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Western Sheep on Cut-over Lands in Michigan

By M. E. DUCKLES

SHEEP raising on the cut-over lands of northern Michigan has become a subject of intense interest. By the testimony of owners now engaged in the industry there can hardly be doubt that it is a profitable undertaking. A notable demonstration is now being carried on by Gee & Mitchell, of Grand Traverse county.

Early in May last year this firm unloaded from the cars at Mayfield four hundred and twelve ewes from a ranch in Montana. The demonstration now covering ten months, including the summer and greater part of an unusually cold and stormy winter, goes to confirm the belief that the climate of the lake region is as congenial to the growth and development of western sheep as that of their native heath. Throughout the season they ranged the plains of the upper Boardman, subsisting on the grass and shrubbery of these lands till December 9, when the first heavy snow fell. They were then brought up to the yards and put on a ration of hay and oats which they have had regularly ever since that date. This feed was grown on a forty-acre tract belonging to the firm and located on the Boardman river bottom. The

best of hay land is found along this stream.

Mr. George Mitchell, under whose personal care the sheep have thrived, has hardly his equal as a sheep man in the state. He has kept the flock free from ticks and other pests, and has not lost an animal on any account. He has followed a daily practice of feeding sulphur mixed with salt. This was begun with very small amounts and gradually increased until the sheep were taking about one part of sulphur to five parts of salt. The odor of the sulphur from their hides was very noticeable at times. The treatment proved effective in keeping them free from ticks and it was thought actually improved the health of the flock. Later the practice of mixing tobacco with their salt was followed, about one cupful of tobacco dust being used to a pail of salt, to prevent worms. In order to combat grubs the troughs were built narrow and the sides smeared with tar during fly time so the sheep would get it on their noses, the tar being offensive to the grub flies.

Proper shelter has not been overlooked. This is provided by a tightly constructed, half-open shed. It is thirty feet wide by one hundred and twenty feet in length, built on a gentle slope facing the south.

As to the dog menace, so often urged as a serious obstacle in Michigan, it is evidently not so important as many have led us to believe. The present law providing for a tax of two dollars on male dogs and five dollars on females, is full of holes, making it difficult to enforce, but it can be made to serve the purpose where public sentiment is educated to frown on the canine nuisance. In the instance here demonstrated no trouble whatever has been encountered and none is anticipated. It should be stated, however, that the herder is watchful and careful, staying by the flock and taking no foolish risks.

In their desire to improve the flock the Gee & Mitchell firm purchased a dozen pure-bred Shropshire bucks. These have been running with the ewes, and a one hundred per cent in-

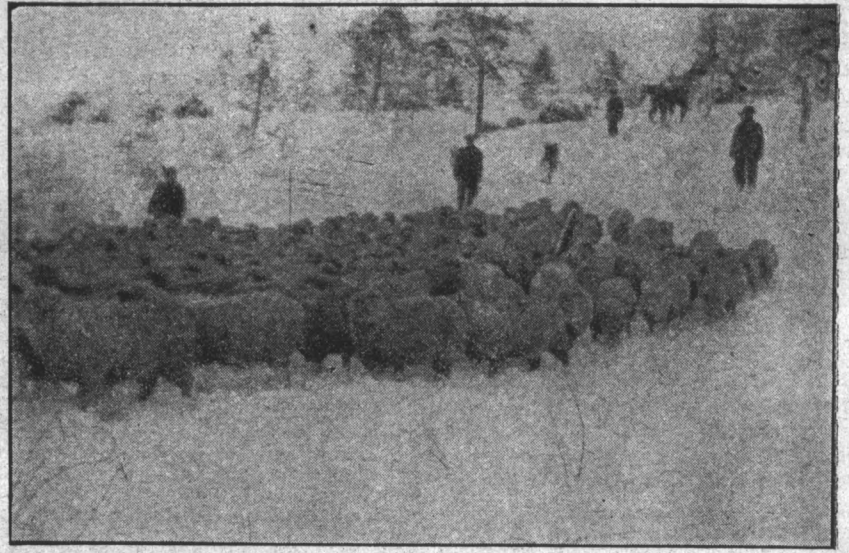
crease is expected this spring. Still more sheep will be purchased if they can be had, so confident is the firm that the venture will prove to be a practical success on a much larger scale. They see no reason why our cut-over lands should not become one of the finest wool producing sections in the United States. Western animals are preferred because they herd together much better than those native to the eastern part of the country. Since homesteading has broken up much of the best grazing land in the west, the sheep men of that section should feel safe in bringing their flocks here.

Success lies in proper management, in knowing the business, and in willingness to devote time and thought to it. With proper shelter for the winter and a fair supply of good hay or other light feed the chief elements of uncertainty are removed, and we need have no hesitancy in giving the industry encouragement.

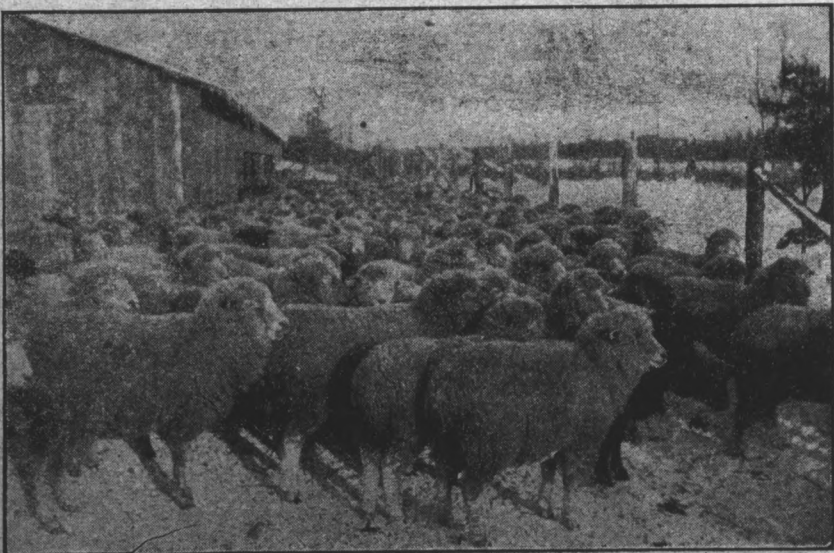
Because of the conditions favorable to the sheep industry it is more than probable that this state will again become one of the big sheep states of the republic.



The Ranges of Northern Michigan Furnish Excellent Feed for Sheep.



One of the Herds Rounded up After the First Heavy Snow.



Sheep were in Excellent Condition when Brought to Winter Quarters.



The Above Shows the Camp Wagon Used when Working on the Ranch.

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DETROIT, MARCH 9, 1918



CURRENT COMMENT.

Five years ago the Michigan Farmer started a campaign for the betterment of direct marketing facilities for Michigan farmers. At that time our Farm Commerce department was established and special attention was given to the direct marketing proposition through the medium of the parcel post, as well as through the facilities offered by express shipment. Lists of farmers who desired to sell products direct to city consumers were secured and turned over to the Post Office Department.

While the idea of direct marketing was then new, a considerable volume of trade was built up between Michigan farmers and city consumers which has since been maintained and gradually increased. This pioneer work was of sufficient importance to attract the attention of the Post Office Department, and as a natural result when increased facilities were provided for direct marketing, the plan was first tried out in this city. A fleet of motor trucks for city delivery has been provided, and the weight on parcel post packages has been increased to seventy pounds, this increase in weight to be effective on March 15. This weight of parcel post packages will be accepted in the first three zones, outside of which a fifty-pound limit will be maintained.

As a means of giving Michigan Farmers readers early opportunity to avail themselves of this extended service, we published in a recent issue an editorial notice requesting farmers who desired to establish a direct business with city consumers to send us their names and a list of the products which they had to offer. These names were filed with the Parcel Post Division of the Detroit Post Office, and have been given wide publicity in the city through the daily press and otherwise.

Other readers who desire to avail themselves of this service should advise us at once, stating what products they have to offer, in what quantities they will have them to sell, and any other information which will be of value to prospective customers. Information so forwarded will be given prompt publicity in the manner above

noted. This should result in the establishment of direct relations between producers and consumers in a very large proportion of cases.

This enlargement of the parcel post service, together with the establishment of motor truck express lines under the plan outlined in another column of this issue should greatly facilitate the shipment of farm and dairy products directly to consumers in the big centers of population of this state. The Post Office Department has announced that if the plan works out well here it will be made nation-wide, thus greatly facilitating the marketing of many classes of farm products in comparatively small shipments direct from the farm to city consumers.

We trust that Michigan Farmer readers will manifest their interest in this proposition to an extent which will make this newly inaugurated service a success from the start, thus materially increasing the proportion of the consumer's dollar received by the producer, and eliminating the toll of the middlemen to a very noticeable degree. If you are interested in this movement toward the extension of direct marketing, send us your name and address, together with information regarding the products you have to offer at the earliest possible date.

Many Michigan Farmer readers will be directly interested in the milk prices which will obtain in the Detroit market milk area for the succeeding three months. Prices for this period were fixed by the Detroit Milk Commission at its meeting on March 4, the prices established and the reasons thereof being set forth in the official report of the meeting which is appended hereto.

March prices to producers remain on the February basis. The prices fixed for April and May are approximately \$1.00 per hundred higher than those which prevailed during the same period last year. The lower price made to consumers during the month of April was established to stimulate consumption of whole milk and discourage the family use of evaporated milk which is now selling on a competitive basis with whole milk at present retail prices, due to the reduced cargo space allotted to canned milk for export by the British shipping board. The official report of the recent meeting of the Commission follows:

Pursuant to a regular call filed by the distributors and producers, the Detroit Milk Commission met in the Board of Commerce rooms March 4, and took testimony of consumers, distributors and producers of milk contributing to the city of Detroit. A review of these facts shows that the cost of producing milk during the months of March and April is approximately the same as the cost of production during the other winter months. The cost of distribution as established last fall is approximately the same today as it was at that time. The Commission therefore deemed the present retail price of milk a consistent one, when full remuneration for the labor and cost of production, transportation, handling and distribution are considered. The retail price of milk for the month of March is accordingly left at fourteen cents per quart and eight cents per pint.

Although the cost of production during the month of April is no less than during the other winter months of the year, the producers of milk expressed their willingness to accept a price less than the cost of production, providing the retail price of milk was lowered. They did this in anticipation of an increase in consumption of milk. Due to the general need for economy and in response to appeals for the conservation of food, milk consumption during the winter months has been only about seventy-five per cent of normal, that is to say that Detroit and the other cities of Michigan and, in fact, the cities of the middle west in general, have been consuming about three-quarters as much milk as they have during the winter season in previous years.

Accordingly, the Milk Commission fixed the retail price for the month of April at thirteen cents per quart and seven cents per pint. It is hoped that

this action will stimulate consumption of milk and give it the place in the dietary of the family that it deserves. Milk even at the prices at which it has been selling during the winter has been the cheapest source of animal food available, and with this further reduction in the April price it stands out pre-eminently as the cheapest source of nutrition available for the family.

The Commission went still further and established the price of milk for the month of May. Inasmuch as during the month of May dairy cattle will be grazing in pastures, the cost of production will be less than during the feeding months. In view of this fact, the Commission fixed the price at twelve cents per quart and seven cents per pint. The joint requests of the producers and distributors as given official standing by the Milk Commission should meet the approval of every Detroit housewife, and every consumer of milk, and should lead to a more liberal consumption of this very important nutritious and valuable food.

Following out the schedule of prices at which milk is to be sold, and conforming in a reasonable degree to the cost of production, the price of milk during the month of March at shipping platform in the fifteen cent zone was fixed at \$3.35 per cwt. for 85 per cent of shipments, and \$2.40 for fifteen per cent in every zone. Of this price \$3.34 and \$2.39 for the respective amounts is to be paid to the producers and one cent per cwt. into the treasury of the Michigan Milk Producers' Association to be used for publicity purposes as provided by the action of producers at a recent delegate meeting. The reason for this reduced price for the fifteen per cent is because the consumption of milk in the city of Detroit is not up to the regular standard, and fifteen per cent of the milk produced must go into various lines of dairy manufacture.

During the month of April both producer and distributor are to accept a lesser compensation for their services, the producer accepting \$2.85 per cwt. for so much of his milk as can be used for the city trade. For the month of May the similar price will be \$2.45 per cwt. Of the above prices \$2.84 and \$2.44, respectively, are to be paid to producers and one cent per cwt. paid into the treasury of the Michigan Milk Producers' Association as for March.

This spring price adjustment divides the loss on April milk as between producers and distributors in a manner which met the approval of the representatives of both who were present at the meeting and who approved this course of gradual price reduction to consumers as necessary under present conditions. The Commission also took steps at this meeting to have an audit made showing the present distribution costs of representative distributors as an aid to equitable price determination for future months.

In view of the unsatisfactory efforts toward equitable price adjustments for market milk in other centers of consumption, producers of market milk in the Detroit area are to be congratulated on the success of the Detroit plan adopted on the initiative of their organization, under which just prices have been insured to producers, and an adequate future supply of milk insured to consumers.

Federal Farm Loan

A recent report of the Federal Farm Loan Board shows that on February 1 the total amount of money paid out to farmers since the establishment of the federal land banks was \$50,782,432 covering 24,020 loans. The total number of loans applied for up to February 1 was 112,146 for a total of \$260,556,981.

The federal land bank at St. Paul which serves the district in which Michigan is located leads the list of twelve land banks in the total amount of loans closed, which aggregate nearly \$10,000,000. While Michigan does not stand anywhere near the top of the list in the aggregate amount of loans closed, it is a fair average of the states in this regard. The total amount of loans closed in this state on February 1 was \$184,300. An additional \$154,700 in loans have been approved on the same date, while there were applications on file for loans aggregating \$225,800.

The bank in St. Paul serves the

states of North Dakota, Minnesota, Wisconsin and Michigan. The farmers of North Dakota have made nearly double the amount of loans aggregated by the farmers of the three other states in the district. Michigan and Wisconsin are nearly equal in the amount of business done. Following the St. Paul district in the order of loans made come three Pacific coast districts, then five central, western and southern districts, then three eastern districts.

These figures illustrate the popularity of this form of loans with farmers in sections of the country where interest rates are comparatively high and capital at a premium. They also show the number of applications to be piling up in every district, indicating a rapid future growth of the federal farm loan system. Farmers in sections of Michigan where high interest rates prevail should secure literature from the Federal Land Bank at St. Paul and plan on the organization of a federal farm loan association in their respective communities as a source of financial relief.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Last week the American soldiers successfully repulsed a German raid against their sector in northeastern France. A considerable number of the raiders were killed and some prisoners were taken. The Germans not only initiated their raid with a tremendous shell fire, but also used immense quantities of gas bombs. Out of eighty Americans who were gassed, only six died, whereas the usual percentage of fatalities is about twenty per cent, which indicates the unusual physical condition of American troops. Maps were found on the Germans showing that every detail of the American trenches and every feature of the surrounding country that could be of military importance, had been carefully mapped out by the enemy to aid him in his attack. It is now believed that German plans contemplated much larger operations, which were frustrated through the successful fighting of the Yankees. At least four rehearsals were held by the Germans before the attack was undertaken. Several German raids were also undertaken along the remainder of the western front. These were generally unsuccessful, although in a few instances the Germans gained temporary foothold in the Allies' trenches. Southeast of Rheims they succeeded in entering the French lines but were quickly driven out in a counter-attack. —No further information of importance has reached this country from northern Italy, Macedonia, nor from Palestine. In the latter place the British have succeeded in holding Jericho and other territory recently occupied. —Russia has finally signed Germany's peace terms. German troops were advancing upon Petrograd and other important cities in northern Russia to compel the Bolshevik officials to agree to the dictation of the Teutons. It is understood that as a result of Russia's delay in signing the peace terms, she will be obliged to give over a wider territory to Germany. It is also rumored that Turkey is to receive as her share of the spoils, Trans-Caucasia. —Japanese and Chinese forces are being mobilized to protect Allied military stores at Vladivostok, Russia. —American Ambassador Francis does not expect to quit Russian soil at least for some time, while British and French ambassadors have already left Petrograd.

National.

Porto Rico has become dry territory. The prohibition measure went into effect on March 3.

Temporary suspension of the meatless meals and porkless Saturdays has been announced by the Federal Food Administration. Increased meat production and the necessity for still greater restriction in the consumption of wheat are given as the reason for the change in the food conservation. This order does not affect the meatless Tuesdays, which the department still asks the public to recognize.

Colonel Roosevelt, who recently underwent an operation, has sufficiently recovered to leave the hospital this week. He has suffered the loss of hearing in his left ear, however.

The third Liberty Loan campaign will be started on April 6, the anniversary of the declaration of war on Germany. It is understood that the amount of this Liberty Loan will be not less than \$3,600,000,000, and the interest four and one-half per cent.

A Successful Farm Labor Undertaking

VAN BUREN county has eighteen townships. South Haven and Covert bordering upon the lake have a warm light soil and as a result many orchards of peach, pear, plum cherry and apples, while many acres are set to berries. Probably twenty-five per cent of this land is in fruit. South and west are six townships where the apple is most important. Other fruits are, of course, grown and some grapes and berries, but the apple takes the lead. Fruit in this section is far, however, from being an exclusive crop as not one farmer in ten grows it for the market. General stock and grain farming is the rule and there are many acres of swamp muck ground which has been drained and produces wealth in the form of peppermint oil, onions and cabbage.

The grape industry of the county is centered around Paw Paw, Lawton and Mattawan, and nearly all of the grapes are grown within a radius of five miles. The shipping in a good year has been as heavy as 2,400 cars, and the grape juice factories located in these three villages use 7,000 tons yearly. This area to a greater extent, than any other part of the county, is a one crop district, but not exclusively. The grape is not a fruit which can be grown profitably in small areas. The number and size of the vineyards make this community dependent upon a large amount of help at harvest time.

In the vicinity of Decatur celery is a big crop, the shipping running about 600 cars, while much is trucked to near-by towns. Celery is a big money crop, but requires much labor, especially at trenching time. Many onions are also grown in this section and some potatoes. All of these crops require the maximum amount of labor at the same time. Much peppermint oil is also produced here but it is distilled in late July or August, and requires no attention during the fall harvest.

The northeastern part of the county is devoted to general farming with the emphasis placed on potatoes and beans. More potatoes are shipped from Kendall and Gobleville than from any other part of the county and it requires extra help on every farm growing fifteen or twenty acres of potatoes. The high land of this section drops abruptly to the muck swamp on the east, several thousand acres of which has been drained to provide for the largest mint farm in the world.

The rest of the county Keeler, Hamilton, Southern Porter, Waverly, Bloomingtondale, Almena and parts of almost every other township is devoted to general farming. Good land this is. Fine country homes; rolling fields of grain

How the Schools of Van Buren County Helped to Harvest Last Season's Crops.

By E. V. ROOT



Play that Fits the Muscle, Nerve and Brain for Hard Work.

and alfalfa; herds of well-bred cattle; large barns and innumerable silos bespeak the lavish gifts of nature. A beautiful country, too; every farm is traversed by a clear spring brook and the blue of heaven reflected in a hundred lakes.

These general farmers, with the help of a hired man or two, manage to care for their crops, the harvest of which is spread over the entire growing sea-

son, but they are not in a position to take care of the corn and get a strangle hold on spring work by doing a bit of fall plowing to help out their neighbor who dabbles in fruit.

This brief description is given to show that while Van Buren county as a part of the great Michigan Fruit Belt has a national reputation, fruit growing is only one of a number of highly

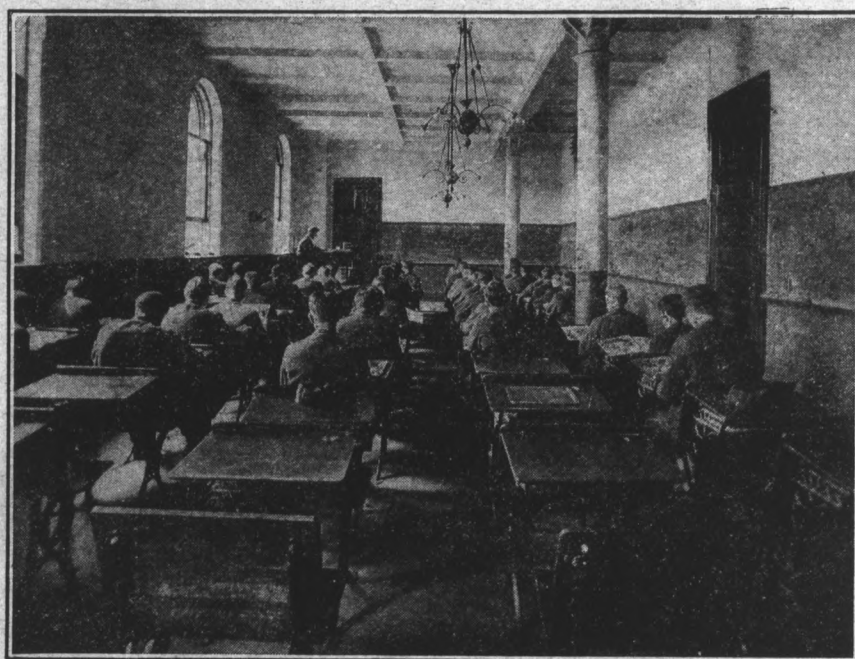
specialized agricultural projects which are carried on, while in the total value of the product first place would probably have to be given to general farming. All of these things have an important bearing upon the labor situation.

The help problem in the county had always taken care of itself. In all sections other than the grape center, enough local labor was always available to look after the harvest and in this locality a large number of hobos were always on hand to earn the easy money paid to grape pickers and hold a sort of national reunion. The growers have always liked this sort of help for the reason that it was not necessary to furnish accommodations. They cooked their own meals and shifted for themselves. Many large growers, too, provided tents and families came from some distance and camped out. They really enjoyed the outing and everybody could work and earn good wages. Help was thus secured and there had never been a real labor problem.

For the past few years, however, the difficulty in securing general farm help, while not alarming, was beginning to cause some uneasiness. There were, of course, reasons for the shortage of labor. A few years ago a man could find employment during the winter in cutting logs and wood but that time is passed and from the day that the fall harvest is out of the way until spring opens there is practically nothing for the laboring man to do. As a usual thing the day laborer is not an economist. He spends as he goes and winter without a job is a real hardship. Again the increase in the cost of living has made it difficult indeed for him to live twelve months on the wages of eight, and he has been driven to the city where he can obtain steady work.

As before stated, this movement had been going on for some time and was becoming more noticeable each year. And then came the war. In draft and enlistment several hundred young men, mostly the sons of farmers and the laboring class, were called to the colors. Others moved to the cities to take the places of those who had responded. The result was immediately apparent. Labor was hard to find. There was a shortage everywhere in the county. The patriotic farmer, however, managed to plant the usual acreage of crops and partly care for them; and what a season; cold late spring with hard frosts in some sections as late as the middle of June; cold wet summer; killing frosts in half

(Continued on page 336).



School was Dismissed when the Farmers Needed Help Most, and Not at the Usual Vacation Season.

How Shall We Regard the Oat Crop?

WHAT shall be our regard for the oat crop this year? With seed corn so scarce and with much of it of poor germinating ability, there is a great tendency to plant oats as a substitute crop. Many are considering the planting of oats on a much more extensive scale than has ever obtained before. Only yesterday, I heard a prominent farmer say, "Last year I had eighty acres of corn and twenty acres of oats, but this year I am figuring on eighty acres of oats and twenty acres of corn." Since there has been in some sections a tendency to regard the man who changes thus from corn to oats as a slacker, it seems fitting to discuss this operation with a view to determining whether it is justified, and if so, is it at the same time patriotic and calculated to increase the food supply of the nation.

Oat Growing is Patriotic.

The quality of last year's seed oats was not in the least impaired and

During the Coming Season This Crop Promises to Become a Factor of Unusual Economic Import in Michigan's Agricultural Program.

By I. J. MATHEWS

when an acre is planted to oats, we have every reason to believe that that acre will bring forth its quota of food, especially if the oats have been treated and are planted early. I wish it were possible to make the same statement about corn. However, this will not be the case. Despite the fact that so much has been said about this important matter, not more than fifty per cent of our farmers have actually tested their seed corn ear by ear. True, some of them say they have tested, but if followed up one finds that the test consisted in taking one hundred grains hit or miss from the ears. These were placed in a pan of soil behind the stove and when the grains sprouted, the percentage of germination was

reckoned on the number that grew. Such a test is absolutely worthless so far as reducing labor losses this year since it neither searches for nor "kicks out" the dead ear.

The result can be nothing else than that many fields will show up thirty, forty and fifty per cent stands. It would seem as though the conditions of this year would cause even the drowsiest farmers to test their seed corn so that such stands would not be in evidence, but that is entirely too much to expect. I would be willing to wager that there will be a great many fields that will show less than the stand indicated above.

On the other hand, it will be quite uncommon to see fields of oats con-

taining stands that are so low as this, more because the oat crop is generally a higher germinator than corn and also because most farmers err on the side of sowing too many oats rather than sowing too few, and thus the plants grow to the space they have.

Sow the Oats Early.

In oat seeding, there are three points that are very important and the success of the crop quite largely depends upon how these three are administered. They are early seeding, treating for smut, and variety. While there are some rather limited regions of the United States that can use the Swedish or late maturing oats, it is true that oats matured early are much freer from smut than those that mature a week or so later. To this end, it is very important to get the oats seeded as early as possible. The reason why the late oats are not as good as the early is not alone the matter of the filling of the grain, but the early oats,

due to weather conditions, are not as badly attacked by the rust as are the late ones and hence the increased yield. Some years this infection is so marked that the very late oats cannot be harvested for their grain. And so it behooves every oat grower to sow early oats and sow them early.

Smut Treatment Pays Big.

On the farm that annually grows from one-sixth to one-fourth of its acreage in oats, there is no one thing that makes more difference in the profits to be derived from that farm than the treatment of the seed oats for smut. Last year I counted several representative portions in smutted oat fields concerning which the owner said: "I have never been troubled with smut; neither am I troubled with it this year." Perhaps the owner hadn't been troubled but in many cases we found that it was because it took a very large leak to trouble him. When oats can be smutted to the extent of forty-seven per cent and the owner not be troubled, there is something wrong, either with his eyes, sanity, or sense of money values. Such a percentage of smutted plants means that the possible yield is cut in two.

Of course, all were not quite as large as this one, but nevertheless, the average count of a large number of fields was fourteen per cent or, in other words, the average reduction of yield was by one-seventh. Placing this truth in another way, it means that the owner grew on eight acres of oat land the number of bushels that should have been grown on seven acres, or he grew on sixteen acres what he might have grown on fourteen. Thirty-five cents worth of formaldehyde, seventy-five cents invested in a hand-sprayer, and an hour of time for each of two men—or an expenditure of about \$1.60, would have rendered those other two acres capable of producing their maximum of oats. One dollar and sixty cents, when it can be used to secure from eighty to one hundred bushels of oats, is a pretty safe investment.

How to Treat.

The treating of oats is such an old story that it seems like a waste of time to repeat it, but since a new and earlier method has been brought to light, it is well to repeat the conditions for making the so-called "dry treat." Briefly, the method is this: Put a pint of formaldehyde into a quart hand-sprayer, add a pint of water. Now, while one man is shoveling over the oats let the other one spray on this mixture of one-half formaldehyde and one-half water. Put some horse blankets or sacks over the oats and leave them tightly covered for four hours after which they will be ready to sow.

Where the sowing is to be done with an end-gate seeder, while one man scoops the oats into the wagon box, the other may be spraying them. This may be done the day before, the oats are left covered for four hours and the work of seeding is ready to commence.

Under the labor shortage this spring, a question has arisen as to whether it pays to plow for oats or whether it is just as profitable to disk them in. In candor, it may be said that the yield is usually greater where oats are put on plowed ground despite the fact that the great bulk of oats sown the last ten or fifteen years have been sown on corn ground and disked in. The increase, however, of oats placed on plowed ground has never been very large comparatively, and with the meager labor supply of this year, it is doubtful if it will pay in many cases to plow for oats. Oats, put on corn ground, disked under lightly, and then harrowed, usually make a good stand and the yield is quite comparable with those that have been put on plowed ground.

There is such a thing as putting oats on too rich ground and this should be

guarded against. Under such conditions, they grow largely to straw and should there come a heavy wind or a beating rain just at the usual time of harvesting, many of these oats will be blown down and thus wasted. It has been proven quite conclusively that better yields are secured where oats are drilled rather than being broadcasted.

In the next year or so oats will come more and more to be a substitute for

corn and wheat. Long since, the Scotchmen have been using a great many oats and but very little wheat. The hardness and vigor of these Scotch people certainly show that this substitution has not done any great harm. To substitute oats in place of corn should be done only where such a substitution seems absolutely necessary, but he who does it is more of a patriot than he who plants untested and untried corn.

More Alfalfa Needed

By W. G. TAYLOR

THE importance of alfalfa culture is growing rapidly in the public mind. The superiority of alfalfa hay over almost every other kind of roughage is being more widely understood. But yesterday a man told me of the individual cows in his herd. I asked him how much grain he was feeding, because the production of that herd made a splendid story. When he told me I was nearly taken off my feet for a minute because the quantity was so small; however, I got back easily enough as he continued: "Well, I have alfalfa hay and am feeding the cows all they will eat in connection with their ensilage."

The Superiority of Alfalfa.

The value of alfalfa in the development of animals is well understood by all who have had experience with it. Alfalfa is better than clover for young animals. The food nutrients are more available and its lime content being greater makes it of much value in the development of bone. Of all the roughage fed to hogs alfalfa is an easy winner. The great tonnage resulting from alfalfa fields where the stand is good and the soil is sufficiently productive is an item that adds much to the value of this crop. In these days of high-priced grain or little or no grain at all, alfalfa takes on a new significance. Every man who grows it is fortunate and everyone who does not grow it, and who keeps cows, should make an effort to do so unless he is certain that his soil is not adapted to its culture.

Much has been said about the necessary factors in successful alfalfa growing. It is now up to the average farmer to do as well as he knows how. It is generally known that lime is most often the limiting factor. Much has been said about the different forms of lime that may be applied, and yet thousands of farmers who might be growing alfalfa today have neither applied marl nor ground lime rock, nor any other form of calcium to the soil, not because of what they did not know, but simply because they have not got around to it. What is needed today is not so much a campaign of education as one of inspiration.

Inoculation.

Many people fail to inoculate either the seed or the soil. There is a great deal of useless argument over this matter of inoculation. That it is possible to grow alfalfa on many soils without inoculation no well informed person will dispute. That it is impossible to do so successfully in a majority of cases is a fact equally well established. The cost of inoculation is but trifling, and "Why will we continue to dispute about its merits, or fail to do it, and run useless hazards when chances are always in our favor if we make this simple little investment?"

The matter of the seed bed is another point at which we often fail. It takes work to prepare a good seed bed where we expect to grow the alfalfa.

The writer has had some personal experience of this kind and so he is taking his full share of these suggestions. We human beings are much alike about most things, but good has always come and always will result from our jogging each other up occasionally.

The matter of the time of sowing alfalfa is not so well established. Indeed, the proper time varies, in the judgment of the writer, according to conditions—if the soil is very productive alfalfa may be sown as early as the oat crop, or even a little sooner, with good prospects of success. If it is sown with a light seeding of barley a fair crop of grain may be harvested and the alfalfa will probably get a satisfactory start. If it is sown alone on such soil one or two cuttings of hay may be expected the first year. Some people advocate tilling the ground during the early part of the summer in order to kill the weeds and secure the right of way for the alfalfa, but you cannot kill the weeds on a very fertile soil by cultivating it a little while during the fore part of the summer. If you do so and then seed to alfalfa it is simply a race between the alfalfa and the weeds and two out of three times the writer will bet on the weeds.

But suppose the soil is not very fertile. Suppose it has been limed to correct acidity, and we are ready to prepare the seed bed, what is the chief thing we desire to do. Is it not to provide a home for the alfalfa with as few weeds as possible, and with plenty of moisture? Neither the weeds nor the alfalfa are going to grow as fast on this soil as on one that is more productive, but with cultivation continued until the middle of the summer, with weeds killed, moisture conserved, and a fair proportion of plant food liberated the race will be won by the alfalfa over the weeds in a large majority of cases. We do not wish to consume space in this article talking about the other requisites of alfalfa culture.

The big thing right now is to induce people to put their soils in condition and begin growing alfalfa. We should talk it in our Granges, in our Gleaner Arbors, and our Farmers' Clubs, and then do the things that are necessary to get results.

Alfalfa seed is worth only a little over half as much as clover this spring. The demand for grain is on the increase every day, with little prospect of being satisfied until another crop is grown. What the next crop will be no one can now say, but beyond any question grain will be very high and very hard to get until after the war. More food units can be produced in a season from a good alfalfa field than from any other like area and it is possible to greatly increase the acreage this spring. There is no danger of over-production of alfalfa. It is more important just now to increase Michigan's acreage of hay than of beans or potatoes. Under present labor conditions the hay crop offers special advantages and of all the plants grown for this purpose alfalfa must be placed at the head.

DRYING WET BEANS.

I have been asked to give my method of drying beans. An old apple drier makes an excellent place for this purpose. We make a cover out of light factory cloth to cover the slat shelves in the drier. This cloth is loose enough to permit free circulation of heated air and strong enough to hold the beans.

Care should be taken to spread the beans as evenly as possible after any lumps have been thawed out. When the beans are thoroughly warmed through and start drying on the bottom of the kiln or drier they should be turned. This should be done every six hours, depending of course, on the quantity of beans being dried—the heavier the kiln the more frequently the turning should be done.

In firing care must be taken not to overheat the beans. We find dead wood to be much better than seasoned green wood, as the former produces a more steady heat.

The beans shown in the photograph which appeared in a recent issue of the Michigan Farmer, were so wet that the skins were wrinkled, yet they dried out in the above described device and became as smooth as beans cared for under ideal conditions. This drying put them in good marketable shape, and we believe they can be held for an indefinite period.

Ionja Co.

ELLIS BIGNELL.

THIS MAN SAYS "TRY."

American farms are expected to produce more food this year than ever before. Certainly the greatness of the need is apparent, and no doubt will be met with a united effort to till all the land and to conserve all the seed grain and stock, which the labor condition and the scarcity of seed will permit.

Much depends upon our county agents in their efforts to make farming a better business for many, who need the instruction he is able to give. One move in the right direction would be to encourage each farmer, however small his acreage, to keep an accurate accounting, where the lack of education would prevent a system of book-keeping.

Possible blank forms would be the next best plan. Aside from the satisfaction of knowing the loss or gain of business transacted, the record would be valuable and avoid a guessing contest, when the income tax will have to be considered.

Many do not fully appreciate the value of the county agent and in consequence wait for him to come, rather than send for him when a better acquaintance would be very beneficial to the farmers. This is the indifferent class who hesitate to modernize the business of farming, but still prefer to wait upon the "Whims of Luna." We have no criticisms to offer to the man who farms by the "Zodiac" except a decided opinion and the fact that a lot of valuable time is wasted that should be accounted for and in these days of saving, why not begin here.

The same measurement of time should apply everywhere, then why is it that in the country where "a man's time is his own," no strict account of the hours is expected and often it takes but a slight excuse for a trip to town.

If this year is to show results of increase above the normal, more hours' work is necessary, less waste and more saving absolutely necessary. This is a business that will pay liberally for the most strict attention to each detail of the business. If by so doing two of the young animals on each farm might be saved and one peck of grain from each acre more than last year, such an immense sum this would represent that the desired increase in the production would become a reality.

Now, of course, talking without action will not get us anywhere, that is the most of us; but if we each, who can, will determine how much we can do more than last year and are willing to save where possible and make the effort necessary to increase the yield, the pay is sure; for this is strictly a business proposition and the result asked for will be obtained.

Alpena Co.

W. H. CAMPBELL.

Pertinent Spring Farm Problems

What Share Should the Renter Have?

Can you or any of your readers inform me as to what would be a fair deal between land owner and tenant in a farm under the following conditions: I have a farm of 120 acres, all new buildings last year, and all fenced with good woven wire fencing, with water and electric light in both house and barn. I have a good team, and all the tools and seed for this season. Also have ten cows and ten head of young stock and forty chickens. I have bought two cars of ground lime rock which I will pay for personally—to be delivered at our station in April. This will be a three-mile haul and I want to have the tenant stand the expense of drawing and spreading on the land. A lime spreader is among the tools I furnish. I might also mention that I have a new cream separator and cream cans. Now, I want to know what share each of us should have of the products from the cows and chickens, and the increase in value of present young stock and calves raised during the coming year. Our main crops will be hay, oats, potatoes and corn. What share should each of us have of these crops? And should my share be at the farm or shipping station? I would rent from one to three years. I have a good man on the farm taking care of the stock this winter, and am willing to give him the best end of the deal to keep him. But neither of us knows what would be customary under these conditions. I might say that I would expect to give possession of everything on April 1, and would expect the stock to be delivered back to me at the same date at expiration of the lease. Who should pay for any feed that may be bought on the farm to feed stock? I thought the information asked for might be of interest to others of your readers who, like myself, have loaned their boys to Uncle Sam and are unable to do the work themselves.

Benzie Co.

A. J. W.

I could not give any rule that will apply in a general way in a case like this. I don't believe anybody can. It has got to be simply a bargain between individuals. No two farms are alike. A man can afford to pay in many instances twice as much rent for one farm as he would for another in the same neighborhood of equal size, because on one farm the land has been kept in good crop producing power and the other has been run down. On a good farm the renter can afford to work for a much smaller portion of the crop and still make splendid wages than he can on the other and so it all narrows right down to local conditions and a question to be settled by individuals.

In a general way, it has been the rule that the land alone drew one-third the crops. For instance, the renter furnishes all live stock, all tools, his own seed and does all the labor and gets two-thirds of the crops. The owner of the land pays taxes and insurance on his buildings and gets one-third.

