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"First-Aid" Farm Emergency Methods

AS war is the great emergency among the most enlightened nations of the world at the present time, so are the conditions growing out of war the great emergency in the lives of the millions of people of the belligerent nations. To some the temporal or physical emergency is overshadowed by the mental and spiritual strain incident to the calling of their sons or husbands, brothers or friends to defend the honor and integrity of the country in the hour of its peril and the peril of human liberty throughout the world. To all the war has brought a business or industrial emergency of tremendous import, but to none has come an emergency more fraught with consequences to themselves and to the country than that which confronts our farmers at the present time. Responding with patriotic zeal to the appeal of the government for increased production to meet the needs of the country and its allies, as an essential to the winning of the war, in the face of an industrial condition which had largely drained the country of young men, leaving the available supply of labor wholly inadequate to the task involved, many of them now face the emergency of losing their help through the operation of the selective draft, before their season's crops are harvested, and countless others face the necessity of lessening their production next season from the further operation of the same cause unless "first aid" emergency methods can be devised.

Well Laid Plans Are Essential.

While the difficulties of the present situation are sufficient to occupy the undivided attention of every Michigan farmer until the season's crops are secured, yet it is not too early to begin planning for next year's campaign which will be still more difficult to carry out in a successful and efficient manner. The accomplishments of the next year on the average Michigan farm

An Appeal for the Reader's Cooperation in the Present Crisis

will depend a great deal on the planning of the crops to be grown in such a manner as to distribute the labor requirements in caring for them as evenly as possible throughout the season and in having all plans matured and everything in readiness for pushing the season's work from the start.

As an illustration of the fact that it

turity of beans and corn on land where it had been planned to sow wheat. But rye can be seeded late in October with a fair prospect of getting a profitable crop, and every acre sown to this grain will reduce the labor requirements for next year and add to the available food supply of the country as well as to the income of the farmer who sows it.



Tractor Unit Used on G. R. & I. Railway Demonstration Farm—Valuable for Emergency Use on Many Michigan Farms.

is not too early to begin making those plans, it might be reiterated that the sowing of a large acreage of winter grains will tend to lessen the labor requirements of next year's farm campaign. It is now late for wheat seeding, and the area sown to this crop has undoubtedly been restricted by the late season and the consequent late ma-

Should the fall be late a great deal of fall plowing can be done after the crops are secured, and every available day which can be so employed should be improved on every Michigan farm, whether fall plowing has been a general practice or not.

Seed for next year's planting can and should be secured this fall, prop-

erly stored to insure its viability and tested to insure good germination to the end that the danger of crop failure and wasted labor from the too common cause of poor seed may be obviated.

Farm equipment, fertilizers and any other materials for next year's use, the need of which can be anticipated, should be ordered and secured at the earliest possible date, on account of the certainty of congested transportation facilities during the coming year. Later in the season all farm equipment can and should be overhauled and placed in condition for efficient work, thus saving many valuable hours which will be sorely needed for productive work next year.

Cooperation Will Help.

But after all this and the thousand-and-one other things which can be accomplished by early and efficient planning, there will still be need for an increase of man efficiency on Michigan farms. This can be accomplished to a great extent by the more general use of labor-saving machinery, both individually and collectively.

There is merit in the suggestion of community power plants to serve the farmers of a neighborhood, and it is not too early to prepare for the cooperative ownership and operation of such plants, especially tractors and the equipment suited to use with such power, which can be economically operated even on small farms by this means and man efficiency thus increased.

It is imperative that all possible plans should be made to increase man power efficiency on our farms and there are many ways in which this can be better accomplished by cooperation along sound business lines. Progressive farmers in every community should at once take the initiative in this direction and report their ideas

(Continued on page 288).



At the Wheat Congress Held at M. A. C. on August 1, Judge Williams, of Allegan County, Suggested the Feasibility of Community Power Plants to do Plowing and Other Work for Farmers of a Neighborhood—a Suggestion Worthy of Serious Consideration in the Present Emergency.

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CURRENT COMMENT.

Most farmers are not Liberty Bonds. accustomed to the purchase of bonds as an investment, and when we read that the government is to offer two or three billion dollars' worth of Liberty Bonds for popular subscription, many of us do not at first thought attach any personal interest to the matter, but accept it as a news item incident to the conduct of the war, the same as we read of the government's activity in building a sorely needed merchant-marine or a big bunch of destroyers to protect merchant shipping from German submarines. But the building of merchant ships and destroyers, or airplanes and other army equipment in quantities to be of material service in this stupendous war, requires such huge expenditures that we now read and speak of billions of dollars in connection with war expenditures as freely as we have been accustomed to mention millions in the conduct of public business under peace conditions. So stupendous are the sums involved in even the initial preparations for the titanic struggle in which we are engaged, that they are wholly beyond ordinary human comprehension. But it should not be beyond our comprehension that we have a personal responsibility in the matter, and that the war cannot be successfully financed on the necessary scale without that responsibility is recognized and met by the rank and file of the people of the whole country.

Where many billions of dollars must be mobilized, as is the case in financing present war operations, it is absolutely essential that the people of the whole country purchase the bonds offered in proportion to their ability to aid the government by such a loan. In this way, and in this way only, can the huge sums required be provided without the serious disturbance of business of all kinds, including agriculture. For this reason it is the duty of each and everyone of us to purchase liberty bonds in such amounts as our circumstances may warrant, thus aiding the government in the present crisis, and at the same time making an absolutely safe investment which will prove to our own ultimate advantage rather than otherwise.

The floating of the second Liberty Loan of three billion dollars will not be difficult and will impose no serious hardship on the people of this country if all will give serious thought to their individual responsibility in the matter. The plan adopted in one of the important agricultural counties of Michigan is well suited to the illustration of this fact, and well calculated to bring to the attention of every property owner the fair extent of his own responsibility in this connection. It was ascertained that this county's quota of the second Liberty Loan would amount to approximately four per cent of the assessed valuation of the property in the county, and every property owner in the county having an assessed valuation of one thousand dollars or more will be asked to buy Liberty Bonds to an amount aggregating at least four per cent of his assessed valuation. In cases where borrowed capital represents a considerable portion of the assessed valuation, the mortgagee will be assigned his proportionate share, with the idea of distributing the county's quota of the loan in the most equitable manner. Larger subscriptions will be accepted in cases where an investment is being sought without regard to the patriotic consideration.

This plan, which has much to commend it, is mentioned as affording a basis for the measurement of individual responsibility in the matter of making this second popular Liberty Loan a success. If we are to prosecute this war to an early and successful issue, it is absolutely necessary that the whole people of the country help to finance it by loaning a fair proportion of their resources to the country in the present emergency, the same as the people of our European allies have done. While discharging our duty in this regard we will at the same time be making the safest possible investment at a fair rate of interest. What valid reason can any man give for not discharging his patriotic duty by subscribing to this second Liberty Loan to the full extent of his financial ability? None, we believe, which will be satisfactory to the people of the community in which he lives or to himself. All that is necessary for the early acceptance of the entire second Liberty Loan large as it is, is for each and every citizen to properly realize his patriotic duty in the matter. The farmers of Michigan will not be the last to recognize and discharge their duty in this regard.

It has been established by recent investigations that approximately seventy-five per cent of the enormous fire waste in this country is due to carelessness, either individual or municipal. The extent of this waste is best expressed in the terms of a concrete example. It is estimated, for instance, that over fifty million bushels of wheat have been destroyed during the past year through fire losses on the farms and in the grain elevators of the country. A very considerable proportion of this loss was undoubtedly due to carelessness, which was a direct contribution to the necessity for wheatless days, yet this represents but a small fraction of the total fire waste of the country, a large proportion of which is easily preventable.

A very considerable proportion of the fire losses of this class which occur on the farms are due to defective chimneys and flues. Carelessness in this regard is deplorable at any time, and is inexcusable under present conditions which demand conservation and the elimination of preventable waste on every hand. Few farmers have ever had so heavy demands made upon their time as they are at present experiencing. But this fact increases rather than diminishes their duty in the matter of conservation and the elimination of waste. The conservation of valuable property requires far less time than does its reproduction. In

the present emergency it is a public and private duty to eliminate fire waste as far as possible. To this end the chimneys and flues should be carefully inspected and repaired if necessary, and other minor, yet essential precautions taken for the reduction of the fire waste of the country, in-so-far as it may be preventable.

