VALVE IN WATER PIPE

MY well being a long distance from the pump in the house, the water would not hold on continuously. Therefore it required a foot-valve on the bottom of the pipe in the well.



This was all right, but in the winter there was no way to let the water out in the coldest of weather. At the top of the pipe in the well where it turned to go to the house I placed in a swing check valve and a tee. On the tee I screwed a small cock. I connected a rod with the handle of the cock with the end of it projecting out of the well. With this rod I could turn the

cock and let the water run off from the pump and after the water had drained off thus over the valve, the water would fall from the valve down.

Also by placing a small pet-cock in the pipe in the cellar I could let the water off from the pump when the weather was not extremely cold. I let the water drain into a pail.—C. R.

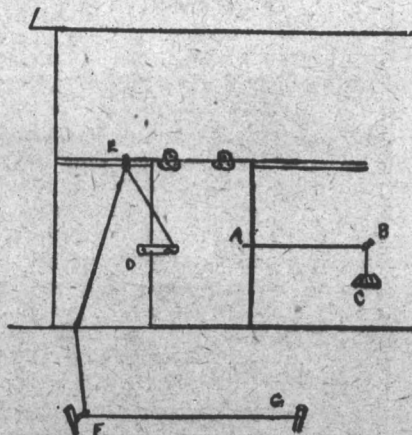
SAW-BUCK WEIGHT.

DURING the past winter many "saw-buck clubs" were formed and they were a mighty fine thing, too. With winter rapidly approaching and the authorities advising the use of

more wood as fuel so as to conserve the coal supply, it will be true that the saw-buck will be used more than ever. I have just been using one and find that the most aggravating thing about them is the stick of wood rolling over while sawing. We also find that to overcome this it is only necessary to fasten one end of a short chain to the middle of one side of the "buck" and fasten a heavy weight to the other end. When your stick of wood is ready, throw the weight over it and "go to it." It will lie still.—W. F.

PIG TROUGH HOLDER.

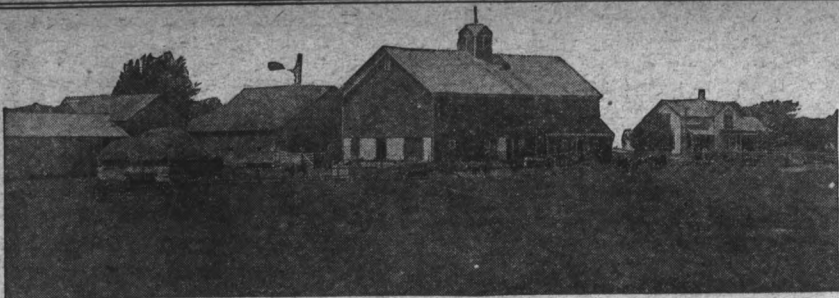
VERY frequently pigs root over their trough and it becomes a problem to keep it in its place. To overcome this, allow the end pieces to extend some suitable length (according to the place where you wish to use it), over one side. By tapering the end, you will be able to stick this extension under the fence or other suitable place, and your pigs will be unable to turn over the trough, and yet be able to get both sides for their feed.—Warner E. Farver.



AUTOMATIC DOOR OPENER.

HERE is a very convenient sliding door which is easily made. First, secure a piece of rope and fasten it to

which the rope is fastened. When a vehicle of any kind passes over this rope, it pulls the catch from its place, allowing the weight to pull open the door.—S. VanAken.



A Worm that Helps the Hun

A Word Map of the Enemy's Strongholds and How the Farmer May Make Successful Attacks.

EARLY in the present season it was discovered that the joint-worm was present in large numbers in Michigan wheat. Later developments show that another species, more destructive than the common wheat joint worm, is also present in restricted areas.

The work of the joint-worm is almost universally confused by the grower with that of the Hessian fly. Both the joint-worm and Hessian fly cause wheat to lodge or go down, although in the case of the joint-worm a much smaller percentage of infested straws lodge than in the case of the "fly."

The insect works primarily in wheat, although it is found also in rye, barley, and some grasses, the damage to the wheat being anywhere from less than one per cent up to almost total infestation. The damage to rye is usually very small except that sometimes volunteer rye may suffer quite severely. The damage done by the common wheat joint-worm is generally limited to the lodging of part of the plants and to shriveling of the wheat berry itself. The grain that is lodged is, of course, lost to the reaper and the berries fail to fill properly.

Usually Controlled by Parasites.

Fortunately, outbreaks of joint-worm in the past have come to Michigan only at long intervals, periods of from ten to twenty years usually elapsing between serious invasions. In the meantime it is held in check by parasites. It is only when the parasites for some reason or other, become thinned out that the pest is able to multiply and produce a destructive outbreak, and to judge by past experiences and former outbreaks, we may confidently expect the parasites to gain control of the situation in the course of a season or two, after which we probably forget what the joint-worm looks like until what we hope will be the far future.

The work of the common joint-worm manifests itself in the straw, short sections of which become thickened and woody in texture, inclosing in the wall small cavities, each of which is inhabited by a tiny grub. The woody

sections are very brittle and easily break out at threshing time, where they appear as pegs from one-half to two inches long, coming out with the grain and being separated from the wheat by the sieves. Many of these sections do not break out but remain in the straw. Most of the grubs, however, in the pegs and in the straw are killed by the violent blows of the concaves in the separator so that comparatively few grubs winter over in the straw itself or in the pieces broken out.

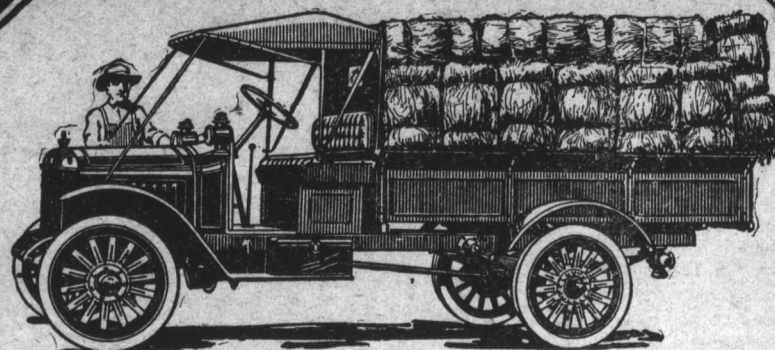
Eggs Laid in Straw.

The eggs of the creature are laid in the straw itself just after the plants begin to lengthen out in the spring. The eggs are deposited in holes pierced in the straw itself by the ovipositor of a wasp-like little insect which is shiny black and considerably smaller than a mosquito. The grubs which hatch out from these eggs cause the wall of the straw to become thickened and distorted.

They interfere with the proper passage of sap up the straw to the head which is forming above. This results in poor nutrition and the forming wheat grains in the heads never become quite as large as they otherwise would. There is only one generation each year and the insects live over in the unplowed stubble. In the following spring the grubs in this stubble change to little wasp-like insects resembling the ones that originally laid the eggs in the straw and fly away in search of the new crop of wheat which is just beginning to nicely lengthen out. They will fly to some distance in this search, at least half a mile and perhaps farther. The custom of using wheat for clover seeding makes us hesitate to plow under the stubble which would otherwise dispose of the adults. The greatest danger comes from putting new fields of wheat near old unplowed stubble when the stubble is known to be badly infested with these joint-worms.

Two Kinds of Worms.

Besides the common joint-worm just mentioned there is another one far less (Continued on next page).



REPUBLIC

Internal Gear Drive
MOTOR TRUCKS

Farmers who own Republic Trucks don't have to depend on extra teams to help them out when the rush of getting fall crops to market is on.

Republic Trucks are a profitable investment on any farm. They are built with the extra strength and durability that insure their working for you day in and day out in any kind of weather.

The Internal Gear Drive has nothing to do but to drive the truck. It applies the power near the rim of the wheel and gets a big increase in pulling ability. The load is carried on a separate I-beam axle of solid forged steel, much lighter than any other form of construction and at the same time stronger.

This saving in unsprung weight means longer life to tires and important savings in gasoline and all other upkeep expense. 45% greater road clearance make these trucks travel any country road easily without fear of stalling even in mud and snow.

Republic trucks have been proved efficient in every kind of hauling. Last year Republic produced and sold more than twice as many motor trucks as any other maker.

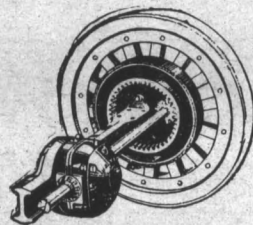
More than 1300 Republic Service Stations distributed all over the United States, back up Republic quality.

Seven Models— $\frac{3}{4}$ ton to 5 ton.

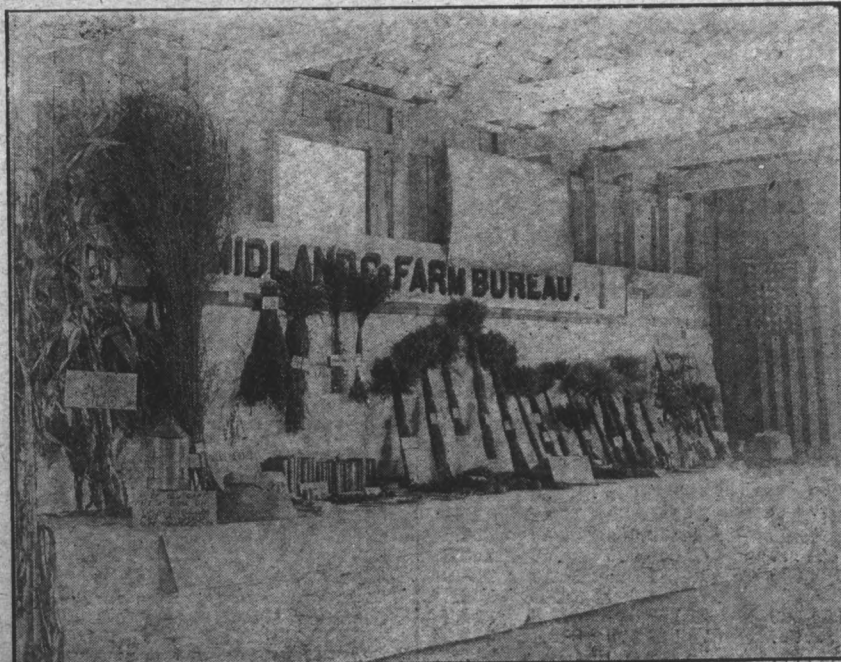
See the nearest Republic dealer and write us for late booklet.

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The Largest Manufacturers of Motor Trucks in the World.



The Internal Gear Drive delivers 92% of the motor power to the wheels. We know of no other drive that delivers as much.



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Be ready for the long cold winter. Have a comfortable, healthful, convenient and sanitary toilet right in the house. You can place it anywhere—in any room or closet. Endorsed by State Boards of Health. This is the original Chemical Closet you have seen advertised for four years. Superior in construction, design and finish. Color, beautiful XXX high finish grey with gold trimming. Aluminum or mahogany seat. **GUARANTEED ABSOLUTELY ODORLESS—30 Days Trial.** The germs and odor are killed by a chemical process in water in the removable container—extra large size. You empty once a month as easy as ashes. A. C. Cook, Mass., writes, "We are well pleased with the Ro-San Closet. We find it all you advertised it to be, and absolutely odorless as you claimed." Mrs. D. T. Crandall, Mich., says, "It has proved a blessing to me. I find it perfectly odorless." That's the way the letters run. All as pleased and satisfied. It truly is a blessing to all homes without sewerage. Absolutely guaranteed—guarantee slip is packed with each closet. Don't go another day without this great convenience. Write now for free catalog, full description, and price.

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YOUR cows are all right. The butter fat is in their milk, but you are wasting this precious profit by using old-fashioned separation methods or an old or inferior separator. Swedish farmers won't tolerate such extravagance. They have to make every penny possible. That's why the best cream separator in the world—the Viking—is made in Sweden. You can profit at once by the work they do. Start today. Get a

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It is lower in price and greater in capacity than other separators of equal rating. It is guaranteed to skim down to a mere trace. It gets you every possible penny's worth of butter fat that is in the milk.

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In every country in the world where good dairying is conducted, you will find Vikings, not only because of the profitable work they do, but also because of their construction. Made of the finest Swedish iron and best tool steel, the Viking is

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Is the simplest and easiest-running separator on the market today. Operation starts at a touch on the handle. Bowl cleaned thoroughly in 3 minutes. Investigate. Go to the Viking dealer in your town and see it in operation. Get our books. There are full of facts for farmers. Every one a profit payer. Even though you don't think

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common in Michigan, and which is at present restricted to a few localities. In this species the leaf sheath becomes involved in the swelling and the diseased sections have a wrinkled, gnarled and knotty appearance. Plants attacked by this rarer species of joint-worm often fail to fill out at all. The heads sometimes fail to come out, or if so they usually contain nothing.

The principal source of infestation is the unplowed stubble which is left unplowed because of the seeding of clover. It is desirable to put new wheat as far away from such stubble as may be. When the infestation of the common tritici involves more than half the wheat plants, it may be well to substitute Rosen rye on that particular farm. A smaller percentage of plants infested by the more serious form, 1. vaginicola would seem to warrant the substitution of rye for perhaps a single season.

It has been found that a raking of the stubble late in the fall with a side-delivery rake will make it possible to collect and burn a large proportion of the infested stubble. If the catch of clover happens to be poor it is, of course, advisable to plow the stubble early in the fall and thus do away with the danger of infestation in that particular field. In no case should one sow wheat after wheat if he hopes to gain control over these tiny pests.

A Glance at Our Markets

The Big Movement of Crops Just Now is Depressing Prices

Potatoes Continue Weak But Shipments Are Now Declining.

SUPPLIES are still liberal as the result of the heavy movement of the past few weeks, but shipments appear to have reached high point and are declining with 5,726 cars this week compared with 6,897, nearly 1,000 cars per day, last week. Prices averaged lower than last week the declines having extended to eastern markets. Prices at some points are not far from those prevailing at the corresponding time last year. Maine Cobblers and Green Mountains declined about twenty cents this week, closing at \$1.82@2 per cwt., track-side at Presque Isle. Last year at the corresponding time values ranged at \$1.97@2.01. Prices declined in consuming markets, closing at \$2.55@2.80 per cwt. sacked. Declines were moderate in eastern markets. Minnesota and Wisconsin sacked white stock lost five to ten cents in carlot markets, closing at \$1.90@1.95 per cwt. sacked in Chicago. Moorhead, Minn., quoted Red River Ohio firm at \$2@2.05 per cwt. f. o. b., and Waupaca, Wis., quoted \$1.80@1.90 per cwt. sacked, cash track-side. Colorado and Ohio shipping points ranged not far from last week's closing level. Sacked white stock ranged about steady at \$1.35@1.50 per cwt., cash, track at Greeley. No. 1 white stock ruled \$1.25 track-side, Idaho Falls, Nebraska, shipping points declined ten cents, ruling \$1.50 per cwt. in bulk from wagons. New Jersey Giants ranged slightly lower in consuming markets at \$2.60@2.70 per cwt. Last year at the corresponding time the range was \$2.67@2.83 per cwt.

Onions Again Lower.

THE onion market continued dull and weak, with gradual declines in nearly all sections. Eastern and mid-western yellow stock followed a wider and weaker range at \$1.55@2.25 per cwt. Rochester, N. Y., quoted ten to twenty cents lower, closing at \$1.60@1.65 per cwt. sacked, f. o. b. California Australian Browns declined about twenty cents, closing at \$1.20@1.25 per

cwt., sacked, f. o. b. Stockton. Shipments increased moderately with 1,266 cars for the week, compared with 1,183 last week. For the corresponding week last year the movement was 768 cars.

Upward Price Trend of Grapes.

MICHIGAN Concord advanced, reaching 35@37c per 4-qt. basket f. o. b. Benton Harbor. They sold at 35@45c in leading distributing markets advancing fully five cents in various cities. New York Concord reached 35c f. o. b. cash track Westfield, closing at this figure. New York Concord in 2-qt. baskets ruled 22c f. o. b. shipping point, and ranged 24@25c in consuming markets. California Malaga grapes held firm at \$1.75 per four-basket carrier f. o. b. cash Fresno, and continued steady in eastern markets, most auction sales ranging between \$1.75@2.25. Shipments were 2,076 cars compared with 2,836 last week.

Apple Markets Fairly Steady.

PRICE changes during the week were mostly in the downward direction, but values in general were fairly well maintained. Baldwins, A-2½, still ruled at \$4.50 per bbl. f. o. b. Rochester, N. Y., and sold at \$4.90 f. o. b. Benton Harbor, Mich. Ben Davis ranged steady at \$3.25@3.50 per bbl. tended upward at Rogers, Ark., closing at \$4.65@5.75 per bbl. bulk. Greenings and other standard varieties, A's ranged generally at \$4@4.50 at Rochester. In consuming markets New York and Michigan Wealthies ranged about steady at \$5@6.75 per bbl., and Virginia Yorks at \$4.50@5.25. Fancy Illinois Jonathans exceeded \$9 in a few mid-western markets. Extra fancy northwestern boxed Jonathans ranged \$1.85@2.15 at northwestern shipping points, and \$3@3.50 in consuming markets. Extra fancy Colorado boxed Jonathans ranged at \$2.25@2.40 f. o. b. shipping points and sagged to \$2.75 at Denver. Apple shipments are increasing faster than for the corresponding time last year. The week's movement was 4,858 cars compared with 3,682 last week and 3,968 for the corresponding week last year.

What Federal Estimators Think of Our 1918 Crop

The Crop Reporting Board of the Bureau of Crop Estimates makes the following estimates from reports of its correspondents and agents:

Crop.		United States Crop Summary October 1.				Price Oct. 1.	
		October 1, 1918.	Change Since Sept. 1.	December Estimate 1917.	Price Oct. 1, 1918.	Oct. 1, 1917.	Cts.
Winter wheat	Bu.	555,725,000		418,070,000			
Spring wheat	Bu.	363,195,000	20,340,000	232,758,000			
All wheat	Bu.	918,920,000	20,340,000	650,828,000	205.8	200.6	
Corn	Bu.	2,717,775,000	45,935,000	3,159,494,000	159.5	175.1	
Oats	Bu.	1,535,297,000	57,949,000	1,587,286,000	71.0	62.3	
Barley	Bu.	236,505,000	670,000	208,975,000	95.5	113.9	
Rye	Bu.	76,687,000		60,145,000	154.0	169.8	
Buckwheat	Bu.	19,473,000	620,000	17,460,000	180.0	154.4	
White potatoes	Bu.	391,279,000	6,750,000	442,536,000	143.6	122.1	
Sweet potatoes	Bu.	85,473,000	4,457,000	87,141,000	160.6	116.1	
Flax	Bu.	15,606,000	-299,000	8,473,000	380.9	308.5	
Peaches	Bu.	40,185,000		45,066,000	185.3	143.8	
Pears	Bu.	10,194,000	-143,000	13,281,000	157.8	125.0	
Apples, total crop	Bu.	198,389,000	2,561,000	174,608,000	133.5	106.8	
Apples, com. crop	Bu.	24,400,000	324,000	22,159,000	411.3	319.8	
Hay (tame)	Tons	71,555,000		79,528,000	\$18.45	\$13.83	
Hay (wild)	Tons	14,699,000		15,402,000			
Sugar beets	Tons	6,458,000	250,000	5,980,000			
Beans	Bu.	17,802,000	-2,092,000	14,967,000	\$5.67	\$6.69	

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Harvest is over, crops are in—now you have spare time to consider ways and means of improving your farm.

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You'll be surprised at its cheering, satisfying qualities and delightful flavor. It's all health—no caffeine.

Try a Tin

WE WANT VETCH. SEND US SAMPLES
YOUNG-RANDOLPH SEED CO., Owosso, Mich.



Intensive Dairying

I have forty acres of good land and want to keep cows and feed the year round. How many can I feed and can I buy alfalfa hay in carlots?

Eaton Co.

G. D. S.

There are no examples in Michigan of intensive dairying. Some market milk men near our large cities practice intensive dairying and it would be well to visit some of these dairies, located near Grand Rapids, Detroit, Kalamazoo, Battle Creek, etc., and have a talk with the owners.

You do not state whether you are to produce market milk or cream. By purchasing grain a good many cows can be kept on forty acres of land where you do not pasture them. Rev. Dietrich, near Philadelphia, kept thirty cows on fifteen acres and raised all the roughage. He followed an early crop of rye hay with ensilage corn.

With the right manager forty cows, and perhaps more, could be kept on a forty-acre farm with this sort of arrangement. Of course, the grain ration would have to be purchased but you could raise sufficient roughage to take care of this number of animals.

There will be no trouble about buying alfalfa hay in carload lots from the west or southwest. You might buy it in Michigan but ordinarily alfalfa in carlots is obtained from west of the Mississippi.

You should put your ensilage corn ground into rye immediately after cutting the corn. This rye can be taken off for hay early the following season and the ground again sowed to ensilage corn. In this kind of farming you don't have to keep up a rotation of crops because the manure cover will furnish sufficient fertilizer to maintain and increase the richness of your soil.

C. C. L.

MAKING UP RATION WITHOUT HAY.

I have corn silage, oat straw and barley straw for roughage; wheat bran, cottonseed meal, oilmeal and ground oats and barley. Will you please advise me how to make up my rations so that I will not have to buy hay?

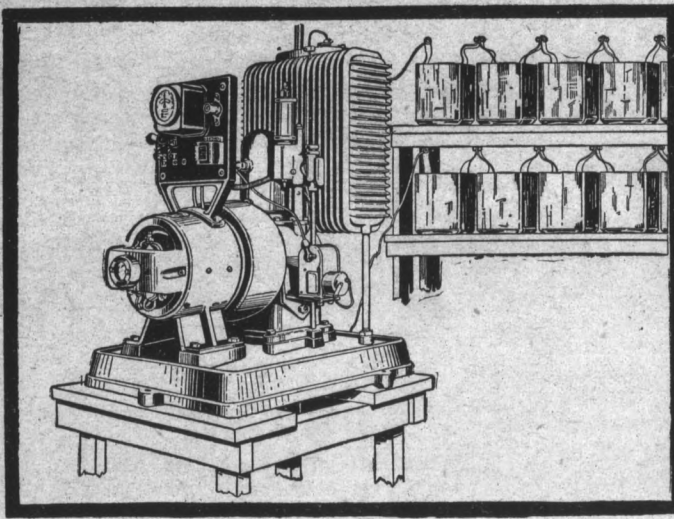
Mecosta Co.

S. A. B.

Usually it would pay to purchase hay and feed a small ration. Hay is hard to do away with although you can make a balanced ration with straw and corn silage for roughage, but you must feed heavily of cottonseed meal and oil meal to furnish the necessary protein. Feed straw liberally, not making the cows eat it up clean. What they do not eat can be utilized for bedding. Make a grain ration of ground barley and oats and feed cottonseed meal once a day and oil meal once a day and ground barley and oats twice a day. Don't feed over two pounds of the cottonseed meal to each cow once a day. I would feed enough of the barley and oats, ground, to make a total grain ration of one pound of grain per day for each pound of butter-fat produced in a week. For instance, if you have a cow that produces ten pounds of butter-fat in a week you will feed her two pounds of oilmeal and two pounds of cottonseed meal, then she would be entitled to six pounds of oats and barley. If you do not test your cows for butter-fat so that you know how much butter-fat they are producing then the best thing for these Jerseys would be to feed a pound of grain for every three pounds of milk produced. If you can purchase clover hay to feed once a day you can do away with either the oil meal or the cottonseed meal and substitute barley or oats.

C. C. L.

ALAMO Electricity



City Conveniences on the Farm

AN electrically equipped farm has wonderful advantages over all others. All who live and work on these farms have a part in the comfort electric power and light brings. All share in this great convenience.

Alamo Electricity Solves Rural Problems

Alamo Electricity keeps children at home. Boys now take keen interest in modern farming. Girls find the new-way housekeeping enjoyable. Older folks find relief from many daily tasks that are drudgery under old methods.

A Vital War-Time Need

Alamo Electricity does quickly and cheaply work that formerly required much valuable time. It releases man-power for the more important war work. It is also an important factor in solving the problem of labor shortages. Hired help is attracted to the farm. And it keeps them there.

The Fully Perfected Unit

The Alamo unit includes all the choicest features. Many are exclusive advancements discovered by Alamo engineers. Its engine—the

Ide Super-Silent—has no springs, cams or rods to cause trouble. Its carburetor is designed with a special fuel-saving device. It clears itself of troublesome carbon.

The Alamo automatically stops when water, oil or fuel get low or when batteries are fully charged. It starts by merely pressing a button and operates without vibration or noise. It is perfectly balanced and requires no special foundation. Simply install it in a convenient place, start the engine and adequate power and light is then your servant—a sure-working, never-tiring farm helper.

Get Our FREE Power and Light Book Now

Send your name and address on the attached coupon today and get a copy of our electrical farming book. It is packed full of valuable information you should have. Send now while the supply lasts.

ALAMO FARM LIGHT COMPANY

General Offices: 1215 Farnam Street, Omaha, Neb.

Factories: Hillsdale, Michigan

(26)



Alamo Farm Light Company,
1215 Farnam Street, Omaha, Neb.

Please send your ALAMO BOOK of farm light and power facts and information about the ALAMO UNIT.

Name

Postoffice..... R. F. D.....