It is quite a common practice where the owner furnishes the cows as well as other kinds of live stock, the renter furnishes his own work horses and tools, each furnishes half of the seed, the renter, of course, doing the labor,

to divide equally. In this case, if there is any outside feed to be purchased each buys half.

Again, I know where farms have been rented on precisely the same basis as this one proposed, where the owner simply moved off, leaves all the stock and tools and furnishes the work horses, pays the taxes and insurance, and the renter gets one-third and the owner two-thirds of all the crops right straight through. In this case, the renter is practically a hired man and yet he is much more than a hired man because he must assume responsibility. He gets wages in proportion to the effort which he puts into the farm. It puts him on his own responsibility largely. With the right kind of a man it would be a good deal better to hire him in this way than it would be to pay him so much a month because he would work better. That is human nature. On the other hand, if you haven't got a man that can manage this farm and do the work, make his own plans and execute them, then you had better hire a man by the month and do your own managing.

With one hundred and twenty acres of good, fertile land, fully equipped, a good man ought to step in there and make a good thing for himself. He could do it. But a poor man would make a fizzle of it. The majority of men don't like to assume responsibility. I might say that many of them are not capable of assuming responsibility. If a man hires a man and pays him so much cash and he doesn't fill the bill he can get rid of him, but if he hires him in this way with a portion of the crop he is up against a serious proposition.

In this case, I should think that if the food was to be purchased outside of the farm for the cows and other live stock that the same rule would hold, that the owner purchase two-thirds and the renter one-third. But, as I say, there is so much difference in

the productive capacities of farms that this rule wouldn't hold in every instance. For myself, I would prefer to pay the man good wages and run the risk myself and do my own managing, but personally, I like the idea of assuming responsibility rather than shirking it.

Seeding to Alfalfa.

I have five acres which have been sod land for twelve to fifteen years. This field has been plowed. Two crops of good corn have been grown, then summer fallowed and sown to wheat. The piece was top-dressed with manure, 200 pounds of phosphate put on per acre with the wheat. A fine piece of wheat was harvested this past summer. I plowed the stubble in the fall. Now I wish to seed this ground to alfalfa. Will you direct me to the proper manner of seeding? Also had I best test the soil for acid condition? Can I take the frozen lumps, by thawing them in the house, and get a satisfactory test? In regard to the oats, I am anticipating sowing the Worthy brand of oats as they have been recommended to me. Would you recommend them for my ground, which is of the moderate clay loam soil, which is very fertile. Also the proper place to get them. I have a neighbor who has the same, which yielded only 30 bushels per acre this past season. Would it be wise to use his seed?

Lapeer Co.

L. C.

This field ought to be in splendid condition to seed to alfalfa and you can seed to alfalfa with oats or you can seed to alfalfa alone. I would seed with oats, say a bushel of oats to the acre, and I believe you will get a good stand of alfalfa and raise oats enough to pay for seeding down. One of the best stands I ever got was seeding to oats in this way early in the spring. It probably would pay you to get ground limestone and apply one ton to the acre because alfalfa always does better on land that has been limed. You can't get too much lime for alfalfa. Then the alfalfa seed ought to be inoculated with the proper bacteria. If there is an old field of alfalfa in your neighborhood, get a little of

the soil right close about the roots of the plants that have the proper nodules. Dry this soil carefully away from the sun's rays, make it very fine by rubbing it with bricks or something of that sort, then saturate your seed with glue water, that is, dissolve glue in warm water, pour it over the seed, stir it thoroughly and then mix with this soil and stir until every seed contains a portion of this fine dust. A quart of finely ground earth will probably inoculate a bushel of seed but you can afford to be liberal and put on all the dirt that will stick to the seed.

If you can't get earth in this way you can get enough of the bacteria culture for about \$1.25 to inoculate a bushel of seed. This is almost as cheap as a man can go and get the earth and prepare it.

In seeding this alfalfa I would seed it with a grain drill at the same time I sowed the oats. The grain drill, of course, should have a grass seed attachment and set to sow about six quarts per acre and I would distribute the seed in front of the holes of the drill rather than to let it run into the drill marks with the seed because this will cover much of the seed too deeply. It would be a splendid plan to roll the ground with a roller after you have sown the oats.

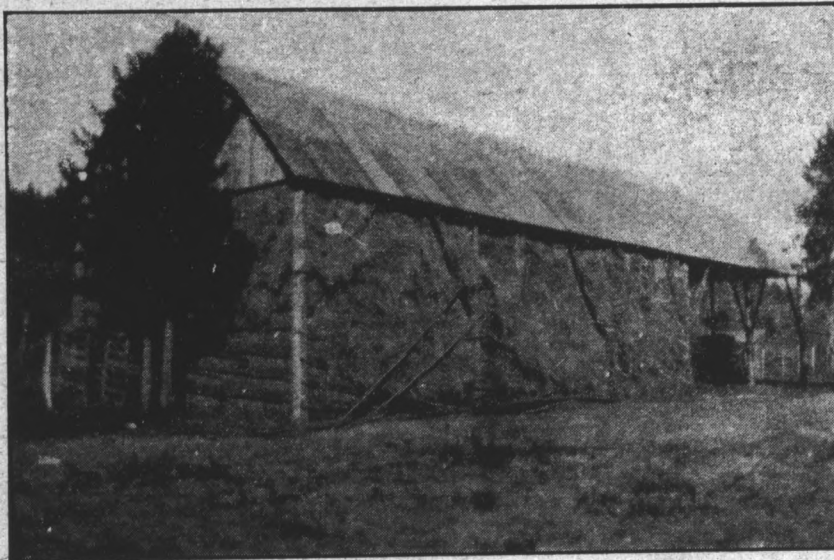
If the season is very dry it would pay you probably to cut these oats for hay and get them if you can before the drought injures your seeding. If there is a fair amount of moisture, however, you can ripen the oats and cut a good crop of oats and then get a seeding of alfalfa.

If you prefer to seed the alfalfa alone, then all there is to do is to work this land from time to time, destroying all weeds and preserving the moisture along in June. The weeds in this surface soil will all be destroyed, then you can sow your alfalfa alone either by hand or with your wheat drill. Having no weeds to smother it, it will make a rapid growth undoubtedly if the season is favorable. It may have to be clipped later on. Probably it will make growth enough so that you can get a small cutting of hay. The inoculation of the seed applies just as much to this manner of seeding as to the other.

In either method, I would advise a good liberal use of commercial fertilizer as it helps not only to start the oats but the alfalfa, and in my judgment will well pay the expense.

A good way to test your frozen soil is by taking it in a warm room and leaving it until it is thawed out and then applying your litmus paper test. If you have to moisten soil—it will probably be dry—be sure and moisten it with rain water and not with well water, as the well water might contain lime which would interfere with your test.

With regard to using a particular



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variety of oats. I don't think it would be advisable for me, in fact, I do not know the merits of different varieties sufficiently to warrant my saying that one variety is better than another. I think it is much safer for you to look about you in your own neighborhood and get seed from a variety that has done well for a period of two or three years. I wouldn't want to condemn the variety you speak of just because the man had a poor crop last year; the variety may not have been to blame at all. The conditions of the particular variety or the weather conditions in that vicinity might prevent the variety from making a normal growth.

Buckwheat After Wheat.

Is it possible to sow buckwheat on wheat ground after wheat is harvested, and mature a crop? In case the buckwheat failed to mature, would it be a paying proposition to plow the buckwheat under for a green manure crop? If so, when should the plowing be done, in the fall or following spring? What would be the best variety of buckwheat to sow? I have planned to seed five acres to alfalfa this spring, using barley as a nurse crop, as alfalfa has never been grown on this field before. Would you consider it safer practice to mix June clover with the alfalfa seed to insure a hay crop in case the alfalfa failed? If so, how many pounds of each should be used? Washtenaw Co. H. S. F.

I would not consider it practical to attempt to grow buckwheat after one had harvested a crop of wheat. Some seasons you might get a crop but all conditions would have to be exceedingly favorable. The wheat would have to be harvested early. There would have to be plenty of moisture at that time so that the ground could be properly fitted. You must drop everything else and sow the buckwheat just as soon as possible and you would have to have an exceedingly late fall in order to have the crop mature.

I have sown buckwheat after harvesting a crop of Alaska peas for the canning factory but these peas were harvested about the twentieth of June; the land was in fine condition and all we had to do was disc it and sow the buckwheat. There was enough moisture so that the peas came up at once and the fall was favorable and we got a good crop. But last year I tried the same thing; the pea crop was later and the frosts earlier, consequently the buckwheat did not ripen.

As you suggest, it is not an entire loss if the buckwheat fails to ripen because it can be plowed under and you get some benefit from green manure. You have kept your land shaded during the hot season, which is a good thing for the land. Last year we cut our immature buckwheat right after the frosts and put it into the silo and the cows ate it. I cannot say how good ensilage it was or how much good it did the cows, but I know they ate it and it seemingly took the place of other ensilage.

I think probably the Silver Hull buckwheat is as good a variety as one can get. Some people speak highly of the Japanese, and yet, under ordinary conditions, the common buckwheat seems to do as well as any.

Seeding Red Clover with Alfalfa.

My judgment is that it would be a good plan for you to mix the clover and alfalfa equal parts and seed rather heavy, say fifteen pounds to the acre. The first year I am satisfied you will get more hay with this mixture than you would if you sowed alfalfa alone and if the alfalfa does well there will be enough of that so the second year you will have a good crop of alfalfa. I wouldn't think of sowing this alfalfa without proper inoculation.

Is Sawdust Used as Bedding Injurious to the Land?

Will sawdust, when used as an absorbent in the stables, spread and plowed under, injure the soil or crops to any extent? I heard that it did. Is it practicable to sow clover seed in

peas and oats which are used for summer cow feed? Can a good stand be obtained in this way? I have had good success in seeding down in oats. Allegan Co. J. H. L.

Where sawdust is used as bedding in a stable one must use an exceedingly heavy application of manure to even have any results noticeable. With any ordinary application of manure the sawdust would have no perceptible effect upon the land or the crops. I believe that if you would cover the land over two or three inches deep with sawdust and plow it under, that it would not be a good thing, not at first, but eventually, after the sawdust had time to rot this would furnish organic matter even if of a poor quality and would improve the physical condition of the soil, especially heavy land. It would take some time, however, but that it would not eventually prove injurious is proven by the fact that trees and limbs have rotted for ages in our forests and when the timber lands are cleared away they are very rich and grow the best kind of crops and the decay of this wood is not injurious to the soil.

Seeding Clover with Peas and Oats.

Peas and oats are not a good crop to seed clover with. Both plants make too rank a growth and are liable to smother the young clover. Peas especially are quite apt to lodge and where they lodge badly I have seen the clover entirely destroyed. One thing in

favor of this crop to seed with is that it comes off early in the season before draught sets in, and if the clover has not been smothered up to that time it has a good chance from then on but there is so much danger that it will be smothered that it is risky business to sow clover seed, especially when it is as high-priced as it is now with the peas and oats.

I would much prefer to harvest these peas and oats and then go to work and disc the soil thoroughly, harrow it and make a good seed bed and seed to clover along about the first of August. You are practically sure of a good catch of clover then, and there will be little danger of wasting high-priced seed.

Sometimes one has good success in seeding clover with oats in the spring, providing you did not sow over a bushel of oats to the acre. If the oats are sown very thick they are liable to crowd the clover plants so that it doesn't make a good growth. My experience is that it is better to seed the clover on wheat early in the season before the frost is out of the ground. The wheat plant doesn't have such dense foliage as oats and I have never yet lost a seeding.

Beardless barley is a good deal better crop to sow with clover than oats or even wheat, because it doesn't have such dense foliage.

COLON C. LILLIE.

Mich. Motor Truck Express

By ALMOND GRIFFEN

FARM to table motor truck express service lines are being established by the United States post office department, and they are being cordially received by the farmers along the routes. Michigan's first line as now planned will operate between Grand Rapids and Saginaw, serving the rich farming territory in between. Competitive bids for operating fleets of cars on this route, under stiff bonds of \$18,000, have been opened and it was expected the contract would soon be awarded by the government.

This line of trucks will start operations in early spring, running on definite schedule of about ten miles an hour and having fixed stopping stations. Of the mail matter carried, special attention will be given to parcel post service and to the needs of both producers and consumers of farm, orchard and garden products. By elimination of middlemen it is expected that the farmer will get a little more for his stuff while the consumer will pay a little less.

The motor truck plan was started by Uncle Sam last summer, the first routes being out of Philadelphia and Baltimore. The cars were of a ton and a half capacity, well built and snugly enclosed, with the words "United States Mail" on both sides. Great interest was shown by the farmers along routes and the truck drivers were plied with questions. The post office department issued booklets giving names of farmers along the routes and stuff they had to sell.

In the matter of gardens, for example, it is known that almost every farmer raises more stuff than he can consume and this new, quick and handy express service by his door may make it worth while for him to sell his surplus in the city.

The railroads and the express companies operating over steam and electric lines have more than they can do. The government realizes this and government officials are deeply interested in this plan of utilizing the highways in bringing producer in direct touch with consumer. It is very plain that there must be increased production and what is more important still—improved methods of marketing and distribution during these trying war times. James I. Blakeslee, fourth assistant

postmaster general, in charge of the rural free delivery system, is at the head of this new movement, and he says: "In every producing section of the country today there is bound to be less production, a condition brought about by the fact that so many men have been called into war service. So it is necessary that we give the producer the best possible means of transportation. To this end we would inaugurate a vast system of motor truck lines over which manufactured articles as well as farm products may be transported cheaply and quickly. Along one line of motor truck transportation now in service we found that under the old system it was necessary to handle a case of eggs fourteen times between the producer and the consumer. Our truck line delivers a case of eggs with only three handlings at the most.

"Our system as laid out will include two trunk lines and feeder, or short line routes. The trunk lines will operate between larger cities, in order that a good market shall be available at either end and the trucks may be loaded both ways. Feeder lines will provide quick connection with interior producing sections."

Government routes have been established out of Baltimore, Washington, and a few other eastern cities and it is expected that lines between Chicago and Zanesville, Ohio, and Chicago and Indianapolis, will soon be in operation.

So much for government plans. In addition private enterprise is putting on these highway motor truck lines almost everywhere. Perhaps the leading line of this kind is the Akron and Boston express which has a fleet of trucks of one and a quarter, three and five tons capacity and the schedule calls for a round trip of 1,510 miles in less than one week. These trucks have been able to run close to schedule. They are fitted with special bodies to provide sleeping accommodations for the driver on duty, and the trucks are driven day and night. Extra large tires relieve the strain of rough roads.

A concern was recently incorporated to operate a highway express line between Chicago, Gary and Milwaukee. The Milwaukee Chamber of Commerce is making plans for establishing motor truck service to Chicago to relieve congested railway conditions.

Concrete Stable Floors

CONCRETE stable floors are far more durable and sanitary than dirt or plank floors. The concrete floor, if constructed right, will never have to be rebuilt. A plank floor may appear sound when first laid but the moisture and strength of the manure will soon rot it out. Not only does the concrete floor conserve all the manure that would leak out through a board or dirt floor but it makes the cleaning of the stalls a much lighter job. The concrete floor is more sanitary, from the fact that it can be flushed out with a hose or thoroughly disinfected with oil or other substances without injury to the concrete. The concrete floor has no cracks in which lice, ticks and similar vermin can breed, and it likewise is proof against the attacks of rats and other destructive animals.

The foundation for a concrete floor should be prepared with some care. It should always be well drained and firmed to a depth of from six to eight inches below the concrete. It is usually advisable to remove several inches of the soil and fill in with gravel or cinders. Tamp this material thoroughly. Blind drains or coarse gravel or tile may be laid from the lowest points in the excavation to carry off any water that may accumulate.

For the construction of any ordinary floor, which is not to carry any great weight, the following proportion is to be recommended for the concrete base: One part cement, two parts clean sand and four parts of screened gravel or broken stone. This should be finished on the surface with a one or two to one and one-half-inch layer of a mixture of one part cement with two parts of sharp sand. The total thickness of the floor must be from five to seven inches, depending upon the load it has to carry. For floors or driveways over which heavy loads pass, cement should be added to the other materials in slightly larger amounts than indicated above.

In constructing a large floor it is advisable to place the concrete in sections of five or six feet square. This may be done by the use of planks. The finishing coat should be spread on before the lower layer of concrete has set. The floor in the stalls should be constructed with slope enough to carry all liquid to certain points from which it may be drained.

Smooth concrete floors with a trowel for a smooth surface or with a wooden float for a rough surface. A rough finish in the stalls is necessary in order to provide good footing for the animals and to hold the bedding material. A steel-trowel finish is entirely too smooth. The stalls proper is where the surface should be the roughest. The passageway should not be so rough that it will not clean out properly, yet it must be rough enough to prevent the animals from slipping.

A bare concrete floor is pretty hard for stock to stand and lie on, and if injuries are to be avoided and the greatest satisfaction derived from the use of such a floor, it is advisable to provide a removable slatted wooden platform for each stall, then place the bedding material on these platforms. If platforms are not employed, the stalls must be rather heavily bedded. This bedding is not wasted, however. Aside from furnishing a cushion for the stock to stand and lie upon, it acts as an absorbent for the liquid manure. Either of the above methods for protecting the animals from the hard concrete floor largely does away with the injury that a bare concrete floor might do to them, and all of the manure, both solid and liquid, is conserved by the use of such a floor, whereas it is practically impossible to save the liquid part of the manure when a dirt or plank floor is employed in the stalls.

Indiana.

W. F. PURDUE.

Some Experience With Everbearers

By ANNA WADE GALLIGHER

A GREAT many people around here had never even heard of such a thing, two years ago, as fall-bearing strawberries; while others who had either heard or read about them, were somewhat skeptical.

One "Doubting Thomas" said he did not believe that there was or ever would be a genuine fall-bearing strawberry that would produce a profitable crop. At that time we were not growing fall-bearers except in a small way, as an experiment. We did not like to give up the good, reliable once-a-year varieties until we could make sure that these so-called everbearers would really bear a crop of berries in the fall.

Everbearers in Demand.

While we do not expect to discard such sorts as Wm. Belt, Senator Dunlap, Warfield or Chesapeake, which are among the best grown, yet at the present time we have more fall-bearers than all of the others combined. And further than this, we fully intend to increase every season until we have the largest strawberry fields in this section. Nothing else will satisfy the demand for these berries. Every person who sees or tastes these berries is a future customer, no matter what

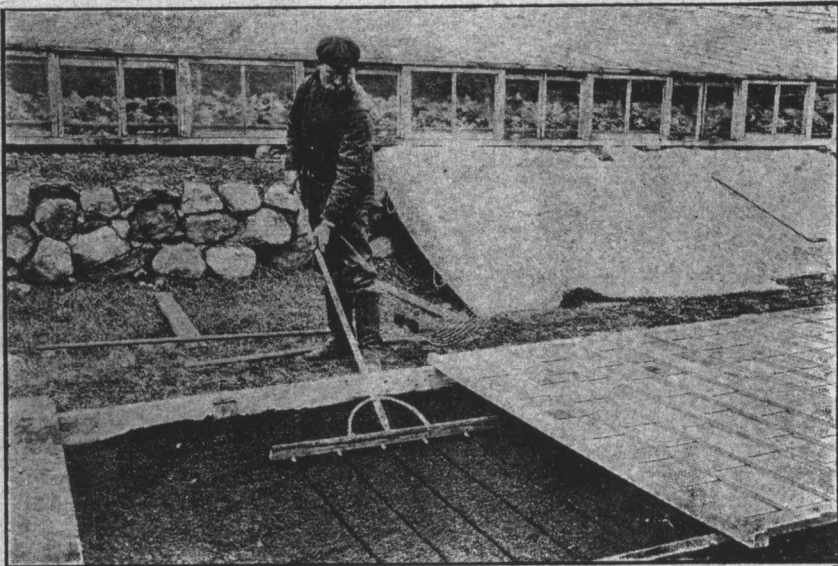
in this world are "from Missouri" and have to be shown.

To return to the original subject: We find both Superb and Progressive very profitable varieties of everbearers. However, it must not be understood that these berries will bear all through the season, from June to November, without a rest. Nothing of the sort. During the first season after plants are set, the Progressive, if permitted to do so, would bear, almost continuously, after the first few weeks, but all fruit buds must be picked off until about July 15 or later. This rule should be followed strictly, so as to give the plants a good start. It applies to all of the fall bearers.

Sometimes fruit buds form on young runners, before they have had time to take root. These should all be removed. Also, the surplus runners.

Cultivate and Fertilize.

We keep down all weeds, cultivate the same as garden crops, and after the plants are started a mulch or top-dressing of well-rotted manure is applied and raked into the soil around each plant with a garden rake. Some other implement would probably do as well, but the idea is to get the manure



It will Profit Every Farmer to Have a Cold Frame.

price is asked. Some people who do not seem to care for strawberries, in season, simply cannot resist the temptation when they are selling at thirty-five to forty cents a quart.

Honesty the Best Policy.

Last fall, during September and October, we were greatly annoyed by parties of city people coming into the patch where the pickers were at work, and trying to buy berries, which, as a rule, were already engaged. Sometimes, however, we managed to spare a few quarts. At other times a promise to furnish berries on a certain day, seemed to satisfy the prospective customer. These promises were always faithfully kept, for we have learned that "honesty is the best policy" in strawberry growing as well as in every other pursuit.

Good Packing Essential.

Some growers are not careful enough about the quality of berries which go into the bottom of the baskets; perhaps never stopping to consider that a satisfied customer is the best advertising agent one can have. This, of course, applies to other lines as well as berries; but it seems as if some people expect to get "stung" every time they buy a basket of strawberries. Sometimes they will examine a quart of berries very closely, then toss up those in the bottom to see if they are good all through. We never object to this, because it is always strangers who have never dealt with us before, that hesitate to buy without a thorough examination. Sometimes it is rather annoying but it is well to remember that a great many people

thoroughly incorporated with the soil, close around the plants. It is not necessary, between the rows. If well-rotted barnyard manure is not available, then the next best thing is pulverized hen manure. In fact, for some reasons, we prefer the latter. Dry leaves are used on the floors and there are no weed or grass seeds to contend with. We always mix the manure with the litter.

About the last of October, after the bulk of the crop has been harvested, we cover the strawberries with straw, dry leaves, wild grass or something similar. A good many berries get ripe after being covered. The next crop comes in June. If you plant Superb or Progressive you will be delighted. There are no better berries grown.

TROUBLE DEPARTMENT.

Grafting.

Would it be practical to graft Spies and Greenings on Old Russet and Ben Davis trees? If so, how many cions would we put on a tree, how large limbs to graft onto? How long before those grafts will bear? Can we buy the wax, or if not, what is the formula to make the wax? C. S. C.

It would not be advisable to graft Spies and Greenings to Russets and Ben Davis, as Spies and Greenings are more vigorous growing varieties than those you wish to use as stock. Such a graft would in time produce a top-heavy tree. For the Russets and Ben Davis it would be more preferable to use such varieties as the Snow, Jonathan and Wealthy, and other varieties which grow medium-sized trees.

The usual practice is to graft about

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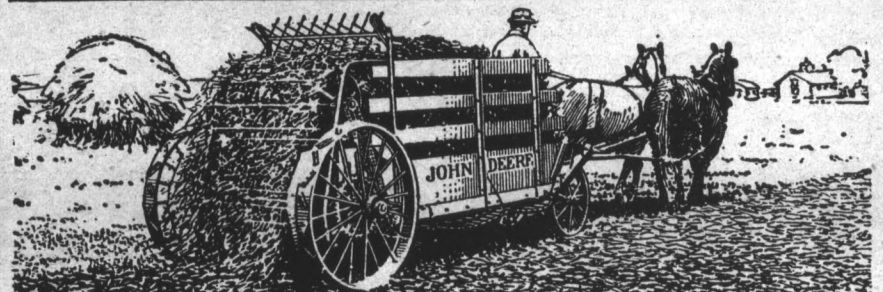
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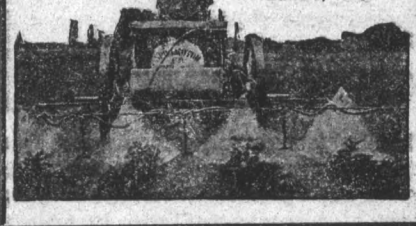
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Owens Transplanter

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Save One Man!

Would it help you in the spring rush to save one man in putting on the dormant spray? Use "SCALECIDE"—one lead of hose will spray as many as two with lime-sulphur. And you do better work—destroy San Jose scale, also control leaf curl, apple canker, collar rot, bud moth, case bearer, leaf roller, pear psylla, etc. "SCALECIDE" is pleasant to handle—will not injure hands or eyes nor remove hair from horses. Spraying pump runs in oil—lasts much longer. Sold on Money Back Basis. Send at once for booklet No. 14.

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one-third of the tree at one time, or in other words, it should take about three years to entirely work over a tree. The best sized limbs to graft are those about two inches in diameter, although very successful grafting has been done on limbs which are four or five inches in diameter.

I doubt whether you can purchase grafting wax locally, and as it is very easily made, I would advise that as a very economical way of procuring it. The wax is made as follows: Rosin four parts, beeswax two parts, tallow one part, all by weight. Melt the ingredients together and pour out into a pan to cool. Thoroughly grease the hands and when cool enough to handle manipulate and pull the wax as in making molasses candy.

The chief essential in grafting is to have the cambium layer of cion come in contact with the cambium layer of stock. The cambium layer is the green living tissue which is below the bark. The tips of the cions and the splits in the stocks should be thoroughly covered with wax to keep out the effects of the weather. The cions should be cut when the trees are dormant, preferably in fall; however, they can be cut early in the spring. The grafting should be done after the sap has started to flow freely, but before the buds have started very much.

Strawberry Growing.

Would like some information in regard to the care of strawberries. Does one have to plant new plants every year?

H. S.

The customary method of setting out strawberry plants is to take the newer plants from an old bed for setting in a

new location. This is better done in the spring after the ground has been thoroughly prepared for the plants. Before setting, the roots of the plants should be clipped to about two and a half inches in length and all of the old leaves trimmed off. In planting, the rows are usually put about three feet apart and the plants in the rows from eighteen inches to two feet, depending upon the variety. Thrifty plant producers, such as the Senator Dunlap, would be best set two feet apart.

During the first season the plants should be thoroughly cultivated and all of the blossoms picked off. When the runners start the new plants should be placed so as to fill the row, and after that is accomplished to widen the row to one foot in width.

After the ground is frozen in the fall, a mulch of straw or similar material should be put on to protect the plants from heaving in the spring. In spring the removal of the mulch to the space in between the rows is about all that is necessary until after fruiting time. Then the customary method is to take off the mulch and narrow the rows to the width of a single plant by plowing from the rows on each side. The old plants that remain should be hoed out and the new plants kept thoroughly cultivated throughout the rest of the season.

The usual custom is to allow the strawberry patch to bear two crops and then turn it under, as the soil becomes depleted in fertility necessary for good strawberry production, and also becomes filled with the spores of the more common strawberry diseases.

Cold Frame on the Farm

THERE will be an unusually large demand this year for started plants, especially in villages and suburban towns. Family gardens will be made in greater numbers than ever before, and the average amateur has no facilities for raising his own plants of such vegetables as tomatoes, cabbages, cauliflower, celery, lettuce, Brussels sprouts, and peppers. This creates a market for plants which should be met by farmers, as well as by professional market gardener and florists.

Cold frames are not hard to make or to manage. In parts of the south they are used much more largely than in the north. Gardeners in Virginia have acres of land under glass.

A cold frame can be made of rough boards or planks. A single bed will carry a sash three by six feet, and can be lengthened by three feet additions so as to make it any size. A frame six by six feet requires two sashes. It's a good thing to have the frame on ground sloping a little to the south, but in any case the back wall should be three or four inches higher than the front wall, so that the glass will slant in such a way as to get the morning sun. Twelve inches is about the right height for the rear board. Banking up around the frame with manure or earth will help to exclude the cold.

Many growers make their frames without any divisions, the sashes butting. They follow this plan because preparation of the beds is made easier. The sash can be handled much more readily, though, if it runs in grooves, and the frame itself will be stronger when supported by division boards. Perhaps the most satisfactory plan is to cut strips the width of the frame from front to back, notching them so that they can be fitted to the front and rear boards and stay in place without being nailed. A narrower strip nailed along the top will provide a groove for the sash. With this plan in use the cross-pieces can be taken out in a few minutes, leaving the bed without any obstruction, so that a wheel hoe can be used if desired in getting it ready for the seed.

The preparation of the soil is highly

important. All stones and lumps should be removed, and the earth made as fine as possible, well rotted and thoroughly pulverized manure then being mixed with it. A little bone meal or balanced fertilizer can be added.

A cold frame cannot be used as early in the season as a hot-bed, of course, but many farmers find it possible to start plants in the house in flats, transferring them to the cold frames late in March. As a rule, though, seed sown in a cold frame in March will give the plants early enough for all practical purposes.

Besides those mentioned, the farmer can start for his own use such vegetables as squashes, cucumbers, melons, lima beans, and golden bantam corn. These vegetables are not transplanted so readily as the other kinds, and it is best to start them either in paper pots, old strawberry baskets, or on inverted sods. The sods do very well if pieces about five inches square are used, the surface being scarified and a little fine sand scattered over the seeds.

There is a distinct advantage in starting the tender plants in cold frames if flea beetles and striped beetles are common. These pests seldom invade the frames, and the plants get such a good start before they are set out that they can be protected from these pests without much trouble.

In some sections market gardeners use heated frames, starting them very early. This doesn't mean hot-beds made with manure, but frames heated by steam. Pipes are run along the north side, or perhaps with the return pipes on the south side. Enough heat can then be given to allow the beds to be used in February, very early plants being started in them.

Of late years there has been a tendency to replace glass sashes with cloth late in the season, because it is more economical, and has some other advantages. A specially prepared cloth, called grass cloth, gives almost as good results as glass itself, and can be used the same way. Enough to cover a single three by six sash costs fifty cents.

Massachusetts. E. J. FARRINGTON.

A Community Drying Plant

By GEO. F. PAUL

SEVERAL neighborhoods are preparing to profit by the experience of a community at North Lincoln, Nebraska, where has been established what is probably the first community drying plant in the United States. It is known as the Lincoln Rotary Club Community Drier, since the \$150 required for its construction was donated by that club, representing fifty-seven families.

This unique experiment has proved extremely practical. In the first place it is easier for women to do their work here, for everything is well arranged and the equipment is complete. The families bring their fruits and vegetables to the plant, where machinery helps to do the work in much less time than by hand methods. The vegetables after being properly prepared are placed in the drier; twenty-four hours later they are ready to be taken to the homes. It is practical in the second place because it stimulates inter-

actor is placed at the intake end of the drier. The air in being drawn through between the coils is heated enough to raise its temperature considerably, thus lowering the percentage of humidity.

To defray the expenses for electricity, heat and a caretaker, a fixed charge can be made per tray.

The community drier might well be called the successor of the old-time apple-paring bees that once were so common throughout the country.

MICHIGAN GOOD ROADS.

Kent county has let the contract to Terbeek & Bronkhorst, of Holland, for building the Algoma-Plainfield town line road under Covert law, for \$11,149.20. It will be two miles of gravel road, ten feet wide, to be completed by November 1.

The Cass County Road Commission has organized, with F. A. Hadsell as



This Community Drying Plant Installed for \$150.

est in drying fruits and vegetables and calls for an interchange of ideas.

The electricity consumed by the big electric fan costs one and a half cents an hour, one hundred and twenty trays being dried in the cabinet every twenty-four hours. Instead of the air being forced across the vegetables, as is done in some methods, the air is drawn across them. The vegetables are placed in trays, which are eighteen by thirty-six inches. Such a tray holds about the quantity of material of one kind ordinarily brought by one family for drying. These trays have wire-screen bottoms and wire screen at one end, the other end being left open. The screened end is to prevent light material from being drawn through. Melted paraffine applied with a brush is used to cover the wire so as to prevent the fruits and vegetables from sticking. The long cabinet that holds the trays is built in six compartments, each compartment containing twenty trays arranged in tiers of ten.

The fan should be easy to operate and big enough to move plenty of air freely. The vegetables and fruits will become sour or will mold if the air is not moved rapidly enough. An electric motor of from two to five horsepower will do the work, or a gasoline engine of similar power. One of these will drive the fan fast enough for the suction to hold a piece of cardboard one foot square and weighing half a pound against the wire screen at the intake end, this being a satisfactory test.

Artificial heat tends to discolor the products or to impair the flavor. It is best, however, to have heating equipment for use on rainy days. A hot-water radiator makes an effective method of heating the air. This radi-

chairman, and has engaged W. W. Reynolds as road engineer at \$6 per day for time actually employed. Bids will be received up to March 30 for roads to be built this season in Marcellus, Porter and Jefferson townships and on the town line running north from Dowagiac.

Eaton county has adopted the patrol system for road maintenance.

State Commissioner Rogers does not look for a large increase in road building this year, due to the labor shortage and to delay in the shipments of material. He estimates that the new work will not exceed that of last year, which was about thirty per cent of the previous year's record.

Kent Co. ALMOND GRIFFIN.

BUTTERMILK A GOOD SPRING TONIC.

Buttermilk is a dairy by-product the food value of which is often underestimated. Buttermilk produced by the manufacture of good butter from a good quality of well-ripened cream is one of the most healthful foods obtainable. Its healthfulness is derived from the lactic acid present. This is formed when a certain type of bacteria, called the "bacterium lactic acid," converts the milk sugar into lactic acid. These bacteria are always present in normal milk and cream, and this process of forming lactic acid is the natural souring of milk, and is known as cream ripening.

Buttermilk is an excellent hog feed, and probably most of it is being used for this purpose; but it should be more universally used as a human food.—Wm. F. Droge, Col. Agri. College.



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A GARDEN on the farm is a real necessity now. You take pride in seeing it well kept—yet you cannot afford to devote much time to it.

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ADJUSTABLE

Garden Cultivator

is the ideal tool for the farm garden. Instantly adjustable from 7 to 18 inches—middle tooth removable for cultivating two rows at once. Thoroughly stirs the soil, gets right up to the rows, and can be used either as a cultivator or rake. Sturdy, strong and well balanced. Teeth unbreakable. A garden tool that answers every purpose from seeding to harvesting time.

For sale by most dealers. If your dealer can't supply you, send us your dealer's name with \$1.50 and your Pull-Easy will be sent at once by Parcel Post, prepaid. Literature on request.

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May be kept for one year on the product of one acre at the total cost for seed of less than \$1.00. Keeping seven cows for a whole year on the product of one acre reduces the cost of milk. On one acre of land Ross' Eureka Ensilage Corn produced, in one year, 70 tons

and 800 lbs. of the best quality of sweet ensilage. That crop won our \$50.00 in gold for the heaviest yield.

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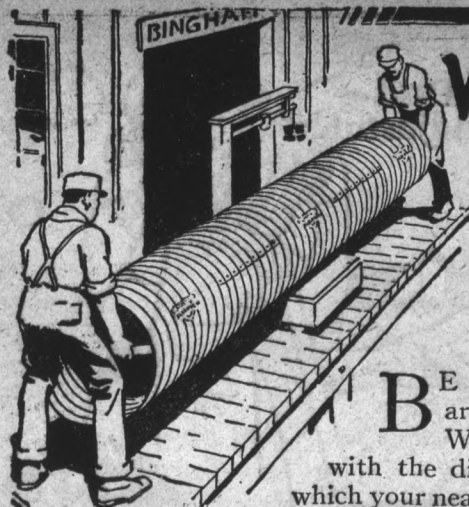
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tion of more and better corn for our Allies as well as ourselves, we offer this year \$25.00 as the first prize; \$10.00 as the second prize, and \$5.00 as the third prize, for the best trace of 25 ears of Sheffield Flint Corn. Our 120-page catalog, devoted to descriptions, prices of seeds, Agricultural Implements, Fertilizers, etc., will be mailed free on request. Address

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Shelled \$10.00 per bushel. Butted, tipped and graded, \$12.00 per bushel state tested 90% Germination.

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Originated by Michigan Agricultural College. Recommended as best grown. Order early—Transportation slow. Price \$1.89 per bu. 16 bu. lots \$1.55, bags extra 35 cents each. Grown and for sale by

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Onion Seed our specialty, all kinds of tested fresh seeds. We sell by weight and pay your postage. Catalog free. **ALLENS SEED HOUSE, Geneva, Ohio**



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J. W. NICOLSON, East Lansing, Michigan.

The Farmer's Auction Sale

By R. G. KIRBY

THIS year there have been several successful auctions in our community which have brought out large crowds of bidders and they have been largely the result of advertising. First the auction bill distributed in the neighborhood informs prospective buyers of the list of goods for sale. Second, the advertising in local papers brings buyers from the city or small towns located in the vicinity. Third, when the sale list has contained a number of pure-bred cattle, the farm journals have been used to advantage and farmers from other states have appeared at the sale to bid on cows which they considered valuable additions to their own herds. An auction without abundant advertising is apt to result in a loss as many buyers who are willing to pay good prices for things they need, will never hear of it.

The farmers who have received the best prices for their stock and tools have made an effort to clean up everything for sale so that it would appear to the best advantage. At the beginning of the sale they have made every effort to explain every question asked as accurately as possible. This inspires confidence and buyers do not hesitate to place liberal bids on articles that appear to be worth the money.

One dairy farmer frankly described the third cow that came into the ring as "no good" and gave the reasons for the decision. The next cattle were all right and the crowd believed all that he said. If he had remained silent when the third cow was sold some buyer might have taken a chance on her and paid more than she was worth. The honest description of that animal gave the crowd confidence and the average price for the cattle sold at that sale was very good.

Implements have sold for good prices

this year when they have been in fair condition. In one case the rise in the price of tools enabled a farmer to sell some tools for as much as he had paid for them the previous year. Usually a farmer expects to lose considerable money on second-hand implements but this year many farmers are glad to buy them instead of paying more for new ones.