Farmers, whose Meatless Days and business it is to Wheatless Days. produce food products and most of whose previous experience in marketing the same has been such as to make them skeptical regarding the possibility of a food shortage in this country, will naturally be less inclined to see the necessity of lessening consumption along staple lines than will the urban consumer to whom the rapidly rising cost of living has been a very real emergency for some time. But from the information regarding our available supply of staple food stuffs and the requirements of our own people and of our European allies for the ensuing year which has been gathered by the Food Administration, it now appears that it will be necessary to ask the people of the United States to generally observe both meatless and wheatless days. In view of this necessity the cooperation of farm families will be just as general and just as cheerfully given as will that of any other class of our loyal citizens, who are prepared to make any necessary personal sacrifice in order that our country may be the deciding factor in winning the war and forever safeguarding human liberty.

But the necessary adoption of meatless and wheatless days should inspire the farmers of Michigan and the United States with a still deeper patriotism than is required for such cooperation. It should inspire them to make even more strenuous efforts to increase production than they have made this year, even in the face of the greater handicaps which they are certain to face as a result of our country's unavoidable entry into the world war. By such action they will not only help to eke out the present season's short supply of staple foods which they are asked to conserve for the public good, but they will be benefiting themselves as well as all of the people of our own and allied nations by hastening the day when a normal consumption can be resumed.

Recent reports are to the effect that grain dealers in some sections of the state are trying to take more than a fair profit from their farmer patrons for the handling of their wheat. One instance recently came to our attention in which the dealer was offering but \$1.90 for wheat, claiming to farmers desiring to sell that the market was "off." Under such circumstances growers should hold their wheat until they are able to market it for what it is worth. If local dealers will not pay a fair price for grain of standard grades, farmers having same can ship it in carlots direct to the Food Administration Grain Corporation at any terminal where this government agency has a representative, as Chicago, Buffalo or New York, where it will be received and remitted for at the fixed government price for the grade, less one per cent administration charge which is levied on all shipments to cover the cost of administration.

Any grower having wheat of standard grade can determine for himself whether dealers are offering a fair price for his grain by ascertaining the freight rate to the market terminal, which, together with the administration charge above noted, represents the shipping cost. No grower will object to a reasonable handling charge in addition to this cost, but all should insist that this charge be reasonable by withholding their other products as well as

their wheat from the would-be "profiteers."

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Very little has been reported from the headquarters of the British forces on the westerly front early this week. Small jabs at the enemy lines at different points constitute the only military activities reported in official news from London. From Berlin comes news, however, of very severe artillery engagements between the Ypres-Comines canal and the Belgian coast and in the Neuport sector. Last week the British made substantial gains in this section of the front and the indications are that they have been successful in consolidating the gains with the old holdings after repulsing heavy German counter attacks. The French and Germans are engaged in the usual artillery fighting from St. Quentin east to the Vosges mountains.—Another drive has been launched by the Italians on the Isonzo frontier where for a fortnight quietude has prevailed. On the Bainsizza plateau positions have been stormed and taken by General Cordon's troops which has brought the Italian line close to the bridgehead of the Chalapovna River. They also control practically all of the southeastern portion of the plateau.—The British have improved their hold on Bagdad by the capture of positions in the region of Remadie. In this operation the Ottoman general, Ahmed Bey, and his staff were taken prisoners.—Reports indicate some improvement in the morale of the Russian soldiers as they have been successful in repulsing German attacks at a few points.—Air raids were made on England late last week. Four groups of German planes attacked simultaneously but most of them were driven off before much damage was done. The admiralty announces that eleven persons were killed and 82 injured.

The British parliament has enacted a measure authorizing a commission to search for beds of petroleum throughout the British Isles. Old beds will likely be reopened. Owners will be paid a royalty on any oil taken by the government.

The little country of New Zealand has sent 86,000 men to fight in the European war. Of this number there have been 26,000 casualties.

National.

The shipbuilding strike situation is clearing. The walkout of seamen on the Great Lakes, called for Monday of this week, has been called off, following the action of the federal ship board in granting the men the increase in wages demanded. Other items of difference have been waived temporarily until the federal board has time to investigate the merits of the demands. In San Francisco the boilermakers who blocked the settlement of labor disputes affecting 30,000 metal workers, have finally agreed to accept the terms offered. It is anticipated that there will be a complete resumption of government work on shipbuilding at that point this week as a result of this action.

Special indictments issued by federal agents against 166 I. W. W. workers charge these men with conspiracy against the government. Several of the persons alleged to be implicated have already been taken into custody.

Charges of disloyalty by certain representatives made on the floor of the lower house of congress last week by Representative Heflin, of Alabama, resulted in much excitement and a fistful encounter between the Alabamian and Representative Norton, of North Dakota. The charges grew out of the report that German money had been used previously to the declaration of war to influence congress in favor of a pro-German propaganda.

Wheat, beef, pork, dairy products and sugar being the foods most needed by the American soldiers as well as those of our allies, the food administration is appealing to the public to save as much as possible of these foods by substituting wherever it can be done with other sorts.

Twenty-seven persons were killed and about eighty injured in a head-on collision near Kelleyville, Oklahoma, last Friday between a passenger and troop supply trains. The misinterpretation of orders is assigned as the cause of the accident.

The campaign to sell the second Liberty Loan issue was launched on Monday. This issue is for the mammoth sum of three billion dollars.

Theron W. Atwood, of Caro, who has been identified with republican politics in Michigan for many years, died at his home last Thursday of pneumonia, following an operation for appendicitis.

An explosion in a coal mine near Clay, Ky., resulted in the death of thirty-one persons. A majority of those killed were negroes.

Straw As a Fertilizer

By C. E. MILLAR

NOT many years ago it was common in traveling through the great plains region, to see clouds of smoke rising from burning straw stacks, for no one thought of straw being of any particular value and considered it a nuisance to be removed from the fields in the easiest possible way. Similar practices were common in Illinois, Ohio, Michigan and all the states growing large quantities of small grain crops. This practice is rapidly dying out in the great wheat belts as it did in Michigan somewhat earlier. Strange as it may seem, however, a straw stack is still occasionally burned in this state. The abandoning of the habit of burning straw, I believe, is



Soil to Left of Shovel was Top-Dressed with Straw. Notice the Excellent Growth of Rye.

due largely to the demand for such material for roughage and bedding rather than an appreciation of its fertilizing value when applied to the soil.

In traveling through the state the writer has been attracted by the large number of straw stacks, many of them several years old, being left to rot down in the cultivated fields. They are a great inconvenience in working the fields and might far better be in the soil supplying food for the growing crop than taking up space which should be planted.

It has been stated by some investigators that the application of large amounts of straw has a tendency to reduce the production of available nitrogen in the soil. In general farm practice, however, the value of straw in the maintenance of soil fertility has come to be recognized by many investigators and its use is advocated by a number of experiment stations. Dr. Russell, of the Rothamsted Experiment Station, England, in an article dealing with possible sources of potash for English farmers while the supply of potash fertilizer from Germany is cut off, recommends among other things the use of damaged straw. In one of the experiments at the English station where wheat has been grown continuously for more than fifty years, both grain and straw being removed, the need of potash is becoming more marked every year. In commenting upon this experiment the Illinois station says:

"If the wheat straw, which contains more than three-fourths of the potassium removed in the wheat crop were returned to the soil, the necessity of purchasing potassium in a good system of farming on such land would be at least very remote, for the supply would be adequately maintained by the actual amount returned in the straw, together with the additional amount which would be liberated from the soil by the action of decomposition products."

The Illinois Experiment Station has conducted extensive experiments where crop residues, consisting of the corn

stover, wheat and oat straw and clover grown on the land is returned to the soil as a source of humus and plant food. They report as an average, of four-year results with wheat, a yield of 27.6 bushels where crop residues were turned under, and 28.8 bushels where manure was used. In this test the crop residues proved to be only slightly inferior to manure. The results of other experiments reported by Illinois are shown in Table I.