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

BETTER BUY THAT ROOFING NOW



JIM BROWN WILL SAVE YOU MONEY AND PAY THE FREIGHT

I'll save you money on any kind of Ready Roofing you need. I can supply you with a style and grade in rolls or in shingles suitable for any building on your place. My advice to you is to take advantage of my low prices and buy your roofing now before prices advance. The reason I can

Save You Money on Roofing

is because I sell Ready Roofing on the same "Direct-From-Factory-Freight-Paid plan" that has enabled me to build up the biggest direct by mail fence business in America. Over 500,000 farmers have saved money by buying Brown Fence and I am now giving them the same money-saving opportunity on Ready Roofing. Get my prices.

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My free roofing catalog-folder illustrates and describes my various grades of roofing—both rolls and shingles in actual colors. My low prices will surprise you. No in-between profits to pay—no extras. I pay the freight right to your station. Send name and address—get Bargain Offers.

THE BROWN FENCE & WIRE CO.
Roofing Dept. U CLEVELAND, OHIO

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Cow Waters Herself

With this wonderful new Libbey Automatic Water Bowl. Each bowl controls own water supply. Animal moves lever, opening water valve, when it starts to drink. Lever swings back closing valve when animal stops drinking. No float tank required. Bowls may be put at different heights or in any stall or pen. Cannot overflow; cannot get out of order; almost no water left in bowl. Most sanitary bowl ever sold. Prevents spread of contagious diseases. Increased milk yield quickly pays back cost. Saves labor; saves feed. Write today. If interested in Stanchions, Stalls, Carriers, etc., ask for General Catalog. Sent free.

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4 Jay St. Oshkosh, Wis.

FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Wagon parts of all kinds. Wheels to fit any running gear. Catalog illustrated in colors free.

Electric Wheel Co., 35 Elm St., Quincy, Ill.

Please Mention The Michigan Farmer When Writing to Advertisers



Order Spring Fertilizers Shipped **NOW**

A War-time Measure and a Patriotic Duty

FOOD will be needed next year more than ever. Fertilizer *must* be used to produce it.

Fertilizer factories have lost 30 to 40 per cent of their labor. Fertilizer production can be maintained *only* by utilizing the remaining labor to the fullest possible advantage.

Fertilizer must be shipped as soon as ready. Double and triple handling must be eliminated. Factories, with their depleted forces, must operate every day and ship every day from now on until Spring—if the supply of fertilizer is to even approach the demand.

Fertilizer must move steadily from factory to farm throughout the Fall and Winter to replace the usual Springtime rush. In no other way can the situation be met.

You gave up wheat, economized on sugar, observed heatless Mondays and gasless Sundays. These were *War Measures*.

Now order your Spring fertilizer shipped at once. It is a *War Measure* and a Patriotic Duty.

Do your share again. Get your Spring fertilizer in your own barn NOW. Place your order TODAY.

Soil Improvement Committee
of the
National Fertilizer Association

Postal Telegraph Bldg., Chicago The Munsey Bldg., Baltimore

"Fertilizer Feeds the Crops that Feed the World"

GASSING THE BEAR---By H. F. GRINSTEAD

IT was ten year ago, before poison gas in warfare had been heard of on this side, that my partner, Jim Wells, and I, tried to kill all the prairie dogs and chipmunks in half a county with a gas of our own manufacture.

"We had a little ranch back on Hat creek, close to the foothills. The valley was narrow there, but we broke out all the land that could be irrigated, and planted it to cantaloupes.

"It seemed right from the first that the pests from the mountains on one side and the plains on the other had conspired to devour our crop; and they kept it up from the time the plants peeped above the ground till the melons were ready for market.

"We tried poison, but the small pests seemed to thrive on it. True, we killed a few ground squirrels and an occasional prairie dog; but apparently a hundred others came to the funeral of these, and stayed.

"Jim, who had studied chemistry in college somewhere, finally hit upon the idea of putting poison gas into every prairie dog hole near the ranch, and stopping the hole up. You know there are numerous things that live in prairie dog holes, and he figured we would get the guilty party that way.

"We had two of these compressed-air sprayers that would hold a little over two gallons apiece. Jim poured his chemicals into these, and then we would squirt a little of the spray through the short hose into the prairie dog holes, and tumble a clod, in to keep the fumes from escaping.

"I don't remember just everything there was in that mixture, but ammonia figured largely among the ingredients. I got a whiff once or twice that nearly knocked me cold.

"Though we doubtless killed thousands of the small pests, it was quite a while before we noticed any letup in their nightly raids on our melon vines. We determined to extend our line of operations, but all this took ammonia and carbon bisulphide, or whatever it was.

"About this time Jim got a letter telling him of the dangerous illness of his sister in Denver. He left right away, promising to send a quart jar of ammonia out from town next day by the stage driver, who came within two miles of our ranch.

The next day after Jim left, I went up the creek with the sprayer and what gas mixture I had left, to doctor some dog holes in a cove, the only ones on that side between the ranch and the mountains.

"It was the middle of the afternoon when I finished the job. I wanted to go on to the mail box and get the ammonia my partner was to have sent out. It was nearly two miles back home, and another two miles from there to the mail box. By cutting across the ridge from where I was, I could save a mile or more on the round trip.

"I cut right across a high ridge covered with scrub pine and juniper. It was about a mile to the valley of the next creek and the stage road.

"There was a kind of trail, but it was all washed out and overgrown. I found the little old knapsack sprayer in my way, and wished half a dozen times that I had cached it in the canyon.

"When I had reached the top of the ridge and started down on the other side, I noticed a place where the brush was all matted up, as if cattle or horses had been trampling about.

"A little farther down I came to another place where the undergrowth was matted down. There were some berry bushes with all the berries, and most of the leaves chewed or stripped off; but I was too busy picking out a trail to make any guesses as to what was doing all this.

"I soon came into a pretty good trail running right down the bed of a ravine. A little farther along I struck a small meadow with a thicket of wild plum in the middle of it.

"As I passed on one side of the thicket, I heard a commotion in the dense growth. I stopped suddenly, but had no thought of anything except the range cattle trying to escape from the flies.

"When I had started on again, I heard a loud whoop; and something as large as an ox came crashing into the open not more than twenty steps in front of me. It wasn't a cow either; it was an old, gaunt, she cinnamon bear, with a reach like a race horse.

"Now, like most western men, I didn't take much stock in the tales we read of fighting bears. I let a whoop,

and ran after the fleeing animal as I would after a scared dog, just to see her run.

"That old bear was already going pretty well without any encouragement from me, and I have never fully decided why she changed her mind so suddenly.

"By the time I had taken seven or eight steps, the bear had begun to put on the brakes. Having less weight to overcome, I turned a second before she did.

"I have heard since that a bear can run faster up hill than down, but right then and there was no choice as to direction for me. I legged it right up that ravine, looking for a tree big enough to climb, with the chasing bear about four lengths behind me.

"I caught sight of two trees about the same time. One was a pine of good size a little way up the slope to my left; the other was a scrubby mountain oak that grew out from the bank at an angle, and was right in my path.

"I went up the tree nearest at hand.

"It was pretty easy getting out on that leaning tree; but I failed to consider that it would also be easy for the bear.

"I kept on toward the top till the limbs began to sag; even then I wasn't over ten feet from the dry bed of the branch.

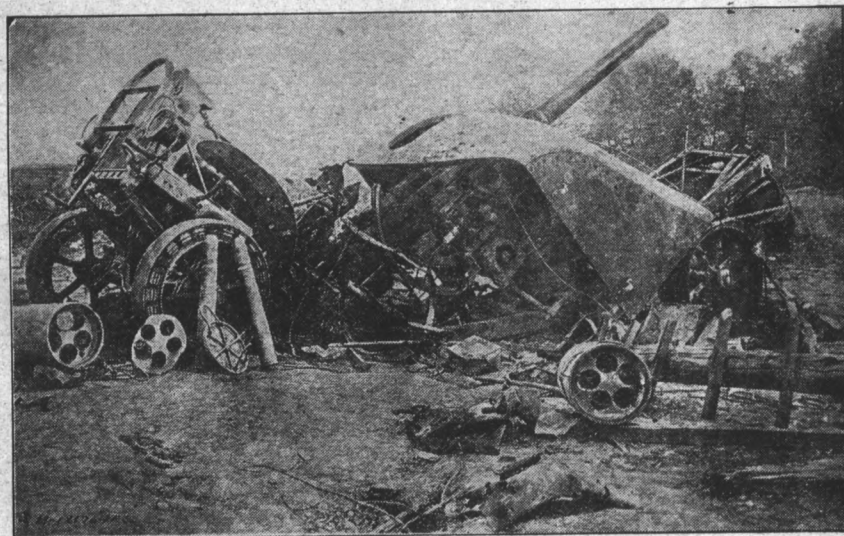
"The old bear arrived about three jumps after I did. She stopped and looked up at me contemplatively, then opened her mouth in a cavernous

(Continued on page 362).

WORLD EVENTS IN PICTURES



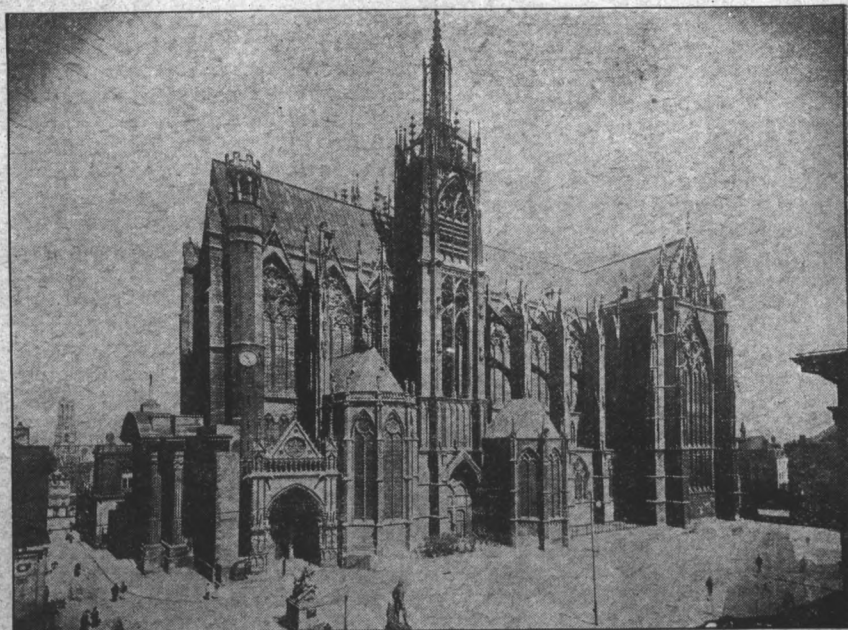
President Wilson and Mrs. Wilson and Party Arriving in New York where the President Opened the Liberty Loan Campaign.



When the French Discovered the Location of this German Gun, the First Shot Separated the Gun from the Carriage.



Damascus, Taken by General Allenby. Extending Across the City, Beneath the Long Arched Roof, is the Street Called Straight.



Magnificent Metz Cathedral. In Contrast to German Methods, the American Guns Bombarding Metz Avoid Destroying this Cathedral.

Indian John Keeps His Promise and Pays the Price

By MANTHEI HOWE

THIS incident had its beginning years and years ago, just as the Civil War was drawing to a close.

Indian John and big Tim Brody were often on sentry duty at night and, as they came to the end of their beat, they used to stop and chat. Big Tim was good natured and talkative. Indian John was silent like all his race but he appreciated the white man's kindness.

One night when the moon was painting the encampment in fairy silver, Indian John said a most surprising thing.

Tim Brody, looking at the wonderful moonlit scene, remarked: "It looks like melted silver, doesn't it, John?"

"Uh-huh!" agreed the Indian. Then his little beady black eyes twinkled shrewdly. "When we go back to Ontonagon I'll show you a mine with more silver than you see down there."

"Where is that mine?" Brody wanted to know.

"That's all right. My people know. I show you when the war is over."

And that was all he would say about it. Brody used to think of the mine and dream of its vast wealth. He tried time and again to get the Indian John to reopen the conversation but John only grunted, "I show you when the war is over."

When peace came Indian John went to his people in the north and big Tim Brody went back to his home in Lake Linden.

Months passed and nothing was heard of Indian John. Then one morning, three years later, a rap came at the kitchen door. Mrs. Brody opened it and there stood Indian John.

"I'm hungry," he said.

"Sure," called big Tim heartily as he glimpsed the Indian in the doorway, "just going to eat breakfast. And there's enough for you, too. Help yourself."

He did. He ate all the fried pork, cream gravy and potatoes. He cleaned up on the flap-jacks and cake. Breakfast finished, big Tim turned to the Indian.

"You never showed me that silver mine, John. How about it?"

The Indian hesitated, his eyes staring out the window.

"Indian always keeps his promise," he said finally. "Tomorrow morning you have canoe ready. I'll take you."

Big Tim had work to do that he could not leave, but he got Murphy to take his place.

Early the next morning they put provisions in the canoe, got everything in shape for a two or three days' trip, and sat on the dock waiting. One hour, two, three hours passed, and no one appeared.

"I guess Indian John has broken his promise," said Brody.

A hand tapped him on the shoulder. "Indian keep his word," said a guttural voice.

Brody jumped. He had heard no one approach, yet his eyes told him that this was not spirit, but Indian John in the flesh. He had sneaked up quietly, Indian fashion.

Quickly Murphy and John settled themselves in the canoe. Brody gave them a gentle shove.

"Good luck," he called.

"Here's hoping," shouted Murphy with a grin.

But Indian John was silent, staring soberly before him.

All that day they paddled. Murphy's shoulders and back ached but the grim Indian made no offer of stopping. Late

afternoon found them at the mouth of one of the many rivers emptying into the lake.

"We go here," said the Indian.

It was the first thing he had said, and the only words until they had gone several miles up the river.

Suddenly he stopped paddling and peered ahead.

"Stop up there by that big log," he ordered.

Murphy, feeling queer and bewitched, did as he was told. They landed, drew the canoe up on the beach and started up the bank, carrying the spade and the bag for the specimens.

"You wait," commanded John. "And watch where Indian steps. Take specimens."

Murphy, wishing he was back at Lake Linden, stood still. A wood pecker tap-tap-tapped on a log and a rabbit, disturbed at his munching, ran helter-skelter into the woods. Except for that there was not a sound or sign of life. They had the forest to themselves.

Indian John went stalking off to the west about twenty paces. He notched a tree with his hatchet and then veering straight south walked several feet. Again he cut a deep notch in a tree.

"There," he grunted.

Murphy went to the designated spots and dug and drilled. Both showed outcroppings of silver. He filled the bag with specimens from both places. Even to his untrained eyes it looked like rich ore. He turned to tell his companion so and found that Indian John had disappeared.

"Not much loss," growled Murphy. "He isn't much company. Anyhow, he will come back at sundown."

But night came and the Indian did not return. Murphy built a roaring fire, for northern nights are cold and a mist was rising from the river. To one side he built a smaller cooking blaze.

When the coffee was boiled, the eggs fried and supper ready, he called the Indian.

"Ho, John," he shouted lustily. "Supper, John."

But the silent forest boomed back the echo, "ho-per, John," in a ghostly wail.

"Bad luck to you," scolded Murphy. "I'll eat by myself, then."

He ate his own and the Indian's share, and kicking out the big fire, banked the coals for morning, rolled up in his blankets and went to sleep in the canoe. The sun shining in his face, woke Murphy. He sat up, knocking his eyes. Little by little he remembered where he was. He kicked off the blankets and stood up. The fire was still smoldering, ready for lighting for breakfast, the canoe was undisturbed, and the Indian was nowhere in sight.

The affair was getting on Murphy's nerves. Though he was ravenously hungry he did not stop to cook coffee. He took down two eggs, raw, ate a bit of bread and washed it down with water. Then with many glances over his shoulder at the shadowy woods, he rolled up his blankets and stowed them in the canoe.

"Indian John can walk or swim," he declared. "I don't like the looks of this wood. I'm going."

His hands shook. He kept peering at the forest expecting he knew not what. He was too panic-stricken to pay any attention to landmarks or to note how many smaller creeks emptied into this river. He did not remember, he told himself, that the river had been so hedged in with overhanging trees and tangled vines. It was dark

and had the dank smell of unwholesome caverns. A muskrat slid from the bank and went plop! into the water beside the boat. Murphy screamed, then blushed with shame.

What frightened him most was that he could see no reason for his terror. He was just afraid! Afraid of the silence! Afraid of the Indian that had so mysteriously disappeared; afraid of the sound of the very paddle in the water. By the time he reached the outlet of the river, he was sweating as though he had paddled the whole length of the lake under a boiling sun.

As the canoe shot out into the lake, Murphy drew a great breath of relief.

You may be sure he made quick work of getting back to Lake Linden, where big Tim Brody, dreaming of that silver mine, was impatiently waiting him at the dock.

"Got the specimens?" Brody called.

"Yes," growled Murphy, "and if I didn't have, you bet I'd never go back after them."

"Where's Indian John?" Brody wanted to know.

Murphy was backing out of the canoe lugging the bag of specimens. He plunked the bag down on the dock.

"I don't know and I don't care where he is," said Murphy.

"John here," boomed a voice. "Indian keep his word. He show the mine."

He had come up as silently as the waves lapping on the beach. Before Murphy or Brody could make their tongues reply, Indian John just as silently made off down the street.

And here is the queer part of the story as one of the Northland pioneers told it to me.

Brody took the silver specimens to Marquette and had them assayed. They ran \$5,000 to the ton, silver fabulously rich.

But when Brody and Murphy tried to find the river again and those notched trees on the outcropping of the silver mine, they discovered that it was like hunting for a diamond in a carload of sawdust. They went up numberless rivers, but on none did they find the least trace of the silver mine.

Murphy had been so panic stricken that he forgot to keep an eye out for landmarks or watermarks either. He had no idea whether he had passed three or four or a dozen river mouths.

And the price Indian John paid? You know there is a legend in the Northland that if an Indian tells a secret of his people to the white man he suffers a horrible punishment, even to the forfeiting of his life. Well, from the day Indian John left the dock at

Lake Linden, he was never seen again. He disappeared as completely as if the earth had opened and swallowed him.

I have not told you the real names of the white men, but you can learn them for yourself if you ever come to northern Michigan and visit at Ontonagon or Lake Linden. Ask the pioneers about the lost silver mine that assayed \$5,000 to the ton, and about Indian John who kept his promise. They can tell you all that, but what they cannot tell, (and, oh! how they wish they could), is the location of those notched trees on the river bank where the woodpecker tap-tap-tapped and the rabbit ran helter-skelter into the woods.

"By the Way"

A WAR MEASURE.

I've cut off devotion to Jennie
Whose lunches took most of my cash;
I still may be fond, but I'm buying a bond
Lest the nation's finances go smash.
I've given up Frances the graceful,
Her dancing was really divine,
But her circle to joint took too much
Of my coin
And now it is war stamps for mine.

I've broken with Flora and Helen
Their friendship I feel is a loss,
But how can I spend half my dough on
A friend
When I need it to give the Red Cross.
Some day when the war shall be over,
On every lost girl I will call,
But I'll probably find that fate's to
Me unkind,
And—"Sammie" has captured them
All.

HE COULD LEARN.

"H'm! So, you want a job?" asked the possible employer. "Did you ever tell lies?"

"No, sir," returned the applicant hopefully, "but I can learn."

SHORT HONEYMOON.

At the end of three weeks of married life a southern ducky returned to the minister who had performed the ceremony and asked for a divorce. After explaining that he could not grant divorces the minister tried to dissuade his visitor from carrying out his intention of getting-one, saying:

"You must remember, Sam, that you promised to take Liza for better or for worse."

"Yassir, I knows dat, boss," rejoined the ducky, "but—she's wuss dan I took her for."

A MEAN TRICK.

"Well," said the lawyer, having listened carefully to his client's statement, "you've got about the best case I ever heard. My dear sir, you can't help winning it, whatever court you take it to. I shall be only too glad to assist you in the matter."

"Thanks," said the prospective client. "Thanks very much!" Then grabbing his hat he made a speedy exit from the office.

"What!" exclaimed the astonished lawyer. "Are you going?"

"Yes," replied the other. "I'm just going to try to settle this case out of court."

"But, my dear sir, why waste money? As I have already told you, that's one of the best cases I ever heard."

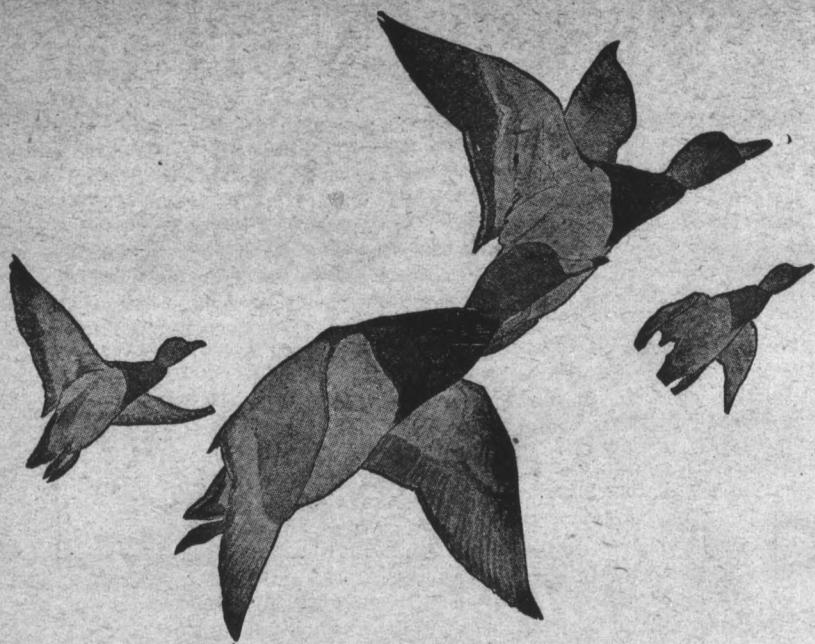
"Maybe it is," said the fickle client as he hastened down the stairs, "but not for me. I told you the other fellow's story!"

COUSIN BILL SAYS:

Some men are so rushed in this world that if they were to die tonight they would want to get up at daylight the next morning and work until the hour set for the funeral.

Today's Riddle

HOW CAN YOU
TELL A GIRL
OF THE NAME OF
ELLEN THAT
SHE IS EVERY-
THING THAT IS
DELIGHTFUL IN
EIGHT LETTERS?
(Answer)
U-R-A-BU-T-L-N!



A quick eye and a good shot pattern

A QUICK eye and a good shot pattern, that's the game-getting combination. Given an old-timer with a reliable gun in his hand and the rest of the story is up to the shot pattern.

Now the secret of good patterns is in the control of the gas blast from the exploding powder. This in turn depends upon the *wadding* in the shell.

The wadding, like the piston head of a gas engine, must give the explosion something solid to work against so that the shot may be *pushed* out evenly.

It must expand and fill the tube of the barrel, completely sealing in the gas behind it. No gas must escape to scatter the shot.

It must offer just the right amount of resistance to the explosion so as to develop uniform pressure and high velocity without danger of jamming the pellets out of shape at the "choke" or muzzle constriction.

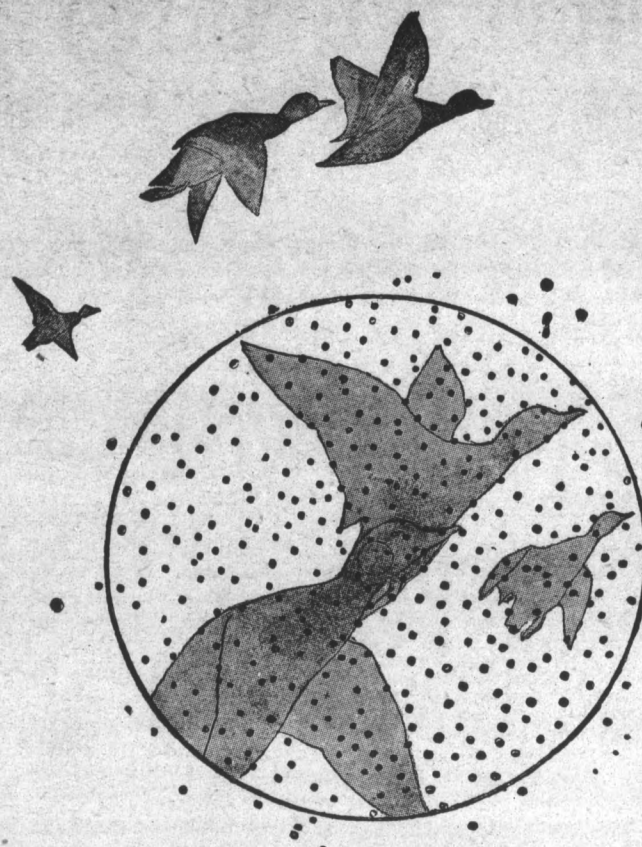
The Winchester System

Winchester Wadding is the result of repeated experiments to determine the most efficient control of the gas blast.

The special construction of the *Base Wad* gives what is known as *Progressive Combustion* to the powder charge.

Combustion spreads instantly through the powder charge. By the time the top grains of powder become ignited the *full* energy of the burning powder behind is at work. Though the explosion is almost instantaneous, it is none the less *progressive*, the final energy and maximum *velocity* of the completely burned powder being developed at the *muzzle* where it is most needed.

Meanwhile, under the heat and pressure of combustion, the tough, springy *Driving Wad* has expanded to fill the barrel snugly all around. No gas escapes. It is completely sealed in. The wadding *pushes* the shot evenly.