Grain and hay have brought excellent prices and the demand has been good, both from city buyers and farmers in the community who are short on feed produced on their own farms. Horses have not sold quite as well as usual because of the high price of feed. A farmer dislikes to buy horses to winter considering the present high price and scarcity of hay and oats. Hogs have not sold as well as a farmer might expect although the poor quality of the corn crop is undoubtedly sufficient reason. Good breeding ewes have brought fine prices and the demand has been good.

An auction is an education in agriculture. The farmer who has not been following the markets closely can form a very good idea of supply and demand by watching the bidders and noting the prices paid for various articles. The visits with neighbors at an auction are bound to bring out points of interest which would surely have been overlooked at almost any other kind of a meeting. An auction gives a farmer a chance to study live stock and note how it compares with the breeding stock on the home farm. Some of the large auctions of pure-bred stock in this state are undoubtedly a great stimulation to the farmer who specialized in live stock. The attendance at such a sale is well worth the time and money from a purely educational point of view, even though no purchases are made.

Cooperative Activities In Michigan

The Shiawassee County Dairyman's Association met in Owosso and voted to continue selling milk in Detroit until the plant of the Milk Producers' Association in Owosso is ready for business. The officers elected are: President, J. W. Hurst, Owosso vice-president, John Ackroyd, Owosso; secretary-treasurer, Elmer Black, Owosso.

The Farmers' Cooperative Creamery Company, of Freeport, Barry county, has increased its capital stock to \$6,000 and is installing a condenser.

The St. Clair Milk Producers' Association met in Port Huron and voted to ask Detroit prices for their product, or \$3.50 per hundred. At present they are selling to distributors for \$2.88, the proposed increase will mean approximately thirty cents. The officers elected are: President, M. O. Hitchins; vice-president, Edward O'Connor; secretary-treasurer, Eugene Atkins.

The Alto Cooperative Creamery Company, of Kent county, held a big meeting at Alto, with free dinner served at noon to over 400 people. Prof. Hendricks, of the M. A. C., was the principal speaker. Directors elected were: N. W. Stuart, Charles Murphy, Earl Colby, O. R. Smelker and Fred Patterson. Manager L. J. Strong reported total receipts of \$150,249.82 for the past year.

The South Haven Fruit Exchange has eighty-three members and the past year's business was approximately \$150,000. It was voted to charge off \$1,000 to depreciation, pay \$500 on the mortgage and declare a dividend of six per cent. The officers elected are: President, Frank E. Warner; vice-president, J. Cecil Hunt; secretary, James Nichol; secretary-treasurer, G. C. Monroe.

The Hartford Gleaners' Cooperative

Elevator Company, Ltd., with \$30,000 capital and eighty stockholders, has been formed in Van Buren county and has bought the Finley elevator property in Hartford, which is being operated under the management of R. W. Conklin.

A farm for the study of bean diseases will be selected soon in Saginaw county and experiments will be continued there by government experts for a period of five years.

Owing to the scarcity of seed corn reports from various counties of Michigan indicate that large quantities of barley will be grown this season for feed purposes, to take the place of corn for feeding live stock.

A SKIM-MILK PAINT.

It is claimed that skim-milk may be used in the manufacture of a fire-resisting covering for building purposes, especially wooden roofs. A mixture of cement and ordinary fine sand in a paste is effective as a fire-retardant preparation for wooden roofs, but it wears away quickly as the wood absorbs the water and the dry sand and cement blow away.

The casein in skim-milk is the medium used to hold intact the pigments in cold water paint, so by using skim-milk without water the integrity of the paste is assured.

While this use of skim-milk in the preparation of certain paints has long been known to the paint trade, it is now given out to the general public so that any farmer can cover his buildings with a fire-retardant paint made from the skim-milk from his own farm together with cement and fine sand. It also makes a water-proofing paint.

Stop the Fire Waste

IN these days of the world war it is impossible to pick up a paper and not see some appeal to the reader to save food, fuel, clothing or what not, still here we are not over two hundred miles from Detroit and one hundred miles from Bay City in a country where there are few settlers, and a large majority of those here having a hard time to live, and why? Simply because we are not taking hold of the problem in the right way. We are every year wasting more, a great deal more, than we are using, wasting more than our wives could save in a hundred years by pinching their supplies of the kitchen, which are now and have been, pinched for a long time. Every year we are wasting more feed that could readily be converted into beef, than the people eat in ten. We are also wasting more fuel each year than it would take to heat the public schools of Detroit, which I notice by the daily papers of your city, have been forced to shut down for lack of fuel.

"How this waste?" you may ask. Is it possible that there is a wideawake citizen in the state of Michigan who does not know? There may be and probably is beyond doubt, but on the other hand, there are a great many that do know as much, or as well, as I do. The waste I am referring to is in the shape of fire which every year has destroyed tons upon tons of good succulent feed that could be eaten by the sheep and cattle and make tons of wool, mutton and beef. Fires also destroy acres and acres of growing timber, and it is a rare thing indeed up in this country to find a good healthy growth of timber. The Public Domain Commission has tried in a way to stop fires and have appointed deputy fire wardens who have a territory of a county and a half. In addition every supervisor is a fire warden, and also a local fire warden for every surveyed town in his township outside of his own is appointed, but in a great many cases these local wardens have not the interest in this matter that they should have, and even if they had they could not prevent the waste, for it is also an impossible thing to stop the fire on a hot dry summer day in a high wind.

I am going to recite my experiment of last summer for answer of what to do. I went down into Tuscola county among the farmers and made them a flat rate to graze their young cattle for them at \$6 per head for the season, transporting them both ways, payment for grazing to be made when cattle were returned, with the result that we grazed seventy-three head with satisfactory results as far as I know at this time, and the experiment will probably be repeated. As it happens, I can give no exact data as to gain, but will say it was approximately two hundred pounds per head, and it is my opinion that every acre of idle land in Michigan can be used in like manner. The farmers in the central part of the state need the grazing privilege as badly as they need the manure which contains the humus necessary to keep up production, and which cannot be got in any other way than by feeding live stock of some kind, and it looks very foolish to me for Michigan men to chase off to Salt Lake City for what is right under their noses.

From my observation and experience, grazing is a cure-all for fires and growth of timber. I have lived here for fifteen years and kept live stock all that time, have also served as local fire warden most of that time, so have had lots of opportunity to study the situation from every angle.

Some time ago I saw something in your valuable paper about the idea of municipal coal and wood yards being suggested, and hope that the idea may materialize. Would suggest that it be adopted by several cities and a cooperative advertisement plan be put in

Why Tractor Makers Recommend Oliver Plows to You

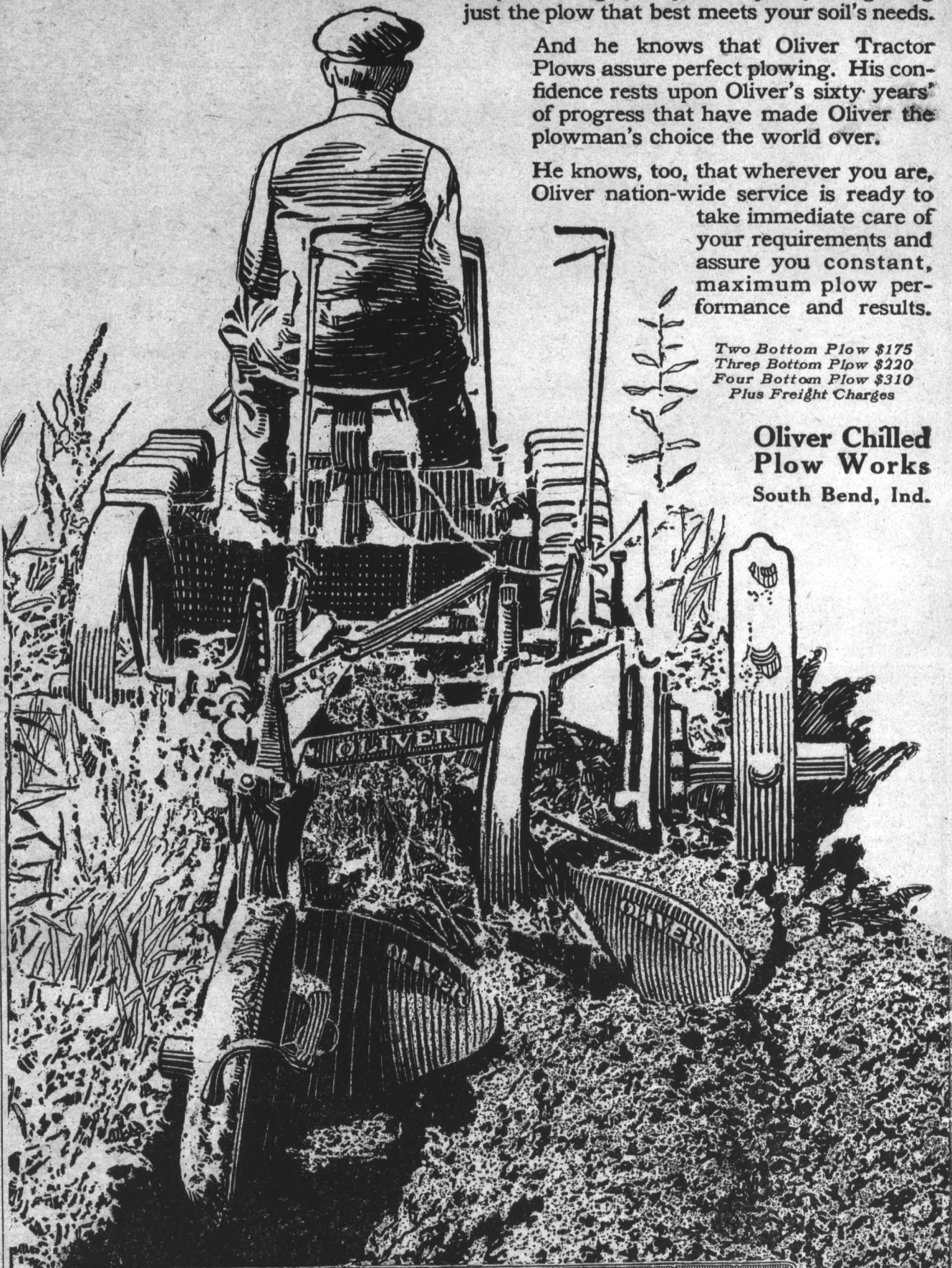
The tractor maker knows how important the plow behind his tractor is. His success as well as yours largely depends upon your getting just the plow that best meets your soil's needs.

And he knows that Oliver Tractor Plows assure perfect plowing. His confidence rests upon Oliver's sixty years' of progress that have made Oliver the plowman's choice the world over.

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Three Bottom Plow \$220
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Plus Freight Charges

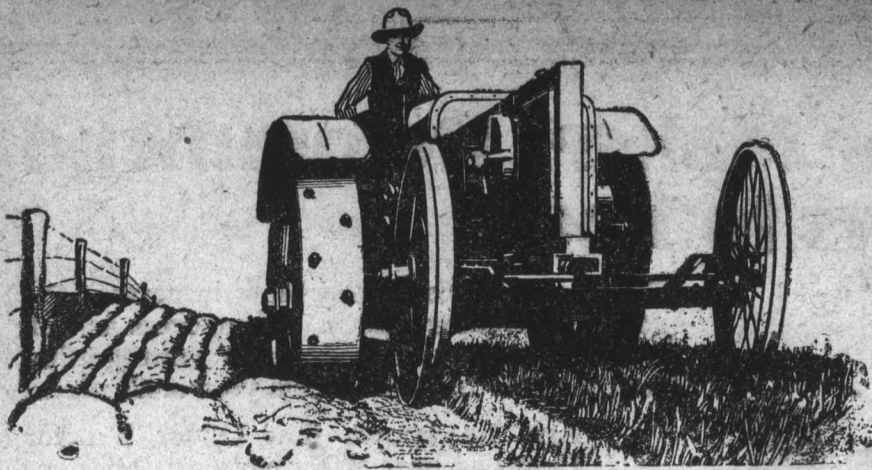
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Scientific plow making began fifty years ago when James Oliver invented the famous Oliver Chilled Plow. Now the Oliver Plow Works is the largest exclusive plow factory in the world, well worthy of the title "Plow Makers for the World."



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YOU should base your judgment of a tractor upon what it has actually done in the fields—not upon what it promises to do in the manufacturer's catalog.

For five years the Parrett has been tested and proved worthy under every conceivable condition of soil and climate, on the prairies of the middle west, among hills of the east, the arid regions of the Northwest, the rice lands of the south, in Canada, Great Britain, and France.

The Parrett is a one man tractor. It does the work of eight to ten horses, pulls three plows, will operate a 20 to 26" separator, burns kerosene and is so simple and easy of operation that a boy can do a good day's work with it.

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PARRETT TRACTOR COMPANY, 451 Fisher Bldg., Chicago, Ill.

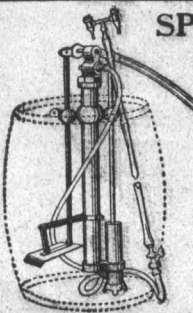
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25



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Owing to the bad railroad conditions, our corn is slow in coming from the growers. We expect to have our stock complete this month. Do not write us, we will make our announcement in this paper. We offer for immediate shipment.

Lincoln Seed Oats @ \$1.50 per bu. (5 bu. or more sacks included).

Six Row Seed Barley @ \$2.75 per bu. (Bags extra 40c each, 100 lb. per bag).

All f. o. b. Ypsilanti, cash with order.

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100 EV'B'Y STRAWB'Y 95c Postpaid 300 miles. Mixed doz.

Bartlett Pr. Lombard Plum, Mt. Morenci Chy, all 2 yr. only \$3 with Ct. Rose free. Gobleville, Mich. Nurseries.

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Large vigorous growing, drought and blight resistant variety \$2.50 per bu. Milo M., Gibson, R.5, Lapeer, Mich.

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BARLEY. Wis. Pedigreed and Oderbrucker Bumper crop white oats. W. Wyandottes. White Belgian Geese. Frank Bartlett, Dryden, Mich.

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Dry hand picked, navy beans, free from disease at \$11 per bu. F.O.B. John Vance, Husey, Osceola Co., Mich.

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Clean Disease-Free, Northern-Grown SEED POTATOES For Sale. JOHN V. HARRISON, Sec'y, Manton Potato Growers Ass'n, Manton, Michigan



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You'll need horse badly from now on. Why take risk or lay up because of lameness? Send for

SAVE-THE-HORSE

THE humane remedy for lame and blemished horses. It's sold with signed Contract-Bond to refund money if it fails to cure SPAIN, Ringbone, Thorpin and ALL Shoulder, Knees, Ankle, Hoof and Tendon Diseases, and while horse works.

Our 96-page **FREE BOOK** is the last word in the treatment of 58 kinds of lameness. It's our 22 years' experience. Expert veterinary advice, Sample Contract and **BOOK—ALL FREE.**

TRAY CHEMICAL CO., 20 State Street, Binghamton, N.Y. Druggists everywhere sell Save-The-Horse with CONTRACT, or we send by Parcel Post or Express Paid.

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GROW HEALTHY STOCK

Crush ear corn (with or without shucks) and grind all kinds of small grain.

Handy to operate—lightest running. 10 sizes: 2 to 25 h. p. Capacity 6 to 200 bushels. Conical shape Grinders. Different from all others.

Write for Catalog

and folder about the value of different feeds and manures.

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For Sale. 4 horse gasoline or kerosene engine in A-1 condition. **THE HUNDAY BEDDING CO.,** Lansing, Mich.

operation. Would suggest that placards be placed in post offices giving prices, freight rates and directions for obtaining further information, etc. Where wood is plentiful this would have the effect of giving the northern farmer a job at home, which he, in a great many cases, badly needs, and at the same time of relieving the fuel situation to some extent.

Oscoda Co. H. H. STICKFORTH.

FEEDERS' PROBLEMS.

Will Barley Take the Place of Corn?

Will you please tell me the value of barley as a horse, cattle, and hog food? Will it take the place of corn with digester tankage in a self-feeder for hogs, and if so should it be fed whole or ground? What is the relative value of barley at \$1.70 per bushel, and oats at 88 cents, in a ration for horses? If it is a good horse food how ought it to be fed, whole or ground, and in what proportion with oats? Will barley and oats make a good ration for cattle, both growing cattle and milch cows, and if so in what proportion? Can one feed barley at \$1.70 per bushel and tankage at \$4.95 per cwt., f. o. b. Chicago, to good pigs at the present price of hogs and make any money?

Van Buren Co.

A. E. C.

The chemical analysis shows that the comparative value of nutriment in barley is very nearly the same as corn. Practical feeding results also show that barley will practically take the place of corn in feeding to all kinds of animals, consequently, if you feed digester tankage and barley to hogs you would expect to get practically as good results as if you fed corn, but the barley should be ground. Hogs will not properly masticate such fine grain as barley so that there is not such economical digestion and assimilation as there is with corn. Corn doesn't have to be ground fine to get results. If it is nicely cracked by mastication the digestive fluids seem to have the power to act on it. Where hogs eat whole barley many of the grains are not cracked and pass through the animal whole, consequently very little of the food nutriment has been absorbed in the alimentary canal, but by grinding it up fine this condition is overcome.

Oats at eighty-eight cents a bushel of thirty-two pounds are a much cheaper food than barley at \$1.70 for forty-eight pounds. The oats would figure \$.027 per pound, while barley would figure \$.037, practically \$.01 a pound more. At \$1.70 for one bushel of barley is entirely too much, even at the high prices of other feeds today. The elevators are selling corn to farmers for about \$1.60 for fifty-six pounds. That would be \$.028 per pound, which you see, is much cheaper than barley at \$1.70.

With horses that have good teeth it is not necessary to grind barley or oats or corn. Some horses may eat so fast that they do not properly masticate, but this can be overcome and the horses taught to eat slower and properly grind their food, and therefore it is not necessary to grind it. However, it can be ground if one desires.

There is no better food for cattle, both growing cattle and milch cows, than barley and oats, practically as good as corn and oats, and they should be mixed in the same proportion—equal parts by weight.

As has been stated, fifty-six pounds of barley would be worth practically the same as fifty-six pounds of corn, that is, the feeding value is about the same and if one had to depend entirely upon corn or barley at present prices he couldn't expect to make any money in feeding hogs and selling them at present prices, because careful experiments show that it takes about ten and a half bushels of corn on the average, where corn is the only food, to produce 100 pounds live weight of hogs. However, if corn is worth \$1.60 and it takes ten and a half bushels to make 100 pounds, he would have to sell hogs for \$16.80 to get pay for his

feed, to say nothing about the labor or risk or anything of that sort. With barley at \$1.70 for forty-eight pounds, it would be entirely out of the question. However, neither barley nor corn are a balanced ration for hogs and by feeding digester tankage you wouldn't need to feed as much barley or corn to make 100 pounds of pork and it would reduce the cost of production perceptibly. But, remember, you cannot afford to pay \$1.70 for forty-eight pounds of barley because you can buy corn cheaper, and with corn at \$1.60 and digester tankage at \$4.95, feed about one pound of tankage to five or six pounds of corn. One would stand a show of getting out even and perhaps a little better. If a cheaper food could be substituted for part of this high-priced food one might make a little profit. For instance, if a man had good alfalfa hay, these hogs would eat quite a portion of that hay which would save some of the tankage and very often the farmer has a portion of the grain he produces that is not marketable and this can be mixed in with added purchased grain and cheapen the ration, but it is only in this way that one can hope at the present price of grain and the present price of hogs to make any profit or come out even on the deal. It should be remembered that if the farmers can hold their hogs until next fall they are practically guaranteed a profit by the government. The food administration has guaranteed to pay at the rate of thirteen bushels of corn for 100 pounds of live weight, f. o. b. Chicago, and this gives the farmer good profit, all he ought to ask.

The prospect for pigs farrowed this spring, in fact, all hogs to be marketed next fall, is very bright indeed. At least that is the way it seems to me, because the farmer can use some cheap food, pasture, waste grains in connection with corn and tankage. Most farmers have skim-milk that will take the place of tankage so that all the food will not have to be purchased and then when he gets pay for thirteen bushels of corn for 100 pounds of live weight he can afford to grow hogs.

COLON C. LILLIE.

PREPARATION OF SOW FOR FARROWING TIME.

Ten days previous to farrowing, the sow should be removed from other hogs and placed in her farrowing quarters. This familiarizes the sow with her new home, and prevents the danger of injury which might result in the loss of her litter. The quarters should not be too large, especially in cold weather. A pen nine by six feet is amply large for farrowing. A guard rail around the edge of the pen is a necessary precaution. The guard rail is nothing more than a shelf extending around the sides and ends of the pen. This shelf should be about six inches from the floor and should be from six to eight inches in width. Such an arrangement prevents heavy sows from crushing their litters.

The bedding in the farrowing pen should not be too abundant. With too much bedding the sow makes a pit to farrow in, which brings about the crushing of the pigs.

For three or four days previous to farrowing the rations of the sow should be reduced in quantity and be of a laxative nature. A ration too heavy or rich may stimulate an abnormal milk flow, and result in scours and death among pigs.

The proper warmth and dryness of the farrowing quarters are considerations too evident for discussion.

The whole great problem of winning the war rests primarily on one thing, the loyalty and sacrifice of the American people in the matter of food. If we are selfish or even careless, we are disloyal; we are the enemy at home. Now is the hour of our testing.—U. S. Food Administration.

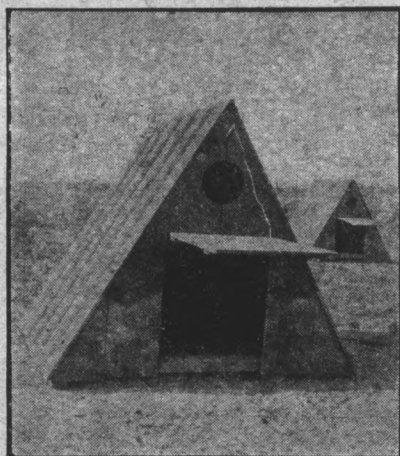
Individual Hog Houses

BY PAUL H. EATON.

INDIVIDUAL houses for use at farrowing time afford many advantages which are not to be had in the central house. They can be moved about at pleasure and easily located next to an alfalfa field or other good pasture where the pigs can forage and make the most rapid and economic gains. When properly made, well ventilated and bedded with plenty of straw individual houses afford an attractive and comfortable home for one sow and her litter.

For early March farrowing, the central house offers some advantages in protection from the cold and inclement weather and makes the work of feeding considerably lighter. However, after the pigs are old enough to be moved and the weather satisfactory, they can be moved to separate pens containing the individual houses. If properly constructed, the individual houses can be made just as warm and comfortable as the larger sheds and in some cases much better for ventilation. The ideal system is to have both the central and individual houses so that the benefits of each can be enjoyed.

The construction of individual houses is very simple, as shown by the illustration. These houses are each six



Individual Houses Are Simple in Construction but Efficient and Durable.

by six feet at the base; six feet high and built on skids. Each house has a solid board flooring. For gilts this size is excellent, but for the older and heavier sows, a little larger house is preferable. In that case, the base should be eight feet each way and the height seven feet. It is a good plan to have some of each size. A good coat of barn paint will make them more attractive as well as add to their period of usefulness. Renters will find the individual houses especially valuable on account of being easily moved from one place to another, so that if insufficient shed room is available, their hog-raising need not be curtailed for want of adequate shelter. I venture to say that if renters would take to raising more hogs, their period of renting would soon be over and they could soon pay for a home of their own.

RATIONS FOR BROOD SOWS.

The following rations for brood sows are suggested by J. S. Coffey, of the Ohio State University:

1. Corn, one part; skim-milk, six parts.
2. Corn, two parts; shorts, three parts.
3. Corn, one part; middlings, two parts; oats, one part. Add five per cent oil meal to this mixture.
4. Barley, oats and shorts in equal parts.
5. Barley and oats in equal parts; mix with three pounds of skim-milk per pound of grain mixture.
6. Barley, peas and shorts. Ration 2:1:1.
7. Corn, oats and oil meal. Ratio 5:2:1.
8. Corn and tankage. Ration 8:1.



The Link Between Your Farm and the Battle Front

Every farmer in the country plays a part in winning the war against autocracy and tyranny. How vital, how important a part he plays depends upon himself.

The link between your farm and the battle front is the food supply. Upon the strength of this link depends victory.

Your war service consists in operating your farm in the most efficient manner—increasing its output in every way possible.

If yours is an average farm, worked under average conditions, one way in which you can increase production and decrease cost is by using

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During the past few years dynamite has proved its worth on thousands of farms. Its use has resulted in bigger crops of wheat, corn, and other food staples to say nothing of the time and money it has saved in connection with drainage and land clearing work.

If You Are Short of Fertilizer The shortage of fertilizer may be met by clearing new land which has not become sterile through constant working. This virgin soil is often the richest land that can be obtained and will grow certain crops without fertilizer for a number of years.

If You Are Short of Labor Shortage of labor may be a serious difficulty with you, so much so that the clearing of new land seems impossible. In this connection, however, remember that the use of dynamite for stumping, drainage work, etc., means a great saving in labor. You can accomplish with dynamite what you could not with hand power alone.

The use of Hercules Dynamite on the farm means more efficient and less expensive farming from many standpoints. Our book, "Progressive Cultivation", goes into the question thoroughly. You will find it interesting reading. A copy will be sent free on request if you will fill out and mail the coupon below.

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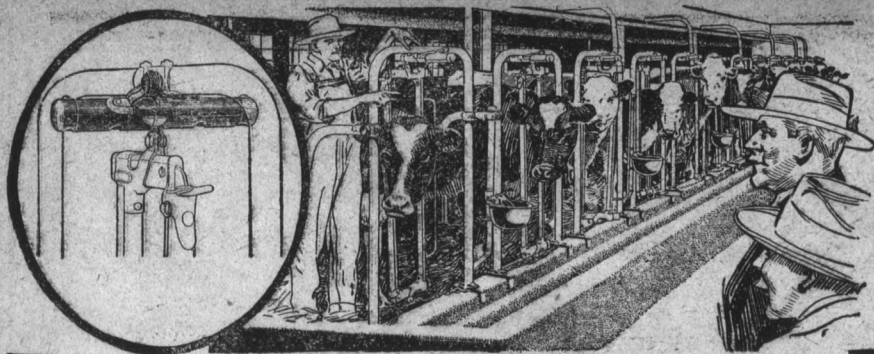
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LEARN AUCTIONEERING at World's Original and become independent with no capital invested. Every branch of the business taught in 5 weeks. Write today for free catalog. **JONES' NAT'L SCHOOL OF AUCTIONEERING**, 28 N. Sacramento Blvd., Chicago, Ill. Carey M. Jones, Pres.

SEED OATS: Worthy and Alexander O. M. YORK, Samples Free, Millington, Mich.

Please Mention The Michigan Farmer When Writing to Advertisers



The STAR ADJUSTER Makes The STAR Stall Fit Every Animal

Long cows—short cows—and all sizes between—the STAR Adjuster makes STAR Steel Stalls instantly fit each animal. One simple turn of a lever lengthens or shortens the cow bed to suit. Making it unnecessary to put the cows in the same stall each day. And the entire operation takes no longer than it does to lock a stanchion.

If desired, the Adjuster can be added to STAR Stalls at any time after they are in use. It is just one of the many exclusive STAR Features, found in no other make of equipment, that puts STAR Barn Equipment in a class by itself.

STAR Steel Stalls, Stanchions and Litter Carriers

STAR Stalls require no assembling—they are shipped ready to erect. The Unit System of construction permits your stalls to grow with your herd and the sanitary Arch gives strength. The Curb Clamp facilitates quick erection and the Adjuster is described above.

The giant STAR Stanchion is woodlined and strong. It is easily adjustable and carries the STAR Automatic Sure Stop. No matter what the needs in your barn, we have a STAR Litter and Feed Carrier to meet them. Double Lock Tubs—easy raising and lowering and Swinging Booms to keep the barn yard clear are a few of the things that will interest you. Write for our big, finely illustrated catalogues.

STAR goods sold by best dealers everywhere

HUNT-HELM-FERRIS & CO., 14 Hunt St., Harvard, Ill.
New York Branch: Industrial Bldg., Albany, N. Y.

Business Dairying

As a result of organized effort the farmers of Michigan are getting better prices for their milk than the farmers of any other state in the great milk producing regions, and all of this has been accomplished without milk strikes or court proceedings against any officers or members of the Michigan Milk Producers' Association. We are working in perfect harmony with the buyers and distributors in our territory. These facts are very gratifying when we consider the strenuous fights that have taken place in New York, Illinois and other localities in the great milk producing sections.

While these conditions appear gratifying to the officers and members of the Michigan Milk Producers' Association there still remains the big constructive undertaking of regulating and stabilizing the supply of milk used by the city trade and the various industries so that there shall be no glut in the market at any particular place at any time of the year. In order to bring about these conditions it is necessary to plan the sale of milk so that each particular district shall find the best market possible for its product for the entire year and not use its supply at certain seasons to create a surplus in the other districts. While the present system of distribution may often result in higher prices for milk in a certain locality for a few weeks or months, in the end it is sure to prove disastrous to prices in general. This is a problem of vital importance to the milk producers of the state of Michigan and one that must have our serious consideration before we can place the selling end of our business on a safe and permanent basis.

Every successful selling organization in the country, dealing in staple products has partially solved this problem of efficient distribution. Districts must not be played against each other by the buyers. I want to say—and I cannot say it too emphatically—that if the milk producers of Michigan are to reap the full reward of our efforts to secure better prices for their product and not cut each other's throats, when there comes what is called a surplus on the market, they must emulate some of the successful marketing organizations and come together in a complete understanding of this distribution problem. The fact that there is a surplus in some of our districts is the result of bad distribution, of a greater supply in one place than there is demand, and a corresponding scarcity at other places. To stabilize these markets throughout the year and keep the supply of milk at the places regulated to meet the requirements of the different markets is one thing that we must do to keep prices at a uniform and profitable level throughout the year.

Every effort possible must be made to protect the Detroit market for the dairy farmers of that area. It is unfair for the dairy farmers who have invested thousands of dollars in first-class buildings and equipment and made plans to produce a uniform quantity of high-class milk throughout the year to have to compete with the product of dairy farmers who only keep a few cows as a side line to their other branches of farming. Our efforts to stabilize the milk supply must be based on some system of milk selling and distributing that will eliminate the small milk producers from a distance, who only keep a few cows, from selling their milk so that it will create a surplus at certain times of the year in the Detroit market.

Efforts are constantly being made to gain the consent of the secretary and selling agent of the Michigan Milk Producers' Association to bring large quantities of milk into Detroit because of the advantages of that market. One shipper had a carload a day that he desired to ship to the Detroit market.

Your secretary and selling agent is endeavoring to save the Detroit area for the Detroit area producers. This must be done if we succeed in stabilizing production and prices. Next summer when the up-state farmers can raise beets, potatoes and beans they will not milk cows, and the consumers in Detroit will be without milk. When winter comes again these up-state farmers' cows will again freshen and there will again be a milk surplus in Detroit. This is the reason why the Detroit distributors have contracted to buy milk only from the members of the Michigan Milk Producers' Association, so that this supply can be kept uniform during the year.

Another reason why we must encourage the producers of milk in proximity of our cities by protecting their territory is the fact that the surplus of milk created at certain times of the year by these producers from a distance is of a quality that tends to discourage the use of whole milk in city homes. If we are to advertise our product and maintain a reputation for Michigan milk it must be our policy to gradually foster the dairy where milk is the main product and try and minimize or, if possible, gradually eliminate, so far as supplying the city is concerned, those with whom milk production is a side issue and where high sanitation is not possible. This would entail no hardship to the small dairy farmer for generally his interest is very small—an average of six to ten cows, which are generally kept as a side issue. With this class of producers the milk should go to the manufacturing industries, butter and cheese, where the manipulation and processes modify the contaminating possibilities. While it is desired that all dairies be uniform, those supplying the city milk trade should be specialized to a high standard and be differentiated from the lesser ones where procedure is along different lines.

There is at present, therefore, no greater problem or greater work than to make our organization solid. To the Detroit area producer who objects to becoming a member of our Milk Producers' Association, we wish to say that the rule that you object to is your protection. Without that protection there would have been the worst surplus on the Detroit market this year that there has ever been and the entire industry in Michigan would have been unstabilized. Let every local officer get busy if you want to protect your market from outside milk. Detroit buyers stand ready to live up to the provisions of our contract with them. But, if one goes to buying in car lots, then the others will naturally seek self-protection, and your market is destroyed. Our agreements are well signed up. Our ranks are becoming constantly solidified and we do not want to ask the buyers to cut you off. You better get in while the getting is good.

R. C. REED,
Field Sec'y and Selling Agent.

A GREATER CONSUMPTION OF DAIRY PRODUCTS.

Increase in the consumption and in the production of milk are strongly urged by the special committee of experts appointed by the Food Administration to study the milk problem. Their report, now completed, deals with production, distribution and food value of market milk and discusses frankly the factors which contribute to the promotion or discouragement of this important industry.

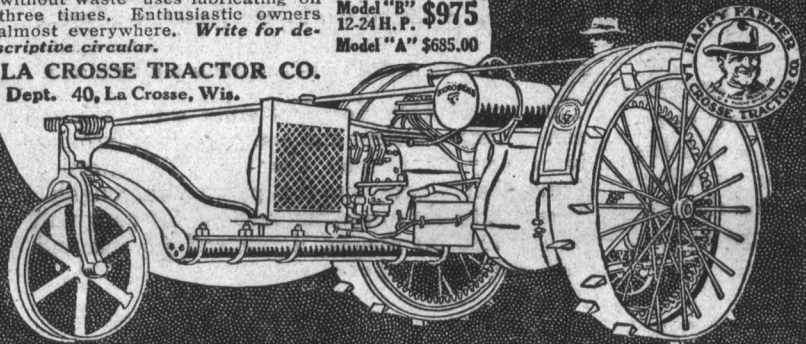
In advocating a greater consumption of milk the committee contends that in the cities, better development of the physical condition of the population would follow. Also that skim-milk and buttermilk should be made more available in the cities.

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Dairy Problems

By COLON C. LILLIE

FEEDING THE CALVES MILK ON PASTURE.

Will you please tell me of a good method of feeding milk to calves while on pasture? Is the trough a successful way? Of course, we use the pail while in the barn, but after they are turned on pasture it is quite a chore to feed twenty or more calves. Also, what has been found to be good feed to help out short pasture for cows? I do not have success with green corn, it is too loosening to the bowels.

Sanilac Co.

F. L. H.

I don't like the idea of pouring the milk into a long trough and letting the calves drink out of this trough, for the very reason that the largest and thriest calf will get more than his share of the milk. Each calf ought to have its portion and no system of feeding is successful unless arranged so that each one of the calves gets its share.

Late years, we have bred our cows so that most of them freshened in the fall, hence by spring the calves are old enough to go to pasture without any feed. Those that are too young, we have kept in box stalls in the barn the entire season and not turned them out to pasture. Formerly, when the cows freshened in the spring and we had the former universal calf pasture we made a row of stanchions so that we could have each calf in a stanchion by himself, then a manger in front of them that would hold the pails so that the milk could not be wasted. By having a pail for each calf it is but little more work to feed the calves in pails than it would be to pour it into a trough. Of course, there is some trouble in keeping the calf pails clean as they should be washed occasionally. In this way, each calf gets his share. Then the calves should be kept in the stanchions after the pails are removed and they should be fed a little dry grain. This gets them out of the notion of sucking each other if you can leave them there until their mouths get dry before they are released from the stanchions.

Feed to Supplement Short Pastures.

There is nothing in the world better to feed cows on short pasture in the summer time than corn silage. One should put up silage in the fall so that he will have enough to feed the cows next summer during the draught and short pasture. Many dairymen now have two silos, one for winter feeding and one for summer feeding. If one hasn't a sufficient number of cows to warrant this he can have one silo tall enough so that it will hold enough to last until the ensilage is harvested next year. Early in the season when the pasture is abundant, possibly it does not pay to feed ensilage but just as soon as the pasture gets short the cows should have a supplementary food.

If one hasn't a summer silo he can feed soiling crops. Oats and peas come in at just about the time when the pastures get short. They can be fed green if you have need of them. The balance can be made into hay. Clover makes an excellent supplement for the pasture, both when green and after it is made into hay it will pay any man if the pasture is short, to feed a good feed of clover hay every day. Then, early sweet corn or early corn of any variety after it is properly matured comes in later in the season but all of these soiling crops take so much time and labor just at the time of the year when the farmer has more work than he can do. The silage is handy and can be fed without interfering with the other work.

If one hasn't the soiling crops nor the summer silage, you can get along very well by feeding a liberal grain ration. Let the cows get what they can from the pasture and then feed them a good, liberal grain ration. If

you feed a good, liberal amount of grain you can keep up the flow of milk in good shape, but it is more expensive than the summer silage.

SOY BEANS FOR MISSAUKEE COUNTY.

I would like a little information regarding soy beans. Can soy beans be grown successfully up here in Missaukee county? If so, how should they be grown? Also, what variety? I want to grow these in corn for silage. Will they hinder cutting the corn by hand? Missaukee Co. J. D. B.

I don't think there is any danger but what you could grow soy beans anywhere you can mature corn. Certainly you can mature them sufficiently so that they will make good ensilage. Like corn, they do not want to be dead ripe to make good ensilage. If the beans are nicely formed in the pods they are all right for ensilage. If you would let them get too ripe the leaves will drop off and the pods will shatter and you will lose much of the seed.

Soy beans grown in ensilage corn will, in my judgment, interfere very materially if you cut the corn by hand. You will not get half of them because they are not high enough so that a man gathering the corn in his hand to be cut will grasp the beans. Where you cut them with a corn harvester it is a different proposition. They can nearly all of them be gathered and tied in the bundle.

Any of the early varieties, the Early Yellow or the Iota San or the Ebony will do. In fact, for your vicinity for ensilage, I am inclined to think that the medium variety would mature more nearly with the corn than the real early varieties.