Treatment.	No. of Crops.	Crop Value per acre.
Lime-potassium and crop residue.....	12	\$204.88
Lime-potassium	12	180.95
Increase for residues ..		23.93

It is a significant fact, that as these tests continue the increased yields due to the residues grow larger.

The Kansas Experiment Station recommends a light top-dressing of straw on wheat and states that such practice "pays everywhere in Kansas." The results corroborate observations of the writer in the growing of rye and vetch on the sandy soils of Michigan. The accompanying photograph shows the results obtained by Mr. Johnson, of eastern Newaygo county, on a light sand, by top-dressing rye and vetch with straw. The increased growth of rye is noticeable but the difference in the stand of vetch is truly remarkable. Mr. Johnson has also obtained good results by plowing under straw for rye and vetch.

When we consider the amount of fertilizer elements contained in a ton of the various kinds of straw it is not surprising that increased yields have resulted from its use. The composition and value at present prices of the nitrogen phosphorus and potassium contained in a ton of various kinds of straw are shown in Table II.

Pounds of Plant Food in One Ton of Straw.

Crop.	Nitro.	Phos.	Pot.	Value present prices.
Oats	12.4	1.6	20.8	\$ 9.62
Wheat	10.0	1.6	18.0	8.12
Rye	10.0	2.6	14.0	7.06
Barley	12.0	1.8	18.2	8.91
Buckwheat ..	25.0	1.4	19.0	\$12.15

It is not expected, however, that the application of a ton of straw will give an immediate crop increase equal in

Muck and very sandy soils are more in need of potassium than the heavier types. These light sands are also especially in need of organic matter and therefore, it seems that the proper place to apply straw is on the sandy soils. This is especially true when we take into consideration that in wheat three-fourths, corn two-thirds, and oats five-sevenths of the potash taken up by the plant is in the straw or stover.

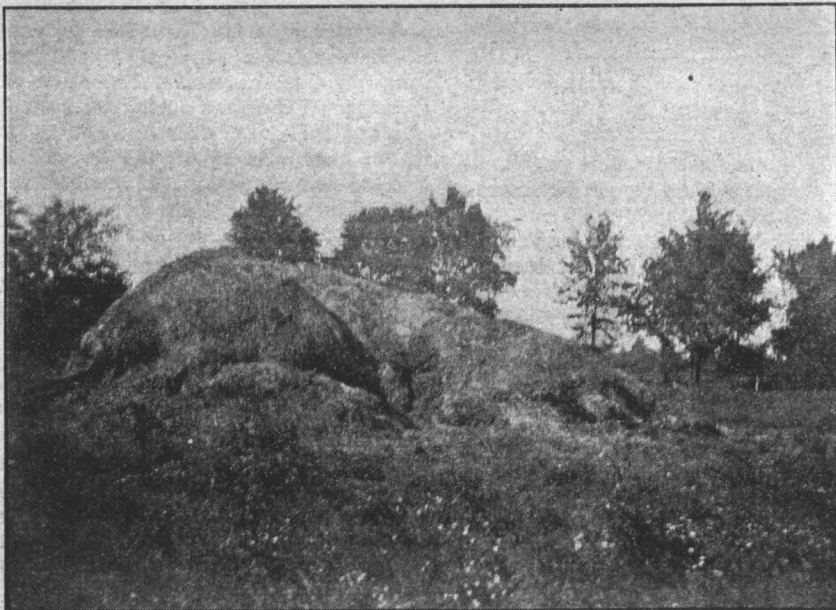
The scarcity of fertilizer is already being felt and we are told that the shortage of nitrogen and soluble phosphates will increase as the demands for explosives made from nitrates and sulphuric acid increase, while potash, of course, is practically unobtainable. It is apparent then, that all material fertilizer value should be utilized in order to make possible the increased yield demanded. Straw is one material now being wasted which may be used in this emergency.

Cover Crops

IT takes courage and faith to sow cover crops this fall. Rye was surely never higher in price, vetch is expensive and hard to procure at that, and from every side come temptations to the farmer on sandy soil to let the matter of cover crops go just this once.

Last spring hundreds of acres of light soil were fitted and planted to beans. Generally speaking, these soils are not adapted to the growing of beans, but the price was so high, and the future looked so inviting that the land was fitted and the beans went in, regardless of the character of the soil, or the price of the seed.

In many cases these lands had been given up temporarily and June grass and weeds had come to occupy them. In other words, a natural cover crop had been produced. This is one of nature's ways of repairing the damage to the soil that is being constantly done by those who disregard, through ignorance or other causes, the laws of soil conservation. In many instances beans on these light lands are looking remarkably well. They are simply using the plant food which nature has been storing in the soil during the years of rest. If these lands are left without any covering of any sort during the coming winter, they will be in an unfortunate condition next spring.



This Straw Should be in the Soil Furnishing Plant Food for the Crop Instead of Hindering Farm Operations.

value to the cost of the plant food elements contained. This is doubtless due to the fact that the fertility in straw becomes available only upon decomposition of the straw. This is demonstrated by the continually increasing yields obtained by the Illinois Experiment Station by the turning under of crop residues. But nevertheless, the amount of plant food that has been removed from the soil would not have been returned had the straw not been added.

The world is going to need food just as badly next year as this, and probably even worse. What is going to be done with these poor lands next summer? If they are planted again to beans or potatoes, with nothing to turn under, the crop will be too small to pay for the labor cost, and will not add enough to the country's supply of food to be worth while from that viewpoint.

Perhaps it will be too late to help much by the time this article is read,

but I am going to send it along in the hope that it may be of at least some use.

Everyone is looking for a long fall. In case we are so favored, it will be possible to sow rye up to the latter part of October, with a fair prospect of getting something out of it. If the sowing is late for vetch I would sow rye alone. But by all means I would sow something in the way of a cover crop on the light lands planted to beans or corn this year.

I would not omit the potato ground either, in my scheme of cover crops.

Last spring I talked with a county agent who is doing some fine things on sandy land. He is getting the people to plant soy beans at first, sowing rye in the beans at the last cultivation where the soil is too thin for vetch to stand, or in case the owner does not feel like spending the money for vetch seed. The following spring another crop of soy beans is planted, and the next fall he endeavors to have the man include vetch with the rye as a better cover crop than the rye alone. He says he believes that that light sand will ultimately reach a point where it will pay a fair profit upon forty dollars an acre.

Nitrogen and Organic Matter Needed by All Sandy Soils.

The two great objects in a cover crop are to grow nitrogen and organic matter. Other benefits are sure to follow, but these two objects are most important.

I doubt if there is a single example of poor light soil in Michigan that is not in need of these two things. A program in which cover crops are included will furnish both at the smallest cost possible. If stable manure is to be had in liberal quantities, so much the better, for cover crops will be better, and the process of the upbuilding of our light soils will be all the more rapid, but at any rate, no owner of a sandy farm can afford to neglect the sowing of cover crops annually in fields of corn, or beans, and seldom should he omit them in potato fields.

Oceana Co. W. F. TAYLOR.

"GET BEAN MAGGOT NOW," IS WARNING.

There is need in Michigan this fall of energetic measures against the bean maggot, according to the department of farm crops of the Michigan Agricultural College. It was this pest which last spring did heavy damage to young bean plants in many parts of the state, but the danger of its return in 1918 can be lessened, the college men say, if land intended to be used for beans next year is fall-plowed.

The bean maggot was found to have done its greatest damage last spring to beans planted on spring-plowed clover sod. Injury on fall-plowed clover or alfalfa land, however, was rare and in most cases could be traced to the presence of thistles.

"The bean maggot comes through the winter and begins work early in the spring on the roots of thistles and clover, and in organic matter," the department states. "If land is fall-plowed, the bean-maggot is very largely killed out. Fall-plowed lands can be put in shape for beans much more easily in the spring than is possible when it is newly plowed, and the land has time in which to settle. Thorough dragging at intervals in the spring will work the field into good shape to seed beans."