The Winchester pattern. 320 pellets out of a possible 431, or 74% of the shot charge, evenly distributed, no birds get through

At the muzzle, the shot pellets slip out without jamming, while the wadding is checked for a brief interval by the constriction of the muzzle. *It follows some distance behind the shot pattern.*

The shot cluster travels on unbroken by gas blast or wadding and makes the hard-hitting, uniform pattern for which Winchester shot shells are world famous.

Fish Tail Flash. All Winchester smokeless shells are made with the new Winchester Primer—the quickest and most powerful shot shell primer made. Its broad *fish tail* flash gives even and thorough ignition. Every grain of powder is completely burned up before the shot charge leaves the muzzle.

The Crimp. The required degree of pressure necessary in seating the driving wads is worked out in combination with the *hardness* or the *softness* of

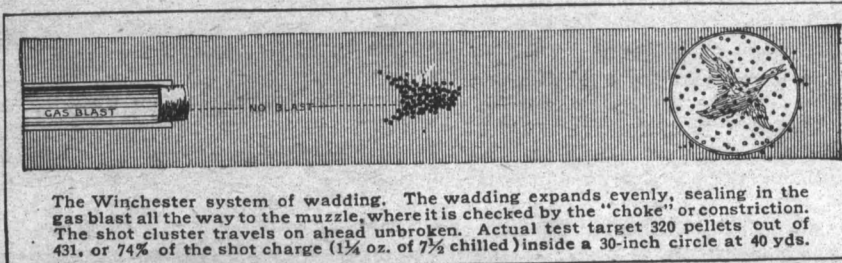
the *crimping* required for any particular shell.

Waterproofing and Lubrication. In the cold, damp air of the marshes, or under the blazing sun at the traps, Winchester shells will always play true. Winchester waterproofing process prevents them from swelling from dampness. Special lubrication of the paper fibres prevents brittleness and splitting in dry weather.

Uniform Shells. From primer to crimp, Winchester shells are constructed to insure the maximum pattern possible from any load and under all conditions. \$100,000 is spent annually in the inspection and testing of finished shot shells. 25,000,000 rounds of ammunition are fired every year in testing guns and ammunition.

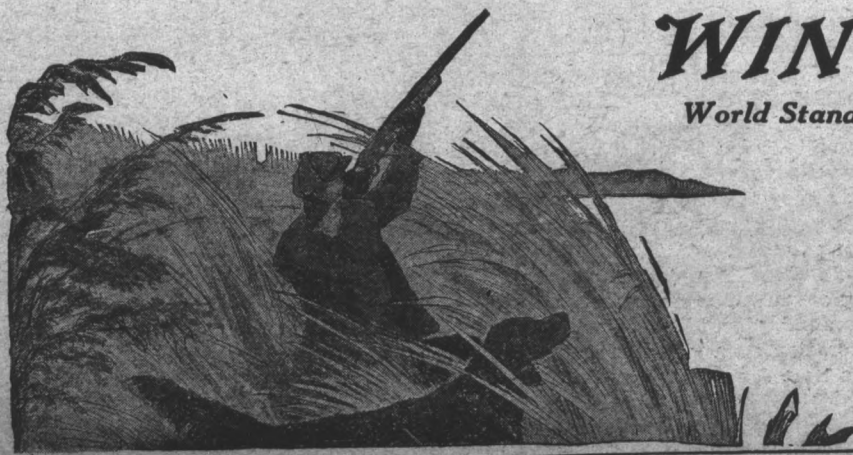
Clean hits and more of them

To insure more hits and cleaner hits in the field or at the traps be sure your shells are Winchester Leader and Repeater for Smokeless; Nublack and New Rival for Black Powder. Write for our Free Booklet on Shells. Winchester Repeating Arms Co., Dept. M-31, New Haven, Conn., U. S. A.



WINCHESTER

World Standard Guns and Ammunition



In the Front Line the "Y" Sells Nothing

DON'T let anyone tell you that the Y. M. C. A. or some other of the seven organizations in the United War Work Campaign, makes your boy pay for the things he gets at the front! There's nothing to it.

In the front line the "Y" sells nothing. Chocolate, fruit, soup, and cigarettes are given away for the asking, to

the amount of hundreds of thousands of dollars. In the canteens further back, tobacco, which is the largest item, is sold at the same prices as in the quartermaster's stores, the "Y" standing the transportation loss, which amounts to a very large total. The "Y," which is the name used by soldiers everywhere for the Y. M. C. A.,

never has, and never will, make one cent of profit on its activities.

This is just as true of the Salvation Army, the Jewish Welfare Board, the War Camp Community Service, the K. of C., American Liberty Association, and the other war work organizations. They are not in the war for profit; they are our representatives in camps of this country, and in the other countries where our men are fighting, our representatives sent out to supply the comforts and entertainments, and the helpful companionship, or advice, which will make life worth living, and bring our boys home in better condition than when they left.

General Pershing, in General Order No. 33, asked the Y. M. C. A. to take charge of the canteen. He had seen the Mexican Border before and after the arrival of the "Y," he knew what that organization could do.

My father fought in the Civil War, and his father was in the Revolution. I have no record of what was said by the soldiers in '76, but I do know that my own father agreed, after a year in prison camp, that war was precisely what Sherman said. You all know the word. War is bad enough at any time, even with all the best of comforts we can provide, with the best of care and hospitals, and convalescent camps, war is bad enough. It is so bad that our men fighting with extra determination to see to it that we shall have no more of it after the present job has been finished. If we ex-

pect our men to do a good piece of work; if we want these boys to come back to us fit, and able to take up their work on the farms, in the stores, colleges, business houses or on the farms as strong, or stronger than when they went away, we must respond freely whenever we are asked to give in the support of activities, such as are included in the United War Work Campaign.

President Wilson decided before the Fourth Liberty Loan was launched, that all these activities of the seven organizations, the Y. M. C. A., the Y. W. C. A., the K. of C., the Jewish Welfare Board, the War Camp Community Service, the American Library Association, and the Salvation Army should be consolidated under one head, and instead of going to the country frequently for money to support them, it would be better to ask for one amount.

You can save that much by keeping your motor car in the garage one day. You waste more than a dollar every week in feeding the stock, no matter how careful you are. It was figured out some years ago that the average farmer wasted enough corn in a year in feeding his live stock to pay his share of the tax required to build and maintain a good hard surfaced highway past his farm.

I have often thought what we all need to do in rural America is to put to some wise use the money we waste. Here is a chance. Don't miss it.

CHAS. DILLON.



Wednesday, October 9.

IN the discussion of President Wilson's reply to Germany's peace offer, the consensus of opinion is that he has blocked the way for Germany to evade surrendering to the Allies.—Another big drive is started by General Haig, whose troops push forward beyond Cambrai along a twenty-mile front. Here the American and British troops take many towns and obliterate the last of the Hindenburg defenses in that district. To the north of Rheims French and American troops reach a point two miles north of St. Pierre and capture the plateau of Autry.—Serbian troops arrive at the gates of Nish on the Balkan front. According to the conditions of the armistice with Bulgaria 55,000 more troops have surrendered to the entente allies.—General Allenby reports that the Turks have abandoned Beirut an important port on the Mediterranean Sea.—The war department wants 20,000 men for army transport service.—Detroit common council passes an ordinance making idleness in the city a crime.

Thursday, October 10.

WITH the Allied cavalry in pursuit the enemy is retreating from the Cambrai-St. Quentin front. The gain averages from eight to ten miles. Germans are destroying everything it is possible to lay in ruins as they fall back. Fully two thousand German prisoners are taken in this drive.—Detroit goes over the top in her Liberty Loan drive, being the first of the thirteen big cities of the country to secure the assigned quota.—Since the first war loan campaign the banks of the United States have made a big gain in their resources of \$2,000,000,000.—In revising the war revenue bill as passed by the house the United States Senate finance committee cuts the automobile tax of ten per cent in half.—Bandits get away with \$10,000 in currency from a bank at Pinckney, Mich.—To discourage the use of cars for warehouse and salesroom purposes the Federal Food Administration orders a \$50 demurrage charge for such holding.

Friday, October 11.

U-BOATS of super-size, armed with large guns, sink three steamships belonging to the allied powers, killing 930 persons.—Allies force foe to retreat over a front of about thirty-five miles from the south of Douai to the region east of St. Quentin. In addition to the towns taken, valuable lines of communication and strategic positions of high importance have fallen into the hands of the Allies. British capture La Cateau, important railway center. French and American armies on that part of the line running from northwest of Rheims to the Meuse river are still pressing forward in the converging movement with the armies in the west. Practically the whole of the famous Argonne forest is in the hands of the Americans. Time bombs left by the Germans when they evacuated Cambrai, nearly demolish that city.—The Italian government confers upon Henry B. Davidson, chairman of the American Red Cross, the title of grand officer of the crown of Italy, the highest honor Italy can confer upon a foreign civilian.

Saturday, October 12.

THREE hundred and seventy-two American troops are lost as the result of the sinking of the transport Otranto in the North Channel between the Scottish and Irish coasts in a collision with the steamer Kashmir.—Germans retreat westward from their old battle positions from Douai to La Fere and northward to the Meuse river. All along the battle front allied troops are now advancing. From the south of Douai to the east of Laon the enemy everywhere is giving ground eastward. The famous Chemin-des-Dames ridge which the Germans be-

lieved to be an insuperable barrier to an advance northward from Soissons, is being evacuated.—On the Asiago plateau in Italy Italians aided by the French and British, successfully carry out seven vigorous surprise attacks.

Sunday, October 13.

AN unofficial report of the reply of the German Chancellor to President Wilson's note of inquiry states that Germany is ready to accept President Wilson's peace terms, and also declares that the Chancellor speaks for the "German government and the German people." As President Wilson's reply to Germany's first peace offer was in the form of an inquiry, he is now at liberty to answer both communications from Berlin in his next note.—General Haig's forces are now pushing forward on a fifty-mile front. Troops are within a mile of Douai, and now menace the German positions defending Lille. The enemy flees from areas fronting on Lens, the coal region of France.—Forest fires are raging along the north shore of Lake Superior between Duluth and Two Harbors.—The Canadian government now operates railway trains over government owned roads from the Atlantic to the Pacific coast.

Monday, October 14.

THE dissolution of Austria-Hungary is reported through German sources to be practically an accomplished fact. The Finnish government asks Germany to withdraw the Hun troops from Finland.—Holland's troops are being massed along her frontiers in anticipation of a general German retreat from France and Belgium, to capture and disarm any German forces that may flee to Dutch territory.—The famous Laon salient which is the last of the group of natural obstacles forming the keystone of the German defenses in France, has been wiped out without a fight. The French move forward in this region to Camp De Sissons. The entire St. Gobain heights are abandoned by the enemy.—Serbians capture Nish and cut the Berlin-to-Turkey railroad.—Secretary of War Baker returns from the western front to Washington and advises speeding up all army work.—Latest information from forest fires in Minnesota estimate 900 persons dead, twenty towns burned and fully 12,000 people rendered homeless. The property damage is believed to run far into the millions of dollars.

Tuesday, October 15.

PRESIDENT WILSON, in his answer to Germany's peace note refuses to make peace with the present German government. He insists that autocracy must go, declares that no armistice can be thought of while Germany continues her atrocities on land and sea, and also that an armistice cannot be considered unless it be dictated by Allied commanders in the field in such terms as absolutely provide safeguards and guarantees that Germany's part in such an armistice would be performed.—In the capture of the city of Roulers by the French troops, the German line in Flanders is badly wrecked and the foe loses thousands of men. This capture will bring the U-boat bases on the Belgian coast within range of the big guns of the Allies. The Allied line is now near Courtrai and the city of Ghent is being threatened. North of Verdun the American troops continue their advance.—The Wolff news agency of Berlin denies that Emperor William intends to abdicate.—Luxemburg, the little country between Belgium and Germany, asks President Wilson to protect her rights and demands that the Hun armies evacuate her territory.—Losses from Minnesota fires are increasing rapidly, and now 1,250 persons are reported dead and twenty-nine towns burned.



MOST PROMINENT WAR WORKERS IN THE UNITED STATES.

The two most prominent war workers in America are without exaggeration, Evangeline Booth, of the Salvation Army on the left, and Mrs. Henry P. Davison, of the Young Women's Christian Association. The two met at the United War Work Campaign Headquarters, together with five other representatives of different organizations, who will shortly commence an extensive campaign to raise funds for war work for the united organization.

A PEOPLE'S COOPERATION.

BY L. H. BAILEY.

A PEOPLE is likely to find itself when it engages in a great war. Old animosities and traditional separations are overcome, and the people work together for a common object. The military establishment must necessarily be unified. President Wilson has asked the civilian organizations to be unified. The united war work drive will set the people into a voluntary union such as we have never experienced. It will be a wonderful thing to raise \$170,500,000 by the teamwork of seven organizations representing seven kinds of work for one common end. It will be an example in co-operation on a gigantic scale. Now is the time for country and city to work together. We shall need perfect understandings between these sides in time to come: let us pull together now.

I want to see this drive well explained to the farming people, for I want them to have the privilege of taking part.

The objects of these seven organizations are all worthy and necessary. We want "the boys" to come out of the war not only soldiers but strong men. We want country boys and city boys looked after alike, and those in every trade and profession. So it is necessary that every part of our population cooperate, one part emulating another.

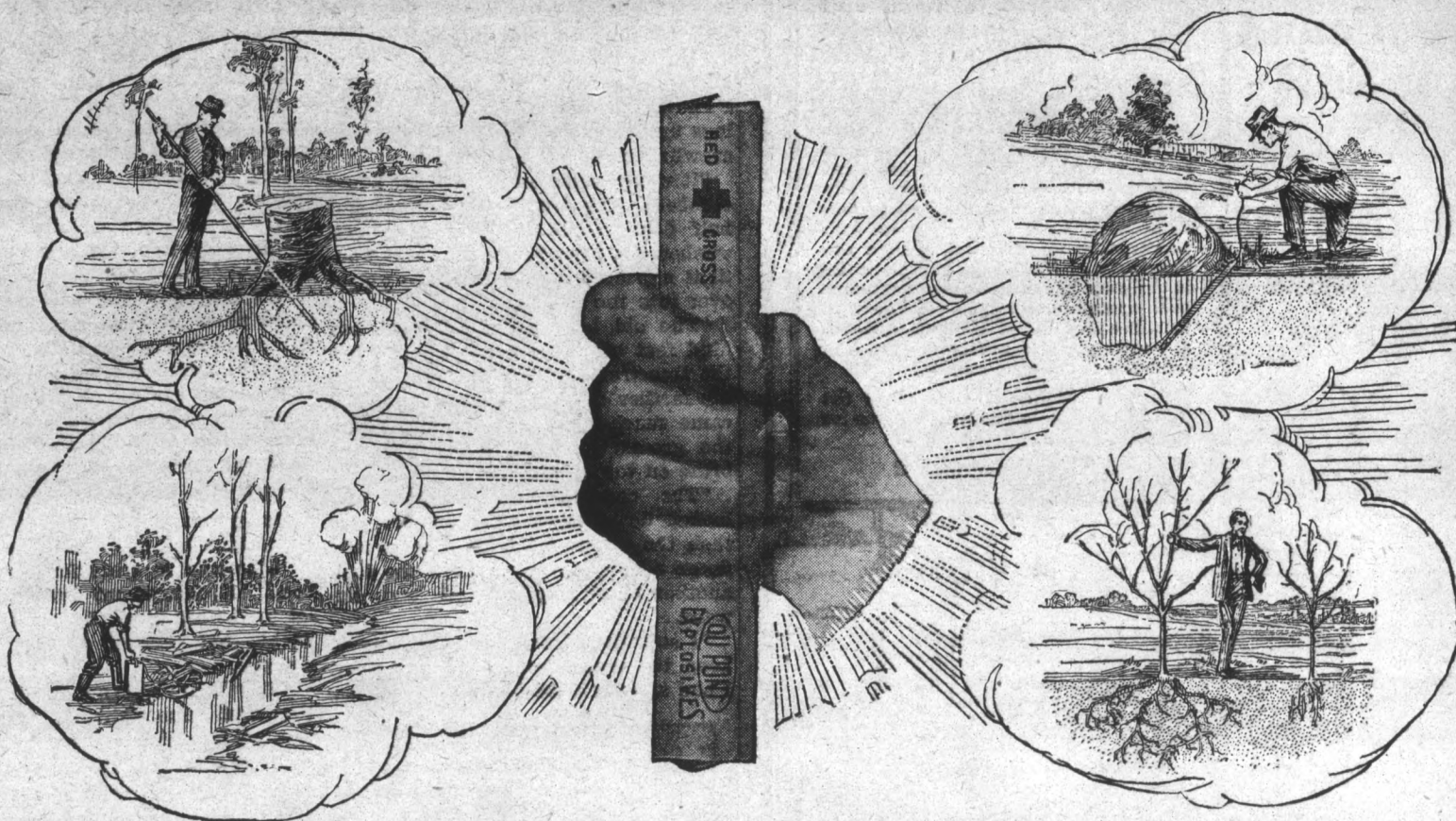
KEEP THEM.

THE effort to separate Liberty Bond holders not familiar with stock and bond values from their Liberty Bonds has taken a new turn. The manipulators instead of offering to buy the bonds at inadequate prices offer in exchange for them the stocks and bonds of various wildcat corporations, whose face value is large, but whose actual value is little or nothing.

The safest investment in the world is a Liberty Bond. For a patriotic American, Liberty Bonds are the best investment in the world. It is not only a wise thing to hold them, it is a patriotic thing to do. The soldier that takes a trench and then voluntarily gives it up is not to be compared with one who takes a trench and holds it against the enemy. An American who buys a Liberty Bond and then sells it is not so good an American as one who buys a bond and holds it. This does not apply, however, to one who sells his bond because of real necessity; there is legitimate trading in Liberty Bonds which the treasury recognizes.

It was a wise and patriotic old negro who refused to sell his \$100 Liberty Bond for \$96, because he would not give up the United States' promise (his bond) to pay him \$100 with interest for the United States' promise (currency) to pay him \$96, and who refused to sell the same bond for \$102, because, he said, that the \$102 must be counterfeit or else the would-be purchaser would not be willing to give it for only \$100. It is safe to say that there are no gold bricks or wildcat securities among that American's assets.

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Does Labor Shortage Worry You?

Is your work held up because there is much to do and little to do with? Then—why not consider Farm Powder? Here is a helper that will do the work of many men. A willing worker—ready in an instant to take out stumps, remove boulders, drain swampy places, dig trenches and postholes and do hundreds of things that you need to do.

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GET OUR NEW FREE BOOK "THE GIANT LABORER"

It's a remarkable volume that will open your eyes to the many uses for Farm Explosives. It explains new methods which have helped thousands of farmers everywhere to make more money. Check Farm Explosives in the coupon. Sign and send in. Get your copy—now.

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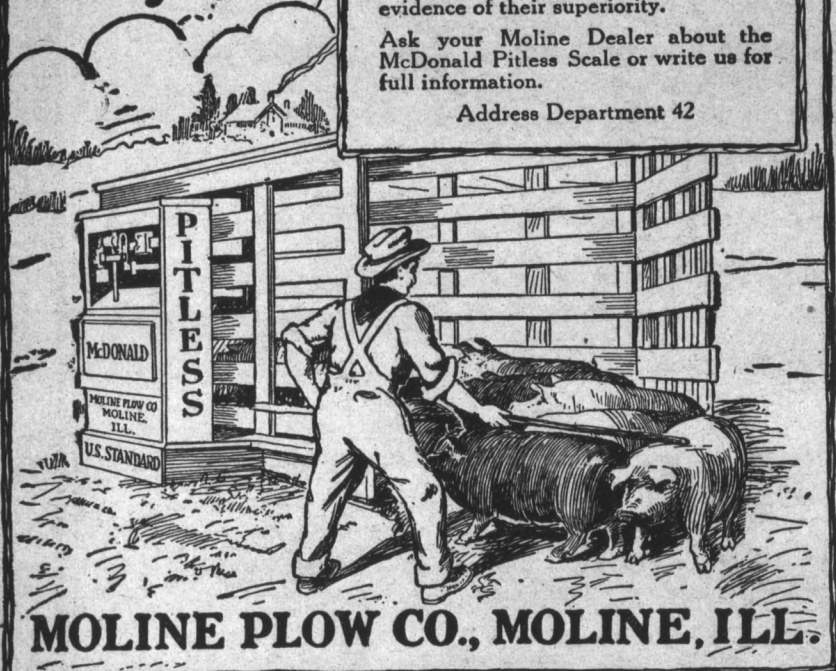
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Ask your Moline Dealer about the McDonald Pitless Scale or write us for full information.

Address Department 42



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With a FOLDING SAWING MACHINE. 9 CORDS by ONE MAN in 10 hours. Send for Free catalog No. E 44 showing low price and latest improvements. First order secures agency. Folding Sawing Mach. Co., 161 W. Harrison St., Chicago, Ill.

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for Auto Tires. Double mileage, prevent blowouts and punctures. Easily applied in any tire. Used over and over in several tires. Thousands sold. Details free. Agents wanted.
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Gassing the Bear

(Continued from page 357).

yawn. Presently she shambled over to the bank, sniffed around the root of the tree for a second or two.

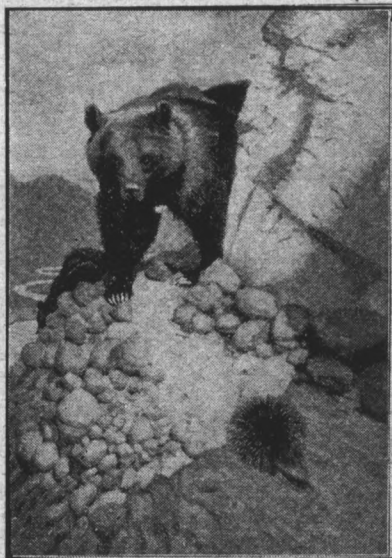
"Maybe bears don't make a practice of climbing trees; but the next thing I knew, that old grizzly had her forelegs up among the low limbs, and was crawling right out toward me.

"It wasn't much of a tree that I had climbed. The trunk was hollow and half dead, while the soil had been washed out from beneath its roots until it appeared almost ready to topple over into the ravine.

"The old bear had hardly got her hind feet off the ground, when I felt the tree tremble with the weight, and dip farther down. I knew that if she came much farther, we would go to the ground together, likely with the brute on top of me.

"The cunning beast stopped and looked down uncertainly on one side then the other, much as a cat would do on a swaying pole. Then she took another short step forward and upward.

"I saw that I must use my wits to keep the beast from coming farther. I had already tried bluffing with disas-



"She Shambled Over the Bank."

trous results. Now I took off my hat and threw it right in the approaching animal's face.

"The bear shrank back a very little; not because she was frightened, but that she might raise her paw to cuff the offending hat into the top of a low juniper that grew a few yards from the tree I was in.

"When a boy I had once read a tale of how Kit Carson had routed two bears by beating them over their noses. I thought I might handle one.

"While the bear was watching the hat, I broke off a dead limb about six feet long and as large as my wrist.

"The ugly brute regarded me suspiciously as I stripped off some of the dried twigs and leaves; then she tentatively took another step forward along the sloping trunk.

"My stick would scarcely reach the bear's nose from where I was, so I slipped down as far as I dared.

"A bear's nose is surely his tender spot. That old meddler whined like a pup when I swung my cudgel from one side and whacked her right on the end of the snout. She backed off till her feet were on the ground again.

"I don't know what would have happened if I had stopped with that, but I wasn't satisfied with my success. I scrambled down closer, and brought the clubbed limb down across the brute's head with both hands.

"I suppose I made two mistakes at once. The club hit her over the head instead of the nose, and broke in two, leaving a short piece two feet long in my hand.

"Thus left at a disadvantage I be-

gan to increase the distance between me and my opponent. There was not another small limb within reach, so I retreated to where I had been before.

"Either maddened by the whack over the head or taking my retreat for a surrender, the bear uttered a savage growl, and again began to climb gingerly upon the tree trunk.

"All this time I had carried the sprayer suspended over my shoulder by the broad strap. I had thought once of throwing it down, and don't know why I didn't.

"As I hastily climbed upward, the short piece of hose attached became entangled in the foliage, and as I jerked at it impatiently, the little automatic cock that controlled the discharge caught in something that held it open for an instant while the end of the hose was turned toward me.

"The fumes came near knocking me off my perch, and for a moment I could do nothing but gasp and rub my eyes.

"Ammonia is great for clearing the head. It cleared my brain then, and let in the big idea. I wasn't unarmed at all, but carried a very effective weapon.

"The bear had not hesitated this time, but came right on. Evidently it was no intention of hers to allow another armistice even for a moment.

"It would be disastrous to let her come much farther. I still held the short stick in my hand; this I hurled straight toward her head.

"I didn't look to see if it struck; I was busy giving three or four strokes to the pump to insure air enough to throw a good stream.

"I felt the decayed tree turn slightly as if a root had given way. I expected to go crashing to the ground at any moment.

"It was not bravery that made me slip down the trunk till barely six feet separated me from the open mouth of the eager beast, for I was sick with fear. I was staking all on one move, and that was uncertain enough.

"Seated astride the sloping body of the tree, with my left hand I held the short hose in front of me, the thumb of my right hand on the little contrivance that would release the fluid.

"The huge mouth was opening in a growl of rage or triumph, the great forepaw was being lifted threateningly but a yard in front of me, when I pressed the spring that released the compressed fury.