CONTAGIOUS ABORTION.

Two heifers bred by the same sire have aborted. I have another one bred by the same sire which is soon to freshen. This one is kept in a stable with other cattle which heat now. If this heifer should abort, is there any danger of spreading this disease to the other cows when they freshen next year? Is this disease spread by a sire or among cows in one stable? Ottawa Co. W. G.

Contagious abortion may be spread by the sire or by the cows themselves. It is absolutely dangerous to keep a cow that has aborted, in the stable with other cows. It is dangerous to keep the cows in the same stable where a cow has aborted unless great pains have been taken to disinfect the stable. Contagious abortion is easily and rapidly spread.

The only remedy known for this disease is very carefully disinfecting in every particular and looking after every detail constantly. Someone has stated that the only way to get rid of contagious abortion in a herd is to clean up, disinfect, and to keep clean. In other words, this is a germ disease and the only way to get rid of it is to kill the germs. When a cow aborts, all of the viscera should be destroyed, the stall should be disinfected with a good disinfectant—any coal tar dip will do. The cow should be irrigated and also the stalls and floor of the barn, the bull pen and everything should be thoroughly sprayed with a good disinfectant and germicide. Cows that have aborted finally become immune and if one is thorough in this process of cleaning and keeping clean he can hope to finally eliminate it from his herd.

The Task Ahead.

Germany's greatest ally is the false belief in the United States that the war will be short. Face the grim facts. Prepare in your own home, in your business and in your community.

"In half the time it would take a man with a wheelbarrow"

We quote the following from a letter written by Ed. Grahl of Eden, Wis.:

"They (Oliver and Theodore) have been doing the work when not attending school, ever since we put in the Big Boy outfit. Oliver doing it most of the time. He is able to clean out the stables of 24 cows and 7 horses easily in half the time it would take a man with a wheelbarrow."

(Signed) ED. GRAHL.



"I Clean Out the Barn"

THAT is what Oliver Grahl, 12 years old, of Eden, Wis., does. Read the letter from his older brother, printed above.

Oliver Grahl and Theodore certainly keep things neat. And "in half the time it would take a man with a wheelbarrow!" Think of that—in these times when labor is so scarce. JAMES Equipment makes it possible. The boy and a wheelbarrow couldn't do it. But the boy and a JAMES carrier make that extra man unnecessary so far as the barn-cleaning job is concerned. This is just one sidelight on what JAMES Equipment—the JAMES kind of a barn—means to the dairy farmer in these days when help is hard to get—when machinery is needed to take the place of human muscle.

JAMES Sanitary Barn Equipment

does more than that. It not only saves labor, but it increases the milk yield—absolutely. It forces the cows to give more milk as the result of proper watering and feeding conditions and because they are contented and comfortable.

JAMES Drinking Cups, at least, should be installed in your barn this year even if you are not ready to build or remodel. They alone will increase the milk yield—they will actually pay for themselves in 90 days. With JAMES Drinking Cups for bigger milk production and a JAMES Carrier to save labor, you will have a good start toward the right kind of a barn.

"The Jamesway" book will show you how to have a money-making, labor-saving barn. Besides telling all about JAMES Equipment—stalls, stanchions, pens, drinking cups, ventilators, carriers, etc.—it gives helpful advice about barn plans, location, drainage and lighting; about plank frame construction, etc. Just answer the questions in the coupon and you will get a copy free. Do it today. Write for "The Jamesway" now.

JAMES MFG. CO., FS-41 Cane St., Ft. Atkinson, Wis.

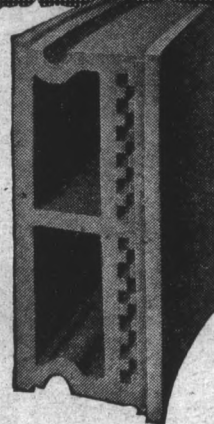


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and gives you better silage

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—with the "ship lap" blocks. Ends overlap—adds strength. Notches in ends prevent mortar from slipping. Extended shoulders top and bottom—less mortar exposed—silage settles better. More beautiful wall—blocks all same shade. Steel hip roof—extra space in silo—steel chute—fireproof—continuous doorway. Write for Catalog and Prices.

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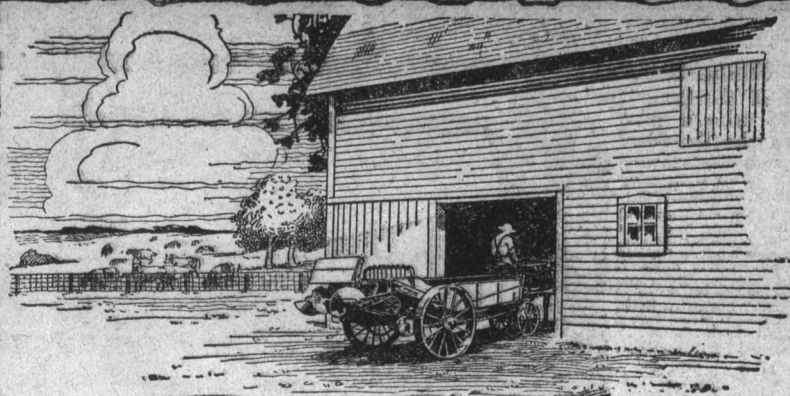


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for hogs, sheep and dairy cows. Contains twice as much protein as ground corn, cost \$20.00 per ton less. Special price for quick shipment. Write or phone. RANDOLPH, HALL & YOUNG, Owosso, Mich.



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We have facts and figures to show that in scores of cases the use of an International Harvester spreader has added to crops more than enough to pay for the spreader in one year.

The dealer will show you the new No. 8 Low Corn King, Cloverleaf or 20th Century. This is the latest International Harvester spreader, the popular 2-horse, light-draft, narrow-box machine with the remarkable new spiral wide-spread. For the small-to-average farm this is bound to be the spreader success of the year. Look it over from tongue to spiral, see it at work, and you will agree with us.

In the Low Corn King, Cloverleaf and 20th Century lines are larger spreaders too, with disk or spiral wide-spread, all of narrow, easy-handling width; low, of remarkably light draft, strongly and simply constructed. Write us for catalogues and see the local dealer for a satisfactory money-making Low Corn King, Cloverleaf or 20th Century spreader.

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means comfort for the cow and a generous, easy milk flow. Bag Balm, the great healing ointment, will keep the udder free from sores, chaps, cuts, bruises, cracks, burnings and inflammation. Bag Balm is especially effective at the calving period when caked bag frequently occurs. Its penetrating and softening effect is immediate. Every dairy should keep Bag Balm on hand.

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Seed Peas and Beans.
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Northern grown medium pea beans, hand picked dry and hard, absolutely free from anthracnose 95% germination test by County Agt. McMurry, \$23 per bag of 150 lbs. bags free; last years customers well pleased, reference for fair dealing any bank here. I make a specialty of growing seed beans.

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TIMOTHY SEED \$4.00 per bushel. High purity and germination, first class in every way. Timothy-Alsike Mixture \$4.50 per bushel, 45 lbs. Bags extra at 25c. each.

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Order Your B. V. T. Silo Early

Only a limited number of new orders can be filled this season. Order early and avoid disappointment.

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Free Catalog in colors explains how you can save money on Farm Truck or Road Wagons, also steel or wood wheels to fit any running gear. Send for it today.

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

Silage Corn

IN the February 9 issue of the Michigan Farmer, J. E. C., of Sanilac county, asks if well developed ears are necessary on ensilage corn. I am in favor of Mr. Lillie's reply, except that I differ with him in this statement: "If we plant the ensilage corn thicker, so that only a few small ears or nubbins would be developed, we would get more tons of ensilage per acre, and it would be just as good ensilage, ton for ton, as though we planted the corn thin and allowed the normal development of ears."

Now, we all know that we would get a larger yield in tons of ensilage—in other words, we would get more bulk from a given area.

I filled, and fed from, a silo for thirteen years and I've used different varieties of corn; corn that made a large growth (ten to twelve feet high) and couldn't mature in our short season; and varieties that would make a small growth (five to six feet high), and would come to maturity, or nearly so, by the time we got our first frost.

I am positive that I got as much feeding value per acre from the early maturing varieties as from the late maturing varieties that were only partially matured and contained a large amount of water and bulk, which necessitated nearly twice the expense of hauling and filling the silo.

If the late varieties could have been left a few weeks longer it would have been eared out and the plant would have been filled with more nutrients, (starch, sugar and protein). I don't think the corn should be ripe but it should be well glazed to get the best results.

I have also drilled in my corn for ensilage, in order to have enough fodder to fill the silo, which was fifteen feet in diameter by thirty-two feet deep, holding one hundred and twenty-five tons. Have filled this silo from eight acres of drilled corn.

But from my experience, I believe when I put in an early variety of corn that would be well glazed by the time we got our first frost, I got the best results when I checkrowed it, so as to cultivate it both ways, or drilled it in thin) so it would ear out the same as corn that was planted especially for the grain. Of course, it was always cut as soon as we could get to it after the first frost and we were generally ready to start filling the silo when the first frost came. If we didn't get an early frost we would start filling the silo as soon as corn was well glazed.

Mr. Lillie says: "The only question is, whether these plants that don't contain ears, have as much digestible food as plants containing ears."

Now, my theory is—when the corn is too thick the plant does not contain enough starch and sugar, and protein to develop a normal ear. That where considerably less seed is used the plant has a chance to develop a perfectly normal root system and thereby gather a greater amount of plant food from the soil, and store it in the ears as sugar, fats and protein. Also, the digestible nutrients are more concentrated and there isn't so much bulk to handle.

W. E. BARLOW.

HOW TO PREVENT ENSILAGE FROM FREEZING.

I have trouble with my ensilage freezing. I would like to know if there is any way to prevent or remedy this. Salt is sometimes advocated. Is this successful? If so, how is it administered?

F. M. D.

There is no practical way to entirely prevent silage from freezing more or less in extremely cold weather. In ordinary winters the freezing of the silage doesn't bother very much. If the temperature goes down below zero it usually only lasts for a day or so and then we have a warm spell and one can feed out of the center of the silo while it is so cold. When we have a

warm spell the frozen silage will cleave off the sides and fall towards the center of the silo. If it doesn't thaw out there it can be thrown down and left in the warm stable until it does thaw and then be fed without any loss or danger to the cattle. Frozen silage should not be fed in any considerable amount.

If one has a hinge door silo so that he can close the doors up tight when he comes out of the silo, this affords protection, just as it would to shut the door of a barn. If he had some way of closing the openings around the top which are necessary for ventilation when the silo is filled and would close the hinge door it would have to be pretty cold weather in order to freeze the silage.

Again, if one will take the silage out next to the staves or wall of the silo, down deeper than in the center, leaving it rounding, there isn't so much danger of freezing. At least, you leave the surface of the ensilage in such condition that one can get through a cold snap with very little bother.

If one could close up the silo as I have suggested, a little oil stove or even a lantern hung in the silo on cold nights would assist very much and would prevent the ensilage from freezing on top any way. Some people build silos inside the barn with the idea that they will not freeze and, of course, this is a great preventive but it is impractical to build a silo in the barn, it takes up too much of the barn space and you need that for something else.

A little salt scattered around the outside of the silo will assist in thawing out the ensilage and in fact, in a measure prevent the freezing of the ensilage close to the wall, but this must be scattered every day. This wouldn't be wasted because the cattle need salt anyway, but we never succeeded in preventing the silage from freezing entirely by using salt.

CEMENT BOTTOM FOR SILO.

We put up a silo last summer over a five-foot pit with cement bottom. Since then there has been quite a number of silos erected, but they are not putting in cement bottoms any more—nothing but dirt floors, saying that the ensilage keeps better. Our corn was quite green when we filled our silo last fall, as was our neighbor's corn. Our silo did not leak any but our neighbor's did, and they tell me I will find my pit full of corn juice and it will not be fit to feed. They tell me that this juice ought to be let off. Would like to know what your experience with it is. Would you advise me to take a crowbar and make a hole in the bottom of the silo?

Monroe Co.

F. T. S.

There are silos in this state that are built entirely below the ground. An excavation is dug and then the dirt walls are covered with sand and cement to make what is known as a "pit silo." Silage keeps well in these pits. The greatest objection that can be offered against them is that it makes so much work in getting the silage out of the pit when you want to feed it. Where the silo is entirely above the ground one has machinery to elevate the silage into the silo, but there isn't any practical machinery for getting the silage out of the ground. Of course, you have a great big bucket and let it down into the silo and elevate it with a windlass but this is rather slow work and has made this pit silo unpopular but there is no question but what the silage will keep. Many silos are put in at a depth of five feet. If it is properly constructed and properly cemented, the pressure of the corn in this pit will keep any water from coming in from the outside when it is full of silage. Not only that, but the pressure of the silage will prevent too much water accumulating in the bottom. When corn is put in at the proper stage there isn't a very great excess of moisture anyway. If there was the pressure would force this above the pit and it would seep through at the top.

FEEDING CHEAP PROTEIN.

Why not give protein feeds in excess of balance of requirements? They are so much cheaper. Cottonseed meal \$3 per cwt; oil cake meal \$3.50; corn meal \$4. Is not protein available for the purpose of general nutrition? One or more of my cows has an abnormal secretion in the milk which appears as a thick mucous-like substance in the separator. Is this true of most cows? Do you know of any remedy? It seems worse with liberal feeding.

Kent Co. W. E. T.

There is much better argument in favor of feeding an excess of protein in a ration than there is for feeding an excess of carbohydrates, providing the price of the protein foods will warrant it. Protein goes to build up the muscular tissues of the body and the vital organs. It is absolutely necessary in a ration. Life couldn't exist without protein. If there is an excess of protein fed this may be utilized by the animal organisms in creating heat and energy. In other words, the animal economy can burn what protein is not needed in building the vital organs and tissues to create heat and energy in the body. But, on the other hand, carbohydrates—starch and fat—can only be used to create heat and energy; they cannot be converted into protein or used in the place of protein in the animal body. Animals fed on a purely starch and fatty foods would die in a short time but they can live on protein.

However, it is better in the long run to feed a balanced ration, that is, the proper proportion as near as practical between protein and carbohydrates than it is to feed an excess of protein. For a short time it would do, but for long periods of feeding you cannot keep the animal in proper health with nothing but protein in the food. We need the carbohydrates in order to keep the animal in proper health and even though the carbonaceous foods are higher, pound for pound, than the protein, I would hesitate about eliminating them from the ration. It might be done where one is feeding lambs or steers for a short period, but for breeding animals I wouldn't think of the proposition.

Abnormal Secretions in Milk.

This is a case that ought not to be answered without proper diagnosis. One is liable to make a bad mistake in attempting to answer a question of this sort without proper investigation. I wouldn't be surprised if it proved to be a case of chronic garget. It may be confined to one cow or it may be that several cows are infected, but they may not be continuously infected, simply periodically. A cow may bruise her udder or when she lies down the udder may rest on the cold floor. These may cause inflammation that might have resulted in an attack of chronic garget and therefore give off mucous or slimy discharges. If a cow catches cold it is liable to produce inflammation in the udder with cows so affected. Again, by very liberally feeding it may bring on inflammation with cows affected by chronic garget.

In milking, one should try and find the cow or cows that are producing this condition; they can be treated best probably under the advice of the local veterinarian. A few doses of salt peter will usually remedy this condition for a short time.

A SUCCESSFUL SEASON FOR THIS ASSOCIATION.

The St. Louis Cooperative Creamery Company, in Gratiot county, added twenty-seven new stockholders during the past year and the gross business done reached \$118,517.09. Average price paid for butter-fat was 41½ cents per pound and average cost of manufacture was less than three cents per pound. Stockholders will be paid a dividend of one cent per pound on all butter-fat delivered during 1917. All directors were re-elected. There are 287 stockholders.

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One herd has 15000 pounds average. Fed on Unicorn for four generations.

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The best Guernsey record in the state. The highest producing large Holstein herd. The best Jersey herd.

New Hampshire

The highest Holstein herd.

Indiana

The three highest Holstein year records.

Iowa

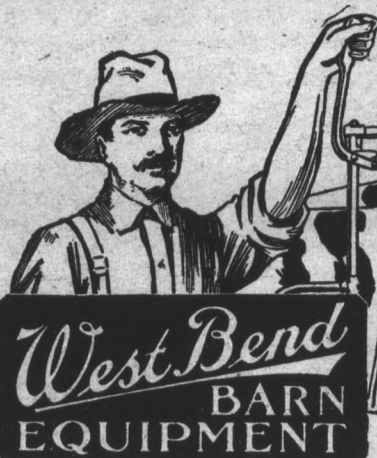
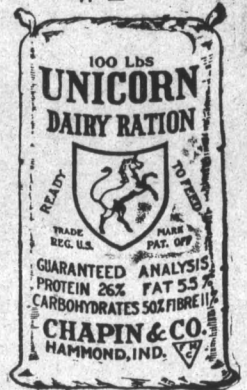
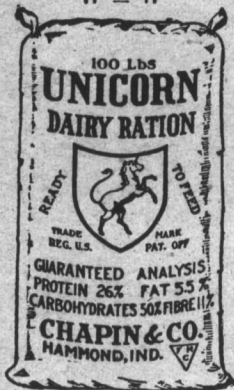
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PRICE IS F. O. B. LANSING AND
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WE ARE NOT THINKING of the price—for that isn't the primary consideration in the selection of a car.

YOU KNOW YOUR OWN NEEDS—whether a five passenger car is sufficient, or if you really need, at times, room for more.

AND YOU KNOW better than anyone else can tell you, what your price limit is.

AND SURELY AT ITS PRICE this Reo Six is the greatest value obtainable in a car of established reputation.

AND REO REPUTATION is second to none.

WHEN WE SAY "Here is a seven-passenger Six that you can afford," we are thinking of the same item that you, an experienced motorist, are considering—

NAMELY—UPKEEP. That is the first thing to consider in the selection of an automobile.

CERTAINLY YOU CAN afford to own a seven-passenger car—and you can treat yourself to the luxury of a sweet-running, silent Six—if you can feel that not only in first cost but also in cost of upkeep it will be well within your means and accord with your ideas.

ASK ANY REO SIX OWNER to tell you of the upkeep cost of his Six—and the longer he has owned and the farther he has driven his Reo, the better will his answer sound.

HE WILL TELL YOU that, having compared notes with friends who own and drive other makes of cars—fours as well as sixes—of the same passenger capacity, he has never found one that compared with his Reo Six in low cost of upkeep.

AND HE'LL TELL YOU, too, that he has yet to find even a five-passenger car—four or six—the operation, repairs, replacements and general upkeep cost of which proved as low as his Reo Six—except one the five-passenger Reo.

NATURALLY a five passenger car ought to be cheaper to maintain than one of seven-passenger capacity—but most are not, when you look up the figures.

REO DEALERS TELL US that their records for the past three years show that Reo Six owners on the average have paid less than eight dollars per car per year for replacement parts.

JUST READ THAT AGAIN—with thousands of Reo Sixes running in all parts of the country, over all kinds of roads and handled by all kinds of skilled and unskilled drivers; most of them owner driven and owner cared for (or neglected)—

THE AVERAGE COST per car, per year, for replacement parts was less than eight dollars!

FRANKLY WE DON'T believe that record can be equalled by any other seven-passenger car on earth.

AND WE MAY ADD that the records on the five-passenger Reo show less than seven dollars per car.

THE SAME QUALITY—the same sound engineering; the same ripe experience; the same attention to little details and the same construction, inspection and testing of every car enter into the making of all Reo models.

COST OF UPKEEP is always uppermost in the minds of Reo engineers, when designing and when specifying materials. And since the same desire is uppermost in the minds of the most experienced buyers—we meet on a common ground.

WE ARE FRANK TO ADMIT that to a large extent the phenomenally low cost of upkeep of Reos is due to the fact that Reo buyers are, as a class, better informed and more careful in their selection than the average.

REOS DO NOT APPEAL to those who look only to superficials—Reos are built for connoisseurs and Reo owners are mostly men of ripe experience in motoring. They, therefore, combine prudence with intelligence in their choosing of an automobile.

IF YOU ARE ONE of that kind, we say to you, here is a magnificent, luxurious, seven-passenger six that, both in first cost and cost of upkeep, you can well afford to own.

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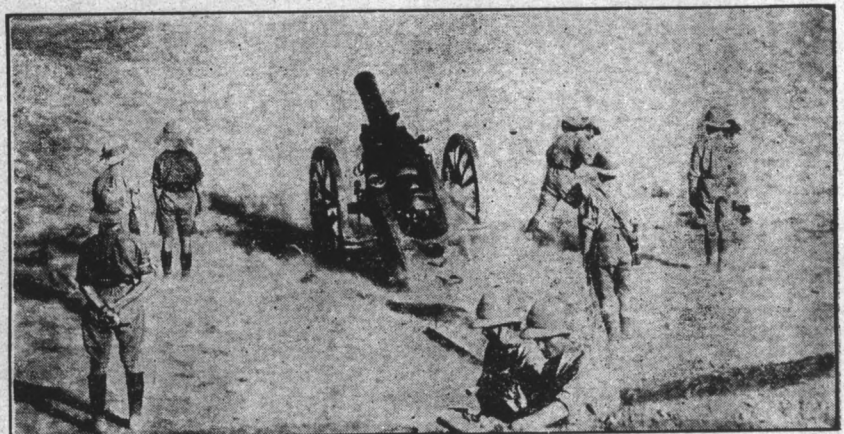
Trained Dogs Are Used Extensively Along the Battle Front to Aid the Medical Corps to Search for Wounded and Dying.



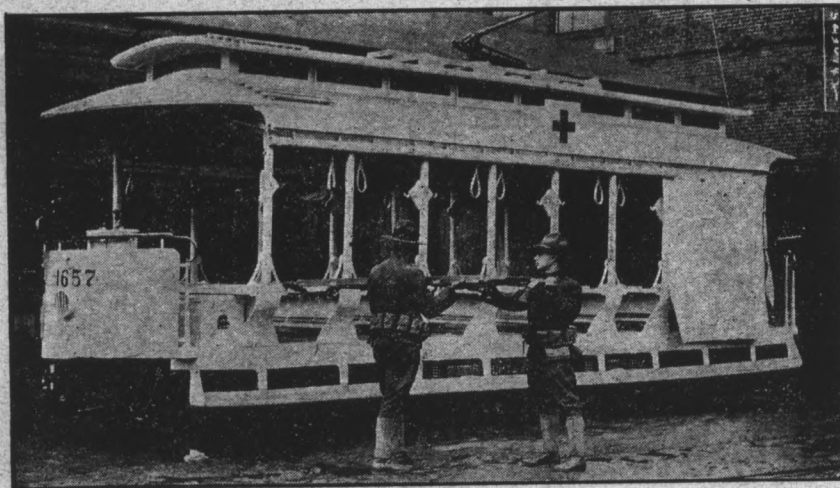
Natives from a French Colony in Indo-China Train to Help France; they are Learning to Pick their Way Through Barbed Wire Entanglements.



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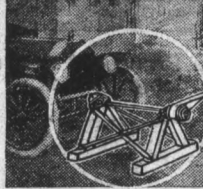
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Inside the Lines

By EARL DERR BIGGERS & ROBERT WELLES RITCHIE

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Yes, he must be put on his guard. As for Louisa—well, it would be too bad if the girl should have to put her back against a wall; but she could be spared; she was not essential. After he had succeeded in getting word of his danger to Woodhouse, Almer would consider saving Louisa from a firing squad. The nimble mind of Herr Almer shook itself free from the incubus of dread and leaped to the exigency of the moment. Calling his head waiter to keep warm the chair behind the desk, Almer retired to his room, and there was exceedingly busy for half an hour.

The hour of parade during war time on Gibraltar was one o'clock. At that time, six days a week, the half of the garrison not actually in fighting position behind the great guns of the defense marched to the parade grounds down by the race track and there went through the grilling regimen that meant perfection and the maintenance of a hair-trigger state of efficiency. Down from the rocky eminences where the barracks stood, marched this day block after block of olive-drab fighting units—artillerymen for the most part, equipped with the rifle and pack of infantrymen. No blare of brass music gave the measure to their step; bandsmen, in this time of reality paced two by two, stretchers carried between them. All the curl and snap of silken banners that made the parade a moving spectacle in ordinary times was absent; flags do not figure in the grim business of warfare. Just those solid blocks of men trained to kill, sweeping down on to the level grounds and massing, rank on rank, for inspection and the trip-hammer pound-pound-pound of evolutions to follow. Silent integers of power, flexing their muscles for the supreme test that any morning's sun might bring.

Mr. Henry J. Sherman stood with his wife, Kitty and Willy Kimball—Kimball had developed a surprising interest in one of these home folks, at least—under the shade of the row of plane trees fringing the parade ground. They tried to persuade themselves that they were seeing something worth while. This pleasing fiction wore thin with Mr. Sherman before fifteen minutes had passed.

"Shucks, mother! The boys at the national guard encampment down to Galesburg fair last year made a better showing than this." He pursed out his lips and regarded a passing battalion with a critical eye.

"Looked more like soldiers, anyway," mother admitted. "Those floppy, broad-brimmed hats our boys wear make them look more—more romantic, I'd say."

"But, my dear Mrs. Sherman"—Willy Kimball flicked his handkerchief from his cuff and fluttered it across his coat sleeve, where dust had fallen—"the guards back in the states are play soldiers, you know; these chaps, here—well, they are the real thing. They don't dress up like picture-book soldiers and show off—"

"Play soldiers—huh!" Henry J. had fire in his eye, and the pearl buttons on his white linen waistcoat creaked with the swelling of a patriot's pride. "You've been a long time from home, Willy. Perhaps you've forgotten that your own father was at Corinth. Guess you've overlooked that soldiers' monument in Courthouse Square back in little old Kewanee. They were 'play soldiers,' eh?—those boys who marched away with your dad in sixty-one. Gimme a regiment of those old boys in blue, and they could lick this whole bunch of—"

"Father," Kitty had flipped her hand

over her parent's mouth, her eyes round with real fear. "You'll get arrested again, talking that way here where everybody can hear you. Remember what that hotel man said last night about careless remarks about military things on the Rock? Be good, father."

"There, there!" Sherman removed the monitory hand and patted it reassuringly. "I forgot. But when I get aboard the Saxon and well out to sea, I'm going to just bust information about what I think of things in general over here in this Europe place—their Botticelli pictures and their broken-down churches and— Why, bless my soul! The little store buyer and that Iowa girl who's married to the governor here!"

The patriot stopped short in his review of the Continent's delinquencies to wave his hat at Lady Crandall and Jane Gerson, who were trundling down under the avenue of planes in a smart dog-cart. Lady Crandall answered his hail with a flourish of her whip, turned her conveyance to a stop by the group of exiles. Hearty greetings passed around. The governor's wife showed her unaffected pleasure at the meeting.

"I thought you wouldn't miss the parade," she called down from her high seat. "Only thing that moves on the Rock—these daily reviews. Brought Miss Gerson down here so when she gets back to New York she can say she's seen the defenders of Gibraltar, if not in action, at least doing their hard training for it."

"Well, I don't mind telling you," Sherman began defiantly, "I think the national guard of Illinois can run circles around these Englishmen when it comes to puttin' up a show. Now, Kitty, don't you try to drive a plug in your dad's sentiments again; Mrs. Crandall's all right—one of us." A shocked look from his daughter. "Oh, there I go again, forgettin'. Lady Crandall, I mean. Excuse me, ma'am."

"Don't you dare apologize," the governor's wife playfully threatened Mr. Sherman with her whip. "I love the sound of good, old-fashioned 'Missis.' Just imagine—married five years, and nobody has called me 'Mrs. Crandall' until you did just now. 'Wedded, But Not a Missis'; wouldn't that be a perfectly gorgeous title for a Laura Jean novel? Miss Gerson, let's hop out and join these home folks; they're my kind."

The burst of laughter that greeted Lady Crandall's sally was not over before she had leaped nimbly from her high perch, Henry J. gallantly assisting her. Jane followed, and the coachman from his little bob seat in the back drove the dog-cart over the road to wait his mistress' pleasure. The scattered blocks of olive-gray on the field had coalesced into a solid regiment now, and the long double rank of men was sweeping forward like the cutting arm of a giant mower. The party of Americans joined the sparse crowd of spectators at the edge of the field, the better to see. Jane Gerson found herself chatting with Willy Kimball and Kitty Sherman a little apart from the others. A light touch fell on her elbow. She turned to find Almer, the hotel keeper, smiling deferentially.

"Pardon—a thousand pardons for the intrusion, lady. I am Almer, of the Hotel Splendide."

"You haven't remembered something more I owe you," Jane challenged brusquely.

"Oh, no, lady!" Almer spread out his hands. "I happened to see you here watching the parade, and I remembered a trivial duty I have which, if I

may be so bold as to ask, you may discharge much more quickly than I—if you will."

"I discharge a duty—for you?" The girl did not conceal her puzzlement. Almer's hand fumbled in a pocket of his flapping alpaca coat and produced a plain silver cigarette case, unmonogrammed. She looked at it wonderingly.

"Captain Woodhouse—you met him at my hotel last night, lady. He left this lying on his dresser when he quit his room to go to barracks today. For me it is difficult to send a messenger with it to the barracks—war time, lady—many restrictions inside the lines. I came here hoping perhaps to see the captain after the parade. But you—"

"You wish me to give this to Captain Woodhouse?" Jane finished, a flicker of annoyance crossing her face. "Why me?"

"You are at Government House, lady. Captain Woodhouse comes to tea—all newcomers to the garrison do that. If you would be so good—"

Jane took the cigarette case from Almer's outstretched hand. Lady Crandall had told her the captain would be in for tea that afternoon. It was a small matter, this accommodation, as long as Almer did not insinuate—as he had not done—any impertinence; imply any over eagerness on her part to perform so minor a service for the officer. Almer bowed his thanks and lost himself in the crowd. Jane turned again to where Kitty and Kimball were chatting.

"A dun for extra service the landlord forgot last night, I'll wager," the youth greeted her.

"Oh, no, just a little present," Jane laughed back at him, holding up the silver case. "With Almer's compliments to Captain Woodhouse, who forgot it when he gave up his room today. I've promised to turn it over to the captain and save the hotel man a lot of red tape getting a messenger through to the captain's quarters."

"By Jove!" Kimball's tired eyes lighted up with a quick flash of smoker's yearning. "A life-saver! Came away from my room without my pet Egyptians—Mr. Sherman yelling at me to hurry or we'd miss this slow show and all that. I'm going to play the pander and beg one of your captain friend's smokes. He must be a good sort or you wouldn't be doing little favors for him, Miss Gerson. Come, now; in your capacity as temporary executrix will you invest one of the captain's cigarettes in a demand of real charity?"

Keen desire was scarcely veiled under Kimball's fiction of light patter. Smilingly the girl extended the case to him.

"Just to make it businesslike, the executrix demands your note for—um—sixty days, say. 'For one cigarette received. I promise to pay—'"

"Given!" He pulled a gold pencil from his pocket and made a pretense of writing the form on his cuff. Then he lit his borrowed cigarette and inhaled it gratefully.

"Your captain friend's straight from Egypt; I don't have to be told that," Willy Kimball murmured, in polite ecstasy. "At Shepard's, in Cairo, you'll get such a cigarette as this, and nowhere else in a barren world. The breath of the acanthus blossom—if it really has a breath—never heard."

"Back in Kewanee the Ladies' Aid Society will have you arrested," Kitty put in mischievously. "They're terribly wrought up over cigarettes—for minors."

Kimball cast her a glance of deep reproach. As he lifted the cigarette to his lips for a second puff, Jane's eyes mechanically followed the movement. Something caught and held them, wonder-filled.

On the side of the white paper cylinder nearest her a curious brown streak appeared—by the merest freak of chance her glance fell on it. As she

looked, the thin stain grew darker nearest the ash. The farther end of the faint tracing moved—yes, moved, like a threadworm groping its way along a stick.

Now what are they all doing out there?" Kitty Sherman was asking. "All those men running top speed with their guns carried up so high."

"Bayonet charge," Kimball answered. "Nothing like the real thing, of course."

Jane Gerson was watching the twisting and writhing of that filament of brown against the white. An invisible hand was writing in brown ink on the side of the cigarette—writing backward and away from the burning tip. It lengthened by seconds—"and Louisa to Crandall."

So the letters of silver nitrate formed themselves under her eyes. Kimball took the cigarette from his lips and held it by his side for a minute. He and Kitty were busy with each other's company for the time, ignoring Jane. She burned with curiosity and with excitement mounting like the fire of wine to her brain. Would he never put that cigarette to his lips again, so she could follow the invisible pen! So fleeting, so evanescent that worm track on the paper, wrought by fire and by fire to be consumed. A mystery vanishing even as it was aborning! After ages, the unconscious Kimball set the cigarette again in his lips.

"—nformer has denounced you and Louisa-t—play your game and he will be slow to—"

Again the cigarette came away in Kimball's hand. Acting on impulse she did not stop to question, Jane struck it from the young man's outstretched hand and set her foot on it as it fell in the dusty.

"Oh, I'm clumsy!" She fell lightly against Kimball's shoulder and caught herself in well-simulated confusion. "Standing tiptoe to see what that man on a horse is going to do—lost my balance. And—and your precious cigarette—gone!"

The anguish in Jane Gerson's voice was not play. It was real—terribly real.

CHAPTER XIV.

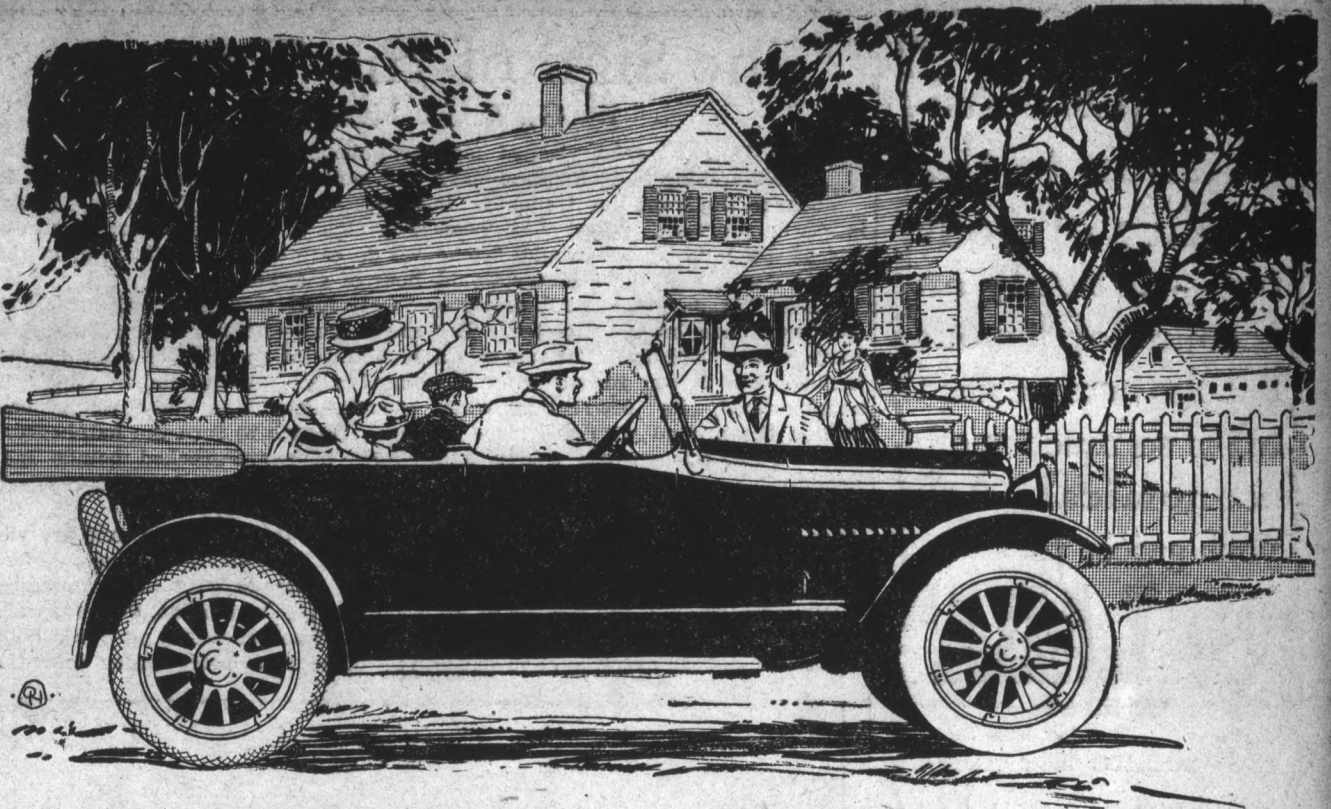
The Captain Comes to Tea.

JANE GERSON, alone for the first time since the incident of the cigarette on the parade ground a few hours back, sat before a narrow window in her room at Government House, fighting a great bewilderment. The window opened on a varied prospect of blooming gardens and sail-flecked bay beyond. But for her eyes the riot of color and clash of contrast between bald cliff and massed green had no appeal. Her hands locked and unlocked themselves on her lap. The girl's mind was struggling to coordinate scattered circumstances into a comprehensible whole, to grapple with the ethical problem of her own conduct.

What she knew, or thought she knew—and what she should do—those were the two saber points of the dilemma upon which she found herself impaled.

Could there now be any doubt of what she felt to be the truth? First, she had met Captain Woodhouse on the Express du Nord—an officer in the English army, by his own statement, returning from leave in England to his post in Egypt. Then, the encounter of last night at the Hotel Splendide, Captain Woodhouse first denying his identity, then admitting it under the enforced pledge that she should not reveal the former meeting. Captain Woodhouse, not in Egypt, but at Gibraltar, and, as she had soon learned, there with papers of transfer from an Egyptian post to the garrison at the Rock. Following this surprise had come General Crandall's dogged examination of that morning—his blunt declaration that a serious question as to

(Continued on page 331).