"The majority of Michigan lands, however, are greatly benefited by plowing in the fall, regardless of whether it is beans or some other crop for which they are to be used. Light lands which are likely to blow or erode or which are deficient in organic matter, should not be fall plowed. Corn, potatoes and beets, as well as beans, are all greatly benefited if planted on fall-plowed land."

Cost Commission Findings

THE cost of production plus a fair profit, as in other industries, is the advice from Washington in the matter of farm products. To assist the United States government in this determination, to aid in stabilizing prices, to recompense the producer for his crop grown on the basis of outlay, and secure a maximum acreage for next year was the work of this commission.

The personnel of this commission brought to this work business experience and the knowledge of agriculture. Jason Woodman, of Paw Paw, is an alumnus of the Michigan Agricultural College, one of the foremost and successful growers of potatoes in the United States, a soil specialist and also a member of the State Board of Agriculture. Jotham Allen, of Alma, is first a farmer, and in addition, the manager of the Alma plant of the Michigan Sugar Company. Crop costs in beet growing are a familiar experience with Mr. Allen. A. B. Cook, of Owosso, is a graduate of the Agricultural College, a farmer by choice, and has served his state in making its constitution and as a legislator. John Bale, of Lakeview, is one of the largest potato and bean growers in the state, also a shipper of produce and a live stock feeder. C. B. Scully, of Almont, is a farmer, president of the State Association of Farmers' Clubs, and represents his district in the state senate. R. C. Rothfuss, of Adrian, is president of the National Bank of Commerce of that city and squared agricultural services with business lines. Unavoidable engagements prevented others of the commissioners from being present.

C. H. Graves, representing the federal and state government in farm investigations digested a large mass of reports collected from county agents who had consulted farmers on crop costs. The work of Lewis Toan, county agent of Monroe county, New York, who had investigated bean growing in that state, was also made a basis of consideration.

Bean Production Costs.

The findings of the commission of the acre cost of growing beans was \$58.43. This composite calculation assuming favorable weather for the completion and harvesting the bean crop was a yield of eight and a quarter bushels of merchantable beans per acre. This will compel at least a seven dollar a bushel price to the farmer this year. Crop damage that may intervene between now and threshing time would compel a revision of this calculation.

Potato Production Costs.

The details of potato costs per acre were presented at great length. An interesting conclusion was that within reasonable limits the cost does not vary so greatly, large yields involved this year, excessive seed and labor costs. From Wexford county was received a telegram, showing the cost of growing an acre was \$86 and the estimated yield was ninety bushels. Extensive investigation in Montcalm county showed that this figure was approximated there. The acreage cost in sections outside the most favored potato growing counties was less, but the yield also would be less. Damage by frost and dry weather are still possible factors in reducing the yield now calculated on. On the basis of actual cost of potato growing this year with the unusual cost of seed and every factor entering into potato production the commission were unanimous that the potato grower must have \$1.00 per bushel for Grade 1, United States Standard in bulk f. o. b. Grand Rapids or at points of similar freight rates for price-basing purposes. Space does not permit in detail all the figures used in cost calculation. These will be printed later. The thoroughness of the investigation involved digging actual areas

to determine yields. Consumers who wish to pay a fair price to the producer and not seek the benefits of unrequited services will, by paying slightly above \$1.00 for potatoes, insure a maximum crop each year, and assist in establishing an equity among those who serve in growing food stuffs.

Profits Problematical.

The question of profit in these calculations is very complex. On the whole of the acreage planted it is doubtful if any profit exists. Some growers will have a fair profit. Any objections to the work of the Michigan Cost Accounting Commission inheres in all other similar calculations. This office urges the acceptance of the principle and cites the acceptance in business circles of the same as applied to copper prices by the government. The following is from a financial paper, the New York Annalist, relating to the price fixed by the United States for copper:

"Copper at 23½¢ will return a handsome profit to some of the low-cost mining companies and a fair profit to others whose costs run high. There are concerns which are able to mine, refine, and deliver their product under eight cents a pound, others can not do it at less than eighteen cents, and many have costs between eleven and fifteen cents. A rumor that the average producer would net ten cents a pound has been called a conjecture, pure and simple, by a prominent copper man. It is safe to add to this the statement that the various producers have no clear knowledge about their profit in the ensuing twelve months. They know that the basis of computing costs which has existed so far implies a good return in 1918, but they do not possess means for deciding whether that basis will prevail. The prices of materials may continue to advance; they may decline. The producer may make more money than he now counts upon; he may make less.

"Probably the most important feature of the price-fixing lies in the belief in government and copper mining quarters that 23½ cent metal will assure production at the greatest possible speed. That is the crucial matter affecting the prosecution of the war, and affecting also the maintenance of manufacturing on a broad scale."

JAS. N. McBRIDE,

Michigan Director of Markets.

"FIRST-AID" FARM EMERGENCY METHODS.

(Continued from first page).

and actions for the benefit of others at the earliest possible date.

"First Aid" Suggestions Are Valuable.

Small savings of time and labor are in the aggregate quite as important in their contribution to the desired result of the increase of man efficiency on the average farm as are more spectacular methods of accomplishing the larger tasks. Every Michigan Farmer reader who has found some short cut or labor-saving method of accomplishing any task, from the most important field operation to the most trivial chore should pass the idea along to his brother farmers through the columns of this paper. It may be helpful to a considerable number of the many thousands of farmers who will read it. This kind of cooperation is quite as important as the business cooperation above suggested in the accomplishment of the desired result. No opportunity of handing out a helpful suggestion of any kind should be delayed a single moment. Michigan agriculture needs "first aid" in this problem of increased man efficiency right now, and is likely to need it much more urgently before the passing of another season.

A Test of Patriotism.

The farmers of Michigan will yield to no other class of our citizens in

their patriotic loyalty to the country, its government and its humane and righteous cause, but they feel keenly and to discouragement the handicap which has been put upon them by the administration of the selective service law. Many and vigorous protests have been made and are still being made to have this method of administration modified, at least for a time, to the end that the farmers of the United States may be able to produce sufficient food stuffs to insure the success of the allied armies in Europe and the balance needed for the maintenance of the belligerent peoples until the war is brought to a successful and lasting end. The first of these protests from Michigan was wired to the President by the writer as chairman of the Wheat Congress held at M. A. C. on August 1, at which resolutions were adopted asking for present exemption of needed agricultural workers. This brought a reply from the War Department to the effect that the draft rules issued by the President already provided for the exemption of persons engaged in an agricultural enterprise, necessary to the maintenance of the Military Establishment, or the effective operation of the military forces, or the maintenance of the national interest during the emergency. This was followed by a similar resolution adopted by the Michigan State Board of Agriculture, these actions being typical of similar steps taken by the organized and individual representatives of agriculture in many states, until finally on September 24, through the medium of the Federal Board of Farm Organizations, and the legislative committee of the National Grange, the representatives of more than two million organized farmers called upon the President and presented a strong memorial, setting forth the lack of adequate labor on the farms of the country and the belief that America is making the same mistake which England made in the taking of the workers from the farms for military service, and asking a more perfect administration of the purpose of the selective service act, to the end that farm laborers or farm owners may be kept or placed where they will serve the nation best in the present emergency.

It will thus be seen that the critical farm labor situation has been brought to the attention of the President in a forceful manner. Apparently no more can be accomplished along this line, and whether or not the relief so earnestly sought is obtained through a more general temporary exemption of agricultural workers it is our collective and individual duty to be loyal to, rather than critical of, the President and his administration. It must be remembered by all that President Wilson has a broader and more intimate knowledge of present national needs and necessities as related to the war than has any other man or set of men; that he is carrying a heavier load of responsibility than any single man has ever been called upon to carry, and that his official acts and utterances in guiding our ship of state through its most perilous voyage toward the port of universal peace and liberty entitle him and the country to our continued loyal cooperation for the common good, even though these appeals may be in vain.

Michigan Farmers will Stand the Test.

True patriotism will not permit the farmers of Michigan to yield to the discouragement of the situation in any event. They will bend every energy to the successful solution of the difficult problem which confronts them, and they will succeed beyond their present hopes. If the situation cannot be adequately met by "first aid" methods, the government will be obliged to take steps to alleviate it, as the government of England has done, by supplying efficient farm help, from the millions who have left the farms for city occupations and who are not of

proper age or physically fit for military service.