"The growl ended in a rasping cough as the ugly mouth shut with a snap, and the suffocating spray shot into the eyes and nostrils!

"With massive paws clawing at eyes and nose, the clumsy beast, doubled up like a porcupine, rolled to the ground and on down into the bed of the ravine.

"I wasn't much longer than the bear in getting to the ground, for I didn't know how long the dose would last.

"The bear got in motion as soon as she stopped rolling. With my gas gun ready, I waited to see which way she was headed.

"When she took off the way she had come, I didn't yell and run after her just to see her run—she was headed in the right direction, and her speed was satisfactory.

A FISH STORY.

De catfish cry.
En de sturgeon say:
"Yander is a fishin' man
Comin' dis way!"

En he'll try fer ter git you
On his line,
En he'll tell de folks
You wuz six-foot-nine!"

Den de catfish say:
"Le's swim up higher—
We don't want to 'sociate
Wid no sich liar!"

2000 Ferrets They hustle rats and rabbits. Price list and booklet mailed free.
N. A. KNAPP, Rochester, Ohio

THE WORKING TOGETHER IDEA TAKES ON NEW LIFE.

(Continued from page 349).

astonished at the reports that were brought to this meeting—reports of fast-growing projects that officers of the league had not heard of.

There was an intense earnestness of purpose as delegates listened hour after hour to these reports and discussion of them that evades description. In the face of a world war without, within this convention the bare fact of war, as such, was rarely mentioned. Yet war with its entailing horrors were never forgotten for an instant by these people who planned for world reconstruction through people working together.

War has loaned the fresh incentive, the driving force, for cooperation's renewed growth in this country the same as overseas. In England one-fourth of the population are co-operators; for forty years the movement has been growing five times faster than the population and during the war the increase has been ten times faster. In Belgium savings through their stores have enabled the workers to rebuild their own halls for congress and recreation, their own libraries, their own schools, etc. In Russia there are forty-seven thousand cooperative stores numbering more than thirty million members, comprising the foundation upon which that sorely tried country must rebuild herself. In France the government has given over the distribution of coal, milk and frozen meat to the co-operators; it has advanced funds to the cooperative societies, who equip and operate vans for the purpose of selling goods to the soldiers on the edge of "No Man's Land." In Holland, Denmark and Switzerland, more than one-quarter of the population are co-operators. It was the sentiment of the convention at Springfield that the power of this great movement, flourishing in Europe in spite of war, urges us to work harder for big things in cooperation in the United States.

Another outstanding feature of this convention will, to my mind, be of especial importance to readers of the Michigan Farmer. This was progress toward a better understanding between so-called producers and consumers who are organized cooperatively. Again and again was emphasized the absolute need of standing together against the profiteering and exploitations of organized capital. Since consumers are dependent upon the efforts of producers, and producers in turn purchase immense quantities of the output of labor, the interests of the two groups are identical. One cannot rise at the expense of the other. In unity of action is progress and safety for both.

The Michigan Farmer has, in the past few years, rendered a splendid service in publishing accounts of many cooperative associations in our state. To such local associations I suggest the advantage to result from getting in touch with the larger movement which has now been formed. For that purpose, address Duncan McDonald, Secretary, Springfield, Illinois.

Finally, the finer aspects of cooperation were not neglected at this first national get-together. There was general recognition of a few fundamental cooperative principles, and these were touched upon repeatedly by one and another speaker: 1, that the test of wages is not the amount in the pay envelope, but what that money will buy. 2, that true cooperation means service to many rather than profit to a few. 3, that labor is honorable and that the parasite who lives by the toil of others and who is exalted to the high places should be cast aside. 4, that political institutions that are democratic cannot subsist side by side with industrial institutions that are autocratic.

The List of Substitutes

is a long one so that every housewife will be able to select the ones best suited to the tastes of herself and family.

Corn Meal, Corn Flour, Barley Flour, Rye Flour, Buckwheat Flour, Oat Flour, Rice Flour, Potato Flour, Sweet Potato Flour, Peanut Flour, Bean Flour, Kaffir Flour, Milo Flour, and Feterita Flour and Meals may be purchased as substitutes.

All of the above, except Rye Flour, must be used on the basis of at least 1 pound of substitute to every 4 pounds of pure wheat flour. Rye Flour must be used on the basis of at least 2 pounds to every 3 pounds of pure wheat flour.

Lily White

"The Flour the Best Cooks Use"

is a 100% pure wheat flour, so it is necessary to buy substitutes with it on the above basis.

However, Lily White is so well milled and of such splendid quality you will not experience difficulties in using substitutes with it on the basis given by the Food Administration.

In fact, you will be delighted with the splendid baking results you will be able to obtain from the use of LILY WHITE FLOUR and the Substitutes.

Your dealer is instructed to sell you LILY WHITE FLOUR on the Guarantee of perfect baking satisfaction or the return of your money.

Our Domestic Science Department furnishes recipes and canning charts upon request and will aid you to solve any other kitchen problems you may have from time to time. Public demonstrations also, arranged. Address your letters to our Domestic Science Department.

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MICHIGAN FARMER PATTERNS.

Any of the patterns illustrated may be secured by sending order to Pattern Department, Michigan Farmer, Detroit, enclosing the amount set opposite the patterns wanted.

No. 2602—Ladies' Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require five yards of 44-inch material. The dress measures about 2½ yards at the foot. Price 10c.



No. 2556-2442—A Stylish Suit. Coat 2556 cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 4½ yards of 40-inch material for a 38-inch size. Skirt 2442 cut in seven sizes, 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 24 will require 2½ yards of 44-inch material. The skirt measures about 1½ yards at the foot. Two separate patterns, 10 cents for each pattern.

No. 2611—Ladies' Waist. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 2½ yards of 44-inch material. Price 10 cents.



No. 2607—Ladies' Underskirt. Cut in seven sizes, 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 24 requires 2½ yards of 36-inch material without the flounce, or 3½ yards of material, with the flounce. Price 10c.



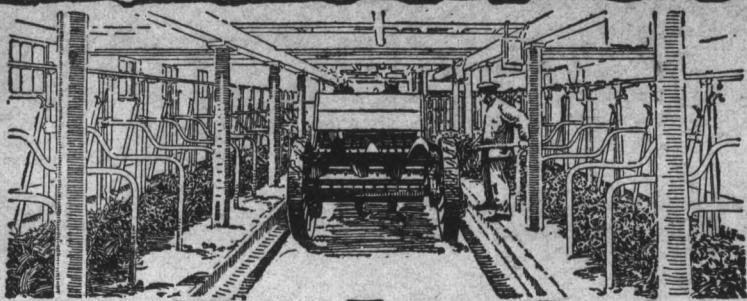
No. 2241—Ladies' Home Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 5½ yards of 44-inch material. The skirt measures about 2½ yards at the foot. Price 10c.

No. 2582—Ladies' Apron. Cut in four sizes, small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium will require 4½ yards of 36-inch material. Price 10c.



No. 2598—Ladies' Dress. Cut in six sizes, 34, 36, 38, 40, 42, and 44 inches bust measure. Size 38 requires 7½ yards of 40-inch material. The skirt measures about two yards at the foot. Price 10c.

No. 2595-2597—Ladies' Costume. The waist 2595 is cut in six sizes, 34, 36, 38, 40, 42 and 44 inches bust measure. It requires three yards of 36-inch material for a 38-inch size. Skirt 2597 is cut in six sizes, 22, 24, 26, 28, 30 and 32 inches waist measure. Size 24 requires 3½ yards of 36-inch material. It measures two yards at the foot. Two separate patterns, 10 cents for each pattern.



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SAVE stable manure. It's worth a lot of money now. Either spread it when it's fresh and contains all its fertility, or pile it where the losses will be smallest, and spread it as soon as you can. Balance it with phosphate if necessary, spread a little on many acres rather than much on a few, but don't waste a single lump. Stable manure is working capital. With it you can get bigger, better crops off the acres your present help can handle. Waste it, or neglect it, and you are losing an easy, handsome profit, probably more than enough to pay for a new

Low Corn King, Cloverleaf, or 20th Century Manure Spreader.

These machines do the kind of spreading that has been proved most profitable. They are all low, light draft, narrow box, wide spreading machines, made in three handy sizes, small, medium and large. They spread a full load in from three to five minutes, in an even coat that extends well beyond the rear wheel tracks.

Stable manure, properly handled, will increase the crop production from any soil. Buy one of these spreaders and get that extra profit. See the machine at the local dealer's place of business or write us for spreader information you ought to have.

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Mysterious Lettering Found on Oat Blades---By E. A. BESSEY

WHENEVER any serious conflict is raging in this country or other parts of the world, or any great epidemic of human disease, or of grain rust, we find that observers throughout the country call attention to the wide-spread occurrence of certain letters on the blades of oats and other cereals, as well as on various grasses, tame and wild. These letters are sometimes quite distinct, and are variously interpreted as B, W, M, S, etc. In fact, almost any letter that consists of two similar curved or pointed parts may be read into the appearance on the leaf. These are interpreted by the superstitious in various ways: "B" more often to mean blight; "W" to mean war; "M" in Germany to mean Mahnung (which means warning). What interpretation is put on "S" I do not know.

At the time of the Civil War the occurrence of these letters was mentioned frequently in print, and was the cause of great worry in some districts. This year, in some parts of this state, especially in the Upper Peninsula, the letters were visible on oats, resembling rather closely "B." Nearly every blade in the whole field throughout large districts will show this marking, causing great perturbation among those who do not know the cause of the trouble.

Actually, this is not a rare phenomenon, but one that occurs every year wherever the moisture conditions are just right. I have seen it very frequently the past ten or fifteen years, while we were at peace as well as when at war. Naturally, however, in times of stress, like the present, anything of this kind gains public notice very much more extensively than

when conditions are normal. This is exactly like the great terror caused by the discovery of the letter "W" on the wings of the seventeen-year locust. The actual fact is that in times of peace, as well as of war, the seventeen-year locust and its near relatives all have certain wing veins marked more strongly in the form of this letter, so that it means nothing whatsoever.

Now, to return to the letter on the oat leaf. This also has a very simple explanation. All that is necessary is that the oats shall have reached a certain size and be growing in rather dry soil, the dry period being followed by an abundance of rain. This starts the leaves into more rapid growth. All grass leaves grow at the base instead of at the apex. At the point where the more rapid growth begins there will be left a line of contrast between the older slow growth and the new rapid growth. If the oat leaf were attached to the stem squarely this line would be straight across the leaf, but it curves around the stem so that the line is curved. The middle portion of the leaf, however, where the little ligule is biggest, does not start growth so quickly as the lateral portions so that the line of growth makes two curves, one on each half of the leaf. This can be produced artificially if one will have an oat plant or any other grass with fairly large leaves growing in a pot in the greenhouse, keeping it moderately dry, but not enough to entirely check the growth. Then water the plant heavily and give it just as much water as it can stand without harming it, trying to keep the air also rather moist. Under such conditions the letter will appear.

Shelter Planting for the Farm

(Continued from first page.)

These trees grown on the sides that are protected by other species attain the frost leaves the ground. Keep the nearly perfect symmetry.

For shelter planting merely I should say, advising for my own latitude, that the mixture of white and Norway spruces and white pines would be very desirable. Put the Norway spruces in the interior if you like. They grow tall a little faster than the whites. Two rows fifteen feet apart breaking joints will make a very good center. A row of white spruces on each side, with a row of white pines on the side toward the home grounds will make an ideal windbreak. They cost a little more to buy, but one may as well save a little time and get trees about twenty-four inches high, unless he is willing to wait and has time to hoe and care for the little trees. The very small seedlings must have cultivation and care for a few years. All stock must be kept away from the tree. Do not plant the trees closer in the rows than fifteen feet. It may take longer for such a planting to become effective, but it looks better and gives better results after the trees fill in the spaces.

Catalpas Are Valuable.

Providing a man has plenty of land to spare it will pay him to plant a few rows of Catalpa Speciosa, putting the rows about eight feet apart and the trees six feet apart in the row. Then he could put the conifers on each side of that. Through such a shelter-belt no wind could ever come. Each year it would increase in value and utility. From time to time the catalpas could be thinned out for fence posts. Such a shelter-belt would add greatly to the beauty and value of the farm.

Get the Ground Ready.

When is the best time to plant these trees? Next spring. Plow and harrow the ground in the fall so that the soil

will get firm. Set the trees as soon as the frost leaves the ground. Keep the roots moist, for evergreen trees will not thrive if their roots are dry. The only way to prevent too rapid evaporation of moisture and consequent injury to the young trees is to mulch the ground at the base of trees or plant them in sheltered and shady positions. A conifer mulches itself naturally by dropping dead needles, and it is a mistake to remove the carpet of old needles, as some people do. This gives the clue to the treatment of newly transplanted trees of all kinds, mulch them plentifully with good coarse litter. Keep down the weeds and cultivate between the rows frequently. In a few years you will be rewarded by the dual purpose returns of the trees. Protection from cutting winds, and useful beauty. If in some vision you chance to see your grandchildren playing beneath the shelter of the trees you planted away back in 1919 you will feel that you could have left no better monument than the glorious, lifting trees whispering always of nature's secrets. The beauty and utility of an evergreen shelter lasts far longer than the life of the man who planted it.

BOYS HELP IN NEW YORK

Farmers of New York report that members of the United States Boys' Working Reserve increased the productive acreage of their state by 1,620 acres this season. Three hundred and thirty-five boys cultivated 264 acres of winter wheat, sixty-six acres of spring wheat, fifteen acres of barley, 463 acres of corn, 727 acres of rye, twenty-six acres of beans, twenty-six acres of cabbage and thirty-three acres of peas. The total pay received by these boys amounted to \$19,328.70.



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EXPERIENCE IN GROWING FRUIT.

(Continued from page 349)

go through an ordinary winter without injury, but the long extreme cold last winter injured the less hardy fruits. Thinning canes, cutting them back, so as to get large lateral growth and removing the old canes when done bearing, cultivation until mid-summer, then mulching and putting up good wire supports are the essentials for growing the finest blackberries.

Currants and Gooseberries.

Our currant crop was very satisfactory this year, as it lapped on nicely with the strawberries, so we had fresh fruit without missing a day. They will hang on bushes about a month after ripening. The fully ripe Cherry and White Grape currants even up to the first week in August are much appreciated. Currants require much less work than any fruit I have. We like them much for jellies and jam, either alone, or mixed with milder fruit. No one need hesitate to spray the bushes with arsenate of lead, to kill worms, if done before the currants are ripe. Gooseberries make a pleasing table sauce. The Downing requires the same culture as currants, and rarely fails to bear well.

Grapes.

I have been growing grapes in southeastern New York, out of the New York grape belt, for many years. I can ripen a few of the early varieties with about the same certainty as flint corn. The three most dependable of these are More's Early, Winchell and Eclipse. The latter is a new grape that is well spoken of by all who have tried it. Worden, Moore's Diamond, and Delaware do not always fully ripen, but they are worth taking chances on. Niagara I have to lay down in the winter to prevent killing off the canes. Strawberries are being grown as an inter crop in young vineyards with good results.

When the grapes come into full bearing, the vineyard is put under a system of cultivation until mid-summer, when a cover crop is sown, preferably clover.

Cherries.

I grow only sour cherries, mostly Montmorency. I have tried the sweet cherries, but they are not a safe proposition except along the lakes. Sour cherries are a good crop to grow along with strawberries. I have a young orchard of Montmorencies, and they ripen so we can ship cherries before the strawberries are gone, without a break in selling fruit. Dealers who sell strawberries order cherries, and sometimes both go in the same shipment. My young orchards are intercropped with strawberries for three or four years, and I see no bad results from the practice. Cherries are less subject to disease and winter injury than all other tree fruits except apples; I wish I had planted more trees.

Pears.

I have been planting pears for many years, and now must say they have been a disappointment. I planned for a complete succession of the best pears as follows, named as time of ripening: Winler, Clapp's Favorite, Bartlett, Bar-Seckel, Anjou, Keifer, and Winter Nellis. Clapp's Favorite and Bartlett are almost indispensable to fill a complete succession of the best pears, but it is too big a job for most people who are not pear specialists, to grow them. If one watches them every day in the week, including Sundays, and removes the first appearance of the blight, and in the fall cleans the trees of the hold-overs, he can keep the trees bearing fairly well for many years. I shall plant mostly Seckels hereafter. It is practically immune to blight. It is slow growing, but when you get a good-sized bearing tree you have an asset you can depend on for a life time. It is the most beautiful of the pear trees, and you do not know the quality that is possible in pears until you have eaten a well-ripened Seckel.



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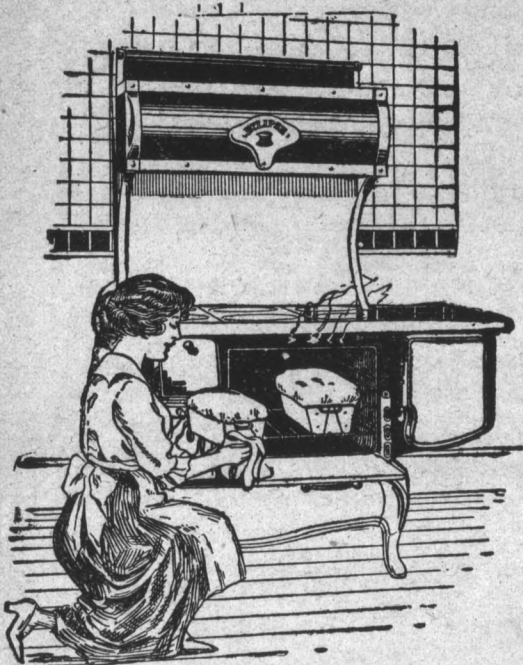
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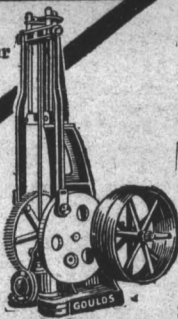
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Remodeling the Child's Sweater



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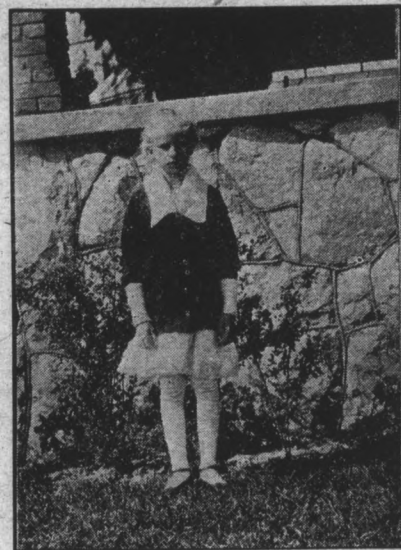
IN nothing do we show our patriotism more than in our willingness to fall in line with every request of the government. One of the biggest requests is to get along with as little wool as possible, a request which will inconvenience the folks of the northern states nearly as much as the ban on sugar. So far wool cards are in the future, the giving up of wool is simply a test of our patriotism.

The illustrations show how one mother met the situation. Sweaters will wear out even on grown-ups, and when a child wears one three years it begins to look as if a new one must replace it. This sweater, a dark blue, was worn and frayed at cuffs and collar. In normal times the mother would have given it to the Salvation Army and bought a new one. This year, however, she decided on new collar and cuffs. For the cuffs she simply cast on thirty stitches, knitting with two needles, and knitted back and forth until

the cuffs were as deep as were needed for that particular sweater, which depth, of course, she learned by measuring on the child. The collar is just as simple.

Cast on seven stitches and knit across and back. On the third time across cast on two more, and on the fifth, seventh, ninth, eleventh, etc., until you have twenty-two stitches. Then knit straight back and forth until the collar is of sufficient length to start the point on the other side, when narrow on every second time across down to seven stitches. The collar is then done.

The cuffs are sewed together and tacked onto the sleeve, the worn blue cuff being cut away. With the new white collar sewed in place, the old sweater has a quite dressed up look,



With New Collar and Cuffs.

for the simple outlay of fifty cents in money for the yarn and two after-noon's work.—Grace Smith.

A War Measure for Women and Men

WOMAN'S place is in the home—denly grown very, very big for most and you were not at home of us. when our committee called today! Were you buying food? Politics controls pure food laws and market conditions. Were you buying ready-made clothing? Politics controls conditions under which clothing is made. Were you seeking a position by which you can support your fatherless children? Politics controls conditions of women's labor."

After the above fashion runs a leaflet now being used in the campaign for votes for Michigan women. I commend it to all thinking women who still cling sincerely to the belief that woman's place is in the home. Follow back any one of the subjects mentioned and see how far afield it takes you—to school and college, to food markets, to clothing stores, factories and sweatshops where myriads of women toil for you, and to the increasing number of places where women now work for wages.

Grasp, for a moment's thought, the largeness of the "home circle" in which you are actually living, and "home" at once takes in whatever affects the family's welfare. This world war is leading almost everyone of us to work for the protection of the home against a foe thousands of miles distant. The home neighborhood has sud-

denly grown very, very big for most of us. As a war measure, the country is asking women to give service as farmers, mechanics, nurses and doctors, munition workers, mine workers, bell-boys, conductors, motormen—and such service is being cheerfully given by women. Over against this service, voters are asked to give Michigan women the ballot. This, also, is a war-time measure—such a measure as nearly all leading nations have adopted since the big war began. Will the Michigan women get the vote, as other women have done? This depends partly upon you and me.

"But why should farm women, in particular, deserve or need the vote?" Whoever asks that question does not thoughtfully know farm life; does not recognize what women and girls on farms are doing this very day, nor what they have done this season. Who ever wonders why the Michigan farm woman deserves the ballot, the same as her man, has not seen her pitch hay and wheat, drive and handle all farm machinery, milk cows, deliver milk, make garden—and keep her household running besides. The farm wife is the partner of her husband as no other wife is and she understands the details of his business as does no other woman. The farmer's wife steps into

the breach when the hired man leaves or the son goes to war; and in addition to this she patches and mends that her family may buy Liberty Bonds, saves food to feed the army, and knits, snips and sews for the Red Cross.

Moreover, farm women know the injustices which exist against agriculture just as well as their men do; they know the waste that goes on because of poor marketing facilities, and they know, too, sometimes better than the men, how extravagance plays havoc in many public places. The farm woman sometimes asks why every small town needs three or four grocery stores to handle food stuffs—each with its profits to support a family—when one post office serves the self-same people from one building, with one set of clerks. Or, for that matter, why there are two or more banks, or why it requires a half dozen dry-

goods stores, bakeries and meatmarkets to clothe and feed the same folks whose mail is all handled from one building. To help change some of these things—putting life on a more commonsense, business-like basis—the farmer's wife could make good use of the vote.

Out in Nevada a well-known young woman is candidate for the United States Senate. It is said the general sentiment seems to be, "give her a chance; give the women a chance, they can't do worse than the men have done."

Another has said, "Women's cooperation is needed, not because they are displaying unexpected skill in knitting, or in making shells, and in nursing shell-shattered patients, but because they are partners and comrades with men in the difficult business of life."

JENNIE BUELL.

Knowing and Learning

There was once a woman who thought herself an excellent housekeeper because she did things exactly as her mother had done, no better and no worse. Then there came a guest, a little girl who had learned many things from reading the latest books and magazines a girl who was always learning. And the woman who had been satisfied with knowing found that, while a good housekeeper, she was not an excellent one, for she was wasteful of both time and strength and she had missed all the improvements that had been made on the ways and methods of a past generation. She was an 1880 model of housewife competing with the 1918 type.

The little girl who read and learned mixed the lard and flour for her pie crust with a fork and used ice water instead of any kind that happened to be available, her crusts were flaky and feather light. She put her dust cloths in an old pail, poured in a little kerosene oil and covered them tightly for

an hour. Each cloth was as good as those the woman had been buying of an agent at thirty cents each. She washed beans, peas, berries, etc., in a sieve and the work was wondrously simplified. She kept a clean newspaper over the kitchen table, changing papers as often as necessary and much scrubbing of the white oilcloth was saved.

The woman who knew watched her with a new interest in what had become prosaic, dragging housework. When she suggested that boiled salad dressing could be canned just as easily as peaches the woman doubted, but experience proved that enough dressing to last three months could be made at one time and with a big saving of time, fuel and dishwashing.

The girl who read went back to school but the woman who thought she knew subscribed for three good magazines and set herself the task of becoming the woman who could and would learn.

HOME QUERIES.

Household Editor.—Will you please publish a recipe for making gherkins? Is there any other way of serving string beans besides milk and in succotash?—Reader.

Wipe four hundred small cucumbers and soak in a brine made of two cups of salt to two quarts of boiling water for twenty-four hours. Drain, wipe and soak six hours in one gallon of boiling water and one teaspoon of alum water. Drain and cook the cucumbers in the following mixture: Two quarts vinegar, four red peppers, chopped, two tablespoons of mixed spices, two tablespoons whole cloves, two four-inch sticks of cinnamon broken in pieces, first boiling the mixture eight minutes. Put the pickles into crocks or fruit jars and strain the liquor over them. Use care in cooking the cucumbers, just let them come to a boil and skim out immediately. Long cooking makes them soft.

Instead of adding milk to the beans after cooking, leave on about a half cup of the water and add two tablespoons of butter. Many people like them with the water all drained off and butter and a half cup of vinegar added. Just let them boil up in this. Or you can cut a slice or two of bacon into small pieces, brown them, toss the hot boiled beans about in the spider with the bacon and serve. A few drops of onion juice is an improvement.