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The Sign of the Triangle

By G. T. K. NORTON

LONG lines of grim visaged men are marching in darkness silently up to the front line trenches. It is early morning. Word has been passed that "a show" would "come off" at dawn, that the infantry would "go over" at daybreak. All preparatory work has been completed. The barrage was "laid down" at sunset. Its thunder has driven reason from the neighborhood, its destruction made sodden the ground with the blood of men. Pain carpets the sector and agony rides on the misty wind.

No drums keep these men in step. They pass out of camp; they pass base hospitals and canteen, airdrome and supply depots. They bend low as they march through the section of big gun pits. They glance up expectantly as the shells roar overhead, and pause

arm about shoulder, a warm handclasp and smile, and the cry of the soul is answered. So are they made ready. The sign of the Red Triangle proves we do care and are with them in the hour of sacrifice.

Only for a moment are the Red Triangle men—the brothers of the men in khaki—at the side of each soldier, for they are few in number. But it is enough—enough to make victory certain. Enough to turn the half-hearted efforts of nerve-wrecked beings into an invincible smash by men resolved that right shall prevail.

At dawn they "go over" and are victorious. And on their heels, before counter barrage cuts off communication, go the Red Triangle men, their chocolate and encouraging words helping officers to bring order into the



Dugout Near the Front Line Trenches.

as one goes wild tearing a hole twenty feet deep near them. By three they file into their third line of defense and zig-zag their way, through communication trenches, past the second line, up to the border of No-man's Land. Here they rest, the last stop on the road to Hell.

The wire had been cut; a last inspection has been made. Nothing remains to be done. Dawn is awaited, every man facing death or worse with what fortitude he can summon. There is no light by which to read pocket testament. The last good-byes have been written. All comforts sent by loved ones at home, which have given a home touch to life in billet, have been left behind. Even the little trinket, locket, ring or watch, has lost its fond sentiments. There is nothing but misery—no evidence that anybody cares.

As the suspense of these last minutes—the most trying man can endure—reaches the point where body and mind can stand no more, comfort comes. Distracted souls, crying silently for consolation, and breaking for lack of it, are soothed. When light begins to gray the sky, these men, whose love of right is greater than love of life, who have left behind them all that was dear on earth and who are now facing their Maker, are given evidence that not only somebody does care, but that all care and appreciate. They are made ready to obey the fateful order that will send them "over." They are made once again into calm, determined men.

Men in dull green uniforms, as tired and worn as they, circulate among them. A hot drink and bit of chocolate cause them to forget the cold, the knee-deep mud and water in the trench, the weight of equipment and other physical discomforts. A cheery, whispered word of encouragement, an

newly won position, and making bearable the long hours of consolation and holding of the captured territory before relief arrives.

But creeping, devastating barrage, from sundown to sunup, has not silenced every enemy machine gun. Some of those who "go over" fall wounded. The road from Hell—the trail of the walking wounded—is as heartbreakingly hard to travel as was the road in.

On the day before the "push" engineers have planted rows of plain

Last to Begin, First to Finish

By HILDA RICHMOND

MRS. JORDON was waiting in the little sitting-room for Helen to come home from school. It was late when the door opened and shut quietly, and Helen, very sober, walked slowly into the room. After greeting her mother, she sat upon the settee before the fire, and gazing sadly into space, drew a long breath.

"What is it, daughter?" Mrs. Jordon asked, after waiting for Helen to speak. "Oh, Mother, I'm so discouraged," and again Helen lapsed into silence.

"Well, tell me about it," urged Mrs. Jordon quietly, after a few moments' waiting.

"You know, Mother," Helen began, "before Betty Horner entered our class, I always led. But now things have changed, and I am always second. She is so bright—seems to understand the lessons before the teacher has hardly half explained. This is our third year in high school, and she has led our class for the past five months, all the time she has been with us, and I believe she will continue to keep ahead."

"I know, my dear," Mrs. Jordon began, "it is a source of keen regret to

white posts, painted white, a few yards apart leading from the rear to the edge of No-man's Land. They are to guide the walking wounded. Eyes blurred with blood and suffering that might lose the road can follow the trail of those painted posts; bodies too weak from shell shock or gas to stand alone can find there a momentary support.

The men who have lost an arm, the men who have lost an eye, the men who carry in their shoulders or abdomens or legs the enemy's bullets or bits of his shells; the bleeding, staggering men, following the trail of the painted posts, stop at the sign of the Red Triangle first. The Y. M. C. A. dugout lies nearest the guns, nearer than doctor or hospital. After their ordeal their first experience is that somebody does care. At the dugout food and drink is given with cheery words, and bandages, applied under fire, are re-adjusted. Thousands of lives are snatched from death at these stations, and bits of heroism and self-sacrifice enacted that make men cry. And sometimes the dugouts are shelled; two Red Triangle men went out together in one recently. But it is part of the game and they ask no sympathy—not even pay. They ask only to be allowed to stand just behind the front line with cheer and chocolate for the men "going over," and at the dugouts just behind to meet the men coming back.

The organization you know here, the Y. M. C. A., goes with your boy from the time he leaves the farm home right through the whole gamut of warfare. In those dark, lonely minutes before he "goes over the top" his last contact with the world is given by the Red Triangle men, they give him the last good-bye and the cheer that you would give your all to give.

And as the men hobble back with wounds that would kill most of us outright the Red Triangle men are with them. They are guarding your boy even better than you could guard him. They are with him in camp here and in foreign city, protecting and guiding him that he may be a better man. They are with him on transport and battleship alike. Wherever he may be, there they are also.

Here is comfort for you who have dear ones in the active naval or military offensive. They are facing hardship and peril but their needs are being cared for by men who would rather do it than anything else, backed by an organization the sole purpose of which is to meet the needs of men.

one as ambitious as you are, to have another excel you, but you must realize that you do not attend school merely for the purpose of leading your class, however gratifying that may be. To think of yourself as ever in competition with others and of your success as dependent wholly on what others achieve is to waste and dissipate your powers. Probably your very anxiety as to whether you or Betty will come out ahead is telling against you."

"But, Mother, you have always praised me for standing well in my studies. And, you will agree, that it isn't pleasant to have someone come in and take your place, after you have been first so long," and Helen had a most injured air, indeed.

"You are touching upon a line of thought that runs all through human estimates of success," Mrs. Jordon answered. "In a way measuring self by others can afford considerable help; but in the last analysis of merit and reward every life stands by itself. The individual is rewarded not according to whether he has done well in comparison with others but according to wheth-

er he has done his best with the talents and opportunities he has found in life. "If you are doing your best, that is all that can be expected, and I am just as well pleased and as proud of you as if you were still leading your class."

"Well, I hope I am doing my best, but I am afraid, sometimes I grow discouraged, and can't concentrate my thoughts as well when I notice how much quicker Betty is than I am. I shall try not to think of myself as, 'in competition with Betty,' as you say, and probably I can do a little better."

"That is the right idea," Mrs. Jordon continued. "Don't let the thought of getting ahead worry you. Just try to do your best, in your own way. Friendly rivalry in work, and play has its place, but in looking to life success our supreme motive should be to keep up a constant rivalry with ourselves, to go as far as possible from our own starting point, to do all we can with our own ability."

"Remember Christ offered the reward to the faithful servant always—to the man of two talents, as well as to the man of ten, but He never mentioned such a thing as reward for out-doing others."

"Do your work nobly, and it shall ennoble you," both for time and eternity."

"That does sound more inspiring, Mother," Helen agreed. "We should keep up a constant rivalry with ourselves, instead of trying to rival others."

"To impress the fact that, in the end, the last is often first, I am going to tell you a story of two girls whom I knew when I was a school girl," Mrs. Jordon began.

"Your stories are always interesting," Helen answered.

"In a high school of wide reputation," Mrs. Jordon continued, "were entered two girls. Both had passed through the lower grades of the same school, and had always been, not only class-mates, but close friends as well."

"Margaret was exceptionally bright and full of eager interest in her work. When the teacher explained a new principle in mathematics, it was often a delight to see by her sparkling eyes that Margaret had grasped the thought before it was half explained. But she became rather too self-confident and occasionally missed some little point in the explanation which was very necessary for successful work later on in the study."

"Edith, on the other hand, was confessedly slow in mathematics, and had done barely well enough in arithmetic to secure promotion from the lower grades. But she had one decided talent—that of intelligent perseverance. She was seldom content with one explanation, but would put question after question to the patient teacher, until finally there crept into her eyes a light of quiet satisfaction, and the joy of discovery."

"Steadily her growing mind developed under her persistent perseverance, until it became evident that Edith was slowly, but surely forging her way to the head of her class."

"Finally the end of the last term of high school was drawing to a close. The dreaded examinations were over, and the names of those who had passed successfully were announced. Both Margaret and Edith's names were there but Edith's was among the honor graduates, and she also had won a scholarship, good for two years in one of the best colleges in the country. The last at the beginning—had come out first, at the finish."

As her mother talked, into Helen's eyes had crept the light of hope, and determination.

Whoever is afraid of submitting any question, civil or religious, to the test of free discussion, is more in love with his own opinion than with truth. Bishop Watson



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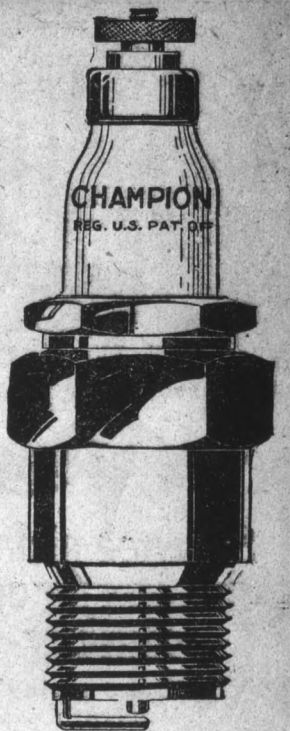
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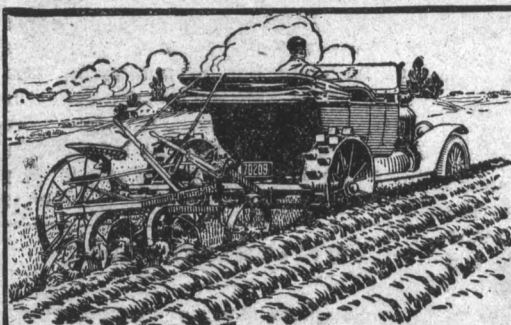
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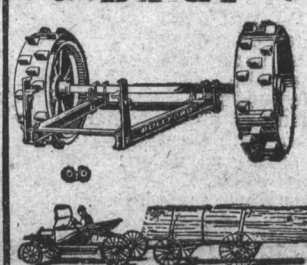
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The Grizzly King

By JAMES OLIVER CURWOOD

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For perhaps an hour the stars were undimmed, and Thor kept on like a heathen without a soul, while Muskwa limped on all four feet. Then a low rumbling gathered in the west. It grew louder and louder, and approached swiftly—straight from the warm Pacific. Thor grew uneasy, and sniffed in the face of it. Livid streaks began to criss-cross a huge pall of black that was closing in on them like a vast curtain. The stars began to go out. A moaning wind came. And then the rain.

Thor had found a huge rock that shelved inward, like a lean-to, and he crept back under this with Muskwa before the deluge descended. For many minutes it was more like a flood than a rain. It seemed as though a part of the Pacific Ocean had been scooped up and dropped on them, and in half an hour the creek was a swollen torrent of water.

The lightning and the crash of thunder terrified Muskwa. Now he could see Thor in great blinding flashes of fire, and the next instant it was as black as pitch; the tops of the mountains seemed falling down into the valley; the earth trembled and shook—and he snuggled closer and closer to Thor until at last he lay between his two forearms, half buried in the long hair of the big grizzly's chest. Thor himself was not much concerned in these noisy convulsions of nature, except to keep himself dry. When he took a bath he wanted the sun to be shining and a nice warm rock close at hand on which to stretch himself.

For a long time after its first fierce outbreak the rain continued to fall in a gentle shower. Muskwa liked this, and under the sheltering rock, snuggled against Thor, he felt very comfortable and easily fell asleep. Through long hours Thor kept his vigil alone, drowsing now and then, but kept from sound slumber by the restlessness that was in him.

It stopped raining soon after midnight, but it was very dark, the stream was flooding over its bars, and Thor remained under the rock. Muskwa had a splendid sleep.

Day had come when Thor's stirring roused Muskwa. He followed the grizzly out into the open, feeling tremendously better than last night, though his feet were still sore and his body was stiff.

Thor began to follow the creek again. Along this stream there were low flats and many small bayous where grew luxuriantly the tender grass and roots, and especially the slim long-stemmed lilies on which Thor was fond of feeding. But for a thousand-pound grizzly to fill up on such vegetarian dainties as these consumed many hours, if not one's whole time, and Thor considered that he had no time to lose. Thor was a most ardent lover when he loved at all, which was only a few days out of the year; and during these days he twisted his mode of living around so that while the spirit possessed him he no longer existed for the sole purpose of eating and growing fat. For a short time he put aside his habit of living to eat, and ate to live; and poor Muskwa was almost famished before another dinner was forthcoming.

But at last, early in the afternoon, Thor came to a pool which he could not pass. It was not a dozen feet in width, and it was alive with trout. The fish had not been able to reach the lake above, and they had waited too long after the flood-season to descend into the deeper waters of the Babine and the Skeena. They had taken refuge in this pool, which was now about to become a death-trap.

At one end the water was two feet deep; at the other end only a few inches. After pondering over this fact for a few moments, the grizzly waded openly into the deepest part, and from the bank above Muskwa saw the shimmering trout darting into the shallow water. Thor advanced slowly, and now, when he stood in less than eight inches of water, the panic-stricken fish one after another tried to escape back into the deeper part of the pool.

Again and again Thor's big right paw swept up great showers of water. The first inundation knocked Muskwa off his feet. But with it came a two-pound trout, which the cub quickly dragged out of range and began eating. So agitated became the pool because of the mighty strokes of Thor's paw that the trout completely lost their heads, and no sooner did they reach one end than they turned about and darted for the other. They kept this up until the grizzly had thrown fully a dozen of their number ashore.

So absorbed was Muskwa in his fish, and Thor in his fishing, that neither had noticed a visitor. Both saw him at about the same time, and for fully thirty seconds they stood and stared, Thor in his pool and the cub over his fish, utter amazement robbing them of the power of movement. The visitor was another grizzly, and as coolly as though he had done the fishing himself he began eating the fish which Thor had thrown out! A worse insult or a deadlier challenge could not have been known in the land of Beardom. Even Muskwa sensed that fact. He looked expectantly at Thor. There was going to be another fight, and he licked his little chops in anticipation.

Thor came up out of the pool slowly. On the bank he paused. The grizzlies gazed at each other, the newcomer crunching a fish as he looked. Neither growled. Muskwa perceived no signs of enmity, and then to his increased astonishment Thor began eating a fish within three feet of the interloper.

Perhaps man is the finest of all of God's creations, but when it comes to his respect for old age he is no better, and sometimes not as good, as a grizzly bear; for Thor would not rob an old bear, he would not fight an old bear, and he would not drive an old bear from his own meat—which is more than can be said of some humans. And the visitor was an old bear, and a sick bear as well. He stood almost as high as Thor, but he was so old that he was only half as broad across the chest, and his neck and head were grotesquely thin. The Indians have a name for him. Kuyas Wapusk they call him—the bear so old he is about to

LITTLE FRUIT BUDS.

BY MARTHA SHEPARD LIPPINCOTT.

Close up little fruit buds
Don't come out just yet,
Or before the springtime
You'll, a nipping, get.
Wait a little longer
Till the winter's gone
Then you can, with safety,
Put your spring garbs on:

But just now there may be
Snow to come along;
Then you would be feeling
All the world was wrong.
Sleep a little later
In your cosy bed,
So the chilling breezes
Will not strike your head.

'Tis not best to hurry
Out too soon for spring,
Or, perhaps some sorrow
It, to you, will bring.
Take another nap, then,
'Till bright April smiles,
And with tears and sunshine,
She, your heart, beguiles.

die. They let him go unharmed; other bears tolerate him and let him eat their meat if he chances along; the white man kills him.

This old bear was famished. His claws were gone; his hair was thin, and in some places his skin was naked, and he had barely more than red, hard gums to chew with. If he lived until autumn he would den up—for the last time. Perhaps death would come even sooner than that. If so, Kuyas Wapusk would know in time, and he would crawl off into some hidden cave or deep crevice in the rocks to breathe his last. For in all the Rocky Mountains, so far as Bruce or Langdon knew, there was not a man who had found the bones or a body of a grizzly that had died a natural death!

And big, hunted Thor, torn by wound and pursued by man, seemed to understand that this would be the last real feast on earth for Kuyas Wapusk—too old to fish for himself, too old to hunt, too old even to dig out the tender lily roots; and so he let him eat until the last fish was gone, and then went on, with Muskwa tagging at his heels.

CHAPTER XII.

FOR still another two hours Thor led Muskwa on that tiresome jaunt into the north. They had travelled a good twenty miles since leaving the Bighorn Highway, and to the little tan-faced cub those twenty miles were like a journey around the world. Ordinarily he would not have gone that far away from his birthplace until his second year, and very possibly his third.

Not once in this hike down the valley had Thor wasted time on the mountain slopes. He had picked out the easiest trails along the creek. Three or four miles below the pool where they had left the old bear he suddenly changed this procedure by swinging due westward, and a little later they were once more climbing a mountain. They went up a long green slide for a quarter of a mile, and luckily for Muskwa's legs this brought them to the smooth plainlike floor of a break which took them without much more effort out on the slopes of the other valley. This was the valley in which Thor had killed the black bear twenty miles to the southward.

From the moment Thor looked out over the northern limits of his range a change took possession of him. All at once he lost his eagerness to hurry. For fifteen minutes he stood looking down into the valley, sniffing the air. He descended slowly, and when he reached the green meadows and the creek bottom he mooshed along straight in the face of the wind, which was coming from the south and west. It did not bring him the scent he wanted—the smell of his mate. Yet an instinct that was more infallible than reason told him that she was near, or should be near. He did not take accident or sickness or the possibility of hunters having killed her into consideration. This was where he had always started in to hunt for her, and sooner or later he had found her. He knew her smell. And he crossed and recrossed the bottoms so that it could not escape him.

When Thor was love-sick he was more or less like a man; that is to say, he was an idiot. The importance of all other things dwindled into nothingness. His habits, which were as fixed as the stars at other times, took a complete vacation. He even forgot hunger, and the whistlers and gophers were quite safe. He was tireless. He rambled during the night as well as the day in quest of his lady-love.

It was quite natural that in these exciting hours he should forget Muskwa almost entirely. At least ten times before sunset he crossed and recrossed the creek, and the disgusted and almost ready-to-quit cub waded and swam and floundered after him until he was nearly drowned. The tenth or doventh time Thor forded the stream



Bent
Bones—
Caused by
Illfitting
Shoes

Straight
Bones—
Result of
Schmidt's
Comfort
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Science picked
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Muskwa revolted and followed along on his own side. It was not long before the grizzly returned.

It was soon after this, just as the sun was setting, that the unexpected happened. What little wind there was suddenly swung straight into the east, and from the western slope half a mile away it brought a scent that held Thor motionless in his tracks for perhaps half a minute, and then set him off on that ambling run which is the ungainliest gait of all four-footed creatures.

Muskwa rolled after him like a ball, pegging away for dear life, but losing ground at every jump. In that half-mile stretch he would have lost Thor altogether if the grizzly had not stopped near the bottom of the first slope to take fresh reckonings. When he started up the slope Muskwa could see him, and with a yelping cry for him to wait a minute set after him again.

Two or three hundred yards up the mountainside the slope shelved downward into a hollow, or dip, and nosing about in this dip, questing the air as Thor had quested it, was the beautiful she-grizzly from over the range. With her was one of her last year's cubs. Thor was within fifty yards of her when he came over the crest. He stopped. He looked at her. And Iskwa, "the female," looked at him.

Then followed true bear courtship. All haste, all eagerness, all desire for his mate seemed to have left Thor; and if Iskwa had been eager and yearning she was profoundly indifferent now. For two or three minutes Thor stood looking casually about, and this gave Muskwa time to come up and perch himself beside him, expecting another fight.

As though Thor was a thousand miles or so from her thoughts, Iskwa turned over a flat rock and began hunting for grubs and ants, and not to be outdone in this stoic unconcern Thor pulled up a bunch of grass and swallowed it. Iskwa moved a step or two and Thor moved a step or two, and as if purely by accident their steps were toward each other.

Muskwa was puzzled. The older cub was puzzled. They sat on their haunches like two dogs, one three times as big as the other, and wondered what was going to happen.

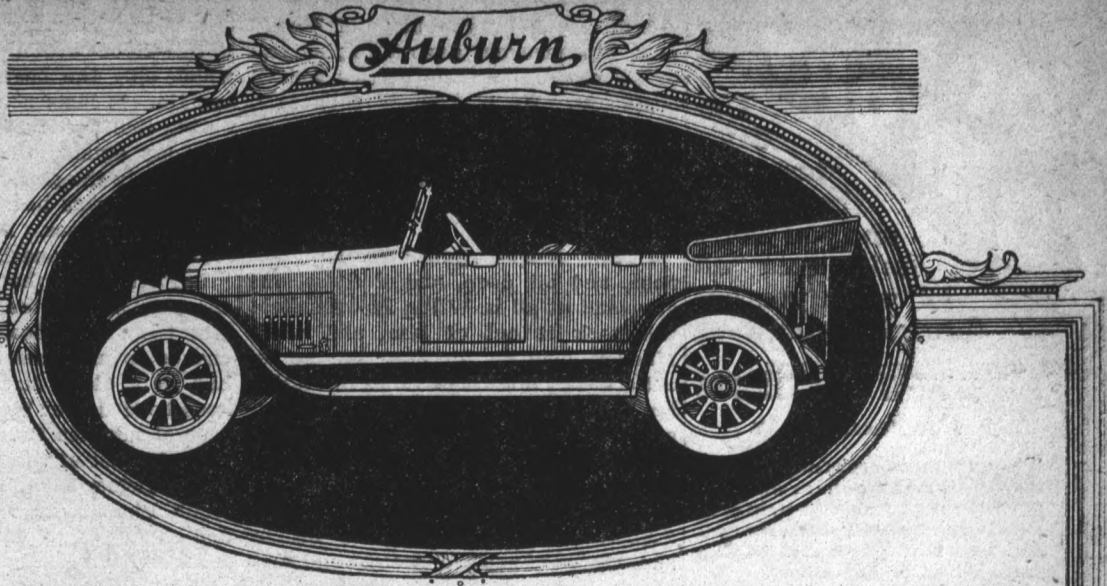
It took Thor and Iskwa five minutes to arrive within five feet of each other, and then very decorously they smelled noses.

The year-old cub joined the family circle. He was just the right age to have an exceedingly long name, for the Indians called him Pipoonaskoos—"the yearling." He came boldly up to Thor and his mother. For a moment Thor did not seem to notice him. Then his long right arm shot out in a sudden swinging upper-cut that lifted Pipoonaskoos clean off the ground and sent him spinning two-thirds of the distance up to Muskwa.

The mother paid no attention to this elimination of her offspring, and still lovingly smelled noses with Thor. Muskwa, however, thought this was the preliminary of another tremendous fight, and with a yelp of defiance he started down the slope and set upon Pipoonaskoos with all his might.

Pipoonaskoos was "mother's boy." That is, he was one of those cubs who persist in following their mothers through a second season, instead of striking out for themselves. He had nursed until he was five months old; his parent had continued to hunt tidbits for him; he was fat, and sleek, and soft; he was, in fact, a "Willie" of the mountains.

On the other hand, a few days had put a lot of real mettle into Muskwa, and though he was only a third as large as Pipoonaskoos, and his feet were sore, and his back ached, he landed on the other cub like a shot out of a gun.



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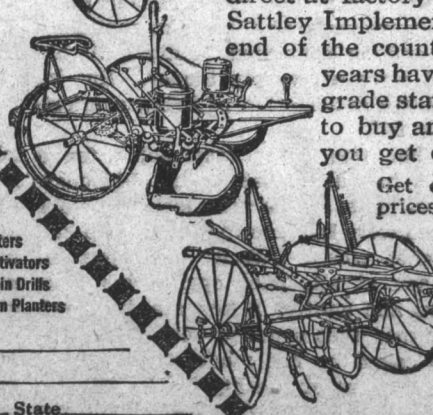
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Still dazed by the blow of Thor's paw, Pipoonaskoos gave a yelping call to his mother for help at this sudden onslaught. He had never been in a fight, and he rolled over on his back and side, kicking and scratching and yelping as Muskwa's needle-like teeth sank again and again into his tender hide.

Luckily Muskwa got him once by the nose, and bit deep, and if there was any sand at all in Willie Pipoonaskoos this took it out of him, and while Muskwa held on for dear life he let out a steady stream of yelps, informing his mother that he was being murdered. To these cries Isawao paid no attention at all, but continued to smell noses with Thor.

Finally freeing his bleeding nose, Pipoonaskoos shook Muskwa off by sheer force of superior weight and took to flight on a dead run. Muskwa pegged valiantly after him. Twice they made the circle of the basin, and in spite of his shorter legs, Muskwa was a close second in the race when Pipoonaskoos, turning an affrighted glance sidewise for an instant, hit against a rock and went sprawling. In another moment Muskwa was at him again, and he would have continued biting and snarling until there was no more strength left in him had he not happened to see Thor and Iskwaio disappearing slowly over the edge of the slope toward the valley.

Almost immediately Muskwa forgot fighting. He was amazed to find that Thor, instead of tearing up the other bear, was walking off with her. Pipoonaskoos also pulled himself together and looked. Then Muskwa looked at Pipoonaskoos, and Pipoonaskoos looked at Muskwa. The tan-faced cub licked his chops just once, as if torn between the prospective delight of mauling Pipoonaskoos and the more imperative duty of following Thor. The other gave him no choice. With a whimpering yelp he set off after his mother.

Exciting times followed for the two cubs. All that night Thor and Iskwaio kept by themselves in the buffalo willow thickets and the balsams of the creek-bottom. Early in the evening Pipoonaskoos sneaked up to his mother again, and Thor lifted him into the middle of the creek. The second visual proof of Thor's displeasure impinged upon Muskwa the fact that the older bears were not in a mood to tolerate the companionship of cubs, and the result was a wary and suspicious truce between him and Pipoonaskoos.

All the next day Thor and Iskwaio kept to themselves. Early in the morning Muskwa began adventuring about a little in quest of food. He liked tender grass, but it was not very filling. Several times he saw Pipoonaskoos digging in the soft bottom close to the creek, and finally he drove the other cub away from a partly digged hole and investigated for himself. After a little more excavating he pulled out a white, bulbous, tender root that he thought was the sweetest and nicest thing he had ever eaten, not even excepting fish. It was the one bonne bouche of all the good things he would eventually learn to eat—the spring beauty. One other thing alone was at all comparable with it, and that was the doog-tooth violet. Spring beauties were growing about him abundantly, and he continued to dig until his feet were grievously tender. But he had the satisfaction of being comfortably fed.

Thor was again responsible for a fight between Muskwa and Pipoonaskoos. Late in the afternoon the older bears were lying down side by side in a thicket when, without any apparent reason at all, Thor opened his huge jaws and emitted a low, steady, growling roar that sounded very much like the sound he had made when tearing the life out of the big black. Iskwaio raised her head and joined him in the tumult, both of them perfectly good-natured and quite happy during the

operation. Why mating bears indulge in this blood-curdling duet is a mystery which only the bears themselves can explain. It lasts about a minute, and during this particular minute Muskwa, who lay outside the thicket, thought that surely the glorious hour had come when Thor was beating up the parent of Pipoonaskoos. And instantly he looked for Pipoonaskoos.

Unfortunately the Willie-bear came sneaking around the edge of the brush just then, and Muskwa gave him no chance to ask questions. He shot at him in a black streak and Pipoonaskoos bowled over like a fat baby. For several minutes they bit and dug and clawed, most of the biting and digging and clawing being done by Muskwa, while Pipoonaskoos devoted his time and energy to yelping.

Finally the larger cub got away and again took to flight. Muskwa pursued him, into the brush and out, down to the creek and back, halfway up the slope and down again, until he was so tired he had to drop on his belly for a rest.

At this juncture Thor emerged from the thicket. He was alone. For the first time since last night he seemed to notice Muskwa. Then he sniffed the wind up the valley and down the valley, and after that turned and walked straight toward the distant slopes down which they had come the preceding afternoon. Muskwa was both pleased and perplexed. He wanted to go into the thicket and snarl and pull at the hide of the dead bear that must be in there, and he also wanted to finish Pipoonaskoos. After a moment or two of hesitation he ran after Thor and again followed close at his heels.

After a little Iskwaio came from the thicket and nosed the wind as Thor had felt it. Then she turned in the opposite direction, and with Pipoonaskoos close behind her, went up the slope and continued slowly and steadily in the face of the setting sun.

So ended Thor's love-making and Muskwa's first fighting; and together they trailed eastward again, to face the most terrible peril that had ever come into the mountains for four-footed beast—a peril that was merciless, a peril from which there was no escape, a peril that was fraught with death.

CHAPTER XIII.

THE first night after leaving Iskwaio and Pipoonaskoos the big grizzly and the tan-faced cub wandered without sleep under the brilliant stars. Thor did not hunt for meat. He climbed a steep slope, then went down the shale side of a dip, and in a small basin hidden at the foot of a mountain came to a soft green meadow where the doog-tooth violet, with its slender stem, its two lily-like leaves, its single cluster of five-petalled flowers, and its luscious, bulbous root grew in great profusion. And here all through the night he dug and ate.

Muskwa, who had filled himself on spring beauty roots, was not hungry, and as the day had been a restful one for him, outside of his fighting, he found this night filled with brilliant stars quite enjoyable. The moon came up about ten o'clock, and it was the biggest, and the reddest, and the most beautiful moon Muskwa had seen in his short life. It rolled up over the peaks like a forest fire, and filled all the Rocky Mountains with a wonderful glow. The basin, in which there were perhaps ten acres of meadow, was lighted up almost like day. The little lake at the foot of the mountain glimmered softly, and the tiny stream that fed it from the melting snows a thousand feet above shot down in glistening cascades that caught the moonlight like rivulets of dull polished diamonds.

About the meadow were scattered little clumps of bushes and a few balsams and spruce, as if set there for ornamental purposes; and on one side there was a narrow, verdure-covered slide that sloped upward for a third of

a mile, and at the top of which, unseen by Muskwa and Thor, were a band of sheep sleeping.

Muskwa wandered about, always near Thor, investigating the clumps of bushes, the dark shadows of the balsams and spruce, and the edge of the lake. Here he found a plasket of soft mud which was a great solace to his sore feet. Twenty times during the night he waded in the mud.

Even when the dawn came Thor seemed to be in no great haste to leave the basin. Until the sun was well up he continued to wander about the meadow and the edge of the lake, digging up occasional roots, and eating tender grass. This did not displease Muskwa, who made his breakfast of the dog-tooth violet bulbs. The one matter that puzzled him was why Thor did not go into the lake and throw out trout, for he yet had to learn that all water did not contain fish. At last he went fishing for himself, and succeeded in getting a black hard-shelled water beetle that nipped his nose with a pair of needle-like pincers and brought a yelp from him.

It was perhaps ten o'clock, and the sun-filled basin was like a warm oven to a thick-coated bear, when Thor searched up among the rocks near the waterfall until he found a place that was as cool as an old-fashioned cellar. It was a miniature cavern. All about it the slate and sandstone was of a dark and clammy wet from a hundred little trickles of snow water that ran down from the peaks.

It was just the sort of a place Thor loved on a July day, but to Muskwa it was dark and gloomy and not a thousandth part as pleasant as the sun. So after an hour or two he left Thor in his frigidarium and began to investigate the treacherous ledges.

For a few minutes all went well—then he stepped on a green-tinted slope of slate over which a very shallow dribble of water was running. The water had been running over it in just that way for some centuries, and the shelving slate was worn as smooth as the surface of a polished pearl, and it was as slippery as a greased pole. Muskwa's feet went out from under him so quickly that he hardly knew what had happened. The next moment he was on his way to the lake a hundred feet below. He rolled over and over. He splashed into shallow pools. He bounced over miniature waterfalls like a rubber ball. The wind was knocked out of him. He was blinded and dazed by water and shock, and he gathered fresh speed with every yard he made. He had succeeded in letting out half a dozen terrified yelps at the start, and these roused Thor.

Where the water from the peaks fell into the lake there was a precipitous drop of ten feet, and over this Muskwa shot with a momentum that carried him twice as far out into the pond. He hit with a big splash, and disappeared. Down and down he went, where everything was black and cold and suffocating; then the life-preserver with which nature had endowed him in the form of his fat brought him to the surface. He began to paddle with all four feet. It was his first swim, and when he finally dragged himself ashore he was limp and exhausted.

While he still lay panting and very much frightened, Thor came down from the rocks. Muskwa's mother had given him a sound cuffing when he got the porcupine quill in his foot. She had cuffed him for every accident he had had, because she believed that cuffing was good medicine. Education is largely cuffed into a bear cub, and she would have given him a fine cuffing now. But Thor only smelled of him, saw that he was all right and began to dig up a doog-tooth violet.

(Continued next week.)

"Food Will Win the War!" Whose food, German or American? The world awaits your answer.
We must save, serve and sacrifice.

INSIDE THE LINES

(Continued from page 325).

the captain's position at Gibraltar had arisen, and his equally plain-spoken threat to have the truth from her concerning her knowledge of the suspected officer.

To cap all the message on the cigarette. An informer—she guessed the prefix to the unfinished word—had denounced "you and Louisa" to General Crandall. To whom the pronoun referred was unmistakable—Almer's eagerness to insure Captain Woodhouse's receiving the cigarette case plainly defined that. As to "Louisa," involved with Woodhouse, the girl from Hildebrand's was sensible only of a passing flash of curiosity, made a bit more piquant, perhaps, by a little dart of jealousy, hardly comprehended as such. A hotel keeper warns an officer in the Gibraltar garrison that he has been denounced, but in the same message adjures him to "play your own game." That was the single compelling fact.

Jane Gerson flushed—in anger, or was it through guilt?—when she found her lips framing the word "spy!"

Now she understood why General Crandall had put her on the grill—why he, informed, had leaped to the significance of the gift of roses and deduced her previous acquaintance with their donor. Her host was not, after all, the possessor of magical powers of mind reading. He was, instead, just the sober, conscientious protector of the Rock on whom rested responsibility for the lives of its defenders and the maintenance of England's flag there. His duty was to catch—and shoot—spies.

Shoot spies! The girl's heart contracted at the thought. No, no! She would not—she could not reveal to the governor the knowledge she had. That would be to send death to a man as surely as if hers was the finger at the trigger.

Jane Gerson was on her feet now, pacing the room. Over and over again she told herself that this man who had come into her life, obliquely enough, had no claim on her; had brought nothing to her but distress. He had deceived her even, and then, caught in the deception, had wrested from her a promise that she would help him continue further deception against others. Against her will he had made her a party to some deep and audacious plot, whose purpose she could not guess, but which must be but a part of the huge mystery of war.

And soon this Captain Woodhouse was to come to his trial—the purpose of his invitation to tea that afternoon flashed clear as white light. Soon she would be in the same room with him; would be forced to witness the spinning of the web set to trap him. "He would come unwarned, unsuspecting. He might leave that room under guard and with guns at his back—guns soon to be leveled at his heart. Yet she, Jane Gerson, possessed the power to save him—as the warning of the cigarette surely would be saving, once a clever man were put on his guard by it.

Would she speak—and betray General Crandall, her kindly host? Would she lock her lips and see a man walk blindfolded to his death?

A few minutes before five o'clock, Major Bishop was announced at Government House and received by General Crandall in the library. Before Jaimihr Khan, who had preceded the visitor through the double doors from the hall, could retire, his master stopped him.

"One minute, Jaimihr! Have a seat, Bishop; glad you've come a bit early. Come here, Jaimihr!"

The tall reedlike figure of the Indian glided to General Crandall's side. His thin ascetic features were set in their usual mold of unseeing detachment; only his dark eyes showed animation.

"Yes, my General," he said, as he stopped before the Englishman.

(Continued next week).



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Western Canada's help will be required not later than April 5 th. Wages to competent help, \$50 a month and up, board and lodging.

Those who respond to this appeal will get a warm welcome, good wages, good board, and find comfortable homes. They will get a rate of one cent a mile from Canadian boundary points to destination and return.

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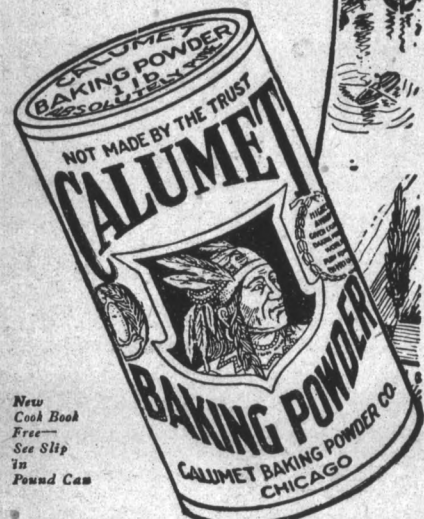
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Woman and Her Needs At Home and Elsewhere

Patriotism, Chosen or Enforced

THERE'S been a lot written recently about how this war was going to teach Americans the beauty of thrift. I have felt for some time that when the period of thrift through which we are passing had been gotten through, we were all going to plunge into one mad orgy of spending, and eating, just as a relief from this extreme. Now that the food administration has found it necessary to enforce its program by law, I am sure we are. It seems that a whole lot of us weren't thrifty anyway, until our Uncle Samuel just got up and made it impossible for us to be anything else.

I thought for quite a while that I was a real patriot and was Hooverizing from choice. I called it my bit toward beating the Hun. But a recent experience showed me that I'm not so much of a patriot after all. I Hooverized because I couldn't afford to do anything else.