We are but at the threshold of possible greater trials incident to the war; indeed, we yet hardly realize that we are engaged in the greatest war which the world has ever known. But we must not forget that our government is the declared sponsor of human liberty, our own and that of our posterity as well as that of the rest of the civilized world, and that we owe it to ourselves and our families as well as to our country and its government to do "our bit" to the best of our ability in the present crisis. If the government makes some mistakes, as it may and probably will, we must bear with them patiently until they are corrected, but we should continue to give to the full both our moral and physical support until the present emergency has passed and the war has been won.

MICHIGAN MILK NEWS.

Don't forget the annual meeting of the Michigan Milk Producers' Association at the Michigan Agricultural College, October 16. This meeting will, we believe, be one of the most eventful in the history of the milk industry in Michigan. Very important problems are before us for solution. Send your delegates. Each local is entitled to have three. Don't forget the date. October 16, 10:30 a. m., at the M. A. C. Look for programs.

The great milk way of Michigan has been deeply stirred for the last two weeks. Vassar, Howell and Lansing locals have been bringing pressure for better price conditions, while Mt. Pleasant has shown a spirit of patriotism that is worthy the highest commendation, had this spirit been shown all over Michigan, there would have been a raise since September 1 of thirty-five to fifty cents per hundred pounds.

Now figure out what this means to you. At Mt. Pleasant 386 men have signed pledges to each other and have notified the factory there that they would not deliver milk for less than \$3.00 per hundred pounds after October 1. The old argument that the farmers were violating the Sherman anti-trust law has been held over the milk producers in many sections for the last three weeks. We are glad to say, however, that this threat has but little effect, in as much as the people are coming to know that there are two distinct exemptions in this law which allows the producer of food stuffs and labor organizations to form combinations for the betterment of their conditions.

The field secretary has not only been cooperating with these locals, but has also been bringing pressure from the government in as much as the policy of Mr. Hoover is that all food products shall command a price that equals cost of production plus a fair per cent of profit. We are quite sure that in Michigan's food administrator, George A. Prescott, that the producer and consumer has a very potential friend who will follow the government policy of increasing the price to the producer and reducing the price to the consumer by eliminating as far as possible the exploiter and the profiteer. We are not at liberty at this time to give you the plans of control, but we are sure that the intent is to place food production on a commercial basis and in as much as our request has been for a price for our product that equals the cost of production plus a small profit therefore we believe that the future of the dairy industry is stepping into the dawn of a better day.

If you are not getting a compensatory price for your milk now, write to your field secretary. The state association stands ready to help you when you are ready to help yourself. All Michigan milk should now bring at least \$3.00 per hundred pounds.

Yours for a better price, for a better product.

R. C. REED,
Field Secretary.

Farm Labor and Farm Power

By R. G. KIRBY

WHEN much of the work of the farm is carried on by means of hired labor and power machines, a great deal of the efficiency and service received from the investment depends on the ability of the labor. Some men are natural mechanics and will soon understand a machine and receive much pleasure from using it in the right manner. Other hired men do not appreciate good machinery and they will abuse it in many ways when the owner is not present. A farmer can buy a good tractor or a gasoline engine and he can determine fairly well what the investment ought to do for him. When he adds the employee to the problem it becomes more difficult. A farmer cannot always tell what his hired man is going to do and how he is going to act in certain situations. He can score the machine on an efficiency basis but it is more difficult to score the man.

It is not always the fault of a hired man that he is ignorant of the care of farm power machines. Many hired men have had no experience along that line and when they hire out on farms using power equipment they need a great deal of careful instruction. It should be the duty of the farmer to understand how to obtain the best results from power machinery and then he should be willing to instruct his hired labor carefully. It will take some time but the time will be well expended.



A Steam Tractor Helping Out.

The hired man who does not thoroughly understand the machine with which he is working is apt to be nervous and do less work, or he will be careless and either injure himself or the machine. A farmer can make more money with farm power but he also needs the labor and the man behind the machine is an important factor.

When once acquiring a reliable hired man who likes to care for machinery he should be retained if possible in preference to another man who may be willing to work for less wages because of his inefficiency. The man who does not like to work with machinery will not pay any attention to a rattling or scraping which means trouble to the man with the ear of a true mechanic. The machinist will keep his equipment well oiled and the grease cups properly filled. He will study his machine and know what to expect from it without causing undue strain.

Teach the Hired Man.

The farmer who does his hauling with a motor truck can afford to spend a lot of time teaching his hired man how to run the truck. One hired man may look after the oiling carefully and drive at a moderate rate of speed and use good judgment in driving to the side of the road to pass other vehicles. The first man may leave and the second take up the driving without in-

struction of the proper kind. The second man may strip the gears, become stalled in the mud, forget to oil important parts and cause all manner of trouble. The second man may be of the type who does not care what becomes of the other fellow's property. It is the duty of the business farmer to study his labor, and especially teach them to respect the uses of farm power.

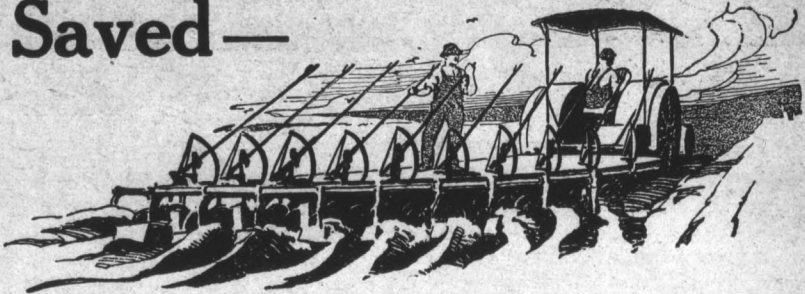
Farm power machines are expensive. The original investment may be some strain on the finances of a farmer and he may be in a situation where his investment must earn him money for a long period of years in order to make it a safe purchase. It is absolutely foolish to intrust an expensive machine to a careless hired man without any idea of mechanics. It is the fault of the owner of the machines in many instances because they expect too much of inexperienced men. A young fellow in a community who hires out to a neighbor for farm work deserves some consideration from his employer. The inexperienced man should not be expected to understand machinery if he has had no instruction along that line. No city factory foreman would place a man on even the simplest drill press without teaching him just exactly what to do and when to do it. The foreman would watch his new man for several days and never give him much responsibility or freedom from observance until he had proved himself competent to manage his machine. The foreman knows that he would be responsible in a measure for the mistakes of the man working under him and for that reason he would take extra precautions to explain the work. A farmer can well afford to spend some time teaching his men the use of power machines. Hired men will usually appreciate such attention and try and give their best efforts to their employer.

Farm labor as a whole is not as inefficient as many people are led to believe. There are many hired men who possess a mechanical ability which would enable them to hold good positions in manufacturing concerns and that is why many of them do not stay on the farm. The man who proves his worth in using farm power to the best advantage is worth half a dozen men who cannot understand mechanics or seem to have no desire to learn. One of the most important revolutions in farming recently has been the increased use of farm power machines, such as tractors, auto trucks and other mechanical schemes for using the gas engine. It is a problem for farmers to obtain good labor to operate these machines during this period of high wages and it is necessary for the farmer himself to take the unskilled man and turn him into a practical machinist who will at least be interested in his work.

EFFECT OF MATURITY ON GERMINATION OF CORN.

Experiments conducted by the Purdue Experiment Station comparing germination of corn selected at different stages of maturity are of interest. This work was started in the fall of 1907 and has been duplicated each year since, so that the results are the average of seven years, covering a number of conditions. Corn selected just before denting germinated 79.7 per cent. Corn that was nicely dented when selected germinated 93.5 per cent. The ripest ears selected when corn was ready to shock showed 92.6 per cent germination, while the ripest ears at time of husking germinated 88.5 per cent. It will be seen that corn which is matured and selected before the heavy freezes gives the best quality of seed.

Saved—



7 gallons of fuel and 10 quarts of oil in plowing 16½ acres through scientific tractor lubrication

Two successful farmers of Parshal, N. D., own a 30-60 h. p. tractor of prominent make.