Household Editor.—Would like to know how to dry citron peel like the kind you buy to put in fruit cake.—H. F.

Pare the citron, cut in pieces of a convenient size, and boil in slightly salted water until tender. Make a thick syrup, using one pound of sugar to one pint of water for each pound of

the prepared citron. Add the citron and let simmer until the syrup is nearly absorbed, then boil rapidly, stirring constantly, until the pieces are well coated. Dry in the warming oven and store in any tight receptacle, fruit jars or pails with tight-fitting lids.

Food

CONTRIBUTED RECIPES.

Barley Pudding.

5 cupfuls of milk,
½ cup barley meal,
½ cupful molasses,
½ teaspoon salt,
2 tablespoons sugar,
1 teaspoon ginger.

Scald the milk, pour over the barley meal and cook in double boiler for twenty minutes. Add molasses and other ingredients; bake two hours in a slow oven and serve with milk or a pudding sauce.

Barley Cakes.

2 cups barley flour,
2 teaspoons baking powder,
¾ cup sugar,
¼ teaspoon salt,
¼ teaspoon each of cinnamon and cloves,
¼ cup fat,
1 beaten egg,
2 tablespoons milk,
¾ cup chopped nuts and raisins.

Combine in order named, stirring all the while. Make a dough stiff enough to be rolled, using a little more flour if necessary. Roll out to one-half inch thickness; cut with cookie cutter, and bake in moderate oven.—Mrs. L. M. Thornton.

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No. 2592—Ladies' Home Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires five yards of 44-inch material. The dress measures about 2½ yards at the foot. Price 10c.



No. 2596—Girls' Dress. Cut in four sizes, 4, 6, 8 and 10 years. Size six requires 2¾ yards of 36-inch material. Price 10c.

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How I Carried Out the Poultry Project

I WAS a member of the club last year and I decided to try again with the object in view of getting all I could out of it. I got a lot of experience out of it last year and knew that I would get more this year.

I already had my stock of eleven full-blooded White Leghorn hens, one full-blood White Leghorn cock, and nine mixed hens that I had kept over winter and which were in good shape.

Last fall I built a new poultry house 9x10 feet. The lumber cost \$15 and for a roof I obtained a large number of one-gallon tin cans from which I removed the ends and opened them up on one side so that they formed excellent shingles. I put these on the roof, lapping a little and painting them with a coat of tar. This formed a good and cheap roof. I made the south side mostly of windows because I think sun light is one of the essential things for the good health of the birds.

I think that it may be well to give here a little sketch of my poultry house and yard.

In addition to this I built another building at one end. I secured some old boards and things and used this for a temporary scratching pen. I intend to remove this in the spring, buy new lumber and make a building 8x12 feet. I made the south side of this glass also and a loft overhead to store hay for winter feeding.

I had quite a quantity of straw so I took some boxes and set them in a small circle, leaving it so that the hens could get back underneath. I then covered the whole with a well-formed strawstack and this formed excellent nests for the summer. To prevent the lice from getting into the coop, I am building some nests for winter. They are of boxes on stakes a little ways from the wall. I also put my roosts on stakes so that they did not touch the wall. Every week or so I spray the roosts and supports good with kerosene. This prevents lice and scaly feet on the birds.

I obtained a thick earthenware crock and built a roof of tin on stakes for a shade and placed the water under this. This keeps it cool, which I think is very important in the growth of the poultry and I wish very much that I could have running water which is my ideal of a watering system.

All along the south side of the park are maple, oak, poplar trees which furnish abundant shade for a part of the park all day. It is so situated that there is nothing to stop the breeze and it is nice and cool under these trees during the hottest days.

I set two of my hens on April 28, and one on May 24. I have found that boxes and barrels are very unsatisfactory for setting hens in because the chicken lice will soon accumulate in the cracks and will cause the hen to leave the nest, and often kill her. I have found what I think is a sure method of preventing this. Obtain a piece of plain tin or sheet iron, about 26x60 inches. Bend this in a large circle, leaving a space of about one foot on one side for a door. Drive stakes on each side of the door on the outside to keep the tin in shape and fill up on the outside and inside with two or three inches with dry dirt or sand to keep water from running in at the bottom. Secure an old galvanized iron tub. Turn this over the bent tin so that it forms a roof and put a weight on top to hold it down. Put in plenty of straw or hay for a nest and have a piece of tin set up in front to protect

it from rain. In this way a serviceable coop can be built quickly with two pieces of sheet iron and an old tub. A screen yard can be placed in front of this or it can be placed in any position desired. I came upon this idea by observing old hens that stole their nests. I found that they usually built their nests on the ground under some bush or in a hidden place and a large per cent of the eggs always hatch. I think that this kind of a coop comes as near as we can expect to get to nature's methods. The eggs keep moist so that they hatch easily and the hens did not break them like in a box.

By filling some loose straw in the coop it can be burned out easily, thus killing all lice and the coop will be ready for use again. After the chicks become larger they may be transferred to larger buildings.

I stored a large quantity of hay overhead of my coop and in a stack, to feed during the winter. Next year I will raise a quantity of cabbage and mangels for this purpose.

I am slowly turning my breed of

chickens from full blood White Leghorns to full blood Barred Rocks by selling off all my White Leghorns and buying Barred Rock eggs. I think that the Barred Rocks lay nearly as good as the White Leghorns, eat no more, and bring a better price when you want to sell them. Several of my cockerels when I sold them at the age of about four months, weighed five and a quarter pounds. The people that I bought my eggs from had pullets begin to lay at the age of about six months.

I think that on the whole this club work has done me a lot of good this summer and has given me some experience which I shall not forget. I took my exhibit of poultry and eggs to the local fair. I received first prize on both eggs and poultry. At the county fair I received first prize on my hatching and brooding exhibit, and second on my egg and meat producing exhibit. I regret very much that I can not carry on club work next year, but shall keep on by myself and shall go into the poultry and fruit business in earnest and shall profit by my experiences.

E. G. BARRETT.

Experiences of a Farmerette

By CLARA B. KINNEY



I Have Been Doing My Bit in the Uniform of a Farmerette.

seems almost human and I and my Deering got to be great chums, though I really think I like the mower better.

After the grain was cut I helped to load it and pitch it off into the mow. And every night after my team was unharnessed and cared for I would milk two or three cows.

When it came time to put in the fall wheat father let me plow with his gang plows and tractor for two hours, just to see if I could. I also did some of the harrowing, which my little brothers finished.

I am now working in Reading in a millinery store, but must leave here in another week and help in the corn harvest. I am really looking forward to it, for I have learned to love the out-of-doors work, and also feel so proud that, though I am unable to go with my brother to France, still I can help to raise more food here, that brother and the brave boys "over there" may not be without.

COMPANY attention; about face! forward march! That's it, attention, about face and forward march.

Last spring when father was worrying about how he was going to be able to carry on our big farm of one hundred and sixty-nine acres, since brother was in France and help so scarce, then I did just that. I came to attention, faced about and all summer long have been going forward, doing my bit, in the uniform of a Farmerette, and, oh, how proud I've been to do it.

I never had done farm work before, my health had always been poor and the Doctor said that I must not do heavy work. But it has done me a lot of good and now, after my summer's work is over I'm tanned, healthy and oh! such an appetite.

What did I do? Well, I cut and raked twenty-nine acres of hay, cut eighteen acres of wheat, nineteen acres of oats and nine of barley. I think the binder is just great to work with and I love to hear its rack-arack-rack and to watch the big reels revolve, bending the golden grain in a continuous wave, clipping it off so neatly and then gathering and binding it into bundles. It

The Smallest Farmers in the World

I WONDER how many of our boys and girls have heard grandfather tell stories of the early pioneer days in Michigan? Of the tedious clearing of land, and fitting it for cultivation? of the toil, the sweat, and the backache, which culminated in our beautiful agricultural Michigan of today?

If so, you have doubtless wondered how anyone could have the courage, the patience, and the perseverance to hew down the great trees, clear out the brush laboriously, and without the aid of modern machinery, to fit the farm for its present usefulness and beauty.

If all this seems strange to you, what would you think of little insects that imitate exactly the pioneers of long ago?

This little insect pioneer, the agricultural ant, or harvesting ant, is a native of Texas. Its habits have been closely studied by Rev. Mr. McCook,

who spent hours and hours watching the little people in their work, play and rest, and a very interesting study it must have been.

These little farmers work for days and days clearing away grass, weeds and obstacles from a space of from seven to twelve feet square, toiling ceaselessly and untiringly, biting down the tough stalks and grasses and carrying them away, a tremendous task for so small a creature; for they are only about one-half an inch long; but they cut, pull, twist and tear, and sometimes even, one or more will climb to the top of a stalk and bend it down with their own weight while another cuts it off near the ground, until at last their little farm is cleared, with the exception of a species of needle grass, called ant-rice, which they allow to grow and when the seeds are ripe, gather them and carry them to the storehouses underneath the ground.

Like all good farmers, these little folk are a peaceable people, never quarreling among themselves, but always willing to help one another out of difficulties. They work a while,

then rest awhile, and when eating will often sit up like a squirrel. When carrying their loads along their little roads they never turn out upon meeting a neighbor, but walk right over him.

And as for cleanliness, they spend oh! so much time daily in washing and brushing each other. They believe, too, that "all work and no play makes Jack a dull boy," and at times have regular romps and will jump, caper, and dance on their hind legs. They also wrestle and perhaps this is partly the reason for their well developed muscles, for they are very strong little fellows and a single one will carry in its jaws a burden twenty-five times its own weight.

Ants use the sign language exclusively and when a slave-making ant is hungry it will pat its slave on the head, when the slave will at once bring its mistress something to eat. The order to march is given by a tap on the side—and off will start the little company in a long file, to the field for the day's work, to their rest, or to their play, as the case may be.

L. W. S.

High Production at Low Cost

(Continued from page 347)

days until the cow regains her normal condition. Then her grain ration may be increased gradually until it is safe to bring her up to maximum production.

Among the feeds commonly used in feeding for milk and butter-fat records ground oats, wheat bran, gluten, hominy, cottonseed meal, oil meal and molasses feeds are favorite concentrates, with good corn silage, mangels and alfalfa and clover hay to furnish the desired bulk and succulence. Feeding is just as important as breeding in bringing out a winner. Skillful feeding consists in giving the cow just enough of what she likes and needs. Each animal presents a different problem to the feeder. The ration must be regulated to meet the demands of her production and flesh condition from day to day.

To know what each cow in one's herd is capable of doing in one year without injury to herself is of the utmost importance in making proper selections for breeding. To plan his feeding so that each cow will produce a maximum yield of milk and produce a healthy, vigorous calf requires skill and discriminating judgment. The question of forcing cows for milk production, that is, forcing them above their ordinary maximum flow, is one that needs earnest and careful consideration. Considered from the standpoint of raising strong, healthy calves, the extra cost of feeding various mixtures of grain, and the extra care and attention required, such as milking three or four times a day, the loss of not breeding at the proper time, or at the time when an ordinary cow not on forced test would drop her calf, and then only for the sake of a few extra hundred pounds of milk, it is doubtful if the practice will pay during a series of years. Cows that are used naturally and fed so as to get their maximum natural flow of milk, with no forced feeding, meanwhile breeding them about six or eight weeks after calving, will produce better results, taking several years' results as a basis, than cows that are run for all they are worth. Considering the number of cows that are being forced for milk and butter-fat records it is not surprising that more wonderful records are not made?

The agitation today is toward a more conservative method of handling advanced registry work. Some breeders favor the ten-month record in order that the cow may complete her record, have a rest and then drop her calf at the end of the year. There is no denying the value of yearly rec-

ords. It is the true measure of a cow's value, but it should be made under conditions as near normal as possible. That both long and short period records have done a lot to develop some of the great families of the dairy breeds goes without saying, yet many breeders are approaching the danger point in their efforts to produce phenomenal records.

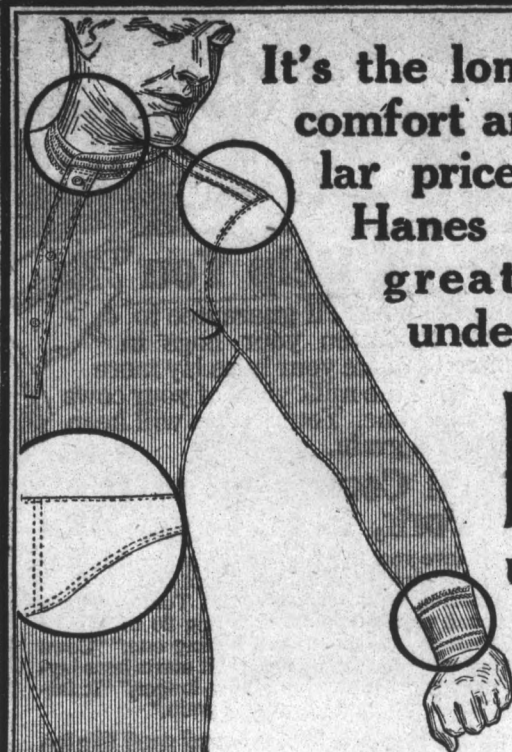
The breeding bull should be well fed at all times. Feed him enough to keep him strong and vigorous without loading him down with an excess of inside fat and outside tallow. Blood, muscle and bone are what is wanted in a breeding bull. After his maturity is reached he should be kept in about the same flesh condition throughout the



Yearly Records Give a True Measure of a Cow's Value.

year. This letting down and building up process is always dangerous. Avoid feeding too much silage or cottonseed meal. Give him all the clover, or mixed hay, he will eat with a relish, a few pounds of good roots, and from four to six pounds of bran and ground oats. Give him all the clean water he will drink at least once a day.

One should waste very little effort in the attempt to feed fat into milk, as such an attempt under favorable circumstances is likely to produce doubtful results. The amount of fat in milk depends upon the breed and individuality of the breed. Some breeds from the same diet produce a larger percentage of butter-fat and solids not fat in milk than others, just the same as some individuals in a breed will from the same diet produce a larger percentage of fat and solids not fat than other individuals. What the feeder requires is the food to stimulate the cow to the production of the greatest possible quantity of milk; the quality, as stated, depends on the individual cow. Some feeders claim to be able to get a higher percentage of butter-fat, but their methods are questionable and such claims are looked down upon by the rank and file of the breeders of registered dairy cattle.



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Additional Stock Ads. on Page 375

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155-9 Huron Street, Milwaukee, Wis.

E. B. Marshall Co., 155-9 Huron St., Milwaukee, Wis.

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This boy made good at his job. He learned how to do farm work at the same time. The farmer is well satisfied. Read his letter to the Boys' Working Reserve office at Detroit:

Dear Sir:—In May you sent me a young boy from Chicago, sixteen years of age and inexperienced in all lines of farm work. This week his time is up, as he wants a couple of weeks vacation before starting in school.

Mr. Parcells, this boy has proven to be a great success. He was willing and ambitious, very courteous and mannerly. Has learned to handle a seven-horse team, milk, and everything there is to do on a dairy farm. If there is anything needed in the way

horizontally. The stalks are not placed in the standing position as the ends are likely to be dirty and the cane dries out readily, changing the sugar into an unavailable form. The pile of cane should be covered with the tops or straw to protect the rapid drying. The cane can be hauled to the mills as soon as convenient.

The mills are simple affairs consisting of rollers and shallow evaporating pans similar to those used in making maple syrup. Mills are to be found in many Michigan communities or can be purchased for \$50 to \$75 and run by a gasoline engine.

The whole operation of raising and making of sorghum syrup is simple and one can readily produce a syrup that rivals honey in color and is delightful to the taste.

HARD TO BEAT.

Here is another farmer who is convinced that city boys can do farm work satisfactorily. His letter to the local office of the Boys' Working Reserve would indicate that he is quite enthusiastic over the matter.

Dear Sir:—Frederic Stanton has been working on my farm from March 28 to August 27, during which time his work has been of the most satisfactory nature, and for grasping the details of the work and doing what he was told, he is hard to beat. In general, he far exceeded my expectations regarding city boys.

Very truly yours,

(Signed) F. HERMAN.

DISEASES OF MICHIGAN BEAN CROP.

A new bulletin dealing with the results obtained by the experiment station of the college during the course of five years' work in studying the diseases of beans, is being issued by M. A. C. The publication, which can be had by interested individuals who will write to the experiment station of M. A. C. for "Technical Bulletin No. 38," contains much information of value to every bean grower in the state.

Michigan produces forty-six per cent of the maple, twenty-one per cent of the beech and fifty-one per cent of the birch lumber of the country.

Michigan's Style of Butter

ATTENTION is called to the law on butter. Section 1, of this act reads: "No person shall offer or expose for sale, have in his possession with intent to sell, or sell as butter, any product which contains less than eighty per cent of milk fat, and which is not made exclusively from milk or cream or both, with or without common salt, and with or without additional coloring matter."

Section 2 contains the following proviso: "That the provisions of this act shall not be deemed to apply to any person not a manufacturer—who has bought the product mentioned for resale, but when found to be under the standard prescribed, shall furnish information from whom said product was received."

Section 3 provides a penalty for violation of the provisions of this act, of not less than twenty-five nor more than one hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days, or by both, such fine and imprisonment in the discretion of the court.

Strict compliance with the provisions of the law above quoted will be insisted upon, effective at once. Department inspectors have been instructed to obtain samples for the purpose of analysis and where butter is found to contain less than eighty per cent of milk fat, prosecution will be instituted.

Butter made according to good commercial practice and without any design to incorporate abnormal quantities of water, salt, or curd, will, in practically every instance contain not less than the per cent of butter-fat specified. The composition of butter may, therefore, be determined quite accurately by making an analysis for moisture and salt, estimating the curd one per cent, and determining the fat by difference.

H. D. WENDT,

In Charge of Dairy Division.

The Poultry Yard Bulletin

By R. G. KIRBY

Big and Little Problems that the Farmer Poultry Keeper Meets

THE big turkey harvest should be planned just before Thanksgiving time as prices are highest at that time because of the popularity of the Thanksgiving turkey dinner. However, birds that are thin and unfinished at Thanksgiving time should not be dumped on the market then but held for the Christmas market. The shipping of scrawny underfed turkeys does not pay at any time and their appearance on the market never encourages sales. In the final analysis every farmer's success depends upon his skill in pleasing the ultimate consumer, the man who earns the money to buy the turkey. Often farmers forget the consumer and think if they can get their products into the hands of the middleman that the deal is done but in the end it is the opinion of the consumer which enables the middleman to pay good or poor prices for the poultry products from the farm.

Never kill turkeys until they have fasted at least thirty hours to remove the food from the crop and entrails. A dressed turkey with a full crop does not look good to the buyer and in ad-

available they will enjoy hunting in the water and they will pick up considerable food in their foraging. A pond is not necessary but the birds sometimes seem to lay eggs that are more fertile if they have access to a pond or running water.

To start a flock of ducks buy one drake and about four or five females. This will give enough foundation stock to raise quite a flock and with good luck, twenty to thirty ducklings can be raised from each mature breeder. It pays to buy pure-bred stock and have the chance to sell surplus stock as breeders in future years. The Pekin and the Indian Runner ducks seem to meet with the most favor with farmers and they are hardy breeds and do well under ordinary farm conditions.

When ducks are given free range they should be fastened in at night and allowed to remain in the duck house in the morning until the eggs are laid. If they are allowed to range early in the morning the eggs may be dropped all over the poultry yard and in the grass near the pond and many of them will be lost. Sanitation is im-



Turning Grasshoppers Into Dollars.

dition, experiments have proven that there is a risk of the meat being spoiled by such methods.

In preparing turkeys for market do not take out the entrails or cut off the head and feet. Study the turkeys on a first-class Thanksgiving market and note how clean legs and feet effect the appearance of the bird. A turkey without the head and feet would scarcely look like a turkey and it is something of an event for a family to buy a turkey these days and they all wish to see the whole show.

To kill a turkey suspend the bird head down and make the incision the same as for chickens. Cut the veins inside the mouth near the skull and then pierce the brain, which will cause a convulsion of the muscles and a loosening of the feathers. Then the bird should be dry-picked. Amateurs should plan plenty of time for the dry-picking as it is often not as easy as it looks and if the job must be done in a hurry there is danger of tearing the skin and this gives the bird a very bad appearance on the market.

There is no trouble in selling turkeys as the production is much less than the demand but in some sections better prices can be obtained by accepting orders from private customers to be delivered the day before Thanksgiving. In some farm homes on Thanksgiving day the reasons for being thankful have been doubled because of the turkey money received during the preceding week. The farmer who can raise good turkeys and market them in fine condition is a real poultryman because the work requires skill and perseverance.

Raise a Flock of Ducks.

The value of roast duck on the home table is not appreciated on some farms because no ducks are raised on the farm and they seem too expensive to buy on the local market. Ducks require care and feed. They do not raise themselves but on a farm where sufficient range is provided they can be raised at a profit. If a small pond is

portant in the duck house. Clean litter should be supplied out of which they can gather the corn. Fresh clean water is as necessary as with all kinds of poultry and the water dishes should be scalded at intervals. A mash which is highly recommended for ducks consists of corn meal, three parts; bran, two parts; alfalfa meal, two parts; middlings, two parts, and beef scrap, one part. A little grit and oyster shell can be added to the mash and occasionally a little fine charcoal.

This mash can be mixed with parings or cull vegetables to keep the digestive system in good order and reduce the cost of the ration. Boiled oats can also be incorporated in the mash. At the present price of feed it is difficult to make a profit unless great care is used in feeding. This means giving enough feed to enable the ducks to lay, and also promote a steady growth of the young. Over-feeding should be avoided. Never leave any feed on the ground to sour after the ducks have eaten their fill and started back to the range. A little experimenting soon proves how much the birds need to keep them in condition. The mash may be given twice each day. Feed corn at noon, especially during cold weather when the birds are confined to their houses.

Frequently ducks are seen confined in small muddy yards without much green feed. This is not usually necessary on the farm and the ducks will be more profitable if they are given range. On many farms there are undrained spots not far from the farm buildings where ducks can hunt a part of their food. These water holes and low, undrained spots should be included in the duck range whenever possible.

Hens, Plums and Corn.

On a restricted poultry range it is necessary to use the land to the best advantage, and even on the farm there is nothing gained by wasting acreage when it is more profitable to use it right. Hens need shade and so the poultry range should be properly pro-



Ten Million People

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\$50 Liberty Bond gets 1 mo. old gdson of Maplecrest Kora. Her dam are granddaughters of Pontiac Maid 30.21 lb. Heifers same age breeding \$150 terms. Herd free tuber. **M. L. McLaulin,** Bedford, Mich.

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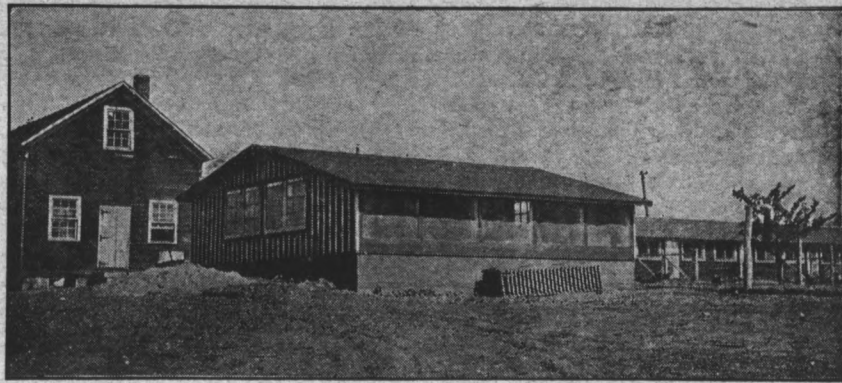
For Sale Cheap, 2 Holstein bull calves, born Jan. 28 and Mar. 22, both from 29.42 lb. sire. One from 28.50 lb. 4 years old dam, also a few females. **A. F. LOOMIS,** Owosso, Mich.

tected and there is nothing that grows more rapidly and furnishes a more satisfactory shade than plums. In between the rows of plums, corn can be started in the spring and the hens fenced on a different part of the range until the corn is started. It pays to have a double yard so that the birds can be placed in one section while green crops are starting in another. This can often be done by a very small additional investment in fencing.

When the days become hot and long the combination of plums and corn in the poultry yard will furnish an abundance of shade and if young stock are ranging where such protection is available there will be very few losses from hawks. In poultry farming it pays to use the land for other crops whenever it is possible. The poultryman who manages his land in that way has less worry about feed bills and seems to

cause of the large number of sparrows that feed with the birds and then clean up every particle that is left when the chicks are partially through feeding. One form of prevention is to exclude them from the poultry houses. If the quarter-inch mesh poultry wire is used on the windows it will keep the sparrows out. If large wire is used many sparrows may learn to roost and even nest in the houses. By keeping the sparrows from breeding on the farm there will not usually be many of them to feed.

Feeding poisoned grain to sparrows is dangerous on a poultry range even if the grain is placed in boxes on top of the poultry houses where the fowls are not supposed to have access to it. We think it is better to give the sparrows a dose of the shotgun at intervals and keep them from breeding on



A Dry, Sunny Slope Furnishes Ideal Surroundings.

know how to stay with the business, even when feed bills have reached the present high level. Of course, there is little time for crop raising and fruit spraying on the large commercial poultry farm but the farmer-poultryman has the equipment and can use all of his poultry ranges to the best advantage and also using them for crops.

Mark the Breeders.