For instance: We haven't had pork since the government asked us not to eat it. Even in the face of those tempting packing house picture advertisements of rashers of bacon springing into place around two divinely cooked eggs, mark you, not egg substitute, I have turned my back and bought beef shanks and hamburger. And I really thought it was from a sense of duty. But last week a friend innocently remarked,

"If I could have exactly what I want for breakfast tomorrow I'd have ham and eggs and toast, instead of this eternal oat meal and corn muffins."

Enter the serpent. Ham and eggs, both for one meal! The more I thought of it the more I decided I had been enough of a patriot to have at least ham. So I hied me forth and consulted the butcher. Do you know what that rapacious monster wanted for what I considered enough smoked ham to feed my family of five? Exactly \$1.50! One dollar and fifty cents, for what I used to get for forty-five or fifty cents! I decided without an instant's hesitation that the boys at the front needed that ham. We'd take codfish gravy.

So that's the extent of my boasted patriotism. I like to think that I wouldn't order wheat cereals instead of rolled oats if I could get them for six cents a pound instead of eighteen or twenty cents for fourteen ounces. But I'm afraid. I'm glad the government sees fit to keep the price up if it wants me to eat rolled oats. And if I didn't find baking brown bread and corn pones to my advantage, I'm afraid I'd be tempted to buy white. Though, now, thank goodness, I'm to be hedged about from that temptation.

Enforced food regulation is right. For while with our minds we conceded the rightness of the government's wish that we abstain from certain things, with our hearts we still worshiped the flesh pots of Egypt, and we could find a million reasons why we should be exempt from the food draft. It was a fine thing—for the other fellow. But, really, we couldn't digest graham, and too much beef gave us the gout. Now that necessity is laid upon us, we'll Hooverize perforce.

Slackers in diet, that wasn't such a bad name for a lot of us. One little club of women, who were ardent knitters and sewers and bandage rollers,

had a menu like this in November: Virginia baked ham, Parker House rolls, Lady Baltimore cake, French pastry, salad with a whipped cream dressing, tea, coffee and chocolate with whipped cream, and ice cream. After the club had disbanded the hostess and a couple of ladies who remained to help "clear up" made fresh coffee and had more baked ham and cake. Five meals a day mixed in with helmets and sweaters and wristlets didn't

seem the least little bit incongruous to them.

I hope we won't come to bread cards and sugar cards, along with our promised coal cards another year. But if the war lasts that long I can almost see them.

It isn't lack of patriotism, either. It's just pure thoughtlessness, mixed with a sublime confidence that we're going to win without any effort just because we're Americans. But I'm afraid we're going to be rudely awakened, if we don't rouse ourselves.

DEBORAH.

Tatted Butterfly—By MRS. HELEN COMBES

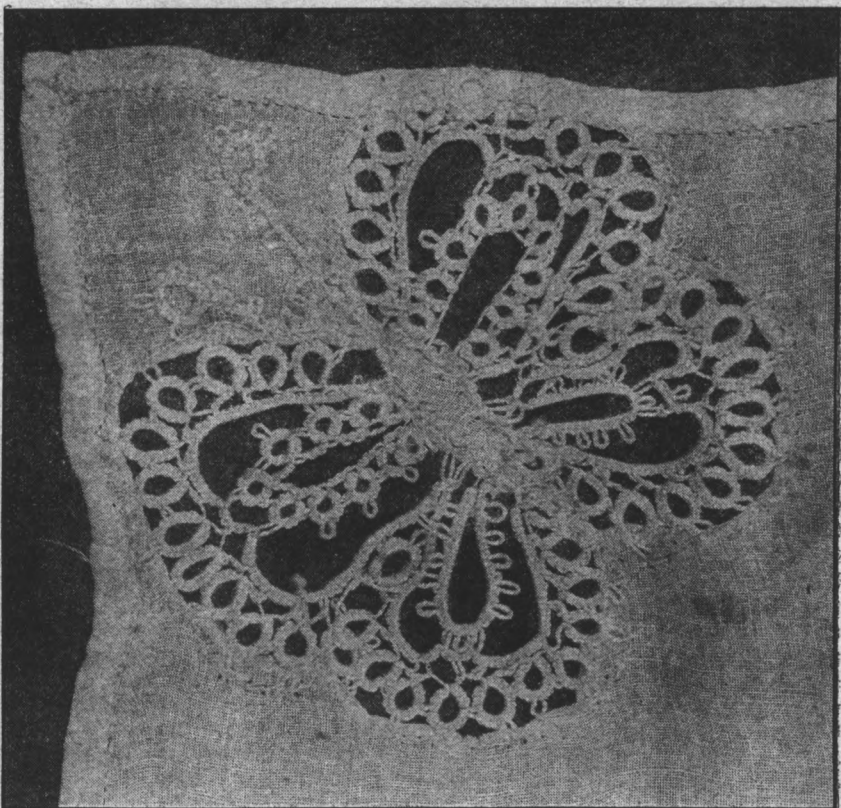
IN giving directions for tatting, the use of certain set terms simplifies the task. A tatted chain means any number of stitches worked with the shuttle on a second thread, the number of picots between the stitches being specified. The second thread may be on a shuttle, or a ball may be used. A picot (pc) is made by leaving thread between stitches so loose that when work is drawn up, it forms a tiny loop. Picots are used for joining the work, as well as for ornamentation. A tatted stitch is in two parts, one made with shuttle under and over, and the second over and under, the foundation thread.

The butterfly here shown is quite new, and easy to do. A single butterfly makes a dainty ornament for a

heeler, ch same as first, tie threads, cut off.

Inside Large Wings.—Single thread fastened to 2nd pc in body, 9 small loops made with 3 ch, pc, repeated twice, 3 ch draw up, leave tiny bit of thread between each loop, join loops at 1st and last pc. Join to 3rd pc on body. Make similar nine loops for the other side of body. With two threads, ch, all around 9 loops as follows: Five ch, pc, 5 times, 3 ch, join in top pc of 4th loop, 3 ch, pc, 3 ch, join in 5th loop, repeat and join in 6th loop. Three ch, pc, 5 ch, pc, four times, finish with 5 ch, join to body.

Outside edge of large wings.—Make 12 loops or holes as follows: Five st and pc 3 times, 5 st, draw up and fasten. As the loops are made join them



The Tatted Butterfly Used on this Handkerchief Also Makes a Dainty Trimming for Corset Cover or Gown.

chemise or night gown. It is worked at the bottom to pc in chain row, beginning with second pc, and also join loops together at sides by pcs. This completes the large wing. The smaller one is made the same way, excepting that the center, instead of 9 small loops is a ch of 3 st and pc, 12 times, ending with 3 ch, and the second row has 2 pc less than the similar row in the first wing, the outer edge having but 10 loops, with a backward turning loop, between the end of the second, and the beginning of the first wings, this being fastened to the chain rows in both wings.

Head.—Single shuttle. Make 3 st, pc; repeat 6 times, end with 3 st, draw up.

Body.—Made in two halves, done with shuttle on loose thread, the same number of stitches on each half, as on head.

Tail.—Made after first half of body, with shuttle alone, 3 st, pc, repeated 4 times, 3 st, draw up. Without breaking thread make second half of body, and join to head.

Heelers.—Chain of 3 st, pc 4 times, 3 st. Join to 3rd pc in head, 3 ch, join to 4th pc, 3 ch join to 5th pc; 2nd

The butterfly is inserted with buttonhole stitches on the right side. The

linen is then cut away from underneath the butterfly, and the edge on the wrong side neatly whipped into place.

These butterflies made in coarser thread can be used in the corners of luncheon cloths or along the ends of a buffet cloth.

(The writer will be glad to answer inquiries concerning this butterfly if stamped addressed envelope is sent).

HOME QUERIES.

Household Editor.—Now that sugar is so scarce, and in fact, unobtainable, can you not help us out with some recipes for using corn syrup? Could it be used in molasses cookies in place of molasses? Any suggestions from yourself or The Farmer readers will be greatly appreciated.—Mrs. J. W. C.

The corn syrup manufacturers issue their own book of recipes. Most of them call for some sugar, however. It can be used in place of cooking molasses with good results. It is not so sweet as sugar, however, and if you use it to replace sugar you had better use one and a quarter cups for every cup of sugar required. I have used it in cake and hermits. The hermits were satisfactory. It made a very moist cake, almost soggy, but might not if you used it with eggs. I used an egg substitute. I used the following recipe, found in the corn syrup book:

Five-Minute Cake.—One cup syrup, one-quarter cup of butter, two eggs, one-half cup of pastry flour, one cup of corn starch and one cup of plain flour, into which one teaspoon of baking powder has been sifted. Put syrup, flour, butter into dish in order named. Open eggs into cup and fill with milk, adding vanilla to taste. Beat all together vigorously for five minutes and bake in moderate oven.

Write the manufacturers for their recipe book. You will find the address on the can. Are you buying it in ten-pound pails? You will find this much cheaper?

Household Editor.—I am a reader of the Michigan Farmer and would like to know how to clean a white woolen collar and belt on a rose color sweater.—E. O. R. W.

You might clean them so you could use the sweater once or twice more by sifting in a little corn meal, letting the garment lie for a few hours, and then shaking the meal out. It would be more satisfactory to wash sweater with a good soap, or soap flakes, following directions on the wrapper.

SOME SUGARLESS DESSERTS.

Hot rice or hasty pudding (corn meal mush) served with a sweet sauce makes a simple wholesome dessert. Chopped raisins or dates may be added to either, but no sugar is needed. Here are a few easily made sauces:

Honey Sauce.—One cup of honey, one-fourth cup of water, one tablespoon of butter substitute, one-fourth teaspoon of salt, one-fourth teaspoon of cinnamon, a dash of nutmeg, juice of one lemon or two tablespoons of vinegar. Boil together for fifteen minutes. The juice of one orange and grated peel may be used instead of lemon and seasoning in this recipe.

Molasses Sauce.—One cup molasses, one tablespoon of corn starch stirred smooth with water, one tablespoon of butter substitute, one-fourth teaspoon of cinnamon, a pinch of salt, lemon juice or vinegar to taste. Boil all the ingredients together for twenty minutes. Hot molasses flavored with ground ginger makes an excellent sauce.

Prune Pone in War Time.—One cup of corn meal, one cup of rye flour, one cup of wheat flour, one cup of washed chopped prunes, one-half cup molasses, one cup of sour milk, one teaspoon of soda. Scald meal with enough boiling water to make a very stiff batter; stir in flour, add other ingredients, then hot fruit. Steam in mold for three hours or bake two hours in moderate oven.

Serve with sweet sauce or hot molasses sauce.

Maple Sauce.—To one cup of maple syrup add one-fourth cup of nut meats chopped fine. Heat and serve with hot rice.

M. A. C. RECIPES FOR SAVING WHEAT.

Recipes intended to show housewives how they can save wheat flour by using such things as rye flour, rolled oats, graham flour, mashed potatoes and corn meal in its stead have been issued by the Department of Home Economics of the Michigan Agricultural College to help women of the state in their thrift campaign.

"It is not necessary for the housewife to learn any new-fangled recipe for making bread," the department says. "She can continue using her favorite recipe and reduce the amount of wheat flour she has heretofore thought necessary by simply substituting rye flour, rolled oats, graham flour, mashed potatoes or scalded corn meal for one-third or one-fourth of the wheat flour.

"A corn pone or bannock can be made by mixing corn meal to a rather thin paste with boiling water or scalded milk, adding salt, then spreading it in a thin layer and baking it until crisp. This is most delicious to serve with milk or soup as a substitute for crackers.

"Tasty pastry can be made by using rye flour instead of the white, no other change in the recipe being necessary.

"If you have not as yet tried these new recipes—which are really in many cases revivals of old ones that have been more or less neglected of late—you will find it a real pleasure to taste these delicacies, and incidentally help Uncle Sam by lessening the drain upon his already meagre food stores."

A KNITTING SET.

Now that everyone is knitting, a knitting set will be found useful and pretty. Purchase a yard and a half of some delicate and fast-colored cretonne. From part of this shape a dainty bag with cretonne handles. Featherstitch a hem around the edge. Do not make the mistake of making the bag too small, as it is always better to have room to spare than that one's work be crowded. From the rest of the cretonne, shape a dainty little apron with a pocket across the entire lower half of the front. Make a band of ribbon or of ribbon covered elastic. Fold the apron and put inside of the bag, then when the busy knitter works, the apron will always be at hand to slip on and to hold the ball of yarn and anything else needed.—Emma Gary Wallace.

SHORT CUTS TO HOUSEKEEPING.

Buy a soap cup, the kind that hangs on the side of the bucket, and place your cake of soap in this. Each time you need it you have it right at hand and don't have to look and dip your hand in scrub water. It also saves marks on the floor from soap and keeps your soap from melting away in the water.—Mrs. J. J. O'C.

One of the surest ways to make a small piece of meat go a good ways is to have it nicely cooked and to serve it with a very sharp knife. A good-sized roast will not go far if cut with a dull carver, whereas if each slice is trimmed off just right, each person will be satisfied with less, and what remains will be in better shape for another meal.—E. G. W.

Carrot Honey.—Take one pint of raw carrot, two cups of white syrup and two lemons. Mix ingredients and add the grated rind of one lemon. Heat slowly and simmer the mixture until it is thick and clear. Turn into scalded jelly glasses and when cold cover with hot paraffin. Serve with cold meat or as a sauce for puddings.

The new smooth nickel trimmings are riveted on from the inside; yet the inside is perfectly smooth; no bolt-heads or nuts either inside or out to catch dirt or get in the way. Majestic riveting also holds the nickel permanently tight.

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"RANGE COMPARISON" FREE. If you want to make sure of getting good value, send for our booklet. It tells what to look for in buying a range.

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MICH. 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. 2368—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 requires 6 1/4 yards of 36-inch material. Price 10 cents.

No. 2374—A Smart Dress for Home Wear. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 1/2 yards of 36-inch material. The skirt measures about

No. 2362—Girls' Dress. Cut in four sizes, 4, 6, 8 and 10 years. Size eight will require 3 1/4 yards of 36-inch material. Price 10 cents.

No. 2363—Boys' Suit. Cut in four sizes, 3, 4, 5 and six years. Size four will require 2 3/4 yards of 40-inch material. Price 10 cents.

No. 2184-2187—A Charming Three-piece Suit. Coat-waist 2184 cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 2 3/4 yards of 36-inch material for the waist, and 3 3/4 yards for the blouse, for a 36-inch size. Skirt 2187 cut in seven sizes, 22, 24, 26, 28, 30, 32 and 34 inches waist measure, and requires 3 3/4 yards of 36-inch material for a 24-inch size. The skirt measures about 2 1/2 yards at the foot. Two separate patterns, 10 cents for each pattern.

No. 2378—Dress for Misses and Small Children. Cut in three sizes, 16, 18 and 20 years. Size 16 requires 4 1/4 yards of 44-inch material. The dress measures about 2 1/2 yards at the foot. Price 10 cents.

Pattern Department
The Michigan Farmer, Detroit



Our Boys and Girls

At Work and play

Club Prize Winners Enjoy a Novel Outing

By J. B. BROWN

BESIDES the regular prizes offered the winners in the Junior Agricultural Clubs of Calhoun county, the publications on which the writer is employed promised to take four of the successful contestants on a week's touring trip to Detroit and the Michigan State Fair grounds. Our guests were to be to no expense whatever for this trip.

The touring car especially designed and built for long distance touring was supplied with a camping outfit. The two boys and the two girls who won this trip had seen the car and its equipment in use on the road, which warranted them in anticipating the time of their lives, and we believe they were not disappointed.

The successful contestants were: Edison Collier, the winner in corn culture; Ralph Wyman, winner in potato production; Lenna Morgan not only won in garment making last year, but she also won the state championship, and Margaret Raub, only thirteen years old, won the county championship in baking.

These four prize winners, with the writer and his wife and little daughter, made up a party of seven for the trip. We drove the car through to Detroit alone two days previous, with the complete equipment.

The young folks met at our home in Battle Creek and we took a full day to drive to Detroit. Each had a suit case with necessary articles for use on the road and in camp. Not one of the four had ever taken an automobile trip across the country and had never even been to Jackson, Ann Arbor, Ypsilanti and Detroit. It was a great day for them all the way of the 120 miles and



Our Complete Camp Outfit at the State Fair Grounds.

they noted and talked about what they saw of farm houses, fine basement barns, neat lawns, growing corn and the variety of familiar field scenes as compared with their experiences at home.

Arriving at a friend's home in Detroit in the evening we waited until the next morning to drive into the fair grounds. A long time previous we had made complete arrangements with Secretary Dickinson regarding the camp and he had presented each boy and girl with a season pass. Our location was in the large and fine square occupied by the Boys' State Fair School. Both Secretary Dickinson and

Superintendent T. M. Satler suggested this location and our own boys and girls fully appreciated it before the week was over.

Edison, Ralph, Lenna and Margaret helped us set up the camp and it was complete, with all four double beds made up, in less than an hour. The double or "twin bed" inside the car, over the top of the seat backs, is usually occupied by the writer and his wife on all trips. This bed is enclosed by a khaki curtain that buttons close on both sides and in front of the bed. It has on each side and in front an oval window with celluloid pocket windows, wire screens and khaki draw-

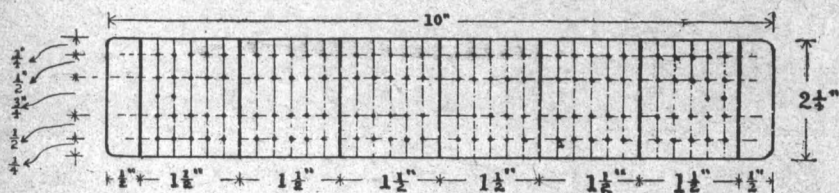
shades inside. This bed is very cool and comfortable during the hottest nights.

The double "lean-to" bed on the right side of the car was used by Lenna and Margaret. Mrs. Brown and little daughter slept in the car, while Edison and Ralph "stayed nights" with the writer in the automobile touring bungalow. This touring tent outfit is one we designed and made just before the trip. It has a collapsible frame occupying one-half the tent space, with two double berths. The right one-half is used for dressing, reading, and also for cooking and eating when it rains. Both beds fold up to the side wall. The tent space is eight feet wide and seven feet long. Tent roof is seven feet high in the center and four feet at the sides. Each bed is four feet six inches wide.

Two days and two nights it fairly poured down rain water on the fair ground, but not a drop penetrated our car and khaki roofs. One evening we cooked our supper over the automobile gas stove inside the tent and ate and visited while a terrific thunder storm passed overhead. We fried beef steak, baked potatoes, made coffee and other good things and they tasted far better than if eaten in a restaurant.

The picture shows the entire camp. Margaret, the expert baker, dressed in white, sits on the long settee with Edison. Lenna Morgan, the state champion in garment making, sits in front of the car, with the luncheon kit in the distance, paring potatoes. Ralph Wyman is sitting back of the gas stove reading a book and making comments to Edison. The curtains are turned back so that the tent double beds are visible.

Home Made Game Boards for the Soldiers



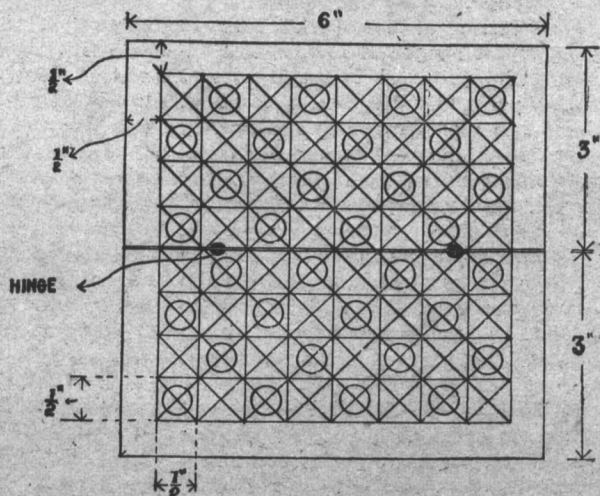
Cribbage Board

This board is designed for the soldiers in the trenches, in Y. M. C. A. huts, etc. Material for these boards is being furnished by the Grand Rapids Bookcase and Chair Company, Hastings, Michigan.

Directions.—The board is squared up to the dimensions of two and a quarter by ten inches, with the try-square and saw. It is then smoothed up on both sides to a thickness of from three-eighths to five-eighths inches. Set the gauge at a quarter inch and gauge a line, lightly, down each side. (If you have no gauge make this line with a ruler and pencil). Then set the gauge at three-quarters of an inch and gauge the second line three-quarters of an inch from each side, the full length of the board. This gives two lines on each side of the board half an inch apart. Using the square or the one-foot rule, mark off a half inch at each end of the board as shown in the drawing. Divide the remaining nine inches into six equal parts, one and a half

Material.—The material needed for this board is to be furnished by the boys and consists of: (1) Two pieces of soft wood each six inches long and three inches wide. (This material can be obtained from dry goods boxes, soap boxes, etc). (2) Sixteen black-headed tacks, commonly known as furniture upholstery tacks. (3) Sixteen brass headed tacks. (4) Two small brass hinges and (5) one brass fastener to fasten the two sides of the board, when it is folded up.

Directions.—Plane the two pieces of stock to the dimensions given. With the square or rule, lay off a margin one-half inch in width on one side and both ends of each piece of stock. Place the two sides which have no margin marked off, together. This forms a square five inches on each side. With the square, or rule divide each side



Layout of Checker Board.

up into eight equal parts. They will be 6.16-inch bit bore holes in each of the way through, being careful that the bit does not extend through and

split out the board. Equip one side of the board with sixteen black-headed tacks, four of which have a cross filed on the head to designate them as King Men. Equip the other side of the board with sixteen brass-headed tacks marked in the same way. Fold the two boards together. If the directions have been followed carefully the holes which have been bored will allow the heads of the tacks to fit nicely and the two boards will shut tightly together. Place the two boards in the vice and put on the two hinges and fastener.

How the World's Business Is Transacted - By COMFORT A. TYLER

THE writer well remembers when, with the first \$33 he ever saved, he invested it in a colt. As I now look back at it, I think the main reason for making this particular selection was that it could be bought for \$33 and that was exactly the sum I had. The owner wanted \$35 but when he learned that I had but \$33 that sum at once became the price.

I sought my father's permission to buy the colt. He advised against it, but I was unable to get him to go and see it at all. He simply said that if I bought it that I must do so on my own judgment and against his, but he did not deny me the privilege of buying, so after school I took all my savings of a "lifetime" (?)—my lifetime up to then—and trudged two miles after it.

He was a rather stubborn little whelp and it was well after dark when I got home. I was desperately disappointed because my father would not go out to see him that night. Some way I did not take quite as much satisfaction in the possession as I had anticipated, but still I was up betimes the next morning and as I led the lousy little scamp out for my father's inspection I could not quite keep the rising tide of a proud ownership—an animal of my own, from coming to the surface. It was with some apprehension, however, that I waited my father's decision given with what seemed to me to be almost a malicious deliberation, but finally said in a most discomfiting tone, "Well, son, he may grow to it," but he never did. In after years I learned that my father knew all about the colt all the time, knew it was not worth the price, advised me so, and then decided that it might be the cheapest business schooling that I would ever have, and I think it was. Today I approve his methods, but I wept many a bitter tear over it while it lasted.

Now, so far we have discussed the question of saving money and have said very little about spending it. I want our boys and girls to learn to be wise spenders as well as good savers. Is it one thing to learn how to save, and another to learn how to expend it wisely, and one is as essential as the other. Of course there are always some things that are fundamental in expenditures. For instance, a man's affections will dictate that he clothe his family, nature demands bread, the law compels him to wear a shirt and his wife will insist that he pay the preacher, these things with many others, are the necessities of life when one has become grown and has the responsibilities of a family and must enter into a business career.

With the larger part of our young people the checking account or the commercial account at the bank will not come until they have entered their business career. The average farm boy and girl does not have "bills to pay" as those things are usually provided for from the "home fund," hence he has not found the need of a checking account, but whenever the time does come that you have regular bills to pay, then is the time to open that checking account. Presuming you already have a neat little sum in your savings account, you may now set over a part or the whole of it to your commercial account and check from it. When you do this you will quite likely

be given another signature card for the commercial file. In the smaller bank this will not be required. In any event it is simply your "identification." Now if never before, you should adopt a uniform "signature" and always use it the same, and now as never before you start on your career of confidence.

When you place your money in the banker's keeping, you have confidence that he will honor your check on the account when it is presented. When you write your check and hand it to the man whom you owe and he accepts it, he has confidence that you have the money in the bank to provide for its payment. This man perhaps, instead of depositing it in his bank or presenting it at the desk of yours, endorses it by writing his name across the back and turns it over to some man whom he owes, and that man has confidence that the endorser is good if you are not and that he would have recourse on him if the check was found not to be good.

Suppose the amount were \$100, when you made your deposit in the bank the banker loaned eighty per cent of that \$100 to someone who needed it to carry on his business, as it has been proven that this is a safe margin with the combined deposits of many patrons, you write your check for \$100, pay one debt with the check, your creditor in turn pays an equal amount—more confidence, don't you see, \$200 of debts are already paid and only \$20 of capital idle.

This second man who gets it will perhaps deposit it in his bank with his own endorsement added, the bankers has confidence that his customer's endorsement makes the check good if it were not so in the first place, this banker in turn sends it to his city reserve bank who accepts it because he has confidence in the banker who sent it to him. He in turn sends it to the clearing house, where it is "cleared" by turning it back to the city correspondent bank of the bank upon which you originally drew the check. They accept it because they have confidence in previous endorsements and this reserve bank of your bank charges it to the account of your bank, and when the statement goes back the cancelled paid check will at last come back to your bank and when you get your monthly statement you will find it tucked away in its proper order with so many endorsements that you begin to wonder where it has been and what it all means.

One thing always do, number your checks, issue them in numerical order, and keep the stub religiously, then file your cancelled checks as they come back to you in numerical order and you have a more complete record of your business than you could have in any other way.

BOYS' AND GIRLS' CLUB NOTES.

POULTRY CLUBS TO HELP FEED THE WORLD.

The United States government is asking boys and girls to raise poultry in order to increase the supply of food for the coming season. Five boys or girls in a community may start a club. Now is the time to start. For information write to the Junior Extension Department, East Lansing, Michigan.

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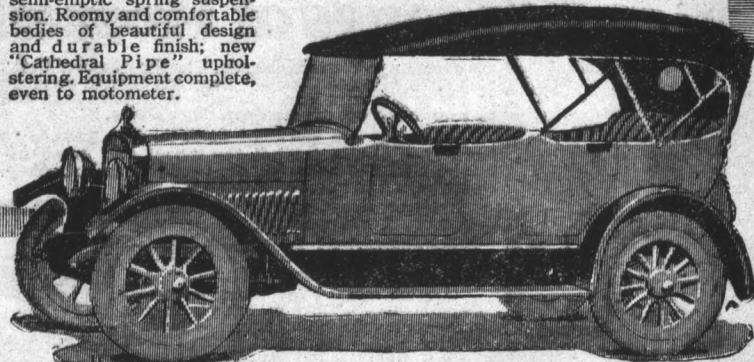
Reliable quality is a certainty in the Elcar. We learned to put in quality years ago, when building cars selling up to and above \$3,000. We give exceptional value in these quality cars at popular prices—each model large and good enough to fulfill any motor car requirement.

Don't think of choosing until you have seen the Elcar. Ask for nearest dealer's name, if you don't know him.

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A SUCCESSFUL FARM LABOR UNDERTAKING.

(Continued from page 307).

the county on September 10; an October with twenty-six rainy days ending in a snowstorm and freeze, will make 1917 long to be remembered.

Now, Van Buren county, like other progressive sections of the state, has a county agent of agriculture, one T. A. Farrand, a man of broad experience and broader vision. Junior Agricultural Club Work has been the point of contact between the efforts of Mr. Farrand and the writer. In sizing up the situation they were sure that something would have to be done if the crops, and especially the grape crop, was saved. The United States Department of Labor were working on possible solutions of our problem and early in August Mr. Parcell, a representative of the department, came into the county to investigate conditions and see what could be done. Mr. Parcell, in company with Mr. Farrand and the writer, drove over the county and talked with representative growers. It was evident at that time that the growers were not expecting a severe labor shortage at harvest time and were depending to a large extent upon the "Bo" labor that failed to show up.

For our fruit work Mr. Parcell thought that the organization of the Boys' Working Reserve would solve the problem and the writer was appointed director. It soon became apparent that the near-by cities were not going to be organized along this line well enough to be of material assistance during the fall and we turned to our own school children as the only available help. Now, Van Buren county has 150 school districts, each a law unto itself. There are 480 school officers in the county. August 15 a circular letter was mailed to each school officer requesting that the schools be closed from October 1 to October 22 to permit the pupils to assist in gathering the crops and that the school work afterwards be made up by continuing school over the Christmas and Easter holidays. A letter was also sent to teachers asking them to support the plan, articles written for the eleven newspapers and the situation discussed at every opportunity.

The response to the suggestion was slow. The village of Mattawan with a school enrollment of 165 and a good live parent-teachers' association, called a meeting, discussed the plan and believing it to be a good thing adopted it. A number of one-room rural schools also took immediate action but in general the result did not take fire. All sorts of objections were urged against it. Teachers under contract did not want the regular vacation period changed. Many considered that vacation following a month of school would destroy the work of that month. Some who did not want their children to work opposed the plan. Some growers did not think that "kid" labor would amount to anything. Some regarded Christmas vacation as absolutely essential and there were those who opposed the plan simply because it was different. As the season advanced, however, and the hobo came not, nor the camper from Indiana, something had to be done, and the plan suggested was adopted in whole or in part in ninety-eight of the 150 school districts.

December 1 a questionnaire was sent to the schools asking for data in order to know just what had been accomplished. The following questions were asked:

1. Number of pupils who worked.
2. Number of days worked.
3. Wages earned.

From the replies the following data was compiled:

Number pupils working.....	1,605
Number days worked.....	17,292
Wages earned	\$29,063.58

The grape section probably profited

the most from this plan. Paw Paw school released in a vacation period of two weeks and three days, 200 boys and girls who worked 2,000 days and earned \$4,000. Mattawan had its entire school population of 165 at work. This school worked 2,210 days and earned \$3,862. However, the good that came from the vacation was not confined to any one part of the county. Decatur's harvest of onions and potatoes and the trenching of the celery took 200 boys and girls who worked 1,498 days and were paid a little more than \$3,000. The fields of beans and potatoes in the northeastern part of the county used seventy-six pupils from Gobleville school who worked 707 days and received \$1,299.43, and eight from Bloomingdale who worked 780 days and were paid about \$1,000. Bangor furnished fifty-six boys for apple picking who put in 866 days and were paid \$1,994. From Hartford for a total of 591 days thirty-seven boys received \$1,182. Thirty-four boys from Lawrence worked 348 days, earning \$876.85. Covert furnished nineteen who worked 320 days and received \$560. From Lawton high school thirty boys were paid \$705.71. In the vicinity of South Haven there was not sufficient work so that it was deemed necessary to close, but twenty-two boys were permitted to go to the grape belt for two weeks to help out.

Of course, the village schools furnished the most help but efforts of the one-room country school in the aggregate amounted to much. Pupils of District No. 5, South Haven, worked 1,014 days, earning \$1,580. District No. 3, Antwerp, is a small school but the children were paid \$540 for picking grapes. The eighteen boys and girls of District No. 1, Pine Grove, earned \$264.65 picking up potatoes, and twelve children from No. 7 of the same township earned \$215.50. District No. 5, Pine Grove, has twelve small children (average age nine years), but they earned \$65 during their "potato vacation." Seventeen children from District No. 7, Keeler, earned \$514.65. Other examples might, of course, be given but these are sufficient to show that the plan was a benefit to the entire county.

We learned some things from the experience of the past fall. Most of the schools had a Christmas vacation as usual, although many cut the time to one week. There seems to be a demand from both pupils and teachers for this vacation and I would not again suggest that it be eliminated. One week, however, will answer. Whether it be possible to do without the Easter vacation remains to be seen. Now, personally I would be very much opposed to shortening the school term and if children are going to help out during harvest we must still plan for the usual length of the school year. Two ideas suggest themselves. It is possible to have a six-day school week and thus theoretically at least, doing the work of thirty-six weeks in thirty, or if this be a little too strenuous, school on alternate Saturdays would make it possible to cover the work of thirty-six weeks in thirty-three. This plan, however, does not seem to be popular with teachers, an idea being prevalent that the saturation point of the child's mind is reached in about five days of consecutive effort and that Saturday is necessary for the good of both pupil and teacher. The other plan would be to have school begin about the second week in August. This is the time of the year that farm work does not crowd. In view of the coal situation this might be worth considering from another viewpoint.

What the coming year will bring we do not know. The war may close and labor be easy to obtain. This, however, we have learned. We have in our boys and girls a veritable army of youthful enthusiasts who are willing to "go over the top" and "do their bit" and when everything else has been

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said it seems to me a mighty good thing to have our young people realize that they have a responsibility; that farm labor is honorable; that it takes honest effort to earn a dollar; and that true service consists in actually helping to do those things; many times close at hand, that need to be done.

Little Farm Fables

By AUNT QUILLIA

ONCE on a time a deermouse fell to upbraiding the moon and stars. Time was, said she, when I was not allowed to work in the dark. As soon as I began my task the stars held their candles above me and the moon lighted her lamp. Now I am left to do the best I can, and that, too, when I am getting old and my strength is failing. All my seeds should have been stowed away in the old log ere now, for soon fall will be here and my nuts must be gathered.

Time and again I have been compelled to give up my job hoping that the next night would bring the light needed. Probably they excuse themselves by saying that the summer has been a rainy one and that the clouds have come between us, but I know they could easily have brushed them aside had they felt their former interest in me. Clearly, it is a case of outgrown friendship and there is nothing to do but wait for something to turn up.

Just here a band of fire flies came flashing along. Hearing the lament in the thicket the leader exclaimed, "Someone is in trouble and as we are out for a good time we can't do better than lend a helping hand."

"Oh! is that all?" they cried in chorus after the deermouse had told her difficulty. "Cheer up now, while we circle around you and you can finish your work by the light of the little lanterns we carry." Thus encouraged the deermouse began to hunt about diligently and soon had her store of seeds nearly completed.

"And now, good night," said the leader as they sailed away. We live on the swamp just over there, and being so near might have helped you any time had we known of your trouble."

At this juncture a voice came from the corner of a fence nearby. It was that of a coon who had stopped for a moment on his way to a corn field.

"Deerie," said he, "there is a lesson in your experience which I would like to point out. In order to do this I will tell you what happened a few nights ago:

"Two lads who had conceived the idea of making themselves some coon-skin caps were out hunting, and, stopping under the tree where I was hidden, they began discussing where they would most likely find what they were after.

One insisted on going away out to a distant woodland while the other contended that they better search nearer by. "It wouldn't be strange," argued he, "if a fine fat fellow were at this moment peering down at us from the branches overhead. See! here are fresh tracks, but if you say so we will go to those woods. However, I believe we shall only verify what the professor so often quotes: 'We look too far for things close by.'"

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3. Which will produce the greater yield, a field planted three stalks to the hill, bearing ears requiring 120 to make a bushel, or two stalks to the hill, requiring 100 ears to make a bushel?
4. How many potatoes can be shipped in a car that is thirty-six feet long, eight feet six inches wide, and filled to a depth of four feet?

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POULTRY SUPPLIES and equipment. You need from legions to buildings. Everything you log quotes lowest prices on hundreds of articles.
GEORGE B. FERRIS, 634 Shirley Street, Grand Rapids, Mich.

Heading Next Year's Flock

By L. H. COBB

Farmers are taking more care in the selection of the males that head their flocks, but still there is quite a tendency to buy a bird that looks nice without looking into the parentage behind the looks. Farmers are not often fanciers, and egg laying records are more important to them than show winning. The best breeders have come to recognize this and it is possible to get cockerels whose mothers and grandmothers have been laying around two hundred eggs and yet have them from prize winners at poultry shows of the best class. Very good cockerels of this class can be had for ten dollars or even less, and they are well worth the money. If show points are wanted more money will be required, but a cockerel without show points from a flock that had produced birds of prize winning quality will prove as good for the farmer as the others would, provided the main characteristics of the breed are present. I would not buy a disqualified bird or one lacking in size or form under any circumstances, but I would not worry if the comb, wattles, hack or markings were not exactly perfect. I would want to be sure that his mother layed somewhat above the average, and the higher the better.

Keep a Breeding Pen.

Ten dollar birds cannot be afforded to head a large flock, nor is it advisable to breed from a large flock. You have a number of hens that are so much better than the average of your flock that you will be wise to make use of this superiority. It does not take much trouble or expense to pen a dozen of your best hens during the breeding season, and these when headed by your selected cockerel will give you cockerels to head your flock next year that will be as good as you can buy. Mark the pullets from this pen also, and when you have used the old cockerel two or three years at the head of your pen you will have a nice lot of his daughters in your flock. Now you can discard the old bird, select a pen of the best of his daughters and head it with a new cockerel of high grade, and you are building a flock with record blood on both sides. Your main flock will have a little inbreeding in it, but your cockerels are never inbred, nor the hens that go to make up the breeding pen, and these are constantly getting better, and as they improve they improve the main flock.

Only a Few Cockerels Needed.

This plan is for flocks of pullets of several hundred. If the main flock is composed of both pullets and old hens, and only a small number of pullets are to be added each season to take the place of hens sold because they are getting old it will not be necessary to rear any stock from the main flock at all but only to save the pullets from the breeding pen hatches. The only cockerel needed then will be the one that heads the breeding pen. The laying flock will be without males and the eggs will be infertile and will sell and keep better. As pullets lay better than hens and are more profitable because of this and the fact that they add considerable in weight the first year, the business farmer will sell off all the hens after the laying season is over each year and rear pullets enough to take their place. It is in rearing these pullets in large numbers that the main flock headed by the specially bred cockerels come in handy. Whatever plan we follow it should be one that will steadily improve the flock; and to do this a good male at the head of a select pen of hens is necessary.