They formerly used oil costing 38c per gallon. Now they find it cheaper to pay about twice as much for Gargoyl Mobiloils. Why?

Because a careful field test of Gargoyl Mobiloil "B" as specified for their tractor showed a saving of 7 gallons of fuel and 10 quarts of oil in plowing 16½ acres.

In condensed form here was their test:

With Gargoyl Mobiloil "B"

Ground plowed, 16.5 acres
Oil consumption, 12 pints
Fuel consumption, 28 gals.

With Competitive Oil

Ground plowed, 16.5 acres
Oil consumption, 32 pints
Fuel consumption, 35 gals.

The engineer reported in part, "The reason we made such a good showing on fuel was on account of efficient lubrication—plus a more perfect piston-ring seal while operating on Gargoyl Mobiloil "B".

"This is more easily understood when I state that a cloud of vapor was constantly issuing from the breather holes (in the crank case) while the engine was operating on competitive oil, this being due to gas leaking past the piston rings and consequently being wasted.

"While operating on Gargoyl Mobiloil "B" this vapor was not noticeable. In addition the tractor handled the load more easily."

You ask:

"Can I too show similar savings if I change to Gargoyl Mobiloils?" A natural question.

Gargoyl Mobiloils used as specified on tractors have never yet failed to show lowered oil and fuel consumption when comparatively tested with other oils.

This year progressive American farmers are striving for increased production and lowered costs. Unless you are using Gargoyl Mobiloils, the chances are that you now waste in part your fuel and oil.

The Chart below is today recognized as the scientific guide to correct Tractor Lubrication.

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

In buying Gargoyl Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyl on the container. For information kindly address inquiry to our nearest office.

Write for Correct Lubrication booklet containing complete Chart and other valuable data.



Mobiloils

A grade for each type of motor

CORRECT TRACTOR LUBRICATION

Explanation:—The four grades of Gargoyl Mobiloils for tractor lubrication, purified to remove free carbon, are:

Gargoyl Mobiloil "A"
Gargoyl Mobiloil "B"

Gargoyl Mobiloil "BB"
Gargoyl Mobiloil "Arctic"

In the Chart below, the letter opposite the tractor indicates the grade of Gargoyl Mobiloil that should be used. For example, "A" means Gargoyl Mobiloil "A," "Arc" means Gargoyl Mobiloil "Arctic," etc.

MODELS OF TRACTORS	1917	1916	1915
Albaugh-Dover (Square Turn)	BB	A	BB
Allis-Chalmers	BB	A	A
All Work	B	A	A
Andrews	B	A	A
Aultman-Taylor	BB	A	A
Avery	B	A	A
" (5-10 HP)	B	A	Arc
" (10-15 HP)	BB	A	BB
Bates Steel Mule	B	A	B
Best	B	A	A
" (8-16)	B	A	A
Big Bull	B	A	A
Big Four	B	A	Arc
Bower City	B	A	B
Buckeye (Ohio)	BB	A	B
" (Indiana)	BB	A	BB
" (Giant Baby) (Indiana)	B	A	B
Case	" (9-18)	A	A
" (10-20)	BB	A	A
" (18-25)	BB	A	A
Chase	BB	A	A
Common Sense	BB	A	Arc
C. O. D.	BB	A	Arc
Corn Belt	BB	A	B
Creeping Grip	BB	A	B
Emerson-Brantingham	B	A	Arc
Farm Horse	B	A	A
Flour City	B	A	Arc
" (Heavy Duty)	B	A	B
Ford (Minneapolis)	B	A	B
Gas Pull	BB	A	B
Grain Belt	BB	A	B
Gray	BB	A	A
Happy Farmer	B	A	A
" (Model B)	B	A	A
Hart Pass	B	A	B
Heider	BB	A	B
Hebert	BB	A	B
Holt Caterpillar	B	A	A
" (Model 45)	BB	A	BB
" (Model 18)	BB	A	BB

MODELS OF TRACTORS	1917	1916	1915
Huber	BB	A	B
Hume	BB	A	B
Imperial Forty	B	A	A
Ingersoll	B	A	A
Joint	B	A	A
K. C. Prairie Dog	BB	A	A
Kinkadee	BB	A	A
Lion	BB	A	A
Little Chief	BB	A	A
Little Giant	BB	A	A
Maytag	BB	A	A
Minneapolis	BB	A	A
Mogul	BB	A	A
" (8-16)	B	A	A
Moline Universal	BB	A	BB
Nichols & Shepard	BB	A	Arc
Nilson	BB	A	A
Oil Pull	B	A	B
Parrett	BB	A	A
Pecunia	BB	A	A
Pioneer	BB	A	B
Plow Boy	B	A	BB
Plow Mac	BB	A	BB
Portiac	B	A	BB
Reeves "40"	B	A	A
Rumely	B	A	A
" (8-16)	BB	A	BB
Russell	B	A	Arc
" (Little Four)	BB	A	A
Sandusky	BB	A	A
Sexton	BB	A	A
Simplex	B	A	Arc
Standard	BB	A	BB
Steel Mule	BB	A	A
Strait	BB	A	A
Sweeney Iron Horse	BB	A	A
Titan	BB	A	BB
Tom Thumb (4 yd)	B	A	A
Twin City	B	A	A
" (Model 15)	B	A	A
Wallis (Cub)	B	BB	Arc
Waterloo Boy	BB	A	A
Whitcomb	BB	A	A
Wisconsin	BB	A	A
Yuba	BB	A	A

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TO SPARE

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MOLINE ^{ORIGINAL} 2 ^{WHEEL} UNIVERSAL TRACTOR

the most powerful and dependable motor that money, factory equipment and skill could devise. Our reputation is too sacred to put out a tractor which is not right. So, to be doubly sure, we built the motor in the MOLINE-UNIVERSAL with POWER TO SPARE.

"My MOLINE-UNIVERSAL TRACTOR is so handy for all kinds of work. I cut all my oats with it and did all my fall plowing—more than 100 acres. The ground was so hard and dry it would have been nearly impossible to plow with horses. I have had no expense on the tractor."

A. J. ANDERSON, Harcourt, Iowa

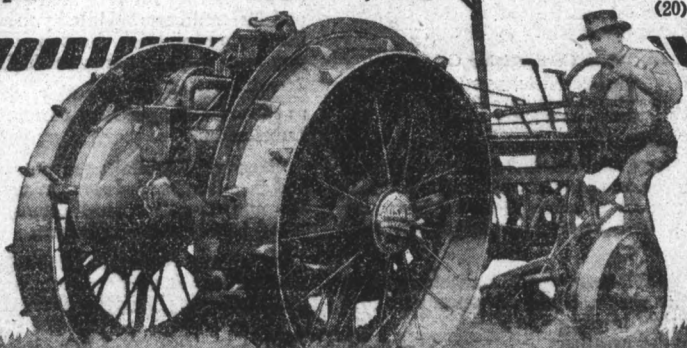
Every part of the Moline-Universal is built extra strong. It weighs nearly a ton less than others. This means much lower operating cost. ALL ITS WEIGHT IS TRACTION WEIGHT. Remember, you can not only plow with this tractor but plant—cultivate—harrow—disc—mow—harvest—do all farm work. Write for free catalog-folder—it will interest you.

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(20)



Fall Setting of Strawberries

HERETOFORE our preference has been spring setting of strawberry plants over fall set. I could never see what was to be gained by fall setting as ordinarily practiced. Late August and early September is the season usually employed for this. To be sure, when weather and soil conditions are favorable, and good plants set, quite a fair growth will be made both in root and crown, growth sufficient to mature a fair crop of berries if allowed to fruit. But if permitted to fruit the first season an inferior stand of young plants must necessarily result. The cultural conditions required, in each instance are altogether incompatible. The object or purpose sought in each case is wholly unlike.