Every farmer desiring to keep accurate records of his poultry should own a toe-punch and a few hundred leg bands. When the young chicks are hatched in the spring a tiny punch in the web of the foot will indicate the source of the eggs and the date of hatching. If eggs are bought from another breeder it will be very useful to mark the chicks and thus be able to determine the quality of those chicks as compared with the birds hatched from the breeding stock at home. Many combinations of marks can be made in the web to assist in the record-keeping, but usually only a few will be necessary with the average farm flock.

When the birds are mature it pays to use leg bands so that the age of the bird can be told at a glance. Numbered bands are used with hens that are to be trap-nested. Sealed bands are sometimes used to mark valuable layers so that there will be no danger of the band slipping off and thus confusing the records.

In culling the farm flock much uncertainty is eliminated by the use of bands. Usually the old hens will be marketed first but after a pullet has started to lay it is sometimes quite difficult to tell her from an old hen. For many weeks she has been looking different and then suddenly she seems to take on maturity and it is difficult to pick her out from the old hens if they are all ranging together. The use of bands prevents selling pullets that should be retained in the flock and also keeps the farmer from saving over old hens that have passed their most profitable period. Much improvement can be made in a few years by carefully marking all of the birds. Then only the best can be used in the breeding pens.

Pest Prevention Pays.

The cost of feeding poultry is undoubtedly increased on many farms be-

the farm by breaking up the nests and preventing them from getting into the poultry house to eat scratch grain or feed from the hoppers containing dry mash.

With rats, weasels and mice, a large part of the control should be through preventive measures. Stone piles and heaps of scrap lumber form a breeding place for these pests. A good rat dog will not only kill such pests but its presence on the farm seems to have an influence toward keeping the pests away. Poison baits are very dangerous and should not be used except with great precaution.

WHAT IS A STORAGE EGG?

A CONSTRUCTION has been made by the Food Administration in reference to the question of just what constitutes a cold storage egg.

The rule is, an egg held in a cold storage house at a temperature of forty-five degrees or lower for a period of thirty days or more. It has ruled that the temperature is not the material point, but the time of holding is the deciding factor.

SING AND SHOCK WHEAT.

SIXTY business men of Worland, Wyoming, and the marching song, "Where Do We Go From Here, Boys," are held responsible for the expeditious shocking of two hundred acres of wheat near Worland in one recent evening. In the afternoon a farmer asked the county agent to furnish twenty volunteers. The county agent called on the Alfalfa Club, which had promised to help out any farmer behind in his work, and sixty men responded. The farmer's one hundred acres seemed no job at all to the enthusiastic sixty, so they began singing the song. When they finished singing two other farmers found their wheat had been shocked, and that town help had piled more grain in the balance against the kaiser.

ECKERT SUCCEEDS RICH.

OTTO J. ECKERT, of Saginaw, has been appointed acting state sanitary engineer in place of Dr. E. D. Rich, who has been granted a leave of absence for service.

Veterinary.

CONDUCTED BY W. C. FAIR, V. S.

Catarrh.—I have a flock of turkeys, two of them have a swelling under their eyes and pus or mucus seem to come from the nose. What do you recommend for this ailment? Mrs. H. McB., Bradley, Mich.—Dissolve a tablespoonful of bicarbonate of soda in a pint of clean boiled water, immerse the beak a few times in this solution which will clear the nostrils of mucus, then dip beak in peroxide of hydrogen a time or two.

Chronic Cough.—I have a horse that coughs almost continually. He is a great eater, also drinks large quantities of water. So far as I can tell he does not show all the symptoms of heaves, and I might add that our local Vet. has been unable to relieve his cough. J. L. M., Fremont, Mich.—Give him 1 dr. fluid extract of lobelia and ½ oz. of Fowler's solution at a dose in feed or drinking water three times a day. Rub throat with camphorated oil once a day.

Barren Cows.—As I have been a reader of the Michigan Farmer for several years and had valuable advice through the veterinary column, I come to you again as I want to know what can be done for my two cows. These cows are six and nine years of age, come in heat regularly and fail to get with calf. So far as I can tell these two cows are in splendid health. I also have a heifer that has been bred three times, but fails to get with calf. This heifer went four weeks between her two last heat periods. J. J. W., Standish, Mich.—Doubtless all three of your cattle suffer from a cystic condition of the ovaries, and perhaps none of the three will get with calf. I advise you to have them examined by a competent Vet. who will perhaps crush the ovarian cysts, then the cows may breed. Giving them drugs will not do them much good.

Cow-pox.—I am anxious to know what is wrong with my cows. At first a small lump appeared on one of the teats; this scabbed over, soon after this the other three teats became covered with scabs. Of course, milking breaks the scabs open, this keeps the sores from healing. There is a yellowish colored thin fluid underneath the scab. The cows are on woods pasture and are healthy in every other way. Three out of the four head are diseased. J. L. S., Mattawan, Mich.—I am inclined to believe that your cows suffer from chicken-pox which is by no means a serious ailment; besides, there is no very good reason why the milk is unfit for domestic use. Dissolve six ounces of hyposulphite of soda in half a gallon of clean water and wet sores on udder twice daily after she is milked. When the sores heal and a hard dry scab forms, apply one part oxide of zinc and five parts petrolatum daily. No internal treatment is necessary.

Cow Fails to Come in Heat.—Would like to know what to do in order to induce a cow to come in heat. This cow calved about two months ago, is only four years old, but shows no signs of coming in heat. She is in good condition, in perfect health, and is an excellent milker. She was left in my care by a young man who has gone to the army, and I wish to do the best I can for her. F. LaP., Menominee, Mich.—Give your cow 1 dr. of ground nux vomica, 2 drs. of powdered capsicum and 1 oz. of powdered licorice at a dose in feed twice a day.

Shy Breeder.—I have a cow eight years old, apparently in good health but fails to come in heat. Is there anything I can do to induce this condition? C. L. U., Bellaire, Mich.—Give her 30 grs. of ground nux vomica, 1 dr. powdered capsicum, 2 drs. ginger and 1 oz. of powdered licorice at a dose in feed night and morning for thirty days.

Dog Has Worms.—I have a Collie dog eighteen months old that is very thin, although he is well fed three times a day. The hot weather seems to be hard on him, as he has a heavy coat. I feed him separator milk and table scraps, but am inclined to believe that he needs a tonic. C. F. Owosso, Mich.—Give your dog 1 gr. of powdered areca nut for each pound of body weight in 1 oz. of castor oil, but before giving him this medicine, he should be dieted. Then give him 2 grs. of quinine and 60 drops of tincture gentian at a dose twice a day. It is perhaps needless for me to say that this dog should be well fed and bowels kept open. If his kidneys do not act free enough, occasionally give him 5-gr. doses of acetate of potash or five or 10 drops of fluid extract of buchu.

Oct 24 1918 - Thursday - Oct 24 1918

Howell Sales Co. of Livingston County

5th ANNUAL SALE

At Sale Pavilion, Howell, Mich.

90 head of Registered Holsteins 90

Mostly fresh cows or cows soon to freshen, a few good heifers and calves, 3 good bulls. We will sell: A 27.64 lb. Jr. four yr. old; A 26.78 lb. three year old and her two year old daughter sired by Beauty Walker Pietertje Prince. A 24.78 lb. daughter of Vale Elzevere De Kol 2nd; A 24.90 lb. Grand daughter of Johanna Korndyke De Kol. Others with good records.

Reference Sires; A son of a 45 lb. cow and sired by a 32 lb. son of Rag Apple Korndyke 8th, a son of King of the Blacks and Whites and a 28 lb. cow. A son of King of the Pontiacs and a 31 lb. cow; A son of King Segis Champion Mabel; A son of a 32 lb. cow; A son of 29 lb. Granddaughter of Pontiac Korndyke. All cattle are consigned by Livingston county breeders and are tuberculin tested either by federal veterinary or state approved vet.

Auctioneers: Mack, Perry.

Send For Catalog

JAY B. TOOLEY, Secy.

AUCTION SALE

Tuesday, Oct. 29th 1918

At The Farm 7 Miles East of M. A. C.

15 head Reg. Pereherons
9 head Reg. Scotch & Scotch Topped Shorthorns
16 head of grade cows and heifers
25 head Reg. Duroc Jersey Hogs
100 head of high grade breeding ewes
For Sale list write

J. M. HICKS & SONS

WILLIAMSTON,

R. 2,

MICHIGAN



LARGE SIZE IN COWS

Is favorable to economical yielding of milk. The food of support in comparison to size is much less in large cows than in small ones, and for this reason the Holstein-Friesian cow returns a greater net profit on the total amount of food consumed.

If interested in

HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN FRIESIAN ASSOCIATION OF AMERICA, Box 164, Brattleboro, Vt.

Want Yearly Records?

Our new sire has four sisters whose semi-official records are 671, 742, 913 and 946 pounds of butter in one year respectively at 2 to 3 years of age. His dam is a daughter of Friend Hengerveld De Kol Butter Boy, four of whose daughters have records over 1000 pounds and she is also a granddaughter of Pontiac Aaggie Korndyke, with six daughters above 1000 pounds of butter in one year.

Peaceland Stock Farm, Three Rivers, Mich.
C. L. Brody, Owner
Charles Peters, Herdsman

DO YOU WANT

A Holstein Bull calf ready for service with exceptional breeding? Write
HILLCREST FARM,
Kalamazoo, Mich.

For Sale Registered Holstein Cow 6 years old good size & color easy milker, gentle & kind. Fresh Sept. 24 with heifer calving by grandson of King Payne Segis. (Size of 50 lb. cow) Price of both \$250. Also 2 heifers sired by above bull soon be 2 years old, good size and color. Bred to 30 lb. bull. Dams good A. R. O. cows, write for prices.
WALNUT STOCK FARMS, Olio, Mich.
R. 1, L. J. Benjamin & Son, Prop.

HOLSTEINS

5 yearling bulls from A. R. O. daughters of Johan Hengerveld Lad, son of Hengerveld De Kol. Ready for light service this fall. Price \$75 to \$125.
Genrida Farms, W. T. Hill R.R., Flat, Mich.

HOLSTEINS of quality. Bull calves from dams with records high as 31 lbs. in 7 days. Also collic puppies.
E. A. HARDY, Rochester, Mich.

REG. Holstein: Bull calf born Dec. 26, 1917, a splendid individual, straight, deep bodied & white. 7 nearest dams have A. R. O. records, that average butter 7 days 22.21 lbs. milk 497 lbs. W. B. Reader, Howell, Mich.

For Sale The Borculo Holstein Breeding Association has for sale a Registered Holstein Bull. For particulars inquire BENJ. SCHOUT, Sec., R. 1, Zeeland, Mich.

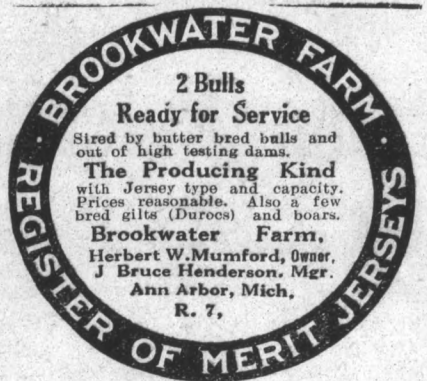
For Sale Purebred Holstein bull calf, 6 mo. old, ¾ white, weight 250 lbs., price \$85.
ARTHUR SWEET, R. 3, Deckerville, Mich.

Little Farmstead Jersey Cattle. Several heifers bred to freshen next fall. Also a few heifer and bull calves of choice breeding. Colon C. Little, Coopersville, Mich.

For Sale Choice Jersey bull registered, age 22 months. Strain St. Lambert and Majesty. Markings solid color, black tongue and switch. Reason of sale, related to owner's herd.
SEYBURN FARM, R. 7, Pontiac, Mich., Tel. 71094.

JERSEY BULLS

Ready for service FOR SALE
WATERMAN & WATERMAN, Ann Arbor, Mich.



Maple Lane R. of M. Jersey Herd. Bulls, bull calves and heifer calves sired by one of the best grandsons of Fogis 99th of Hood Farm and out of R. of M. dams.
IRVIN FOX, Allegan, Mich.

For Sale Registered Jersey Cattle of both sex. Smith & Parker, R. 4, Howell, Mich.

Hillside Farm Jerseys, offer 3 yearling bulls, backed by tested dams, and sired by a double grandson of Royal Majesty, first prize & junior champion at Mich. State Fair, good individuals. C. & O. Deake, Ypsilanti, Mich.

Meridale Interested Owl No. 11311 heads my herd, bull calves from this great sire and out of R. of M. dams for sale. C. B. WEHNER, Allegan, Mich.

HEREFORDS

3 Extra nice yearling heifers. 3 extra nice heifer calves old enough to wean, 4 extra nice bulls from 8 to 12 mos old not related to heifers. Prince Donald, Farmer and Perfection Fairfax breeding. If interested come and see them.

ALLEN BROS., Paw Paw, Mich.

Herefords Polled and Horned blood lines embrace Fairfax. Polled Perfection and Prime Lad 9th breeding. Prices reasonable.
COLE & GARDNER, Hudson, Mich.

BIDWELL SHORTHORNS

Registered bulls, cows and heifers—Good Scotch and Scotch-Topped for sale. In prime condition. Modern sanitary equipment. Farm 10 minutes from N. Y. O. depot, 1 hour from Toledo, Ohio. Automobile meets all trains. Write

BIDWELL STOCK FARM,
Box B, Tecumseh, Mich.

Richland Farm Shorthorns

Sires in Service: Fair Acres Goods and IMP. Lorne-Michigans Grand Champion Bull. Attend the Shorthorn Sale at Lansing Oct. 9th. We invite you to inspect the cows and heifers we have listed in this sale.

C. H. PRESCOTT & SON,
Herds at Prescott, Mich. Office at Tawas City, Mich.

Francisco Farm Shorthorns

We maintain one of Michigan's good herds of Scotch and Scotch Topped cattle. They are well bred, properly handled and price reasonable. Come and see; we like to show them.
P. P. POPE, Mt. Pleasant, Mich.

The Kent Co. Shorthorn Breeders Association are offering some choice animals at reasonable prices. Write your wants.
L. H. LEONARD, Sec., Caledonia, Mich.

SHORTHORNS

Cows, heifers & young bulls for sale at farmers prices; herd catalog mailed free. Horrieton Farms, Hart, Mich.

Shorthorn Cattle of both Sex for Sale
W. W. KNAPP, Howell, Michigan.

Shorthorn Seven Scotch and Scotch Topped bulls for sale. Price reasonable.
W. B. McQUILLAN, R. 7, Howell, Mich.

Shorthorn Bulls ready for service of the choicest breeding. Write me you wants.
A. A. PATTULLO, R. 4, Deckerville, Mich.

For Sale Shorthorns of Quality Scotch and Scotch Topped descendants of Archers Hope, Avondale, Maxwellton Sulton and White Hall Sulton by the Osceola Co. Shorthorn Breeders Ass.
JOHN SCHMIDT, Sec., Reed City, Mich.

Dual Purpose Shorthorns all ages, a ton Roan 3 yr. old herd bull, also Duroc Hogs all ages.
CHAS. BRAY, Okemos, Mich.

For Sale 1 Scotch heifer coming 3 years old, with the best of Scotch breeding. Also some very nice Dairy bred Shorthorns of both sex.
T. I. MARTIN, R. 1, Ionia, Mich.

For Sale 7 head reg. Durhams, cows and heifers and one choice young bull.
S. A. DUBENDORF, R. 8, Coldwater, Mich.

GUERNSEY SALE

OCTOBER 26, 1918

Commencing 1 o'clock. 45 head registered Guernseys, Sire Imp. Nello's Prince Jewell (17686), cows and heifers, bulls all different breeding. Tuberculin tested. Terms made known day of sale.

C. D. SCHLABACH
LAKE, OHIO

Located between Canton and Akron, one mile west of Hartsville, Ohio. F. W. Andrews, Auctioneer.

Ballard Farm Guernseys, 40 head, May Rose and other popular lines of breeding. State tuberculin tested, free from disease. Herd bull, son of Don Diavolo of Linda Vista greatest bull of breed. A. R. Cows, bred heifers, heifer calves and bulls from A. R. dams. A price on each individual, take your choice.
BALLARD BROS., R. 4, Niles, Mich.

HOGS

Durocs. Choice spring pigs out of selected sows and sired by our best herd boars. They are of the big type, strong boned, smooth and of excellent quality and include some of the most popular blood lines such as Orion Cherry King, Top Col. Defender, Brookwater etc. Prices reasonable. The Jennings Farms, Bailey, Mich.

DUROC BOARS

Big long, tall, growthy boars. The kind that will add size and growth to your herd. Biggest March farrowed pigs in country. Weigh 200 lbs. not fat.
NEWTON BARNHART, St. Johns, Mich.

DUROC Jersey Spring Boars for sale. Good breeding and large bone. Prices and descriptions on request.
J. D. CRANE & SON, Plainfield, Mich.

Duroc Jersey spring boars sired by Orion Cherry King Cal. Write for prices and description.
W. C. TAYLOR, Milan, Mich.

DUROCS April and May pigs of both sexes sired by a Defender bred boar. For prices etc., write
WELLS PARISH & SONS, Allendale, Mich.

DUROC JERSEYS

E. D. HEYDENBERG, Wayland, Mich.

Choice Duroc Jersey Gilts For Sale.

CAREY U. EDMONDS, Hastings, Mich.

Duroc Jerseys Big heavy boned spring boars winners at State and County Fairs. Place order early.
F. J. DRODT, R. 1, Monroe, Mich.

Crandell's Big Type O. I. C's

Champion herd everywhere shown in 1917. Herd headed by five champion boars. Our sows won Senior, Junior and Grand Champion prizes at Illinois, Missouri, Ohio and Michigan 1917. Special prices on all spring pigs. Get our catalog it is free.
Crandell's Prize Hogs, Cass City, Mich.

Raise Chester Whites?

Like This
the original big producers

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 six months old. Write for my plan—More Money from Hogs.
S. S. BENJAMIN, R. F. D. 10, Portland, Michigan

Chesters May boars. Sept pigs in pairs or trios not akin from mature stock of the best blood lines obtainable.
F. W. ALEXANDER, Vassar, Mich.

I AST fall gilts all sold, have a good lot of last spring pigs from 3 sires good growthy stock. Farm ½ mile west of depot. Citizens Phone 124.
OTTO B. SCHULZE, Nashville, Mich.

BRED GILTS and SERVICEABLE BOARS
J. CARL JEWETT, Mason, Mich.

O. I. C.'s a few choice Apr. and May pigs either sex and 4 reg. Holstein heifers.
CLOVER LEAF STOCK FARM, Monroe, Mich.

O. I. C. spring pigs for sale. I ship C. O. D. and guarantee to please.
F. C. BURGESS, R. 3, Mason, Mich.

Additional Stock Ads on Pages 368 and 375

LATEST MARKET REPORTS

SECOND EDITION.

The markets in this edition were revised and corrected on Thursday afternoon, October 17.

WHEAT.

The demand for wheat is uniformly active and the market is now in a firm position with the trade absorbing liberal quantities of the enormous receipts from country elevators. The grain is wanted for export. The visible supply of the United States for the past week shows an increase of 7,608,000 bushels. One year ago the price paid for No. 2 red wheat on the local market was \$2.17 per bushel. Present prices here are:

No. 2 red wheat.....	\$2.22½
No. 2 mixed	2.20½
No. 2 white	2.20½

CORN.

Two things happened recently which caused corn prices in our big markets to make a long and sudden advance: President Wilson's reply to the German peace note put the possibility of immediate peace out of present consideration. The other bullish item was the announcement by the Food Administration that the government would be in the market for the purchase of corn to supply its needs for November and December. In Chicago prices advanced over 10c at the opening this week and nearly that much more since. The Detroit market, however, having large stocks and no direct demand failed to change prices to correspond with those in Chicago. There is considerable discussion as to the influence peace would have upon corn prices, many contending that it would put marketing on an entirely lower basis, while others feel that the demand from the Central Powers, which is certain to follow the signing of peace terms, should tend to increase rather than decrease the price of corn and other cereals. One year ago corn sold on the local market at \$1.98 for the No. 3 grade. Present prices here are:

No. 3 corn	\$1.35
No. 3 yellow	1.40
No. 4 yellow	1.32
No. 5 yellow	1.22
No. 3 white	1.40

On the Chicago market No. 2 yellow corn advanced to \$1.48; No. 3 yellow \$1.37@1.40; No. 4 yellow \$1.27@1.33; November \$1.17½; December \$1.14½ per bushel.

OATS.

There appears to be no independent action in the oat trade, prices here following the fluctuations in corn circles. The demand for domestic consumption is of unusually large volume, as shown by the United States visible supply, which indicates a decrease of 764,000 bushels during a time when marketing by farmers is heavy. Standard oats a year ago sold on the local market at 61¼c per bushel. Present prices here are:

Standard	.72
No. 3 white	.71½
No. 4 white	.70½

RYE.

Nothing new has transpired to change the sentiment of dealers in this market and the price holds steady with last week at \$1.63 per bushel.

BARLEY.

The course of this trade has been uniformly dull with a very few transactions made by sample at prices ranging from \$1.95@2.05 per cwt.

BEANS.

Threshing beans is well under way in Michigan and New York states. Farmers are marketing quite freely with prices at country elevators ranging from \$7.50@8.50 per cwt. The general quality of the crop is good. Detroit continues to quote at \$9 per cwt. for hand-picked navies. Trade is easy at Chicago where the new crop is now arriving. Michigan hand-picked stock is bringing \$10.50@10.75 from jobbers at that point. New York reports liberal receipts again, with the majority of the shipments of foreign stock. The pea bean market is about steady, with the best grades fetching \$11@11.25 per cwt., and common to fair \$10@10.75.

POULTRY.

The demand for most classes is fair with Detroit jobbing prices as follows: No. 1 springs 27@28c; small springs 24@25c; hens 28@29c; small hens and

Leghorns 25@26c; roosters 19@20c; geese 24@25c; ducks 28@29c; turkeys 35@36c per lb. The New York market is firm. Live chickens bring 35c per lb; fowls 36c; old roosters 26c; turkeys 30c.

POTATOES.

Markets are a little irregular. At Detroit the demand and movement is moderate, with practically no change in prices. Michigan stock is selling here at \$2@2.10 per cwt. in bulk for the best offerings. About the same conditions prevail at Cleveland with Michigan round whites, sacked, U. S. Grade No. 1 bringing \$2.10@2.25; at Buffalo \$2.25@2.35; at Pittsburgh \$2.25@2.35; at New York \$3.15@3.25 in 150-lb. sacks; at Cincinnati \$2.15@2.25 per cwt. in bulk.

Maine farmers are receiving for their Green Mountains \$3@3.15 per bbl. at side track. In Wisconsin the trade is weakening with the price at \$1.45@1.50 per cwt. sacked on cars. In Minnesota there is a slight recovery

since last week. The general trend of the market, however, has been downward.

APPLES.

This crop is moving in considerable volume at the present time. Much poor stock is now coming to the markets and this is a little depressing to the trade. Chicago prices for best Michigan stock are: Greenings \$4.50@4.75; Snows \$5.50@6; Wealthys at \$4.50@5. At Detroit Michigan Jonathans of a good quality are selling at \$1.50@1.65 per bushel. The market here is slow and draggy this week.

HAY.

A steady trade prevails with prices firm as follows:

No. 1 timothy....	\$29.50@30.00
Standard timothy	28.50@29.00
No. 1 mixed	24.50@25.00
No. 1 clover	23.50@24.00

Pittsburgh.—An excellent demand prevails with receipts extremely light.

Top prices are being realized. Quotations are:

No. 1 timothy....	\$34.50@35.00
No. 1 light mixed	32.00@33.00
No. 1 clover	31.00@32.00

SEEDS.

Seeds are irregular with red clover higher and alsike down. Detroit quotations are: Prime red clover, cash and March \$22.50; alsike \$17.75; timothy \$5.

FEEDS.

Prices are steady at the advanced quotations of last week. In 100-lb. sacks to jobbers bran now brings \$35@35.50, standard middlings \$37@37.50, coarse corn meal \$60, cracked corn \$61, chop feed \$45@48.

BUTTER.

Local butter prices show little improvement since a week ago. Consumption has shown some decrease since the recent jump in values. Fresh creamery extras are now selling to jobbers at 56@56½c, and do firsts at 55½@56c. At Chicago the range for creameries is 51@57c, and at New York 58½@61c. Western creamery extras sell in Philadelphia at 61c.

CHEESE.

Brick cheese is quoted to jobbers on the local market at 37c, and Daisies at 34c. On the New York market fresh specials sell at 33@33½c, and do average run at 32½c. Full creams are quoted in Philadelphia at 32@33½c.

EGGS.

A fraction has been added to local egg quotations. Michigan candled stock, current receipts, are sold to the jobbers at 48½c; do firsts in new cases 50c. The best storage packed goods bring 42@43½c. Nearby western offerings are quoted in New York at from 50@80c, depending on the color, grade and size. In Philadelphia western extra and firsts are selling to jobbers at \$15.90@16.50.

DETROIT CITY MARKET

Large quantities of farm produce are moving through the city markets at fairly satisfactory prices. Potatoes are selling at \$1.35@1.40; tomatoes at \$1.50; cabbage (white) 40c; onions at \$1.50; apples \$1.50@2.50; pears \$1.25@2.50; turnips \$1; eggs 70c; hay at \$28@35 per ton.