BEE-KEEPERS MAY USE SUGAR.

Which is more valuable--prospects of ten pounds of honey next summer or a pound of sugar this winter and spring? The food administration de-

cided that even in the face of a world sugar scarcity, bees are entitled to their share.

Bee-keepers throughout the country have been reporting to the United States Food Administration their inability to secure sugar with which to prevent starvation among their colonies. Last season was a particularly unfavorable one. Owing to drouths and failure of clover and other crops in some sections, the bees were unable to store sufficient food to carry them through the winter. Under such conditions a syrup made from white granulated sugar is needed to feed them. Any other kind of food, except when bees are flying frequently, tends to produce a condition of the bees known as dysentery. But some dealers fearing they might violate rules or at least the spirit of food administration, have hesitated to deliver sugar to the bee-keepers.

In handling this problem the food administration has not only authorized but encouraged the delivery to bee-keepers of a sufficient quantity of sugar to meet urgent bee-feeding requirements. Dr. E. F. Phillips, apiculturist of the U. S. Department of Agriculture, estimates that every pound of sugar now fed to starving bees will result in the production of at least ten pounds of honey next season. In many cases the increase will exceed this.

POULTRY QUERY DEPARTMENT.

How to Tell a Layer.

I have a number of yearling hens which I cooped up for sale, because they have two bones very close together right by the vent, but someone else told me they would come apart after they start laying again.

Huron Co.

F. M. O.

The pelvic bones, which are close to the vent, are, of course, closer together when the hen is not laying. Probably in the fall quite a few of your hens were in their molting period and were, therefore, not in laying condition.

If you wish to select the best layers at this time, I would advise you to take those that have some of their old feathers and look somewhat rough and pale, as the late molters are almost without exception the best layers.

When a hen is a good layer, even though the pelvic bones are close together during the molting season, you will find them quite pliable. A good laying hen also invariably has great depth through the body, that is, the breast bone usually sets quite close to the ground. This large depth of body indicates plenty of room for the vital organs and a good digestive system, which are necessary in egg production.

Rheumatism.

Can you tell me what I can do for my hens? They become lame, seem real well in all other ways. They have a bunch the size of an egg under one wing, the side they are lame on. We have lost one, and have several others that are lame now. We have been feeding oats and rye, besides what they pick up. The hen that died got so she would not eat at all, and when she died seemed to be in awful pain.

Livingston Co.

J. J. C.

The one general cause of lameness without outward symptoms is rheumatism. Occasionally this disease shows some swelling at the joints, but otherwise the bird appears to be in perfect health.

As you have not stated the character of the swelling under the wing, it is difficult to tell what the cause of it is. It may be the result of a tumorous growth, or a swelling caused by injury to the hip joint.

The ration of oats and rye is not a good one, as neither of these grains in large quantities is relished by the birds. It would be far more advisable, and even profitable, for you to sell the rye and probably some of the oats and

purchase wheat and corn for your poultry feeding. Wheat, corn and oats in equal parts are very good grain rations and will give good results, provided skim-milk, or beef scraps are fed with them. A common practice is to feed these grains whole, and also make a dry mash of bran, corn and ground oats, to which is added about ten per cent of beef scraps. The grain you are now feeding has a tendency to cause internal inflammatory conditions, and may be the result of the swelling you speak of.

If the cause of the lameness is rheumatism, the only method of treatment is to keep the hens in dry and well ventilated places, feeding them a ration as suggested above, and in addition, plenty of green food. If you wish further information regarding this trouble, kindly state the character of the swelling under the wing, telling us whether it is hard or soft, and whether full of pus or not.

USE OF AXE ON PAW PAW HENS MAKES THEM LAY MORE EGGS.

Proof of the fact that the egg-laying ability of a flock of hens can be increased by wise use of the ax has been furnished to the Michigan Agricultural College by the results of a culling demonstration conducted on the farm of E. A. Wang, near Paw Paw.

On October 25, Ernest Foreman, one of the college's field men in poultry, sorted hens on the Paw Paw farm into three lots, which he labeled A, B and C. In Lot A were placed the best producers, to Lot B were assigned hens which would just about pay for their keep, while in Lot C were "boarder hens," or birds which if kept would bring a loss to their owner. Fowls in all three flocks were given the same feed and kept under identical conditions.

On January 28, when the first report on the results of the culling was given out, it was found that the twenty-eight hens in Lot A had laid 206 eggs, or an average of more than seven eggs per hen. The birds in Lot B laid an average of only 1.69 (less than two) eggs each during the two months, while those in Lot C laid none at all.

ANIMAL FOOD FOR POULTRY.

An agricultural investigator after a series of tests has come to the conclusion that meat-fed chicks make quicker and cheaper gains than others, regardless of size, and that chicks started on a ration deficient in animal food never regain their lost ground. In some of his own experiments he found that hens without meat generally began laying before meat-fed hens and maintained their position for weeks and even months on such rations. He concludes that, although the work done by most investigators has usually shown a decided superiority for the meat-fed laying hens, there is sufficient evidence the other way to warrant further investigation. In the fattening of fowls animal food has appeared to be essential to the best results, except when milk has been used, but of the various sources there seems to be little preference aside from convenience or economy.

The substitutes for animal food in common use are milk, milk albumen, or dried milk, vegetable sources of protein, and bone ash or phosphate sources. Milk albumen has not generally given good results. Milk, sour or otherwise, has given conflicting results. Vegetable protein when used under favorable conditions has often given as good results as when protein from animal sources has been used. Results of feeding bone ash or some carrier of phosphorus indicate that some of the advantage that has been claimed for animal protein may possibly be due to the mineral matter contained in the meat scrap or cut bone.

Mating Time Is Here

Now's the time to put your hens and roosters in the pink of condition with Poultry Pan-a-ce-a.

If you want chicks that will live and develop rapidly—if you want early broilers—if you want pullets that will develop into early winter layers, then feed the parent stock Dr. Hess Poultry Pan-a-ce-a.

Remember, it's the singing, scratching, industrious hen that lays the healthy, fertile eggs that will hatch into strong, livable chicks.

DR. HESS POULTRY PAN-A-CE-A

Makes Poultry Healthy—Makes Hens Lay

Here are a few of the valuable ingredients in Pan-a-ce-a to meet the requirements of your poultry which I have just stated: *Nux Vomica*, a nerve tonic; *Carbonate of Lime*, a shell former; *Hyposulphite of Soda*, an internal antiseptic; *Quassia*, an appetizer; *Iron*, to enrich the blood, and other valuable ingredients, all well known and recommended by the highest medical and veterinary authorities.

There's a dealer in your town that will supply you with Dr. Hess Poultry Pan-a-ce-a and it's to make your poultry healthy—it's to make your hens lay—it's to make your chicks grow—if it doesn't do these things, he will return every cent you have paid him. Packages, 25c, 60c and \$1.25. 25-lb. pail, \$2.50; 100-lb. drum, \$9.00. Except in the far West and Canada.

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A Conditioner for Spring Work

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Dr. Hess Instant Louse Killer Kills Lice

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BEES PAY WELL. Send for Free Illustrated Catalog. Bees and Queens a Specialty.

S. J. GRIGGS & CO., Dept. No. 25, Toledo, O.

Tells why chicks die

E. J. Reefer, the poultry expert, 239 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

WILL SAVE YOUR CHICKS

Any reader of this paper who will write P. J. Kelly, the Poultryman, at 73 N. 2nd St., Minneapolis, Minn., will receive a Free Copy of this new booklet "White Diarrhoea in Baby Chicks." It tells how to prevent, remedy and save the whole hatch. It's free and you are urged to write for it at once. Advertisement.

POULTRY

Barred Rocks—EGGS FROM STRAIN with records to 230 eggs a year. \$2 per 15. Delivered by parcel post, prepaid. Circular free. FRED ASTLING, Constantine, Mich.

BARRED Rock cockerels Prize Winning. Thompson B strain \$3 and up. Breeding hens and pullets. Write your wants. SAM STADEL, Chelsea, Mich.

Barron English 240 egg strain White Leghorns, heavy winter layers, large size birds. Hatching eggs \$8 per 100. Chicks \$13 per 100. Guaranteed satisfaction. Davies Leghorn Farms and Hatchery, Box A, Zeeland, Mich.

Laybill S. C. W. Leghorns Large, great layers. Pure white. Bargains in choice breeding hens now. Everfresh Egg Farm, Ionia, Mich.

Chicks that Live \$15 per 100 S. C. W. Leghorns. Send for catalog. SNOWFLAKE POULTRY FARM, R. 1, Grand Rapids, Mich.

Fowlers Buff Rocks Cockerels Pullets and hens for sale from two dollars up according to quality. B. B. FOWLER, Hartford, Mich.

IMPROVE YOUR POULTRY

My Young's strain bred-to-lay S. C. White Leghorns are great money makers. 100,000 baby chicks for 1918 delivery at \$13 and up per 100. Satisfaction guaranteed. Write for free catalogue.

W. VAN APPELDORN, R. 7, Holland, Mich.

John's Big beautiful hen hatched Barred Rocks good layers males & females \$3 to \$5 each. Breeding pens \$12. Sold on approval circulars photos. John Norfion, Clare, Mich.

Pine Crest White Orpingtons, hens and pullets \$3.00 each, eggs special price \$5 per 15, utility \$12 per 100. PINE CREST FARM, MRS. WILLIS HOUGH, Royal Oak, Mich.

RHODE ISLAND REDS and plymouth Rocks Males R 5 to 12 lbs, according to age \$2 to \$5; P. R. hens weight 6 to 10 lbs, eggs 15 for \$1; 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys 8 to 35 lbs, according to age \$6 to \$25, 10 eggs \$3. J. Morris & J. Barsan, Vassar, Mich.

R. I. REDS, both combs. Chicks & eggs. Most popular strain in Michigan. Write for catalog. INTERLAKES FARM, Box 39, Lawrence, Mich.

R. I. Reds and R. I. Whites. Both combs. Eggs for sale, also a few good cockerels. Good stock, prices reasonable. O. E. Hawley, R. 3, Ludington, Mich.

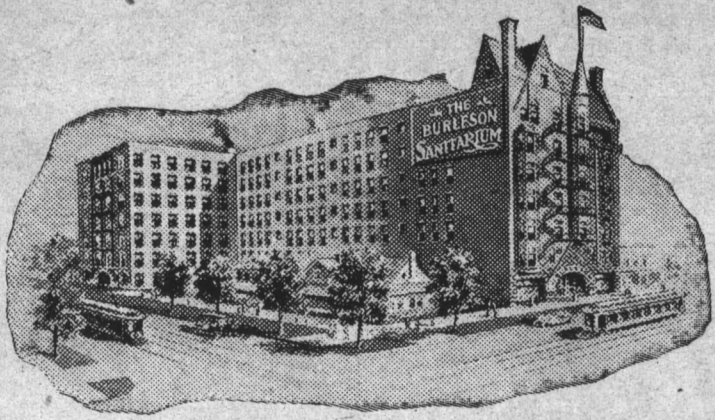
S. C. Brown Leghorns. Heavy layers. Eggs 15-\$1.35, 30-\$2.50, 45-\$3.50, 100-\$7. prepaid by mail. FLOYD ROBERTSON, R. 1, Lexington, Indiana

GILVER Golden and White Wyandottes. A few good Golden and White cockerels, to spare at \$3. Eggs 15, \$2.50, 30, \$5.00. C. W. Browning, R. 2, Portland, Mich.

Single Comb Black Minorca cockerels, sired by a 10lb cock bird. A few more P. O. fall pigs. R. W. MILLS, Saline, Mich.

Additional Poultry Ads on Page 343

Piles Cured Without the Knife



The Largest Institution In the World for the Treatment of Piles, Fistula and all Other Diseases of the Rectum (Except Cancer)

WE CURE PILES, FISTULA and all other DISEASES of the RECTUM (except cancer) by an original PAINLESS DISSOLVENT METHOD of our own WITHOUT CHLOROFORM OR KNIFE and with NO DANGER WHATSOEVER TO THE PATIENT. Our treatment has been so successful that we have built up the LARGEST PRACTICE IN THE WORLD in this line. Our treatment is NO EXPERIMENT but is the MOST SUCCESSFUL METHOD EVER DISCOVERED FOR THE TREATMENT OF DISEASES OF THE RECTUM. We have cured many cases where the knife failed and many desperate cases that had been given up to die. WE GUARANTEE A CURE IN EVERY CASE WE ACCEPT OR MAKE NO CHARGE FOR OUR SERVICES. We have cured thousands and thousands from all parts of the United States and Canada. We are receiving letters every day from the grateful people whom we have cured telling us how thankful they are for the wonderful relief. We have printed a book explaining our treatment and containing several hundred of these letters to show what those who have been cured by us think of our treatment. We would like to have you write us for this book as we know it will interest you and may be the means of RELIEVING YOUR AFFLICTION also. You may find the names of many of your friends in this book.

We are not extensive advertisers as we depend almost wholly upon the gratitude of the thousands whom we have cured for our advertising. You may never see our ad again so you better write for our book today before you lose our address.

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Flanders Farm, Orchard Lake, Mich.

CATTLE.

WOODCOTE ANGUS

Trojan-Ericas and Blackbirds only. Breeders of the dam and former owners of the sire (our herd bull) of the Grand Champion Bull at the International Chicago for 1917.

WOODCOTE STOCK FARM, Ionia, Mich.

Cloverly Angus Good quality bulls of serviceable age and younger. Inspection invited.
Geo. Hathaway and Son, Ovid, Mich.

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A grade Guernsey, owned by Montana Agricultural College, produced in a year 16,286.1 lbs. milk and 844.8 lbs. butter fat—equivalent to 1,000 lbs. of butter. Over a 5 year period she averaged 604 lbs. butter fat per annum.

Use a Guernsey Bull

Don't sell your scrub cows for beef. Their daughters, if sired by a Guernsey bull, will yield 25% to 100% more than their dams.

American Guernsey Cattle Club
Box 1 Peterboro, N. H.



GUERNSEYS must reduce herd, so offer a few choice females of Glenwood breeding also bulls, all stock of A. R. O. breeding, herd tuberculin tested.
T. V. HICKS, Battle Creek, Mich.

Registered Guernseys

A few choice bull calves at prices you can afford to pay.
J. M. WILLIAMS, North Adams Mich.

Guernseys For Sale, four young registered cows. Tuberculin tested. Geo. N. Crawford, Holton, Mich.

Guernseys 45 Registered head, all th. tested. Nora's May King, son of Imp. May Rose King, heads our herd, 19 of his half sisters sold averaging \$1350 each. His bull calves are booked ahead at reasonable prices. Avondale Stock Farm, Wayne, Mich.

GUERNSEYS—REGISTERED BULL CALVES

Containing blood of world champions.
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For Sale Registered Guernsey bull calves May Rose breeding.
JOHN EBELS, R. 2, Holland, Mich.

For Sale Guernsey bull calves from advanced registered dams ranging in age from 3 to 8 months.
L. J. BYERS, Coldwater, Mich.

CLUNY STOCK FARM

100--REGISTERED HOLSTEINS--100
When you need a herd sire remember that we have one of the best herds in Michigan, kept under strict sanitary conditions. Every individual over 6 mos. old regularly tuberculin tested. We have size, quality, and production records backed by the best strains of breeding.

Write us your wants.
R. BRUCE McPHERSON, Howell, Mich.

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

Parham's Pedigree Stock Farm offers Reg. Holstein cattle, Chester White Swine, extra bargains in calves and fall pigs. Bulls half price.
R. B. PARHAM, Bronson, Mich.

A Few Fine Bulls For Sale

Bigelows Holstein Farms, Breedsville, Mich.

I Always Have Holsteins To Sell

If wanting Registered cattle write me your wants before placing your order elsewhere.

L. E. CONNELL, Fayette, Ohio

FOR Sale One registered Holstein bull calf. Sire's twenty nearest dams have 7 da. records av. 25.53 lb. butter. Dam to be tested. A finely marked, growthy individual. Long Veiv Farm, R. 3, Box 10 A, Rochester, Mich.

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A. R. O. herd, tuberculin tested annually. A few choice bull calves for sale.
O. L. BRODY, Owner, Port Huron, Mich.
Chas. Peters, Herdsman, Three Rivers, Mich.

3--HOLSTEIN BULLS--3

Ready for service at Long Beach Farm, Augusta, Mich.

For Sale Registered Holstein bulls ready for service and bull calves from 30 lb. sire and A. R. O. dams with records up to 25 lbs.
Wm. GRIFFIN, R. 5, Howell, Mich.

When you think of good Holsteins, think of
E. M. PIERCE & SON,

Manchester, Mich.
We have a few good females and several bull calves at right prices. The latter from \$50 up. Excellent breeding.

The Pontiac Herd

"Where the Champions come from"

Offer Bull Calves sired by sons of Pontiac Korndyke, Hengerveld DeKoi, Pontiac Dutchland, or Admiral Walker Pieterje.

Do you want a Pontiac in your herd?
Pontiac State Hospital, Pontiac, Mich.

Grange.

Our Motto:—"The farmer is of more consequence than the farm, and should be first improved."

THE LECTURER'S HOUR.

In this article it is far from our purpose to simply write an essay upon Grange Lecture Work. If possible, I want to say a few practical things in a practical way to the many lecturers who may read this department in the hope that they may help somebody.

Of course, the lecturer is the largest factor in a good Grange program. If all the lecturers in Michigan could but get the vision of their work that some have, there would be such a Grange revival as we have not yet seen. Realizing this, the State Grange has spent a great deal of money at one time and another to help the lecturers. We have had conferences for the subordinate lecturers, with the state lecturer—many of them—and shall doubtless have many more. The regular lecturer's bulletin is always full of suggestions which appeal to the needs of a large number of Granges, while now and then it contains suggestions that are of great value to every Grange.

I do not believe that the conferences of the state lecturer with subordinate and Pomona Grange lecturers should be given up. On the contrary, I am sure that they should receive more emphasis. Not that more of them should be held, but those that are held should be better advertised.

Again, the lecturer should have time for her work. The coming of the state lecturer upon the Pomona program for a short time in the morning before nearly all the people have arrived, and at a time when no one expects much of anything to happen anyway, is a mistake, and a waste of time and money.

A lecturer's conference as we see it, is a job big enough for all day. It should be so understood. Everybody in the county should be invited, particularly Grange members. It should be held under the auspices of the Pomona if the Pomona is sufficiently alive not to give it a chill, but the big thing is to hold it as a conference of Grange lecturers in the county and then so to advertise it as to secure a good attendance of all Grange people.

If we grangers are slow anywhere, and I think the assumption will not be questioned, it is in advertising. My heart aches again and again, when I realize how very poorly the important Grange events are advertised. Here is the Grange column of the Michigan Farmer ready to advertise Grange events, and the Michigan Farmer goes to almost as many farmers in the average county as the home paper. Why do we not use it more? The Michigan Farmer has made a special offer to Granges to induce them to look after subscriptions in their respective neighborhoods. How I wish they would do it, and not stop here, but fill the Michigan Farmer office so full of live Grange notices, that the space would have to be multiplied over and over.

Our local papers are always ready to help out by way of advertising our meetings. I doubt if many of us realize how very willing they are. If we would avail ourselves of their valuable help, we might double the average attendance at Pomona meetings and thus largely increase our influence. But by all means, when the lecturer of the Michigan State Grange comes to our county, we ought not only to give her plenty of time for a conference with the lecturers, but we ought to so widely and so efficiently advertise her coming as to leave no doubt about her meeting a fine crowd when she arrives. (Continued next week).

Farmers' Clubs

Associational Motto:
"The skilled hand with cultured mind is the farmer's most valuable asset."

CLUB DISCUSSIONS.

A Profitable Program.—The very cold and disagreeable weather did not prevent a goodly number from attending the February meeting of the China Farmers' Club, at Gleaner Hall. When the noon hour arrived, it was found necessary to spread tables for forty plates, and one of the most pleasant social hours in the history of the Club was enjoyed by all while partaking of the typical war dinner. A Red Cross meeting constituted the early portion of the program, a number of things pertaining to the work of the local branch being taken up. Local chairman, Mrs. Frank Layle, presided and under her direction arrangements for yarn and other supplies were worked out in detail. She also offered the organization a room in her home on the Hart Road where the ladies of the neighborhood can meet each week for work. The interest and activity that is being shown by the members of this branch constitute sure proof that the people of China will rank second to none in doing their share to alleviate the suffering resulting from the war. In the absence of President John Reynolds, Edwin Rankin took charge and called the meeting to order. Reading of the minutes of the previous meeting by Secretary Mrs. Carrie Hartlein, was heard and approved. Mrs. Frank Allor gave a very instructive and able talk on "The Care and Management of Poultry for Winter Egg Production." Among the important points emphasized were proper methods of housing, feeding, watering, and the selection of good layers. County Agent Brody outlined the life history of the different kinds of grain smuts, and described methods of prevention and treatment. The interest shown by the Club in this project indicates that the farmers of that community will almost without exception use the formalin treatment for the prevention of smut, and thus insure their grain crops against serious losses ordinarily caused by this common disease. The county agent also discussed at considerable length the relation of food to the war, and emphasized the vital considerations in connection with agricultural production necessary to bring the struggle across the sea to a successful conclusion. Farm management records were also taken up, and matters pertaining to the cow-testing association explained. A meeting of those interested in keeping a record of the farm business was arranged for March 1 at Gleaner Hall for the purpose of rendering assistance in getting the inventories recorded and the books started. Cow-testing association work was also of particular interest to the people present, and during the day the St. Clair County Association was greatly strengthened by the addition of the following progressive dairymen to the membership list: Ernest Clark, Edwin Rankin, Louis Schroepel, Frank Layle, Butlin Bros., Peter Distlerath, and Theodore Ruff. After an informal discussion of various questions of local and county interest by different members, and a few remarks by the chairman, the meeting was adjourned. The March session will be held at the home of Mr. and Mrs. Edwin Rankin.

War Topics Discussed.—The Howell Farmers' Club held its regular monthly meeting at the farm home of Mr. and Mrs. B. Harford. The exercises were opened with prayer by Rev. L. S. Brooke. At the conclusion of this part of the program Mrs. Howard Reed read a selection entitled, "An Apostrophe to the Flag." The sentiment in this reading was beautiful as it greatly emphasized the rights of humanity. Mrs. J. S. Brown appeared next reading the paper that was given by the Rev. Orla J. Price before the State Association of Farmers' Clubs recently held at Lansing. The subject was "The War." He earnestly defended the action of America in entering the struggle and emphasized the great necessity of crushing "Prussian Militarism." In the discussion of this paper Rev. Brooke explained the difference between the two contending forces, Aristocracy and Democracy. Our delegate, Miss Susy Barnes, then gave an excellent report of the state meeting. After a short recess the attention of the Club was given to the question box which contained twelve questions.—Mrs. R. R. Smith, Cor. Sec.

Veterinary.

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

Ringworm.—I am anxious to know why hair is coming off my cattle, but only in patches. I feed them silage, bran and middlings, also give them salt once a week. R. S. R., Decatur, Mich.—Your cattle suffer from ringworm, which is a parasitic skin ailment and one takes it from another. Paint a little more area than is sore and bald, with tincture iodine three times a week and give the cattle half a teaspoonful of sulphur in feed once daily. Washing them once a week with one part coal-tar disinfectant and forty-nine parts water will do their skin good.

Sheep Stretches Too Much.—Can you recommend some remedy for a sheep, two years old, that keeps stretching behind? I seldom notice her eating, but she keeps in good order and I might say she has been dumpish for thirty days. She is fed carrots and hay. C. B., Richmond, Mich.—Feed her some clover and wet it with sweetened water. She needs some bran and ground oats, but see that her bowels are kept open. Mix equal parts of cooking soda, ginger and gentian and give her half a teaspoonful in each feed.

Stomach Worms.—Will you please tell me what to give some of my sheep, those of them which are troubled with stomach worms? They are not dumpish, but low in flesh. J. J. G., Palms, Mich.—Segregate all suspected cases and keep them by themselves. Keep all food away from the ones to be treated for 24 hours, but allow them all the water they choose to drink. Mix a half ounce of gasoline in same quantity of raw linseed oil, put this in a half pint of fresh milk and give each sheep or yearling lamb a dose once a day for three days; however, you may feed them four hours after each treatment.

Sprained Hock.—My four-year-old mare slipped in stable and sprained hock. The leg is badly swollen, especially the hock joint. L. G., Rhodes, Mich.—Apply one part alcohol and two parts warm water three times a day. Give her 1 dr. acetate potash at a dose in feed or drinking water three times daily.

Double Teat.—Have heifer due to freshen in about two months that has double teat. We are inclined to believe milk may come from both teats, bothering us to milk her. Can you give me a simple remedy for this case? E. S., Grant, Mich.—Employ a competent Vet. and have small teat removed, or else leave it alone.

Loss of Vision.—I have good sound 17-year-old horse that seems to be going blind. He keeps both eyes closed, they weep a whole lot and it must be a painful ailment for he dislikes to have the eye touched. I moved him from upstairs stable to basement, but it is dry and equally well lighted. Will the odor of ammonia hurt his eyes? C. C., Fenton, Mich.—Give him ¼ oz. of Fowler's solution at a dose in either feed or drinking water three times a day. Dissolve 40 grs. of boric acid and 40 grs. of borate of soda in ¼ pt. of clean boiled water and apply to the eyes twice daily. Be sure and let some fresh air into stable, for foul air is bad for sore eyes. I do not believe that there is enough ammonia in stable to have a very harmful effect on eyes.

Shy Breeders.—I have four good healthy heifers, but they are slow to come in heat. Can you tell me what will bring on heat? A. M. W., Burlington, Mich.—Very often unsatisfactory results are obtained from giving drugs in these kind of cases; however, you may give each heifer 40 drops of fluid extract nux vomica and 1 dr. ground capsicum in feed twice or three times a day.

Partial Loss of Power.—I bought two pigs last October which were then ten weeks old. They were poor. I fed them scalded middlings three times a day, adding a few ears of corn to each meal. About the first of December they began to show weakness in hind legs and for the past six weeks have not been able to stand up while eating. Have not fed them corn for the past two months; they do not care for it. I gave them worm remedy, also stock food, but they are no better. They seem to grow fairly well. W. G., Utica, Mich.—Give each pig five drops of tincture of nux vomica and 5 grs. sodium salicylate three times a day. Their recovery is doubtful. Apply mustard and water to back twice a week.

ATTENTION HOLSTEIN BREEDERS

43 Head of Registered and High Grade Holsteins

WILL BE SOLD at AUCTION

On account of poor health, I will sell my entire herd of Holstein cattle on my farm situated two miles east and one mile south of Plymouth, or five miles north ½ mile west of Wayne, or one mile south ½ mile west of Newburg, ½ mile west of the D. U. R. on the Plymouth and Northville division, stop being Livonia town line, on

TUESDAY, MARCH 12, 1918

At 12:00 Sharp, Eastern Standard Time. Sale will be held rain or shine.

Also one span mules, 8 and 9 yrs. old; one pumping engine; one brood sow due in March. TERMS: Nine months credit will be given on approved bankable notes; interest at 6 per cent. Frank J. Boyle, Auctioneer. JOSEPH A. ZIELASKO, Prop.

Jerseys and Duroc Jerseys

The most important thing in buying a Jersey bull is to get one backed up by generations of high producers. Brookwater offers to sell a few choice bull calves of this kind. Our herd of Durocs has won more prizes at the State Fairs this year than any other.

Boar Pigs and Yearlings For Sale.
H. W. MUMFORD, OWNER
BROOKWATER FARM
O. F. FOSTER, MANAGER
Ann Arbor, Mich., R. 7.

CATTLE

"TOP - NOTCH" HOLSTEINS

"Milk production is an inherited ability. Good cows must be bred to good pure-bred bulls if progress in dairying is to be made."
Extract U. S. Dept. of Agric. Bulletin.

Buy this young bull and give your milk and butter production a "push."
King Colantha De Oakdale, No. 182387, Born Nov. 4, 1915.
His sire's nearest: Butter 7 days 39.87
Dams average: Milk 7 days 679.66
Butter 7 days 30.59
His dam's dam's: Milk 7 days 665.01
Record: Milk 30 days 121.19
Butter 30 days 2436.60
(She heads one of the ten only combinations of three direct generations of thirty pound cows.)
His dam's record at 3 yrs.: Butter 7 days 23.33
Milk 7 days 429.40
His five nearest dams average: Butter 7 days 23.30
Milk 7 days 546.68
(Including 2-3 and 1-4 ½ yr. old.)
Ideally marked, about half and half. Price \$250.

McPherson Farms Co., Howell, Mich.



There are more owners of Purebred HOLSTEINS Than there are owners of

ALL THE OTHER PUREBRED COWS IN THE U. S. COMBINED
Why?
The Purebred Holstein holds all records for production of milk and butterfat. They have been definitely proven the most profitable breed. Write for free information.

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

The Right Combination.

Lots of breeding at a reasonable price. Don't put a bull of mediocre breeding at the head of your herd when you can get a top-notch bull for so little money. I offer registered Holstein bulls, born 1915, bred as follows: Dam is a 23.3 pound daughter of Crown Pontiac Korndyke; Sire by the noted King of the Black & White and out of a 29 pound four-year-old. The calf is a big growthy fellow of excellent individuality and nicely marked. First check for \$175 delivers him at your station. Write for further particulars and complete pedigree to HAROLD H. BARNUM, Woodland, Mich.

OAK Leaf Farm. Herd sire Lenawee Pontiac Calamity King offer Registered Holstein bull calves from A. R. O. cows and the above sire whose dam holds the milk and butter record in the state of Ind. 7 days milk 796.3, butter \$2.51—35 days milk 2378.3, butter \$28.75.
E. H. GEARHART & SON, R. 4, Marcellus, Mich.

Holstein bull, nearly ready for service, large straight deep-bodied, handsomely marked ¾ white. His six nearest dams have A. R. O. records that average better than 24 lb. record at 4 years old. Price \$35 if taken at once.
CHARLES I. COOK, Box 77, Fowlerville, Mich.

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

\$225 takes your choice of heifers of a 30 lb. bull due in May to a 23 lb. son of Johanna Korn D. K. Terms if wanted.
M. L. McLAULIN, Redford, Michigan.

FOR SALE a fine Holstein bull white, a fine individual from a 3 year old heifer, 14 ½ dam has better than a 20 lb. record. Sires dam has better than 24 lb. record at 4 years old. Price \$35 if taken at once.
CHARLES I. COOK, Box 77, Fowlerville, Mich.

For Sale 4 young Registered Holstein cows, fresh, good producers. Herd under Gov. Test. \$225 each. Bull calves from A. R. O. Dams and 28 lb. sire. JOHN HUTCHINSON & SON, Millbrook, Mich.

HOLSTEIN bull calves, eligible to registration, without papers, \$25 at 10 days of age, registered, \$50 to \$75.
Dewey C. Pierson, Hadley, Mich.

Registered Holstein bull calf, born Sept. 1917, dam daughter of 24 lb. cow, write for pedigree and price. F. O. B. your station.
E. E. STURGIS, R. 3, St. Johns, Mich.

Holstein calves, 25 heifers, 2 bulls 15-18ths pure, 5 weeks old, beautifully marked, \$25 each, crated for shipment anywhere. Buy only the best.
EDGEWOOD FARMS, Whitewater, Wis.

FOR SALE Eleven High Grade Holstein old some milking others to freshen soon.
E. A. ROHLFS, R. 3, Box 6, Akron, Mich.

Parkside Holstein bulls, 8 and 16 mo. Both sired by noted bull, 37 relatives are 30 lb. cows. Priced to sell.
J. E. TIRRELL & SON, Charlotte, Mich.

A FEW choice Holstein females for sale.
ROSELEA STOCK FARM, S. M. YERKES, Howell, Mich.

Holstein for sale a few choice females all ages bull calves 6 weeks old sired by 30.58 lb sire. Priced for quick sale.
RIVERVIEW FARM, Vassar, Mich.

HEREFORDS

10 bull calves for sale, Perfection Fairfax and Prince Donald breeding.

ALLEN BROS.,
PAW PAW, MICH.

Herefords Bob Fairfax 494027 at head of herd. Stock for sale. Both sexes either polled or horned. EARL C. McCARTY, Sec'y Mich. H. B. Ass'n, Bad Axe, Mich.

Lillie Farmstead Jersey Cattle, 3 bulls; ready for service, out of R. of M. dams. 10 heifers bred to freshen next fall. Colon C. Lillie, Coopersville, Mich.

Jersey Bulls for Sale from high-producing dams, with semi-official test. O. B. Wehner, R. 6, Allegan, Mich.

ONE 11 mo. old solid colored gr. son of Royal Majesty whose dam as a 3 yr. produced 406.24 lbs. of butter 1 yr. First check \$300.00 gets him, registered, transferred and delivered any point in Mich.
FRED BRENNAN Sec., Capac, Mich.

Choice Bulls ready for service. Also heifers of Royal Majesty. Come and see them or write for particulars. THE WILDWOOD HERD, Alvin Balden, Capac, Mich., Phone 143-5.

MAPLE Lane R. of M. Jersey Herd has for sale R. of M. cows, daughters of R. of M. cows, bull calves, heifer calves and bulls. All from 500 & 600 lb. dams.
IRVIN FOX, Allegan, Mich.

JERSEY bull and bull calves for sale from R. of M. cows, also heifers and cows of all ages.
O. B. WEHNER, R. 6, Allegan, Mich.

FOR SALE Registered Jersey bull calves.
SMITH and PARKER, R. 4, Howell, Mich.

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

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Orum, Secy. Cent. Mich. Shorthorn Breeders' Ass'n., McBride, Mich.

BIDWELL SHORTHORNS

For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for sale; also good Scotch-topped cows and heifers. Modern sanitary equipment. One hour from Toledo, Ohio. N. Y. O. R'y. Visitors Welcome. Write us.

BIDWELL STOCK FARM
Box B, Tecumseh, Michigan.

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.

Fair Lawns Shorthorns
Yearling bulls by Canada's best sires: Missie Augusta 65778 and Imo and Newton Frier 625120.
LAURENCE P. OTTO, Charlotte, Mich.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos., 3 roan, 1 white, 1 red, price \$150, to \$250. Leon of Max-walton Sultan, 19 mos. \$350. C. Carlson, Leroy, Mich.

Bates Shorthorns the original milk strain young bulls 8 mos. old for sale. Price \$150 to \$200.
J. B. HUMMEL, Mason, Mich.

Shorthorns—Two bulls, 15 and 16 mo. By a grandson of Cyrus Clay.
COLLAR BROS., R. 2, Conklin, Mich.

SHORTHORNS Butterfly Sultan, half brother to International Sr. Champion, in service. For good bulls, cows, and heifers. W. B. McQuillan, Howell, Mich.

Shorthorns Maxwalton Monarch 2nd, 387322 half brother to 5 Grand Champions in service.
JOHN SCHMIDT, R. 5, Reed City, Mich.

Shorthorns—Four fine young bulls ready for service. Grandsons of Imp. Villager. Also bred heifer & cows heavy milking strain. Farmers prices. Free Catalogue. HORRIBTON FARMS, Hart, Mich.

CON of Harthorth Welfare heads our herd of milk-ling Shorthorns comprising Chiffley of Clay-bred cows, young bulls ready for sale and service, write us Liddel Bros., R. 2, Clinton, Mich., Macon Phone.

Grand Traverse Shorthorn Asso. Reg. stock for sale.
M. E. DUCKLES, Sec., Traverse City, Mich.

Milking Shorthorns and Polled Durhams, 20 head cows heifers and young bulls, Sultans Duchess and Sittytown Duchess included. M. B. Hallsted, R. 1, Orion, Mich.

1867-1918 Maple Ridge Herd of Shorthorns Yearling heifers and bull calves for sale.
J. E. TANSWELL, Mason, Mich.

Three Bred registered Shorthorns three yr. old heifers for sale. Also two bull calves.
W. E. MORRISH, R. 5, Flint, Mich.

Shorthorns Four very desirable heifers 17 to 21 months old, and bull 8 mo. All roans. Price \$1000.
S. E. BOOTH, Morrice, Mich.

Polled Durham Cattle 9 yearling bulls for sale.
J. A. DeGARMO, Mtr, Mich.

Cattle For Sale

2 Loads feeders and two loads yearling steers. Also 2 can show you any number 1, 2 and 3 year old from 600 to 1200 lbs. Isaac Shastum, Fairfield, Iowa, R-9

HOGS.

DUROCS Orion Chief Perfection No. 68946, and Jennings Pilot Wonder No. 73373. Two outstanding boars of big type and excellent quality. All selected large type smoothsows. Thrifty, sm h, large boned spring gilts from these hardy boars. Choice sows at very reasonable prices. The Jennings Farms, Bailey, Mich.

GREY TOWER FARM

Now offers for sale a few choice Holstein bull calves, from high testing dams, with good A. R. O. records, at farmers' prices, write us about them and our

Durocs & Berkshires

M. D. KITCHEN Mgr., Grass Lake, Mich.

Dobson's Durocs surplus stock all sold. Nothing doing till spring.
ORLO L. DOBSON, Quincy, Mich.

Duroc Sows & Gilts

guaranteed safe in pig. Fall boars and gilts not related. You want more size and feeding qualities; buy now. Cat, giving breeding and description of 30 sows.
NEWTON BARNHART, St. Johns, Mich.

Duroc Jerseys—boars of the large heavy boned type. Prize winning stock, prices reasonable, type and breeding considered, also gilts bred to Junior Champion boar for spring farrow. F. J. Dredt, R. 1, Monroe, Mich.

Large boned Duroc Jersey September pigs either sex ready to ship. Breeding and prices on request.
J. D. CRANE & SON, Plainwell, Mich.

DUROC JERSEYS

E. D. HEYDENBERG, Wayland, Mich.

Choice Duroc Jersey Gilts For Sale.
CAREY U. EDMONDS, Hastings, Mich.