Then, too, I figured that spring set plants make all the growth necessary under proper conditions of soil and culture, hence, what was the use of endeavoring to establish the new plantation at a season when favorable weather conditions were so much more problematical. Another thing, the labor of creating a fine mellow root pasturage with plants occupying the ground, would be greatly augmented. Indeed, I figured that to place a piece of ground in as excellent a condition as is possible when larger, deeper working tools may be used, is practically out of the question; hence, sizing the matter up in the light of the experience I then had, I decided that the fall setting of strawberry plants had nothing to offer us.

But for some time back I have been looking at the proposition in the light of greater experience and can now see how, if fall setting can be made successful, the plan offers one very decided advantage to us, viz., the setting of the plants will come at a season when other work is far less pressing. With a large amount of work of this sort to be done in the spring some of it must necessarily be neglected; hence, any plan or system that promises to relieve the pressure of work at this time is worth a fair trial. As time passed the attractiveness of the plan increased until I decided to try the plan out. So this fall an acre of new bed has been set as an experiment. Conditions of soil and weather were not ideal. If the plan is a success this time, it will be possible to make late fall setting successful under average fall weather conditions, so it seems to me.

To begin with, the ground used was in peas this summer. As the rainfall has been deficient since pea harvest the ground was not moisture-saturated as may be secured under ordinary spring conditions. For several weeks after pea harvest the soil remained almost dust dry. Then a shower came, to moisten the soil down about five inches, when the ground was plowed and floated down with a plank drag. Other showers followed in a week or so of sufficient magnitude to moisten the surface so that a fairly good soil plant bed was secured. A shower came just as the work of setting was begun; just enough to crust the surface when the weeder was used to re-establish the loose surface. This loose surface soon dried out so that it bothered some in setting, for additional work was made necessary that none of this dry soil got next to the roots. Then, too, the job was more or less unpleasant as a fresh breeze blew the dry particles into our faces.

Just how the experiment will turn out, future developments only can reveal. Only light showers have fallen since the setting was finished. To prevent crusting and consequent loss of soil moisture, the weeder has been used to re-create a loose surface. Because of the deficient rainfall it may be necessary to reset quite a number of plants. This will be done as soon as it becomes clear that the plants first set are not starting out vigorously.

Of course, it is not expected that plants set this late in the season will make much growth in the short time before freezing weather sets in. This is not expected. Neither is it necessary to the success of the plan. All that is required is that the plants get their root system established and be ready to do business next spring.

It will be imperatively necessary to supply winter protection to these fall set plants. They wouldn't be worth shucks if not fully protected from the injurious results of exposure to winter's frost and sunshine, and the heaving action upon the soil of "Sugar Weather." One of my helpers said, when I cautioned him against getting the plants too deep: "But just wait till the frost gets in its work." Our reply was to the effect that it would never do to let frost get in its work. The plants must be fully protected against such harmful agencies.

Whatever may be the outcome it is certain that one feature of advantage will be a success; we will have a start of a week with our spring work. Establishing the new strawberry bed in spring, coming as it does right along with so much other similar work, adds largely to the strenuous life of the season. If this job can be transferred from this busy time to a season more convenient, a very decided advantage will be gained.

After all due care and protection, spring growth may show up plants not starting out with full vigor. These may easily be replaced with plants from the propagating bed and a full stand made secure.

Emmet Co. M. N. EDGERTON.

GROWING RHUBARB IN WINTER.

For a number of years I have been growing rhubarb for our own use during the winter. This plant can easily be forced to grow indoors during the cold winter months and the expense connected with it is comparatively nothing outside of the small amount of labor involved. Rhubarb is a nice thing to have on hand in winter for making sauce, pies, etc., and the stalks grown indoors are always tender, juicy and crisp, and of a good flavor. I have found it is best to bring the rhubarb into the cellar, placing it in a dark corner somewhere and in the warmest part of the cellar. A place in the cellar near the chimney, if there happen to be one in the house, is best.

The rhubarb is dug up out of the row in the garden during the fall months. These roots are allowed to remain outside until very cold weather comes and in this way the roots become frozen solid; after this process they are brought into the cellar and set in a flat frame, all up close together. I then have prepared some good rich soil, pulverized into fine manure, and this is packed all around the roots firmly. The soil must be fairly moist, but not too wet. Moistened twice a week with lukewarm water will start the rhubarb to grow quickly.

The temperature of the cellar must be kept as even as possible for good growing results, and must never get below about fifty degrees at any time. If there is any danger of the temperature falling, an oil stove will help by keeping it lighted for an hour or so each night. Where there is plenty of light in the cellar the stalks will grow rapidly but they contain large leaves, and for that reason I prefer to grow it in a reasonably dark place and in this way the stalks grow to a nice length with little or no waste at all, on account of surplus leaves. The stalks are cut off at the top of the soil as wanted for use, and they make a fine winter vegetable for the table, and something that we all like during the late winter months.

Penn. Mrs. E. O. SWORE.

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Pulling stumps is slow and costly. "An explosive reduces the labor of clearing land to the minimum. It may be used by any intelligent man," says Minnesota Farmers' Bulletin 134. Get any stump out quickly, and at the same time split it into pieces easily handled, by using

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You can save money and make money by using Atlas Farm Powder to blast out stumps and shatter boulders, break up hard-pan, do ditching and make beds for trees. It is the cheapest farm hand you can possibly find.

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Storing Vegetables

NATURAL storage of late vegetables in the home for use in fall and winter—a practice which is advisable every season—is especially desirable now that the country is at war, says the United States Department of Agriculture. Natural storage is the least troublesome way of keeping food for future use, it is pointed out, and may be practiced with little expense in most homes, either in the country or in the city. Such storage is of chief value to owners of home gardens, but when vegetables suitable for storage may be purchased cheaply, it may be practiced profitably by some other householders.

The principal vegetables which may be stored successfully are the root, tuber, and bulb crops, such as late maturing potatoes, carrots, parsnips, turnips, salsify, onions, etc. Certain leaf and stalk crops such as cabbage and celery, and a few other products, such

(crops) are placed on this litter in a conical pile. The sides and top are then covered with straw and leaves and this, with two or three inches of earth. As winter approaches the earth covering should be increased, depending on the severity of the winter in the locality. Small pits containing but a few bushels of vegetables will receive sufficient ventilation if the straw between the vegetables and the earth covering is allowed to extend through the latter to the top of the pile. This exposed straw should be covered with a board or a piece of tin held in place by a stone as a protection from rain. In larger pits ventilation may be secured by placing two or three pieces of rough boards or stakes up through the center of the pile of vegetables so that a flue is formed. This flue should be capped by an inverted trough formed by two pieces of board nailed together at right angles. Where stock



Fruit Pickers Are More Easily Obtained when they Are Taken to and from their Work.

as squashes, pumpkins, etc., also may be stored naturally.

Cellar Storage Room.

If a cellar under a dwelling or outbuilding is clean, cool, and well-ventilated it may be used for storage without alteration. Many cellars, however, are not well suited for storing vegetables because of poor insulation or lack of ventilation, and those containing a furnace for heating usually are too warm and dry. It is often possible to partition off a room, either in one corner or at one end of such a cellar, where the temperature may be controlled by means of outside windows.

Outdoor Storage Cellars.

Outdoor storage cellars possess all the advantages of the storage room in the basement and are superior in many respects. It is possible to keep such a cellar cool and quickly reduce the temperature of the stored products by opening the door during the night and closing it in the morning before the air becomes warm. In regions of mild winters the outdoor cellars may be constructed almost entirely above ground of wood or other available materials. Straw or dirt may be thrown upon the roof as insulation, during especially cold periods. In regions of severe freezing the most popular type of storage cellar is built largely underground and the roof has a deep covering of straw and earth, manure, etc. Such cellars may be constructed of wood, concrete, stone, or brick.

Storage in Pits or Banks.

Storage in outdoor banks or pits is the most primitive and least expensive method of keeping many vegetables and is fairly satisfactory where ground is well-drained. This method does not compare in convenience, however, with storage in cellars since in periods of bad weather the vegetables are often accessible with difficulty. The construction of banks is begun by making an excavation six or eight inches deep in a well-drained location and lining it with straw, leaves, or similar material. The vegetables (usually root

banks are used the best practice is to construct a number of small ones so that a sufficient quantity of vegetables to last a few days can be obtained by opening each pit. The method may be modified by placing the vegetables in a long ridge rather than in conical piles with earth dividing the ridge into small sections. A section may then be conveniently opened without disturbing the remainder of the stored vegetables.