GRAND RAPIDS

Fine harvesting weather the past week enabled farmers to market a large amount of potatoes and apples. Much of the potatoes brought on the market were too green for cellar stock or shipping and met with slow sale. Fully ripe stock was in good demand. The tendency of the market was to a lower level. At this week's opening the price dropped to \$1.10@1.20 per bushel by the load and fully cured \$1.25. Indications are for heavy offerings this week and further decline in price.

Apple harvest is in full swing and car shipping a feature with jobbers, both fall and winter varieties. The spread in price is \$1@1.25 as to variety and quality.

The onion crop in western Michigan is the finest in years and is quoted by jobbers at 60c per bushel. Considerable number of cars have been shipped the past week.

The bean crop is better in quality than last season, is larger and a considerable quantity is moving into the elevators. Jobbers' prices to farmers is \$8.00 per cwt. for the Michigan pea and red kidney. The trend of price is not to a higher level.

THEY LIKE IT.

We have found at Evart what is known as the Evart Cooperative Shippers' Association. Have sent so far, fifteen carloads of cattle, hogs and sheep, and most everyone is very much pleased. We will also handle our own beans and potatoes and find out if our spuds will not bring us more than just one cent per pound. The farmers in the vicinity of Reed City bought an elevator and are starting to do their own marketing.—A. Z

Live Stock Market Service

Reports for Thursday, October 16th

BUFFALO.

Pigs \$17.75@18; others \$18.75@18.90; lambs \$17.40; calves \$19; cattle weak.

CHICAGO.

Cattle.

Receipts 15,000. Better grade of beef steers strong to 25c higher; common grade steady.

Good to prime choice steers \$14.35@19.40; common and medium butchers \$9@14.35; heifers \$6.65@13; cows at \$6.75@12.50; bologna bulls \$12.25@13.50; canners and cutters \$5.75@6.75; stockers and feeders, good \$9.75@12.50; do, medium \$7@9.75.

Hogs.

Receipts 31,000. Market 10@20c lower than yesterday.

Tops \$18.60; heavy \$18.30@18.55; mixed and light \$18@18.65; packers' hogs \$15.50@17; medium and heavy at \$16.75@17.50; light bacon hogs \$17.50@18.50; pigs, good to choice \$15.25@16; roughs \$16@16.50.

Sheep and Lambs.

Receipts 29,000. Market is slow to 25c lower.

Choice to prime lambs \$15.50@15.75; medium and good lambs \$13.50@15.50; culls \$8@12; medium, good and choice feeders \$11.50@14; choice yearlings \$11.75@12.25; medium and good yearlings \$10.75@11.25; wethers, medium and good \$9.75@12.

DETROIT

Cattle.

Receipts 4,487. Market very dull, and 75c@1 lower than last week; light thin grades almost unsalable.

Best heavy steers \$12.00@13.50
Best handy wt bu steers \$10.00@10.50
Mixed steers and heifers 8.50@ 9.00
Handy light butchers.... 7.50@ 8.00
Light butchers 6.50@ 7.00
Best cows 8.50@ 9.00
Butcher cows 7.00@ 7.50
Cutters 5.75@ 6.25
Canners 5.00@ 5.50
Best heavy bulls 8.75@ 9.00
Bologna bulls 7.75@ 8.00
Stock bulls 6.00@ 6.50
Feeders 9.00@10.00
Stockers 7.50@ 8.50
Milkers and springers ... \$60@ 125

Veal Calves.

Receipts 1,099. Market dull.
Best \$16.50@17.00
Others 7.00@13.50

Sheep and Lambs.

Receipts 7,790. Lambs 25c higher; sheep steady.
Best lambs \$ 15.25
Fair lambs 13.75@14.25
Light to common lambs.. 10.00@13.25
Fair to good sheep 8.50@ 9.00
Culls and common 5.00@ 7.00

Hogs.

Receipts 6,914. Market is 10@15c lower.
Pigs \$ 17.25
Mixed hogs 17.50@17.65

Reports for Wednesday, October 15th

CHICAGO.

Cattle.

Today's receipts are estimated at 14,000 head, bringing the receipts for three days up to 65,700 head, comparing with 64,591 for the same time last week. There is not much change in the day's prices, but the market is considerably lower for the week, with the best class of long-fed steers selling at \$19@19.35, whereas heretofore the top was \$19.60. Steers sell largely at \$12.50@15, and stockers and feeders are off to \$6.75@12.40, while butcher stock is mostly 50c lower for the week, with cows and heifers selling at \$6.50@14.25, and canning cows and cutters at \$5.40@6.45. Bulls sell at \$6.25@12, and western range steers are taken at \$9.75@16.25. The calf market is off, with sales at \$6.50@16.50.

Hogs.

Wednesday receipts are in the neighborhood of 18,000 hogs, making receipts for three days of 81,900 head, comparing with 73,477 for the same time last week. Prices cover about the same range as yesterday, hogs selling at \$16.25@18.75 for the rough heavy packers to prime light butchers, while most of the pigs are selling at \$11@16.50. The eastern shipping demand this week has been hardly worth mentioning. The bulk of the hogs are selling at \$17.25@18.60.

Sheep and Lambs.

Wednesday receipts are about 21,000 head, making a total of 107,900 for the

first half of the week, comparing with 139,965 for the same time last week. Prices are firmer to 25c higher for the best offerings today, with range lambs going at \$16 for the best down to \$12.50 for common, while native lambs are salable at \$10@15.75. Most of the feeding lambs are taken at \$12.50@14.25. Yearlings are salable at \$9.25@12; wethers at \$9@11 and ewes at \$4@10.

BUFFALO.

Cattle.

Receipts 30 cars; market is slow. Best heavy steers \$15@16.50; shipping steers \$13@14.50; fair to good \$13@13.50; best handy steers \$13.25@13.50; best yearlings \$13.50@14.50; fair to medium butcher steers \$10.50@11; best butcher heifers \$10.50@11; fair to medium \$9.50@10; best fat cows \$10@10.75; medium to good \$9@9.50; fair to medium \$7.25@7.50; cutters \$6@6.50; canners \$5@5.75; best heavy bulls \$10.50@11; sausage bulls at \$9.50@10; light bulls \$7.50@8.50; best feeding steers \$9.50@10.50; commons to fair \$8@9; best stockers \$8.75@9.25; fair to good \$8.25@8.75; common \$7@8; milkers and springers \$65@150.

Hogs.

Receipts 10 cars; market is steady; heavy and yorkers \$18.75; pigs \$18.

Sheep and Lambs.

Receipts two cars; market steady; top lambs \$17.25; yearlings \$12@13; wethers \$11@11.50; ewes \$9@10.

Calves.

Market steady. Tops \$19.50; roughs \$7@9.

Shorthorn Sale at M. A. C.

THE first fall sale to be held by Michigan Shorthorn Breeders, at East Lansing, October 9, was a gratifying success. The attendance was not large, but most of the men present came with the intention of buying, so that the bidding was unusually brisk. From the time Col. Carey M. Jones, assisted by Col. Adams and Col. Hoopingarner, opened the sale, until the last animal was sold, everything passed off smoothly and satisfactorily. A good offering was cashed at values that will make money for their new owners.

Few consignments to Michigan Shorthorn sales have gone through the ring in better condition or showed evidence of greater usefulness than Prescott & Sons. These men are improving their opportunities in the business of raising good Shorthorns. At the outset they knew many of the principles that stand for success, and they applied them with marked intelligence. The use of great sires attracted attention to their first efforts, and as time goes on the herd is rapidly taking its place among the leading ones of the country. Special credit is also due to W. B. McQuillan & Son, of Howell, for the class of animals they consigned to this sale. These men are gradually building up one of the best small herds in Michigan.

The following animals sold for above \$200 a head:

Chas. A. Prescott & Son, Tawas City, Michigan.
Fairfield Countess, to Jay Smith, Ann Arbor \$300

Fairfield Gloster, to W. J. Bell, Rose City	500
Fairfield Victoria, to Jay Smith, Ann Arbor	400
Iris, to W. J. Bell, Rose City	225
Rosewood Maid, to A. L. Pant & Son, Lowell	200
Fairfield Mazurka, to A. L. Pant & Son	275
Carrie 7th, to W. J. Bell, Rose City	235
Crest's Model, to All. Butler, Albion	315
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Richland Lassie, to Jay Smith, Ann Arbor	235
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Richland Rose 2nd, to Chas. Wetzel, Ithaca	410
Richland Semptress, to A. L. Pant & Son, Lowell	545
Rosella, to A. L. Pant & Son, Lowell	295
Victoria Maid, to Jay Smith, Ann Arbor	255
W. B. McQuillan, Howell, Mich. Lady Madge 17th, to C. A. Prescott & Sons, Tawas	470
Royal Butterfly, to Sam Jones, W. J. Baird, Dewitt, Mich. Beauty, to Ira Zimmerman, Dimondale	300
Chas. R. Horrie, Hart, Mich. Millie M., to S. H. Aldrich, Saranac	215
Star, to J. B. Simpson, Charlotte	240

Michigan Crop Report

THE estimated yield of wheat in the state is 14.29, in the southern counties 14.06, in the central counties 12.95, in the northern counties 13.08 and in the upper peninsula 21.58 bushels per acre. The per cent of acreage sown this fall as compared with last year is 97 in the state, southern and northern counties, 95 in the central counties and 101 in the upper peninsula. The average date of sowing wheat in the state is September 18, in the southern counties the 19th, in the central counties the 17th, in the northern counties the 16th and in the upper peninsula the 12th.

The total number of bushels of wheat marketed by farmers in September at 105 flouring mills is 173,121 and at 70 elevators and grain dealers 90,443 or a total of 263,564 bushels.

Of this amount 176,825 bushels were marketed in the southern four tiers of counties, 60,297 in the central counties and 26,442 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the two months August-September is 1,500,000. Fifty-five mills, elevators and grain dealers report no wheat marketed in September.

Rye.—The per cent of acreage sown this fall as compared with last year is 99 in the state, 96 in the southern counties, 103 in the central counties, 107 in the northern counties and 95 in the upper peninsula.

Barley.—The estimated average yield per acre in the state is 29.43, in the southern counties 28.57, in the central counties 32.72, in the northern counties 25.80 and in the upper peninsula 30.55 bushels.

Oats.—The estimated average yield per acre in the state is 39.52, in the southern counties 41.44, in the central counties 41.63, in the northern counties 36.20 and in the upper peninsula 39.09 bushels.

Corn.—The estimated average yield per acre in the state is 20.91, in the southern counties 21.35, in the central counties 20.83, in the northern counties 19.57 and in the upper peninsula 20.00 bushels.

Potatoes.—The estimated average yield in the state is 78.67, in the southern counties 72.02, in the central counties 78.42, in the northern counties 74.53 and in the upper peninsula 117.69 bushels per acre.

Beans.—The estimated average yield in the state is 9.23, in the southern counties 8.29, in the central counties 10.12, in the northern counties 10.35 and in the upper peninsula 16.00 bushels per acre.

Sugar Beets.—The estimated average yield in the state is 9.26, in the southern counties 9.28, in the central counties 9.60, in the northern counties

8.26 and in the upper peninsula 10.33 tons per acre.

Buckwheat.—The estimated average yield in the state is 12.00, in the southern counties 12.03, in the central counties 10.98, in the northern counties 11.73 and in the upper peninsula 24.00 bushels per acre.

Grain and seed threshed in Michigan up to and including September 14, per returns of threshermen is as follows:

	Acres.	Bushels.	Yield per acre, bush.
Winter wht.	540,754	7,666,413	14.18
Spring wht.	21,308	405,020	19.01
Rye	366,193	5,325,348	14.54
Oats	1,134,867	45,823,029	40.38
Speltz	5,991	166,388	27.77
Barley	214,875	6,513,587	30.31
Buckwht ..	153	2,677	17.50
Peas	5,314	79,077	14.88
Seed:			
Timothy ..	245	1,012	4.13
Clover ..	6,223	16,498	2.65
Beans	754	7,072	9.38

Ditch Before Winter Rains

Protect your soil and your next year's crop profits against injury by excessive water standing on land all winter. Can work land earlier in spring. Add 2 to 3 weeks to growing season. Do farm terracing now. Get

THE Martin Farm Ditcher, Road Grader

All-steel, adjustable, reversible; no wheels, levers or cogs to get out of fix. Cuts new farm ditches or cleans old ones to 4 feet deep; builds farm terraces, dikes and levees; grades roads. Does the work of 100 men. Every farm needs one. Send your name for Free Book and Special Introductory Offer.

Owensboro Ditcher & Grader Company, Inc.
Box 515 Owensboro, Ky.

10 Days' Free Trial

'TIX-TON MIX' with salt the year around keeps flock healthy and free from worms and ticks. Saves you big money—a \$1.00 sample box by parcel post will include a barrel of salt. Write for club offer—booklet on "Nature and Care of Sheep."

PARSONS TIX-TON CO., Grand Lodge, Mich.

"Saw Wood!" saw wood for yourself, saw wood for your neighbors, saw wood for the Government, saw wood or freeze. Use a gasoline drag saw that will do the work of ten men. Write for catalogue. Address **S. N. CASTLE & COMPANY,** Lock Box 102, Constantine, Michigan

We are in the market for Seed Wheat.
CARLOTS MAIL SAMPLES
Farmers Elev. & Pro. Company, Bad Axe, Mich.

Rubber Footwear at the "Front"

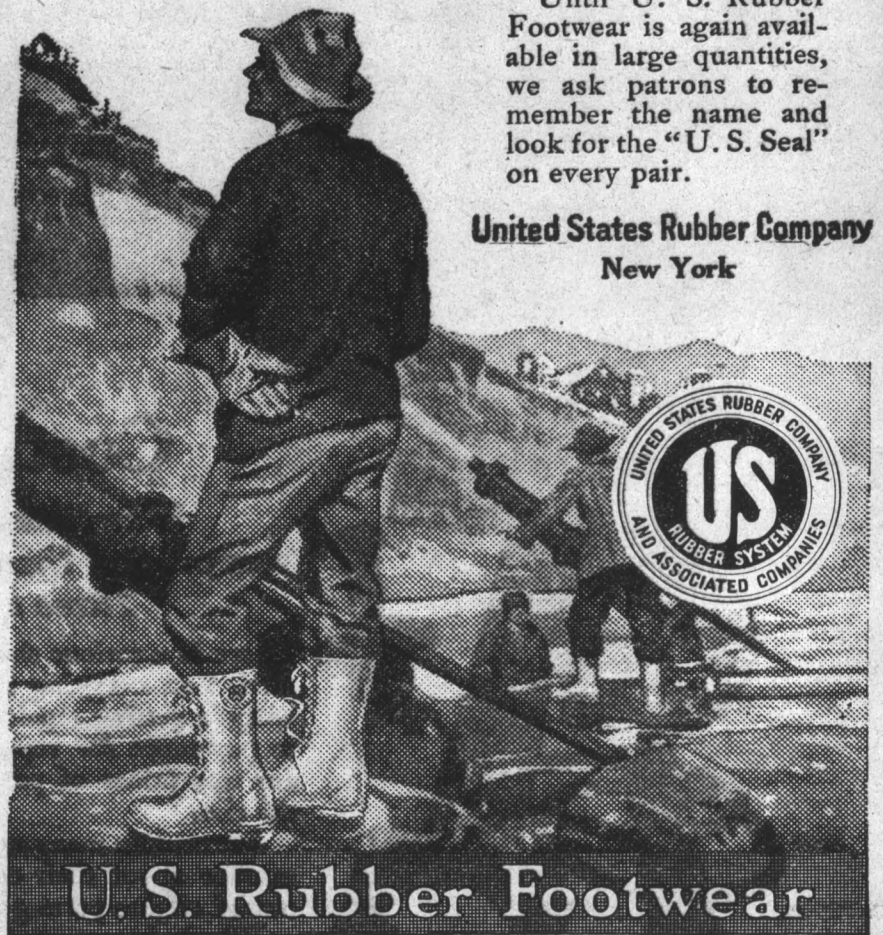
In the first line trenches, where the need is greatest, rubber footwear is helping to make life more livable for the doughboy.

Men in the trenches are being supplied before civilians at home. This means limited supplies for outdoor workers.

Our customers, we are confident, will cheerfully bear with this situation. We regret our inability at present to meet every demand for "U. S. Protected" footwear.

Until U. S. Rubber Footwear is again available in large quantities, we ask patrons to remember the name and look for the "U. S. Seal" on every pair.

United States Rubber Company
New York



U. S. Rubber Footwear

THE OCTOBER SALE REGISTERED HOLSTEIN-FRIESIAN CATTLE

All Animals Inspected	Every animal sold in Good Faith	Every animal sound
Good Individual blood lines	and every sale a bona fide sale	Individual Excellence
Only good types		No damaged udders
Breeding		King Segis King of the Pontiacs
High producing strains		Pontiac Koradyle King of the Segis
Foundation Stock		Animals in Sale Condition
Quality Show Animals		Quality Cows in shape to test
A.R.O. Cows		Sires backed yearly records
Production		Production 25-31 lb. Bulls—
Daughters of A.R.O. Cows		Tuberculin-Tested by Federal Authority
Every animal over 6 months of age tuberculin-tested		Health Guaranteed free from disease
Sold Subject to return in 60 days		

100 HOLSTEINS
October 30th
Howell, Mich.
Michigan Breeders' Consignment Sale Co.,
H. W. NORTON, Jr., Secretary,
East Lansing, Mich.

HORSES

Horses Will Be Horses Soon

We have on hand at all times a choice selection of young Percheron Stallions. Also have a few good work horses that we are offering to exchange for young stallions.

PALMER BROS.,

R. R. Orleans, Belding, Mich.

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

Percheron Stallions and mares of reasonable prices; inspection invited.
F. H. KING & SON, Charlotte, Mich.

Percherons for sale. Stallion three years old. Mare six, at the right price to close out.
E. J. ALDRICH, Tekonsha, Mich.

Auction Sale of Reg. Perch., Reg. Shorthorns and Duroc Hogs, Tuesday Oct. 29th. Write for sale list.
J. M. Hicks & Sons, R. 2, Williamston, Mich.

If You Want A Square Deal

and your money on receipt of shipment send your Poultry, Veal & Hogs to

J. W. Keys Commission Co.,
470 Riopelle St., East. Market
Detroit, Mich.

the best market in America; weekly market circular on request, please mention this paper. Are you doing your bit? Buy War Stamps.

Mr. POULTRY FARMER:

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Ship Often—Ship by Express
GEO. R. ELDRIDGE CO.
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Remember! We guarantee you satisfaction with every shipment.

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We handle only on commission. No merchandise competition with your goods. Highest prices possible obtained on arrival, and you don't have to wait for your money.

Reference Peninsular State Bank.

HAY Ship To The Old Reliable House
Daniel McCaffrey's Sons,
623-625 Wabash Bldg., Pittsburgh Pa.

BEE SUPPLIES, BEESWAX, BERRY SUPPLIES, AND HONEY.
M. H. HUNT & SON, Lansing, Mich.

CRATES

Slightly soiled Batcher Folding bushel crates, for shipping and storage. Excellent condition. 24c delivered in Michigan. Cash with order. Immediate shipment.
A. M. TODD CO., Menasha, Mich.

Farmer Wanted Married, no children, to take care of country home. Good salary and profit sharing proposition to intelligent, responsible parties. House with all modern improvements furnished. Box 8-19, Michigan Farmer, Detroit, Mich.

DOGS

Write Dr. W. A. Ewalt, Mt. Clemens, Mich. for Pure-bred Scotch Collie Puppies, natural heelers from trained stock on Ewalt's Stock Farms.

LATEST MARKET REPORTS

SECOND EDITION.

The markets in this edition were revised and corrected on Thursday afternoon, October 17.

WHEAT.

The demand for wheat is uniformly active and the market is now in a firm position with the trade absorbing liberal quantities of the enormous receipts from country elevators. The grain is wanted for export. The visible supply of the United States for the past week shows an increase of 7,608,000 bushels. One year ago the price paid for No. 2 red wheat on the local market was \$2.17 per bushel. Present prices here are:

No. 2 red wheat.....	\$2.22½
No. 2 mixed	2.20½
No. 2 white	2.20½

CORN.

Two things happened recently which caused corn prices in our big markets to make a long and sudden advance: President Wilson's reply to the German peace note put the possibility of immediate peace out of present consideration. The other bullish item was the announcement by the Food Administration that the government would be in the market for the purchase of corn to supply its needs for November and December. In Chicago prices advanced over 10c at the opening this week and nearly that much more since. The Detroit market, however, having large stocks and no direct demand failed to change prices to correspond with those in Chicago. There is considerable discussion as to the influence peace would have upon corn prices, many contending that it would put marketing on an entirely lower basis, while others feel that the demand from the Central Powers, which is certain to follow the signing of peace terms, should tend to increase rather than decrease the price of corn and other cereals. One year ago corn sold on the local market at \$1.98 for the No. 3 grade. Present prices here are:

No. 3 corn	\$1.35
No. 3 yellow	1.40
No. 4 yellow	1.32
No. 5 yellow	1.22
No. 3 white	1.40

On the Chicago market No. 2 yellow corn advanced to \$1.48; No. 3 yellow \$1.37@1.40; No. 4 yellow \$1.27@1.33; November \$1.17½; December \$1.14½ per bushel.

OATS.

There appears to be no independent action in the oat trade, prices here following the fluctuations in corn circles. The demand for domestic consumption is of unusually large volume, as shown by the United States visible supply, which indicates a decrease of 764,000 bushels during a time when marketing by farmers is heavy. Standard oats a year ago sold on the local market at 61½c per bushel. Present prices here are:

Standard	.72
No. 3 white	.71½
No. 4 white	.70½

RYE.

Nothing new has transpired to change the sentiment of dealers in this market and the price holds steady with last week at \$1.63 per bushel.

BARLEY.

The course of this trade has been uniformly dull with a very few transactions made by sample at prices ranging from \$1.95@2.05 per cwt.

BEANS.

Thrashing beans is well under way in Michigan and New York states. Farmers are marketing quite freely with prices at country elevators ranging from \$7.50@8.50 per cwt. The general quality of the crop is good. Detroit continues to quote at \$9 per cwt. for hand-picked navies. Trade is easy at Chicago where the new crop is now arriving. Michigan hand-picked stock is bringing \$10.50@10.75 from jobbers at that point. New York reports liberal receipts again, with the majority of the shipments of foreign stock. The pea bean market is about steady, with the best grades fetching \$11@11.25 per cwt., and common to fair \$10@10.75.

POULTRY.

The demand for most classes is fair with Detroit jobbing prices as follows: No. 1 springs 27@28c; small springs 24@25c; hens 28@29c; small hens and

Leghorns 25@26c; roosters 19@20c; geese 24@25c; ducks 28@29c; turkeys 35@36c per lb. The New York market is firm. Live chickens bring 35c per lb; fowls 36c; old roosters 26c; turkeys 30c.

POTATOES.

Markets are a little irregular. At Detroit the demand and movement is moderate, with practically no change in prices. Michigan stock is selling here at \$2@2.10 per cwt. in bulk for the best offerings. About the same conditions prevail at Cleveland with Michigan round whites, sacked, U. S. Grade No. 1 bringing \$2.10@2.25; at Buffalo \$2.25@2.35; at Pittsburgh \$2.25@2.35; at New York \$3.15@3.25 in 150-lb. sacks; at Cincinnati \$2.15@2.25 per cwt. in bulk.

Maine farmers are receiving for their Green Mountains \$3@3.15 per bbl. at side track. In Wisconsin the trade is weakening with the price at \$1.45@1.50 per cwt. sacked on cars. In Minnesota there is a slight recovery

since last week. The general trend of the market, however, has been downward.

APPLES.

This crop is moving in considerable volume at the present time. Much poor stock is now coming to the markets and this is a little depressing to the trade. Chicago prices for best Michigan stock are: Greenings \$4.50@4.75; Snows \$5.50@6; Wealthys at \$4.50@5. At Detroit Michigan Jonathans of a good quality are selling at \$1.50@1.65 per bushel. The market here is slow and draggy this week.

HAY.

A steady trade prevails with prices firm as follows:

No. 1 timothy....	\$29.50@30.00
Standard timothy	28.50@29.00
No. 1 mixed	24.50@25.00
No. 1 clover	23.50@24.00

Pittsburgh.—An excellent demand prevails with receipts extremely light.

Top prices are being realized. Quotations are:

No. 1 timothy....	\$34.50@35.00
No. 1 light mixed	32.00@33.00
No. 1 clover	31.00@32.00

SEEDS.

Seeds are irregular with red clover higher and alsike down. Detroit quotations are: Prime red clover, cash and March \$22.50; alsike \$17.75; timothy \$5.

FEEDS.

Prices are steady at the advanced quotations of last week. In 100-lb. sacks to jobbers bran now brings \$35@35.50, standard middlings \$37@37.50, coarse corn meal \$60, cracked corn \$61, chop feed \$45@48.

BUTTER.

Local butter prices show little improvement since a week ago. Consumption has shown some decrease since the recent jump in values. Fresh creamery extras are now selling to jobbers at 56@56½c, and do firsts at 55½@56c. At Chicago the range for creameries is 51@57c, and at New York 53½@61c. Western creamery extras sell in Philadelphia at 61c.

CHEESE.

Brick cheese is quoted to jobbers on the local market at 37c, and Daisies at 34c. On the New York market fresh specials sell at 33@33½c, and do average run at 32½c. Full creams are quoted in Philadelphia at 32@33½c.