Duroc fall boars sired by Crimson Critic T. Satisfaction and Brookwater Principal, priced right. Bred sows all sold.
M. C. TAYLOR, Milan, Mich.

Durocs Can spare two or three bred daughters of Joe Orion 2nd the \$5000 boar.
A. FLEMING, Lake, Mich.

Duroc Jerseys Why don't you order a pig and raise an extra good boar or gilts for yourself.
E. E. CALKINS, Ann Arbor, Mich.

BRED GILTS

To Wm. B. No. 47049, Longfellow No. 18575 sire of 1st prize young herd at Iowa State Fair.
Fall pigs and breeding boars.
J. CARL JEWETT, Mason, Mich.

Chester Gilts bred for March farrow early fall pigs both sexes good ones. Also have lines.
F. W. ALEXANDER, Vassar, 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'.

G. S. BENJAMIN, R. F. D. 10, Portland, Michigan

Big Type O. I. C's.

Stock of all ages for sale. We showed at four state fairs and won more champions and Grand Champions than all the other breeders together double, we were Premier Breeder and Exhibitor at every fair we showed. We breed the best. We sell the best. We guarantee them to be the best. Write your wants. Get our Catalogue. We ship on approval.
CRANDELL and SON, Cass City, Mich.

O. I. C. & Chester White Swine.

Strictly Big Type with quality. Bred sows & gilts are all sold, two boars fit for service good ones. Also have a few fall pigs left, either sex. I will ship O. I. C. D. NEWMAN'S STOCK FARM, R. 1, Marquette, Mich.

O. I. C's 2 choice May boars & Sept. & Oct. pigs sired by First Premium boar Mich. State Fair 1917.
Clover Leaf Stock Farm, R. 1, Monroe, Mich.

O. I. C's big type, one yearling sow and gilts to farrow in Apr. and May, Aug. and Sept. boar G. P. ANDREWS, Dansville, Michigan.

O. I. C. For sale a few extra good gilts bred for March and April farrow.
H. W. MANN, Dansville, Mich.

O. I. C's all sold except some fall gilts. Order your spring pigs now.
O. J. THOMPSON, Rockford, Mich.

O. I. C. Nothing for sale but our tried sow and fall pigs.
F. C. BURGESS, Mason, Mich.

O. I. C's Last spring gilts bred for next spring farrow, also last fall pigs either sex and not akin. Good growthy stock ½ mile west of Depot, Citizens phone 124.
Otto B. Schulze, Nashville, Mich.

LARGE Type P. O. Largest in Mich. Spring Boars ready to ship. The kind that make good. Come and see the real big type kind. Expenses paid if not as represented. Free livery from Farms.
W. E. LIVINGSTON, Parma, Mich.

Large Type P. O. no public sale this year; 50 sows and gilts all queens of the breed go at private treaty.
W. J. HAGELSHAW, Augusta, Mich.

Large Strain P. O. Gilts bred to Smooth Jumbo largest 2 yr. old in state, & a grandson of Gushalls Smooth Big Bone for April & May farrow. H. O. Swartz, Schoolcraft, Mich.

Big Type P. O. Big boned fellows from Iowa's greatest herds. Special prices on spring boars.
E. J. MATHEWSON, Burr Oak, Mich.

Big Type P. O. bred for March & April farrow sired by Peter's Jumbo & Grand Superba and 2 or 3 yearling sows at bargain prices. C. E. Garant, Eaton Rapids, Mich.

Leonards' Big boned Poland China, sows and gilts bred for Apr. farrow. Fall pigs. Shipped C. O. D. Call or write. E. R. Leonard, R. 3, St. Louis, Mich.

P. C. Sows For Sale. Bred for April farrow. Prices reasonable.
A. A. WOOD & SON, Saline, Mich.

Spotted Poland Chinas Heavy boned stock. Bred gilts and pigs not akin. Best of blood.
L. O. CLAPP, R. 1, Adrian, Mich.

Large Type P. O. fall gilts, size 800 lb. yearling to be bred to 1000 lb. 2 year old July & Aug. 2 extra good fall boars.
WM. J. CLARKE, R. 7, Mason, Mich.

Additional Stock Ads. on Page 343

Markets.

GRAINS AND SEEDS

March 5, 1918.

WHEAT.—No changes are evident in the movement of this crop. Shipments from producing points have been restricted somewhat through the use of cars for handling corn. Offerings are gobbled up very quickly by millers and shippers. Foreign needs are still far from being satisfied, and available supplies are such that further entrenchment in the use of the grain in this country will probably be necessary to provide the minimum maintenance ration for our soldiers and allies abroad. The recent advance of bread prices and the temporary suspension of meatless meals and porkless Saturdays may have the effect of reducing our home consumption of wheat products. The situation is such that every American should do his utmost to conserve this grain. One year ago No. 2 red wheat sold at \$2.01 per bushel on the Detroit market. Present quotations are: No. 2 red wheat \$2.17; No. 2 mixed \$2.15; No. 2 white \$2.15.

CORN.—The movement of corn is now in full swing and the receipts the past few days have been tremendous. Cars have been provided, and with the disposition on the part of farmers to not only sell their holdings at the present range of prices, but also where possible to tote to driers to prepare the corn for export. The government cannot make known the quantities of corn that are being cleared from our shores for European countries on account of the submarine menace, but the total moving in that direction is estimated to be large. This with the normal quantity required for feeding, and the unusual demand to supply substitutes for wheat, promises to keep the market buoyant during a period of unusually heavy deliveries. Prices are about steady with a week ago. On Monday cash No. 3 was quoted locally at \$1.80; No. 3 yellow at \$1.87; No. 4 do. at \$1.78; No. 5 do at \$1.65; No. 6 do at \$1.55. At Chicago March corn closed Monday at \$1.27½ and May corn at \$1.27½. A year ago No. 3 corn sold on the local market at \$1.10½ per bushel.

OATS.—At the opening this week the demand for oats was in excess of supplies. There is an unusually large outlet for the grain, owing to the extensive uses to which it is being put in the way of feeding both humans and live stock. Deliveries have been slightly restricted of late, due to the withdrawal of cars for the handling of corn. Preparations are being made for the seeding of a large acreage this spring, and already more than the customary quantities of selected oats are being put in shape to supply the needs of farmers for seed. A year ago standard oats sold in Detroit at 66½¢ per bushel. Monday's price was 97¢; No. 3 white 96½¢; No. 4 white 95½¢. Chicago's quotations closed Monday at 90½¢ for March oats, and 88¢ for the May delivery.

RYE.—Millers cannot get enough of this grain, and are bidding up prices, quotations advancing 10¢ at Detroit on Monday. Cash No. 2 grain is now quoted at \$2.70 at Detroit and \$2.77 at Chicago.

BEANS.—Further advances in bean prices have been made this past week. The demand was not quite as keen on Monday morning as during some of the sessions last week. However, the general tone of the trade is good, with a firm under current. At Detroit cash beans are quoted at \$13.25 per cwt. At Greenville transactions were on a \$12.25 basis. Chicago houses are doing a moderate business with the interest centered in navy beans. This variety from Michigan, hand-picked and in sound dry condition is quoted at \$14@14.50 per cwt; red kidneys, fancy \$15.50@16.50; do fair to choice \$12@14.

SEEDS.—Steady. Prime red clover \$20; March \$19; alsike \$15.50; timothy \$3.80.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 pounds as follows: Straight winter \$11.30; spring patent \$11.50; rye flour \$13 per bbl.

FEEDS.—For the benefit of our readers we are repeating this week the following important notice: The U. S. Food Administration has fixed selling price per ton of wheat bran (in carload lots) by millers at 38 per cent of the price paid by them for a ton of wheat—the average price paid for wheat during the preceding month. In

selling to dealers in less than carload lots they can add fifty cents per ton. In retailing to consumers they can add to this price a retail profit of ten per cent. If sold in bags they can add the actual cost of the bags. For middlings they can add \$9 per ton to the price of bran. For "feed" (which is the entire product of wheat after the flour is taken out) they can add \$4 per ton to the price of bran.

There is no change of importance in the wool situation, the market fully

The following will serve as guides to prices: If the average price paid for wheat is \$2.05, the millers' price for bran in carload lots should be \$25.96. To dealers in less than carload lots the price should be \$26.46 per ton. When sold to the retail trade the price per hundred should be \$1.46. If the average price paid for wheat is \$2.10, the milling price for bran in carload lots should be \$26.60 per ton. To dealers in less than carload lots the price should be \$27.10 per ton. When sold to the retail trade the price per hundred should be \$1.50. If any miller sells bran at prices greater than those fixed, please secure evidence of such sales and report the matter to the Market Department, Michigan Farmer, Detroit, Mich., and it will be brought to the attention of the proper authority.

Other Feeds.—Cracked corn \$75; coarse corn meal \$74; corn and oat chop \$60.

HAY.—In carlots at Detroit: No. 1 timothy \$26.50@27; standard timothy \$25.50@26; light mixed \$25.50@26; No. 2 timothy \$24.50@25; No. 1 clover, \$24.50@25 per ton.

Pittsburgh.—No. 1 timothy \$32.50@33; No. 2 timothy \$31@31.50; No. 1 light mixed \$31.50@32; No. 1 clover mixed \$31.50@32.50; No. 1 clover at \$31.50@32.50.

STRAW.—In carlots on track at Detroit: Wheat and oat straw \$11.50@12; rye straw \$12.50@13.

FRUITS—VEGETABLES

(Quotations furnished by U. S. Department of Agricultural Bureau of Markets, Detroit Office).

POTATOES.—There were fourteen cars of potatoes on the Detroit tracks Tuesday morning. The demand was slow and market easy. Michigan round whites U. S. grade No. 1, sacked, sold at \$1.66 per cwt. in jobbing lots. On Monday the same grade sold in Cleveland at \$1.50, in Cincinnati \$1.75, in Columbus at \$2, in Washington at \$2 @2.25 and a few at \$2.50, in Indianapolis at \$1.65@1.70.

At Grand Rapids, Mich., the price f. o. b. carload lots for the same grade is \$1.27@1.45. Farmers at the country loading points in Michigan are receiving 70@90¢ per cwt. from wagons at sidetrack. In Wisconsin the price is around 80¢, and in New York state the growers are receiving \$1.25@1.30. Country buyers are generally holding off on account of the weak condition of the market. It has been rumored that the federal government through the food administrators of several of the states will undertake to purchase a large block of the surplus stocks of potatoes in Michigan and Wisconsin for use where supplies are limited.

APPLES.—The apple situation has not changed a great deal. Most of the markets show a moderate movement of the fruit with prices holding about steady. Michigan Spies sold in Chicago last Saturday at \$6.25@7.50 and Baldwins at \$5.50@6 per bbl. There were fourteen cars on track at Detroit last Saturday, with only three from the state.

DAIRY PRODUCTS

BUTTER.—Market is dull and easy. Fresh creamery firsts are quoted at 45¢; fresh creamery extras 47¢.

Chicago.—With improved transportation facilities supplies are increasing and prices lower. Creamery extras 45½¢; extra firsts 45¢; packing stock 32@33¢ per pound.

CHEESE.—Michigan flats 25½@26¢; New York flats 26½@27¢; brick 28½¢; long horns 29½¢; Michigan daisies 27¢; Wisconsin daisies 27½¢; domestic Swiss 35@42¢ for prime to fancy; limburger 30½@32¢ per lb.

DRESSED CALVES.—Fancy 18@20¢; choice 17¢; common 16¢.

DRESSED HOGS.—Best 21¢ per lb.

POULTRY PRODUCTS

POULTRY.—(Live).—Detroit poultry market firm and quiet. Food Administration has ordered that poultry dealers shall not purchase, ship, sell or negotiate the sale of any live or freshly killed hens or pullets between February 11 and April 30 of this year. The object is to save all egg-laying chickens during the egg season for laying purposes. Old roosters 22@24¢

per lb; ducks 30@32¢; fat geese 30@32¢; turkeys 30@32¢.

Chicago.—(Live).—Offerings small and demand fairly active. Fowls 22@28¢ per lb; ducks 29@30¢; geese 24@25¢; turkeys, good 25¢. (Dressed).—Weather is unfavorable for the handling of dressed poultry and dealers advise shipping stock alive.

EGGS.—Although receipts are increasing, buyers are taking the goods freely. Fresh firsts 34@35¢.

Chicago.—Buyers are anxious for fresh stock and consumption is increasing. For fresh Michigan firsts 34¢; ordinary firsts 32@33¢; miscellaneous lots, cases included 32@33¢.

WOOL

Transactions are limited by the meager supplies in practically all the different lines of wool. The market has a firm tone. Production of wool in this country will be increased somewhat this year by the larger number of sheep now owned. Many producers will give more care to the securing of their wool crop to the end that better prices may be realized. Seaboard prices are unchanged, Michigan unwashed combing ranging from 75@77¢; do clothing 58@66¢; do delaines 72@73¢.

LIVE STOCK

BUFFALO.

March 4, 1918.

Cattle.—Receipts 80 cars; market is strong 15¢ higher; best shipping steers \$13@13.65; fair to good \$12@12.50; plain and coarse \$11@11.50; native yearlings \$11.50@12; best hand steers \$11@11.50; fair to good \$10@11; handy steers and heifers, mixed \$9.50@10.25; light butcher steers \$9.75@10.75; western heifers \$8.50@9.50; best fat cows \$9.50@10.50; butcher cows \$7.50@8.50; cutters \$6.50@7; canners \$5@6; fancy bulls \$10@10.75; butcher bulls \$8.50@9.50; common bulls \$7@7.50; best feeding steers 900 to 1000 lbs. \$9@10; medium feeders \$7.50@8; best milkers and springers \$10@11.5; mediums \$7.50@10; common \$5@6.

Hogs.—Receipts 50 cars; market 25¢ higher; heavy \$18; yorkers and pigs \$18.15@18.25.

Sheep and Lambs.—Receipts 20 cars; market 50¢ higher; top lambs \$18.25@18.40; yearlings \$13@15.50; wethers \$13.50@14; ewes \$12.50@13.

Calves.—Receipts 12 cars; market steady.

CHICAGO.

March 4, 1918.

Cattle. Hogs. Sheep. Receipts today...21,000 55,000 12,000 Same day 1517...14,525 43,695 11,275 Last week.....70,037 229,671 46,297 Same wk 1917—45,659 166,196 59,928

Receipts of hogs last week averaged in weight 233 lbs. Hogs sold today at steady prices largely, the range being \$16@17. Cattle start off this week with a slow demand, prices averaging \$10@15¢ lower, except for the choicer lots, which are steady. Prime lambs sold up to \$17.50 on a short supply. During the past week 40,649 hogs were shipped from here, comparing with 35,417 a week earlier and 43,450 a year ago.

Cattle sold at decidedly higher prices last week than a week earlier, most lots of steers showing advances of as much as 25¢ at least, and cows, heifers and bulls also sold higher, but declined during the last half of the week. The receipts were of very good proportions, although not usually excessive, and the demand for all descriptions of cattle was good as a rule, with a fair share of the offerings going to shippers, including stockers and feeders, as well as beef cattle. It was remarked by different commission firms that the demand for choice beefs was much improved, and these shared in the advance, unlike their previous lack of animation or particular firmness. Recent sales of the best heavy steers had been at \$13.75@13.85, with two sales on the closing day of week before last at \$14, but last week the best cattle went readily at \$14@14.25, with the bulk of the steers selling at \$11.75@13.25, while steers classed as good sold for \$13.25 and upwards, with anything classed as really choice going at \$13.75 and upward, if heavy in weight. Medium to good short-fed light weight steers brought \$12.75 and over, and sales took place of plain to fair light steers at \$10.25@12.70, with limited sales of inferior little steers on the stocker order as low as \$7.60@8.75. Good to prime yearlings were purchased at \$12.75@13.75, with a sale of 14 head of prime yearling steers which averaged 1185 lbs. at 14. Butcher stock had a good sale at \$7.80@11.50 for cows and \$7.25@12 for heifers, with canner cows selling at \$6.75@7.20, cutters at \$7.25@7.75 and bulls at \$7.25@11. The calf trade was much livelier, and higher prices prevailed, the light

weight vealers going at \$12@14.25 for common to choice and sales down to \$7@11 for heavy ones. There was a much enlarged traffic in stockers and feeders, with a good demand and larger offerings, sales usually ranging at \$7.85@11, with not many going below \$8.60 and light and medium weights mostly wanted.

Hogs began last week at an advance of 15¢ for the best offerings, despite Monday receipts of 54,133 head, but late sales on the same day were 25¢ below the best early ones. Continued extremely large receipts caused a highly sensational downward course of prices, and buyers had things pretty much their own way, notwithstanding a much better eastern shipping demand than had been witnessed for several weeks. Declines of as much as 50¢ occurred in a single day, the arrivals exceeding expectations. At the same time outsiders paid advances in a day of 25@50¢ per 100 lbs. for pigs suitable for fattening. At the week's close hogs brought \$16@17, light lots going highest and heavy weights of the best grade at \$16.55, while pigs went at \$13.50@16.60, feeding pigs going highest. A week earlier the best hogs brought \$17.50. The top price for hogs last week was \$17.65.

Lambs were marketed during the past week in such small numbers that sellers were in a position to demand much better prices, especially for the prime flocks, and substantial advances took place, with an active general demand. Light weight prime Colorado Mexican lambs were prime favorites and topped the market. Western and Colorado lambs comprised the bulk of the offerings, although a number of large consignments of shorn and unshorn western yearling wethers showed up. Most fat lambs advanced 60@85¢ last week, and sheep and yearlings were 25@40¢ higher. Prices closed as follows: Lambs \$14.25@17.45; feeding lambs \$15.75@16.55; yearlings \$12.50@16; wethers \$11.75@13.85; ewes \$7.75@13.50; ewes breeding lambs at \$16.75@17.25; bucks and stags \$9@10.75; goats \$7.50@9.25.

Horses were in very good supply and in good demand last week at generally unchanged prices, with a demand for cavalry horses and mules for the United States army, but the British inspectors were not buying. Farmers were looking for teams, and several eastern buyers had good orders. Inferior animals sold around \$60@90, with drivers salable at \$100@200, drafters at \$185@265, desirable farm chunks at \$100@150 and good to prime expressers at \$175@210.

DO YOU WISH A SPECIAL MARKET SERVICE?

By special arrangement with the Detroit office of the Bureau of Markets of the U. S. Department of Agriculture, we can secure for our subscribers daily market quotations and a statement of the movement of potatoes, apples, peaches and all other fruits and vegetables in season, together with a weekly review of the general produce market and of the situation in the bean trade. Simply send a card or letter requesting this special market service, to the Michigan Farmer, Detroit, stating the crops in which you are particularly interested, and we will arrange for your address being placed upon the list of the local office.

LIVE STOCK NEWS.

There is a widespread desire upon the part of farmers in various parts of the country to engage in feeding cattle, and it is observed that desirable offerings of stockers or feeders in the Chicago market do not wait long for country buyers. The principal drawback all along this season has been the common practice of the packers in entering the market and buying up the attractive offerings of feeders with any "kill" to them, outbidding the country buyers. This practice has discouraged many stockmen, prices being raised to higher figures than they cared to pay.

There is a large sale for all kinds of beef cattle, and prices are far higher than in former years, with the principal call centered on the cheaper and medium-priced cattle. This preference is based upon the extreme dearthness of the choicer cuts of beef in the retail meat markets of the country, which leads the packers and smaller butchers to take the short-fed offerings and fat butcher stock rather than the extremely high-priced cattle of heavy weight. Recent sales of steers offered on the Chicago market have been made at an extreme range of \$8.75@14.50, comparing with \$7.50@12.25 one year ago, \$6.25@9.50 two years ago, and \$5.25@9.15 three years ago.

According to a statement made in the German Reichstag, Germany's national debt has now risen to nearly \$31,000,000,000.

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

March 7, 1918.

Cattle.

Receipts 1930. Market generally 25c lower than last week.

Best heavy steers \$11.20@12; best handy weight butcher steers \$9.50@10; mixed steers and heifers \$8.50@9.25; handy light butchers \$8@8.25; light butchers \$7.50@7.75; best cows \$8.50@9.50; butcher cows \$7.50@8; cutters \$6.75@7; canners \$6@6.25; best heavy bulls \$8.50@9; bologna bulls \$8@8.50; stock bulls \$7.25@8.25; milkers and springers \$65@100.

Bishop, B. & H. sold Hammond, S. & Co. 5 steers av 1146 at \$11.25, 12 do av 808 at \$9.50, 16 do av 1012 at \$10.25, 28 do av 821 at \$9.75, 1 do wgh 1000 at \$10.50, 23 do av 985 at \$10.75; to Parker, W. & Co. 7 cows av 880 at \$6.75, 7 butchers av 771 at \$8.25, 13 do av 677 at \$8.50, 3 cows av 933 at \$6.75, 6 do av 841 at \$6.75, 6 do av 845 at \$6.75; to Lorenberg 22 butchers av 787 at \$9; to Goodgold 6 do av 960 at \$9; to Sullivan P. Co. 7 cows av 1021 at \$8, 1 bull wgh 1200 at \$8.50, 8 cows av 917 at \$7, 5 butchers av 900 at \$9.50; to Newton P. Co. 7 canners av 860 at \$6.75, 6 steers av 1108 at \$10.60, 11 cows av 904 at \$7.75, 8 canners av 900 at \$6.75, 4 do av 907 at \$6.75, 1 bull wgh 1580 at \$9.50; to Walk 1 do wgh 1600 at \$10; to Nagle P. Co. 13 steers av 1064 at \$11, 1 do wgh 850 at \$10, 1 do wgh 940 at \$11, 6 do av 875 at \$9.85, 4 do av 1130 at \$10.75; to Rattkowsky 11 butchers av 762 at \$8.75; to Mason B. Co. 2 steers av 1115 at \$11, 2 bulls av 1800 at \$9; to Garber 7 cows av 953 at \$8.25; to Breitenbeck 15 butchers av 773 at \$9.25; to Mich. B. Co. 4 steers av 925 at \$9.50, 7 do av 900 at \$9, 4 cows av 992 at \$7.50; to Ratner 11 steers av 995 at \$10.50; to Hammond, S. & Co. 18 do av 1002 at \$10.75, 1 bull wgh 1200 at \$9.10.

Sandel, S. B. & G. sold Mich. B. Co. 20 steers av 956 at \$10.25, 14 do av 900 at \$10.25; to Parker, W. & Co. 1 cow wgh 1010 at \$8, 5 do av 932 at \$6.75, 1 do wgh 710 at \$6.85, 2 canners av 700 at \$6, 8 do av 875 at \$6.85, 2 heifers av 360 at \$7, 1 bull wgh 1040 at \$8.50, 1 cow wgh 1050 at \$9, 14 butchers av 860 at \$9.25, 2 do av 900 at \$7.25, 10 do av 749 at \$8.50, 1 steer wgh 900 at \$10, 24 do av 871 at \$9.50, 9 canners av 910 at \$6.75, 11 butchers av 770 at \$8.75; to Breitenbeck 1 steer wgh 970 at \$9; to Golden 8 cows av 701 at \$8.25, 4 do av 837 at \$9, 6 do av 565 at \$7.50; to Sullivan P. Co. 3 do av 1700 at \$8.50, 3 do av 1053 at \$8.25, 1 do wgh 1280 at \$9, 8 steers av 961 at \$10.50, 21 do av 1012 at \$10.75, 2 do av 875 at \$9.25; to Rattkowsky 1 steer wgh 1390 at \$13; to Hammond, S. & Co. 21 do av 1105 at \$12.25, 1 bull wgh 1250 at \$9, 1 steer wgh 1180 at \$11.25; to Mason B. Co. 1 cow wgh 1260 at \$9.75; to Black 18 feeders av 831 at \$10; to Sullivan P. Co. 6 butchers av 808 at \$8.50; to Nagle P. Co. 15 steers av 924 at \$10.15, 3 cows av 1073 at \$7.75; to Bray 10 canners av 900 at \$6.50, 6 cows av 1011 at \$8, 3 canners av 983 at \$6.75.

Veal Calves.

Receipts 818. Market 50@75c lower than last week. Best \$15; others \$8@13.

Erwin, S. & J. sold Fineman 4 av 135 at \$13.50; to Rattkowsky 3 av 150 at \$15.50, 8 av 145 at \$14.50; to Dobrowsky 18 av 130 at \$13.50; to Sullivan P. Co. 8 av 180 at \$15, 1 wgh 240 at \$17; to Garber 8 av 130 at \$15.50; to Hoffend 14 av 160 at \$15; to Dobrowsky 2 av 130 at \$11; to Barlage 9 av 150 at \$15; to Dobrowsky 8 av 150 at \$15.50, 5 av 104 at \$12, 2 av 110 at \$13.50; to Burnstine 2 av 130 at \$11, 11 av 155 at \$15.50, 6 av 150 at \$15.50.

Sheep and Lambs

Receipts 2333. Market 25@50c higher; lambs coming too heavy; the trade wants them weighing from 70@80 lbs. Best lambs \$17.50; fair lambs \$16@16.50; light to common lambs \$14.50@15.50; fair to good sheep \$11@11.50; culls and common \$7@9.

Bishop, B. & H. sold Mich. B. Co. 87 lambs av 65 at \$16.50, 41 do av 85 at \$16.50, 11 sheep av 80 at \$9; to Parker, W. & Co. 312 lambs av 75 at \$14.50; to Mich. B. Co. 24 do av 75 at \$16.75, 54 do av 75 at \$17.25, 22 do av 80 at \$17.25, 17 do av 75 at \$17.25, 15 do av 80 at \$17.50.

Hogs.

Receipts 2787. Market 50c higher than on Tuesday. Mixed grades at \$17.25@17.50; pigs \$17@17.25.

LIVE STOCK NEWS.

Hog production will be materially increased in Kossuth county, Iowa, said V. W. Waitman, who showed up on the Chicago market recently with a shipment of prime hogs which he had been preparing for sixty days on corn and tankage. He added that last year he bred fifteen sows, while this year he has increased their number to forty. Other farmers thereabouts are increasing the number of breeding sows, and consequently they are holding on to their feed stuffs for using to feed their increased crops of spring pigs. Roughages are scarce, but nearly every farmer is the fortunate owner of at least one silo, and these have been highly appreciated this season, as it was the only means of using their corn profitably. Dairying is carried on extensively, and during January the farmers received sixty cents for their butter-fat. Tractors are numerous and do satisfactory work. Mr. Waitman said that if the labor situation does not get any better, many more tractors will be purchased.

J. J. Totten, of Shelby county, Indiana, purchased a fine bunch of medium grade 800-pound feeding steers in the Chicago stock yards a short time ago for finishing on his big farm on ensilage and cottonseed for the spring market. He fed a string of the same class of cattle a year ago, having bought them in Chicago, and they made him a good profit when marketed as fat beefs. Mr. Totten has bought also a drove of good light cattle for summer grazing.

James Meredith, of Kane county, Ill., has purchased in the Chicago market during recent weeks eleven carloads of thin cattle of medium average weight, which he is going to fatten on soft corn and oil meal for the spring markets. He is the owner of several hundred head of cattle in preparation for marketing this spring. He marketed a short time ago about 2000 sheep which he bought in the Chicago market last autumn. He is an extensive all around farmer and stockman, and all of his grain is fed to stock on his farms, the manure being all returned to enrich the soil.

Stockmen owning droves of hogs are doing the sensible thing in retaining possession of their growing hogs up to such a time as they become fat and prime in quality. The weight of the hogs received in the markets of the country are much heavier than usual, while in point of quality little is left to be desired. Recent receipts of hogs in the Chicago market have averaged 232 pounds, which compares with 229 pounds one week earlier, 207 pounds one month ago, 202 pounds one year ago, 206 pounds two years ago, 223 pounds three years ago and 221 pounds four years ago. The position of the hog industry is a very strong one, with the government determined to use its efforts to make good prices for owners, and the unprecedentedly heavy demand for fresh and cured hogmeats and lard on domestic and foreign account is the most powerful of bullish arguments. Within a short time there has been a reversal in the prices paid for the best heavy and the best rather light hogs, and now the latter offerings are outselling the others, because so small a percentage of the hogs offered are light in weight. After scoring some sharp breaks in hog prices, a reaction set in which landed the best offerings at \$17.70 per 100 pounds, the prices being the highest seen in a long time.

It is inevitable that in this time of extreme scarcity of sheep and lambs in the United States there should be a widespread desire among the farmers where the dog population will permit to engage in breeding sheep, and the demand for good breeding ewes is all the time growing in proportions. Prices for good breeders are high on account of the moderate numbers offered on the market, but all offered are readily taken, and many more could be sold without any difficulty. Matured breeding ewes have been called for very extensively, and within a short time choice breeding ewe lambs have been selling readily in the Chicago market, the best selling at a premium of about 25 cents per 100 pounds over the best killing flocks of lambs. A short time ago it was reported that about ten thousand head of breeding ewe lambs were being purchased in Chicago for shipment, largely for farmers in the state of New York. The secretary of the National Sheep and Wool Bureau says that instead of the present number of less than forty million sheep in this country, there should be three times that number. A short time ago a Massachusetts senator introduced a bill in congress providing for a sufficient tax on dogs to admit of the sheep growing industry becoming reestablished.

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

POULTRY

WHITE Wyandottes. I have a fine lot of April and May hatching cockerels for \$3.00 and \$5.00 each. DAVID RAY, 709 Norris St., Ypsilanti, Michigan.

White Wyandotte cockerels, good size, color. \$3.50; 3 for \$10. Reg. Swedish Select Oats free from smut \$1.50 per bu. in 10 bu. lots recleaned and bags free. VAN O. FARM, R. 1, Box 124, Hartford, Mich.

White China Goose eggs 25 cents each. R. O. Br. Leghorn eggs \$1.50 per 15, Pekin Duck \$1.50 for 11. Best of stock. Mrs. CLAUDIA BETTS, Hillsdale, Mich.

WHITE Holland Turkeys a limited number for sale. Silver Spangled Hamburg cockerels Hamburg are the greatest layers on earth, get acquainted with this wonderful breed. Riverview Farm, Vassar, Mich.

M. B. Turkeys, Toulouse Geese and S. C. W. Leghorn cockerels. Also Berkshire, both sex; Stamps appreciated. Chase Stock Farm, R. 1, Marlette, Mich.

MAMMOTH White Holland Turkeys, Toms \$8. Hens \$5. Pairs \$12. Triceps \$17. Stamped envelope for reply ALDEN WHITECOMB, Byron Center, Mich.

Very Fine W. H. Toms, for \$3.00 till Mar. 20. Harry Colling, Fostoria, Mich.

HOGS

Big Type Poland Chinas: Sows bred for April and May farrow and fall pigs. L. W. BARNES & SON, Byron, Mich.

BIG TYPE POLAND CHINAS. Booking orders for spring pigs. G. W. HOLTON, R. 11, Kalamazoo, Mich.

Large Yorkshire Gilts Red Poll Cattle. E. S. CARR, Homer, Mich.

Yorkshire Gilts Bred for spring farrowing. Bacon is high in price. Yorkshires make bacon; buy Yorkshires. Waterman & Waterman, Packard Road, Ann Arbor, Mich.

Hampshire boars at a bargain; bred gilts now ready to ship. JOHN W. SNYDER, R. 4, St. Johns, Mich.

HORSES

REGISTERED PERCHERON Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, EATON RAPIDS, MICH.

LOESER BROS.

Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. Shorthorn Cattle, we offer a choice lot of bulls and females. Write us.

LIGONIER INDIANA.

PERCHERON DISPERSAL

The entire herd of the late A. A. Palmer will be closed out; 25 pure bred percheron mares \$200 to \$400 except two; also young stallions PALMER BROS., Belding Mich.

For sale or exchange. For cattle, Registered Holstein preferred, three Registered Percheron mares, coming 1-6-7 years old, weighing from 1600 to 1800 lbs. In foal to Imported Percheron weighing 2160. These mares are good workers, kind and gentle, come look over. J. C. BUTLER, Portland, Michigan.

FOR SALE Five Registered Percheron mares, four in foal; also two mare colts eligible to register; inquire. Mrs. JAMES GRAHAM, R. 1, Ada, Mich.

2 Gray Percheron Stallions for sale cheap; one 2240 lbs. one 2000; sound and sure breeders; colts to show; winners at Iowa State Fair and Ill. State fair; herd headers. BEARD BROS., Mendon, Mich.

Percherons, Holsteins, Angus, Shropshires, Dures DORR D. BUZZI, Elmira, Michigan.

For Sale Three Percheron Stallions and three Percheron mares at farmers' prices. E. J. ALDRICH, Tekonsha, Mich. Bell Phone.

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

FOR SALE Registered Percheron Stallion seven years old. ORLA JACOBS, Gregory, Mich.

Notice Being in draft will sell or exchange for cattle or sheep 3 reg. Perch. mares. J. M. HICKS & SONS, R. 2, Williamston, Mich.

FOUR YEAR old registered dapple gray stallion for sale. F. J. WEBB, R. 5, Paw Paw, Mich.

For Sale registered Black Percheron Stallion. Price right address. F. CHRISCIENSKI, R. 3, Box 61, Linsay City, Mich.

Belgian Stallions. Priced to sell. State Licensed. Send for photos. CHAS. M. SEELEY, Three Rivers, Mich.

FOR Sale Stallion. I have a Standard Bred coach Stallion; sure foal getter, weigh 1400, all letters answered. John Bair, Columbus Grove, Ohio.

Two Large young Jennets cheap, and some Shetland Ponies and several good fox hounds. W. E. LECKY, Holmesville, Ohio.

For Sale 1 Jack 14 1/2 hands or will exchange for light Ford Truck or Delivery car. G. S. JACKSON, R. 23, Swanton, Ohio.

For Sale or Exchange—Reg. Spanish Jacks and Jennets for reg. calves. G. PARDEE, Gallien, Mich.

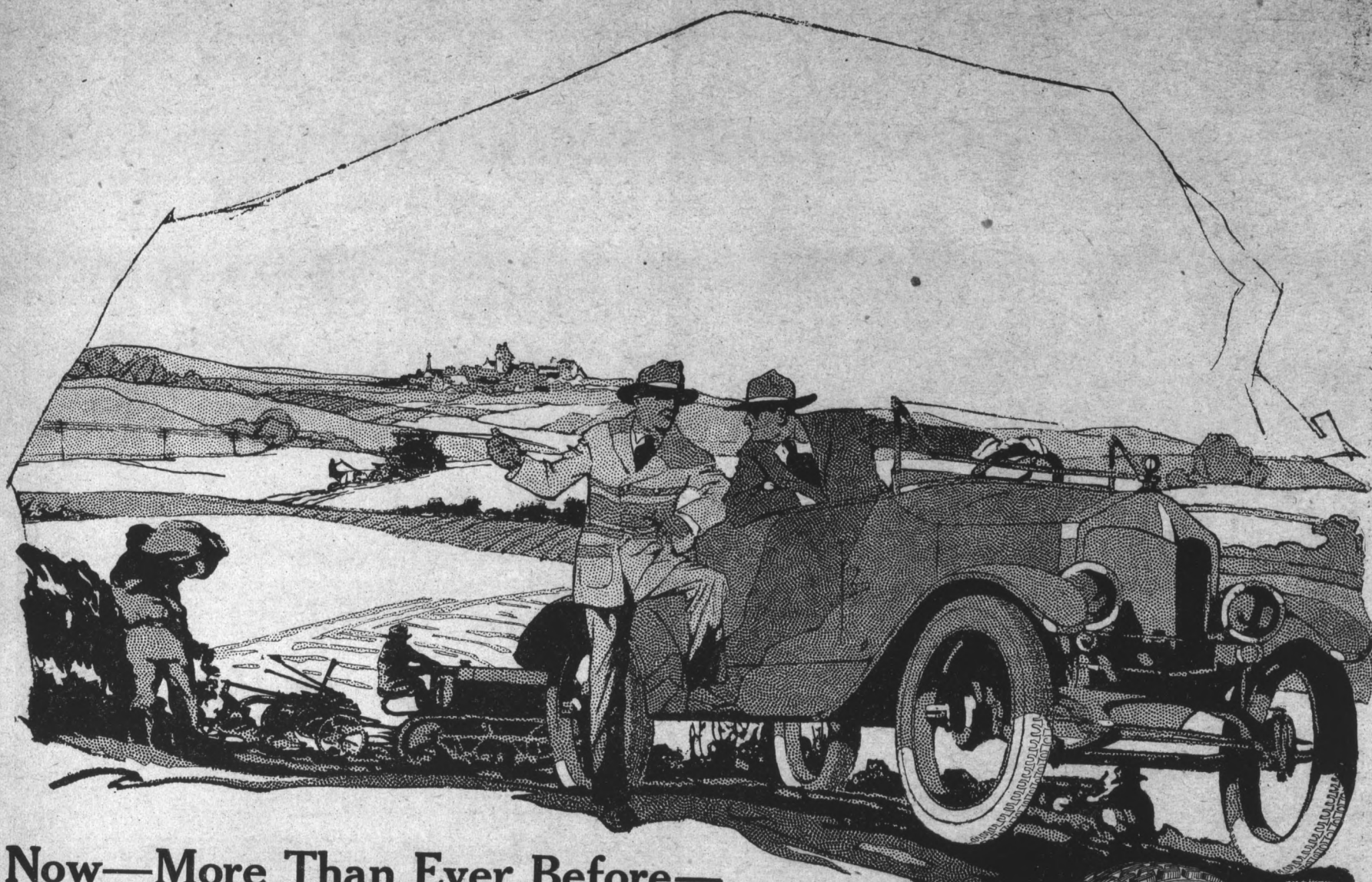
SHEEP

KOPE-KON FARMS.

Coldwater, Mich.

Hampshires & Shropshires. It's a wise man who orders his ram for August delivery now.

Shropshire Ram. Lambs and one three year old flock header for sale. ARMSTRONG BROS., R. 3, Fowlerville, Mich.



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