EGGS.

A fraction has been added to local egg quotations. Michigan candled stock, current receipts, are sold to the jobbers at 48½c; do firsts in new cases 50c. The best storage packed goods bring 42@43½c. Nearby western offerings are quoted in New York at from 50@80c, depending on the color, grade and size. In Philadelphia western extra and firsts are selling to jobbers at \$15.90@16.50.

DETROIT CITY MARKET

Large quantities of farm produce are moving through the city markets at fairly satisfactory prices. Potatoes are selling at \$1.35@1.40; tomatoes at \$1.50; cabbage (white) 40c; onions at \$1.50; apples \$1.50@2.50; pears \$1.25@2.50; turnips \$1; eggs 70c; hay at \$28@35 per ton.

GRAND RAPIDS

Fine harvesting weather the past week enabled farmers to market a large amount of potatoes and apples. Much of the potatoes brought on the market were too green for cellar stock or shipping and met with slow sale. Fully ripe stock was in good demand. The tendency of the market was to a lower level. At this week's opening the price dropped to \$1.10@1.20 per bushel by the load and fully cured \$1.25. Indications are for heavy offerings this week and further decline in price.

Apple harvest is in full swing and car shipping a feature with jobbers, both fall and winter varieties. The spread in price is \$1@1.25 as to variety and quality.

The onion crop in western Michigan is the finest in years and is quoted by jobbers at 60c per bushel. Considerable number of cars have been shipped the past week.

The bean crop is better in quality than last season, is larger and a considerable quantity is moving into the elevators. Jobbers' prices to farmers is \$8.00 per cwt. for the Michigan pea and red kidney. The trend of price is not to a higher level.

THEY LIKE IT.

We have found at Evart what is known as the Evart Cooperative Shippers' Association. Have sent so far, fifteen carloads of cattle, hogs and sheep, and most everyone is very much pleased. We will also handle our own beans and potatoes and find out if our spuds will not bring us more than just one cent per pound. The farmers in the vicinity of Reed City bought an elevator and are starting to do their own marketing.—A. Z

Live Stock Market Service

Reports for Thursday, October 16th

BUFFALO.

Pigs \$17.75@18; others \$18.75@18.90; lambs \$17.40; calves \$19; cattle weak.

CHICAGO.

Cattle. Receipts 15,000. Better grade of beef steers strong to 25c higher; common grade steady.

Good to prime choice steers \$14.35@19.40; common and medium butchers \$9@14.35; heifers \$6.65@13; cows at \$6.75@12.50; bologna bulls \$12.25@13.50; canners and cutters \$5.75@6.75; stockers and feeders, good \$9.75@12.50; do, medium \$7@9.75.

Hogs.

Receipts 31,000. Market 10@20c lower than yesterday. Tops \$18.60; heavy \$18.30@18.55; mixed and light \$18@18.65; packers' hogs \$15.50@17; medium and heavy at \$16.75@17.50; light bacon hogs \$17.50@18.50; pigs, good to choice \$15.25@16; roughs \$16@16.50.

Sheep and Lambs.

Receipts 29,000. Market is slow to 25c lower. Choice to prime lambs \$15.50@15.75; medium and good lambs \$13.50@15.50; culls \$8@12; medium, good and choice feeders \$11.50@14; choice yearlings \$11.75@12.25; medium and good yearlings \$10.75@11.25; wethers, medium and good \$9.75@12.

Reports for Wednesday, October 15th

CHICAGO.

Cattle.

Today's receipts are estimated at 14,000 head, bringing the receipts for three days up to 65,700 head, comparing with 64,591 for the same time last week. There is not much change in the day's prices, but the market is considerably lower for the week, with the best class of long-fed steers selling at \$19@19.35, whereas heretofore the top was \$19.60. Steers sell largely at \$12.50@15, and stockers and feeders are off to \$6.75@12.40, while butcher stock is mostly 50c lower for the week, with cows and heifers selling at \$6.50@14.25, and canning cows and cutters at \$5.40@6.45. Bulls sell at \$6.25@12, and western range steers are taken at \$9.75@16.25. The calf market is off, with sales at \$6.50@16.50.

Hogs.

Wednesday receipts are in the neighborhood of 18,000 hogs, making receipts for three days of 81,900 head, comparing with 73,477 for the same time last week. Prices cover about the same range as yesterday, hogs selling at \$16.25@18.75 for the rough heavy packers to prime light butchers, while most of the pigs are selling at \$11@16.50. The eastern shipping demand this week has been hardly worth mentioning. The bulk of the hogs are selling at \$17.25@18.60.

Sheep and Lambs.

Wednesday receipts are about 21,000 head, making a total of 107,900 for the

DETROIT

Cattle.

Receipts 4,487. Market very dull, and 75c@1 lower than last week; light thin grades almost unsalable. Best heavy steers \$12.00@13.50 Best handy wt bu steers \$10.00@10.50 Mixed steers and heifers 8.50@ 9.00 Handy light butchers.... 7.50@ 8.00 Light butchers 6.50@ 7.00 Best cows 8.50@ 9.00 Butcher cows 7.00@ 7.50 Cutters 5.75@ 6.25 Canners 5.00@ 5.50 Best heavy bulls 8.75@ 9.00 Bologna bulls 7.75@ 8.00 Stock bulls 6.00@ 6.50 Feeders 9.00@10.00 Stockers 7.50@ 8.50 Milkers and springers ... \$60@ 125

Veal Calves.

Receipts 1,099. Market dull. Best \$16.50@17.00 Others 7.00@13.50

Sheep and Lambs.

Receipts 7,790. Lambs 25c higher; sheep steady. Best lambs \$ 15.25 Fair lambs 13.75@14.25 Light to common lambs.. 10.00@13.25 Fair to good sheep 8.50@ 9.00 Culls and common 5.00@ 7.00

Hogs.

Receipts 6,914. Market is 10@15c lower. Pigs \$ 17.25 Mixed hogs 17.50@17.65

BUFFALO.

Cattle.

Receipts 30 cars; market is slow. Best heavy steers \$15@16.50; shipping steers \$13@14.50; fair to good \$13@13.50; best handy steers \$13.25@13.50; best yearlings \$13.50@14.50; fair to medium butcher steers \$10.50@11; best butcher heifers \$10.50@11; fair to medium \$9.50@10; best fat cows \$10@10.75; medium to good \$9@9.50; fair to medium \$7.25@7.50; cutters \$6@6.50; canners \$5@5.75; best heavy bulls \$10.50@11; sausage bulls at \$9.50@10; light bulls \$7.50@8.50; best feeding steers \$9.50@10.50; commons to fair \$8@9; best stockers \$8.75@9.25; fair to good \$8.25@8.75; common \$7@8; milkers and springers \$65@150.

Hogs.

Receipts 10 cars; market is steady; heavy and yorkers \$18.75; pigs \$18.

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Receipts two cars; market steady; top lambs \$17.25; yearlings \$12@13; wethers \$11@11.50; ewes \$9@10.

Calves.

Market steady. Tops \$19.50; roughs \$7@9.

Shorthorn Sale at M. A. C.

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Richland Mary Ann, to W. J. Bell, Rose City	205
Richland Rose 2nd, to Chas. Wetzel, Ithaca	410
Richland Semptress, to A. L. Pant & Son, Lowell	545
Rosella, to A. L. Pant & Son, Lowell	295
Victoria Maid, to Jay Smith, Ann Arbor	255
W. B. McQuillan, Howell, Mich. Lady Madge 17th, to C. A. Prescott & Sons, Tawas	470
Royal Butterfly, to Sam Jones, W. J. Baird, Dewitt, Mich. Beauty, to Ira Zimmerman, Dimondale	300
Chas. R. Horrie, Hart, Mich. Millie M, to S. H. Aldrich, Saranac	215
Star, to J. B. Simpson, Charlotte	205
	240

Michigan Crop Report

THE estimated yield of wheat in the state is 14.29, in the southern counties 14.06, in the central counties 12.95, in the northern counties 13.08 and in the upper peninsula 21.58 bushels per acre. The per cent of acreage sown this fall as compared with last year is 97 in the state, southern and northern counties, 95 in the central counties and 101 in the upper peninsula. The average date of sowing wheat in the state is September 18, in the southern counties the 19th, in the central counties the 17th, in the northern counties the 16th and in the upper peninsula the 12th.

The total number of bushels of wheat marketed by farmers in September at 105 flouring mills is 173,121 and at 70 elevators and grain dealers 90,443 or a total of 263,564 bushels.

Of this amount 176,825 bushels were marketed in the southern four tiers of counties, 60,297 in the central counties and 26,442 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the two months August-September is 1,500,000. Fifty-five mills, elevators and grain dealers report no wheat marketed in September.

Rye.—The per cent of acreage sown this fall as compared with last year is 99 in the state, 96 in the southern counties, 103 in the central counties, 107 in the northern counties and 95 in the upper peninsula.

Barley.—The estimated average yield per acre in the state is 29.43, in the southern counties 28.57, in the central counties 32.72, in the northern counties 25.80 and in the upper peninsula 30.55 bushels.

Oats.—The estimated average yield per acre in the state is 39.52, in the southern counties 41.44, in the central counties 41.63, in the northern counties 36.20 and in the upper peninsula 39.09 bushels.

Corn.—The estimated average yield per acre in the state is 20.91, in the southern counties 21.35, in the central counties 20.83, in the northern counties 19.57 and in the upper peninsula 20.00 bushels.

Potatoes.—The estimated average yield in the state is 78.67, in the southern counties 72.02, in the central counties 78.42, in the northern counties 74.58 and in the upper peninsula 117.69 bushels per acre.

Beans.—The estimated average yield in the state is 9.23, in the southern counties 8.29, in the central counties 10.12, in the northern counties 10.35 and in the upper peninsula 16.00 bushels per acre.

Sugar Beets.—The estimated average yield in the state is 9.26, in the southern counties 9.28, in the central counties 9.60, in the northern counties

8.26 and in the upper peninsula 10.33 tons per acre.

Buckwheat.—The estimated average yield in the state is 12.00, in the southern counties 12.03, in the central counties 10.98, in the northern counties 11.73 and in the upper peninsula 24.00 bushels per acre.

Grain and seed threshed in Michigan up to and including September 14, per returns of threshermen is as follows:

	Acres.	Bushels.	Yield per acre, bush.
Winter wht.	540,754	7,666,413	14.18
Spring wht.	21,308	405,020	19.01
Rye	366,193	5,325,348	14.54
Oats	1,134,867	45,823,029	40.38
Speltz	5,991	166,388	27.77
Barley	214,875	6,513,587	30.31
Buckw'ht ..	153	2,677	17.50
Peas	5,314	79,077	14.88
Seed:			
Timothy ..	245	1,012	4.13
Clover ..	6,223	16,498	2.65
Beans	754	7,072	9.38

Ditch Before Winter Rains

Protect your soil and your next year's crop profits against injury by excessive water standing on land all winter. Can work land earlier in spring. Add 2 to 3 weeks to growing season. Do farm terracing now. Get

The Martin Farm Ditcher, Road Grader, Terracer & Road Grader

All-steel, adjustable, reversible; no wheels, levers or cogs to get out of fix. Cuts new farm ditches or cleans old ones to 4 feet deep; builds farm terraces, dikes and levees; grades roads. Does the work of 100 men. Every farm needs one. Send your name for Free Book and Special Introductory Offer.

Owensboro Ditcher & Grader Company, Inc.
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'TIX-TON MIX' with salt the year around keeps flock healthy and free from worms and ticks. Saves you big money—a \$1.00 sample box by parcel post will include a barrel of salt. Write for club offer booklet on "Nature and Care of Sheep."

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"Saw Wood!" saw wood for yourself, saw wood for your neighbor, saw wood for the Government, saw wood or freeze. Use a gasoline drag saw that will do the work of ten men. Write for catalogue. Address **S. N. CASTLE & COMPANY,** Lock Box 102, Constantine, Michigan

We are in the market for Seed Wheat.

CARLOTS MAIL SAMPLES
Farmers Elev. & Pro. Company, Bad Axe, Mich.

Rubber Footwear at the "Front"

In the first line trenches, where the need is greatest, rubber footwear is helping to make life more livable for the doughboy.

Men in the trenches are being supplied before civilians at home. This means limited supplies for outdoor workers.

Our customers, we are confident, will cheerfully bear with this situation. We regret our inability at present to meet every demand for "U. S. Protected" footwear.

Until U. S. Rubber Footwear is again available in large quantities, we ask patrons to remember the name and look for the "U. S. Seal" on every pair.

United States Rubber Company
New York

U. S. Rubber Footwear

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REGISTERED HOLSTEIN-FRIESIAN CATTLE

All Animals Inspected
Good blood lines
Breeding High producing strains

Every animal sold in Good Faith
and every sale a bona fide sale
Only good types

Every animal sound
Individual Excellence
No damaged udders
Breeding King Segis King of the Pontiacs

Foundation Stock
Quality Show Animals

A.R.O. Cows
Production Daughters of A.R.O. Cows

Every animal over 6 months of age
tuberculin-tested
Health Sold Subject to relief in 60 days

100
HOLSTEINS
October 30th

Howell, Mich.
Michigan Breeders' Consignment Sale Co.,
H. W. NORTON, Jr., Secretary,
East Lansing, Mich.

Animals in Sale Condition
Quality Cows in shape to test

Sires backed yearly records
Production 25-31 lb. Bulls—

Tuberculin-Tested by Federal Authority
Health Guaranteed free from disease

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Horses Will Be Horses Soon

We have on hand at all times a choice selection of young Percheron Stallions. Also have a few good work horses that we are offering to exchange for young stallions.

PALMER BROS.,

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Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

Percheron Stallions and mares of reasonable prices; inspection invited.
F. H. KING & SON, Charlotte, Mich.

Percherons for sale. Stallion three years old. Mare six, at the right price to close out.
E. J. ALDRICH, Tekonsha, Mich.

Auction Sale of Reg. Perch., Reg. Shorthorns and Duroc Hogs. Tuesday Oct. 29th. write for sale list.
J. M. Hicks & Sons, R.2, Williamston, Mich.

If You Want A Square Deal

and your money on receipt of shipment send your Poultry, Veal & Hogs to

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the best market in America; weekly market circular on request, please mention this paper. Are you doing your bit? Buy War Stamps.

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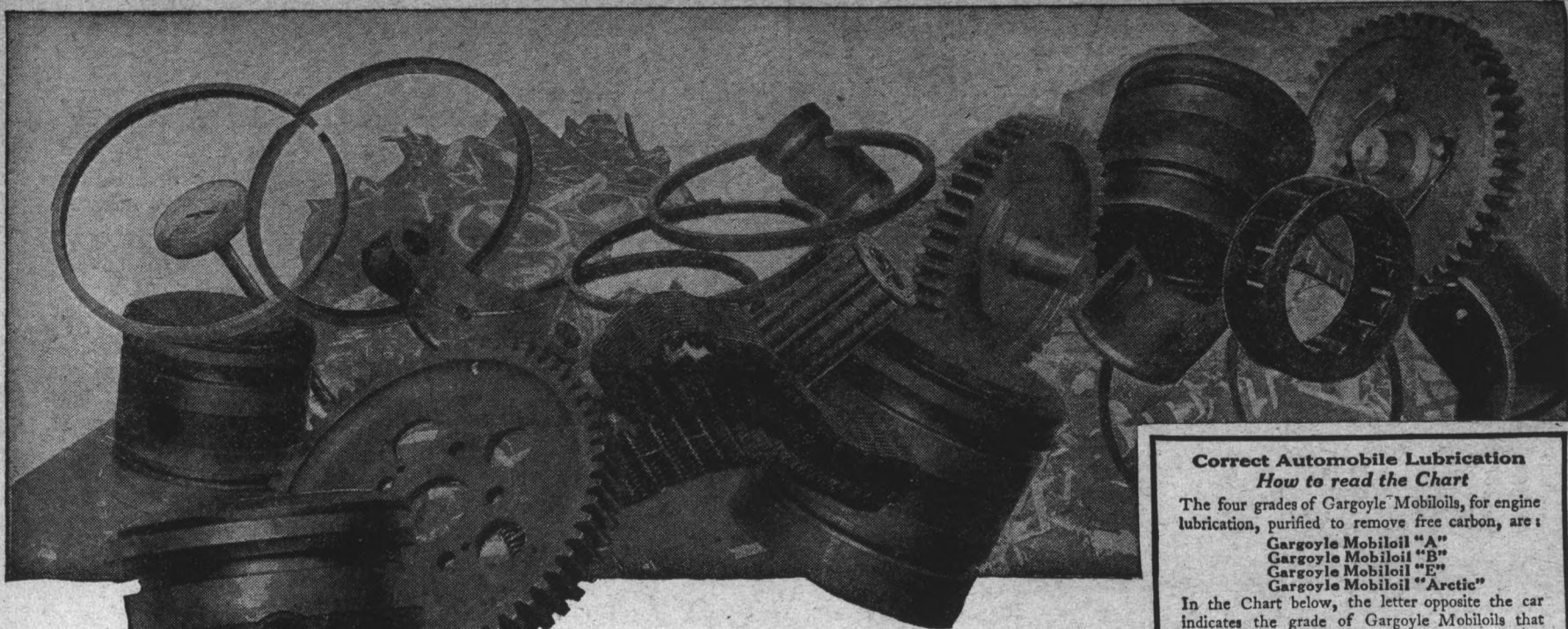
CRATES

Slightly soiled Butcher Folding bushel crates, for shipping and storage. Excellent condition. 24c delivered in Michigan. Cash with order. Immediate shipment.
A. M. TODD CO., Menasha, Mich.

Farmer Wanted Married, no children, to take care of country home. Good salary and profit sharing proposition to intelligent, responsible parties. House with all modern improvements furnished. Box 8-19, Michigan Farmer, Detroit, Mich.

DOGS

Write Dr. W. A. Ewalt, Mt. Clemens, Mich. for Pure-bred Scotch Collie Puppies, natural heelers from trained stock on Ewalt's Stock Farms.



Costly parts

War times demand that
you protect them from undue wear.
Three suggestions.

There is a serious shortage of automobile repair men. You are going to find more and more difficulty in getting repairs made. And you are going to pay more for repair service. Labor charges are up; prices of parts are higher and still on the rise.

Meanwhile many motorists are as unconcerned as ever about their cars. The needless wearing out of engine parts goes on.

Why? Incorrect oil — incorrect use of oil — or both.

Here are three points which should be observed by every motorist:

- (1) **Get the correct oil.** You should use an oil of high quality and of the correct body to suit the lubricating requirements of your car. The use of such an oil is the first and most important step in the protection of your engine parts.
- (2) **Maintain at all times an adequate supply of oil in the oil reservoir.** Lack of attention to this may result in insufficient lubrication, premature wear, and in extreme cases — burned-out bearings.
- (3) **Drain old oil and replenish at proper intervals.** If your instruction book advises fresh oil every 1,000 miles, do not run 1,500 or 2,000 miles before replacing. Oil gathers impurities and thins down in use through condensation of the fuel mixture. Running on such "oil" means premature wear to parts.

It will pay you to send for the booklet, "Correct Lubrication" and read the article beginning on page 3. This book treats this and other subjects with authority and clearness in articles prepared by our Board of Engineers. Address our nearest branch.

GARGOYLE

Mobiloids

A grade for each type of motor

In buying Gargoyle Mobiloids from your dealer, it is safest to purchase in original packages. Look for the red Gargoyle on the container. If the dealer has not the grade specified for your car, he can easily secure it for you.

VACUUM OIL COMPANY, New York, U.S.A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.
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Detroit New York Chicago Indianapolis Des Moines

Correct Automobile Lubrication How to read the Chart

The four grades of Gargoyle Mobiloids, for engine lubrication, purified to remove free carbon, are:

Gargoyle Mobiloid "A"
Gargoyle Mobiloid "B"
Gargoyle Mobiloid "E"
Gargoyle Mobiloid "Arctic"

In the Chart below, the letter opposite the car indicates the grade of Gargoyle Mobiloids that should be used. For example, "A" means Gargoyle Mobiloid "A," "Arc" means Gargoyle Mobiloid Arctic, etc. The recommendations cover all models of both passenger and commercial vehicles unless otherwise noted.

This Chart is compiled by the Vacuum Oil Company's Board of Engineers and represents our professional advice on Correct Automobile Lubrication.

AUTOMOBILES	1916 Models		1917 Models		1918 Models		1919 Models		1920 Models	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Abbott.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Abbott-Detroit.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Allen.....	A	A	A	A	A	A	A	A	A	A
Apperson.....	A	A	A	A	A	A	A	A	A	A
Auburn (4 cyl.).....	A	A	A	A	A	A	A	A	A	A
(6 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(6-38 & 6-39).....	A	A	A	A	A	A	A	A	A	A
(6-39B) (Tender 15).....	A	A	A	A	A	A	A	A	A	A
(6-39B) (Cont'l).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Autocar (2 cyl.).....	A	A	A	A	A	A	A	A	A	A
Briscoe.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Buick.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Cadillac.....	A	A	A	A	A	A	A	A	A	A
Case.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Chalmers.....	A	A	A	A	A	A	A	A	A	A
(6-40).....	A	A	A	A	A	A	A	A	A	A
(6-30).....	A	A	A	A	A	A	A	A	A	A
Chandler Six.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Chevrolet.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
(F A).....	A	A	A	A	A	A	A	A	A	A
Cole.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Cunningham.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Dart.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
(2 & 3 1/2 ton).....	A	A	A	A	A	A	A	A	A	A
Detroit.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Dodge Brothers.....	A	A	A	A	A	A	A	A	A	A
Dorr.....	A	A	A	A	A	A	A	A	A	A
Empire (4 cyl.).....	A	A	A	A	A	A	A	A	A	A
(6 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Federal.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
(Special).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Fiat.....	B	B	B	B	B	B	B	B	B	B
Ford.....	E	E	E	E	E	E	E	E	E	E
Franklin.....	A	A	A	A	A	A	A	A	A	A
Grant.....	A	A	A	A	A	A	A	A	A	A
Hal-Twelve.....	A	A	A	A	A	A	A	A	A	A
Haynes.....	A	A	A	A	A	A	A	A	A	A
(12 cyl.).....	A	A	A	A	A	A	A	A	A	A
Hudson.....	A	A	A	A	A	A	A	A	A	A
(Super Six).....	A	A	A	A	A	A	A	A	A	A
Hupmobile.....	A	A	A	A	A	A	A	A	A	A
Kelly Springfield.....	A	A	A	A	A	A	A	A	A	A
King.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
(Com'l).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Kiesel Ka.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
(12 cyl.).....	A	A	A	A	A	A	A	A	A	A
Lexington.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Lippard Stewart.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(Mod. M).....	A	A	A	A	A	A	A	A	A	A
(Mod. MW).....	A	A	A	A	A	A	A	A	A	A
Locomotive.....	E	E	E	E	E	E	E	E	E	E
McFarlan.....	A	A	A	A	A	A	A	A	A	A
Madison.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Marmon.....	A	A	A	A	A	A	A	A	A	A
Maxwell.....	A	A	A	A	A	A	A	A	A	A
Mercedes.....	A	A	A	A	A	A	A	A	A	A
(22-70).....	A	A	A	A	A	A	A	A	A	A
Mitchell.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Moline-Knight.....	B	B	B	B	B	B	B	B	B	B
National.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(12 cyl.).....	A	A	A	A	A	A	A	A	A	A
Oakland.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Oldsmobile.....	A	A	A	A	A	A	A	A	A	A
Overland.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Packard.....	A	A	A	A	A	A	A	A	A	A
(12 cyl.).....	A	A	A	A	A	A	A	A	A	A
(Com'l).....	A	A	A	A	A	A	A	A	A	A
Paige (4 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(6 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(6-38).....	A	A	A	A	A	A	A	A	A	A
(6-38-39).....	A	A	A	A	A	A	A	A	A	A
(6-40).....	A	A	A	A	A	A	A	A	A	A
Paterson.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Pashindler.....	A	A	A	A	A	A	A	A	A	A
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Pontiac.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Pierce Arrow.....	A	A	A	A	A	A	A	A	A	A
(Com'l).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Premier.....	A	A	A	A	A	A	A	A	A	A
Regal.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Renault (French).....	A	A	A	A	A	A	A	A	A	A
Reo.....	A	A	A	A	A	A	A	A	A	A
Riker.....	E	E	E	E	E	E	E	E	E	E
Saxon.....	E	E	E	E	E	E	E	E	E	E
Selden.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(14 ton).....	A	A	A	A	A	A	A	A	A	A
Simplex.....	A	A	A	A	A	A	A	A	A	A
Stearns-Knight.....	B	B	B	B	B	B	B	B	B	B
(8 cyl.).....	A	A	A	A	A	A	A	A	A	A
Studebaker.....	A	A	A	A	A	A	A	A	A	A
Stutz.....	A	A	A	A	A	A	A	A	A	A
Valle (4 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(6 cyl.).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(2 & 3 1/2 ton).....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(14 ton).....	A	A	A	A	A	A	A	A	A	A
Westcott.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
White.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
(16 valve).....	A	A	A	A	A	A	A	A	A	A
Willis-Knight.....	B	B	B	B	B	B	B	B	B	B
Willis Six.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.
Winton.....	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.	Arc.

YOUR TRACTOR also may be lubricated efficiently with Gargoyle Mobiloids. On request we will mail you a separate Chart specifying the correct grade for each make and model of tractor.