Most vegetables suitable for storage should not be harvested and stored until cool weather arrives, or about the time of the first killing frost. However, Irish potatoes should be harvested as soon as they reach maturity, and if basement or outdoor cellar storage is available, they should be stored immediately. They should not be stored in banks or pits until the weather gets cool. Onions should be put in storage as soon as they are matured and thoroughly cured or dried.

SAVE YOUR OWN VEGETABLE SEED.

Home gardeners as well as truck growers who find seed of favored varieties difficult to secure, or high in price, would do well to save their own seed, according to the United States Department of Agriculture. The saving of seed from beans, peas, corn, peppers, okra, egg plant, squash, cucumbers, muskmelons, and watermelons is very simple, the chief requirement being to select seed from good plants. Obtaining seed from tomato, radish, lettuce, kale, collards, cabbage, kohlrabi, beets, carrots, and mustard, while not so simple, is not beyond the ability of any amateur gardener.

A newly published Farmers' Bulletin, "Saving Vegetable Seeds for the Home and Market Garden," (No. 884), which will be supplied free by the United States Department of Agriculture, explains in detail how to gather and cure seeds commonly needed by truck growers.

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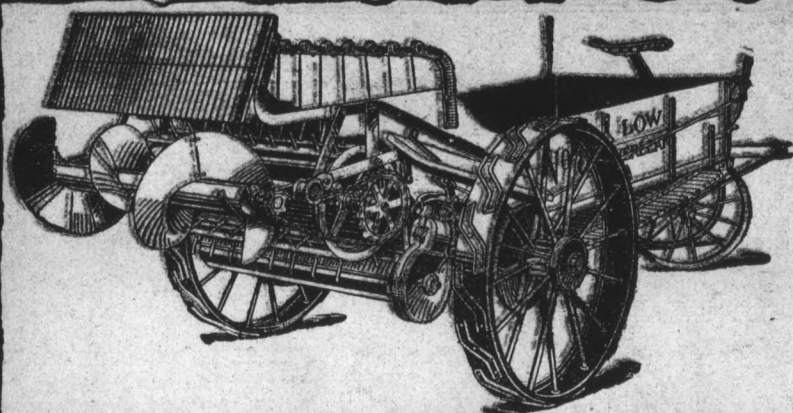
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Cooperative Breeding Associations

By W. F. TAYLOR

THE sad news of the death of Mr. W. F. Raven brings to mind his splendid work in the organization of these associations. Recalling his visit to our locality several years ago, and tracing the results of our little association, I am reminded to write something in a general way upon the subject of cooperative associations for better breeding of live stock.

Only yesterday at our county fair, we listened to two small breeders of dairy cattle as they were talking over some of the limitations of the small breeder. Finally in conclusion, one of them said: "I'll tell you what we ought to do; we ought to get together and buy the very best bull we can get. Neither of us has money enough to buy one alone, and we have not the nerve to borrow it. We can go together, pay our share of the purchase price, bear our part of the expense of keeping the bull, and get the use of him. This will settle the matter."

An Economical Way of Getting a Good Sire.

In these days when so many forms of cooperative effort are coming into being, it is the most natural thing in the world for neighbors to adopt this means and apply it to their needs in the line of a good dairy sire.

The general plan, as outlined by the college, is familiar to most of the readers of this paper, and I shall not rehash it. The object of this article is to create if possible more enthusiasm along the line of better dairy sires, and emphasize the cooperative association as a means of securing these animals for the use of the average farmer in neighborhoods where the people are just living along, with no one really laying up much money.

To anyone reading this article, and living in a dairy community where there is not a dairy sire of much merit, permit me to say: "Think the plan over and if it accords with your judgment, talk it over with your neighbors and see if you can not get together." In our experience, we have been able to provide ourselves with the service of good Jersey sires at a dollar per cow. We have paid for the care of the bull, have met the other incidentals of expense, and after several years of trial, are as much in favor of the plan as when we began.

Larger Community Cooperation Best.

If only a few people can unite in the purchase of but one good bull, it will be much better than no effort at all, but best results are secured when persons unite over a fair-sized territory so that three, or even four, bulls may be bought and placed at convenient points in the territory included in the association.

It takes three years at least, to discover either the merits or the demerits of a dairy sire. Not until the expiration of that time will his first daughters have milked long enough to give evidence of their value. Great bulls are as rare as great sires of any other sort, and yet, it is always possible to find them if we are practicing a system, and hold it long enough.

In our own experience, we have had several fairly good bulls, but only one truly great one as far as we know. In our community is another bull from a great herd in another state, whose helpers look very promising, but as yet none of them have freshened.

The sires we have used were from cows that produced from five hundred and fifty to six hundred pounds of butter in a year, and up. I should not want to use a bull upon pure-bred cows whose dam was not capable of producing as much as this amount, and one does not have to, if he looks around. Half the calves born into the world

are males. Thus you see, we have a chance to pick the very best for breeding purposes.

'Keep Bulls of Merit.'

If the association is large enough to place three or four bulls at once, they may be tried out, and if one, or more of them, possess great merit, he may be retained in the association in a different locality. This will enable those who have bred to him in the past, and still wish to do so, to use him by driving a little farther, will give the members of the association in new territory a chance to secure his service, until he has covered the entire territory, choice cows being bred to him from every part of the district. The poor bulls, if any appear may be slaughtered, and others substituted. This practice will result, after a while, in the acquisition of a number of meritorious sires in the community and the improvement in the cows generally will be absolutely beyond the imagination of any man who has not had experience in this method of live stock improvement.

Another advantage in the cooperative association is increased interest. The world is full of people who come short because they do not put themselves into their work.

Have a Purpose in Dairying.

I never saw a man in my life, who simply drifted along, milking a few cows because it was chore time and he had to, taking no pride or interest in them, wishing someone else had to milk and care for them, who did not work for next to nothing.

If a cooperative breeders' association did not save its members a cent in the purchase of sires it would be worth while many times, simply on account of the increased interest in dairying which results.

Interest in ones work, whatever it may be, enthusiasm that makes one forget the backaches, the long hours and all the other unpleasant things, keeping the mind alert and the heart strong, is after all, the most helpful thing in the world from a purely practical viewpoint.

Interest and enthusiasm are both fostered by cooperation, and the best of it all is, that these qualities are not of a selfish sort. In a prosperous dairy community it is easier for everybody to get a living. A community where one or two men are wealthy and everybody else is hard up, is not a good place to live. I would not want to bring up a family of boys in such a neighborhood. Those two men who are wealthy, may be good men, they may wish everyone well, but do the best they can, their service in the neighborhood can never compensate for the loss of that sense of manly independence which comes from having a whole community of people who are doing fairly well. In such a neighborhood, there is encouragement for a young man to stick to the farm. There is opportunity for those social and educational privileges which add to human happiness, by encouraging clean, helpful living.

Cooperation of any sort tends to produce such results if the ends sought are right.

There is not the least doubt about the advantages of cooperation in dairy communities, and it is the hope of the writer that a number who read this article, may think over the matter seriously, write to the Michigan Agricultural College for help, to form such an association.

Oceana Co.

W. F. TAYLOR.

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SHOCK CORN IF SILO IS NOT READY.

Every fall numbers of farmers are delayed in getting their silos completed and find it necessary to cut their corn and shock it before the silo is ready to use, in order that the corn may not become too ripe. Other farmers are interested in refilling their silos after the contents have been fed out. Both instances require that shock corn be put into the silo if the silo is used. The University of Missouri College of Agriculture has investigated the possibility of using shock corn for silage. During the fall and winter of 1913-14, three small silos were filled with corn fodder at different dates and with varying amounts of water. Visits were also made to ten or twelve farmers who were using silage made of shock corn and samples were analyzed.

The opinions of the men who had used silage made of shock corn may be summarized as follows: (1) it is a satisfactory feed and animals find it more palatable and appear to do better on it than when fed shock corn; (2) silage made in this way is not equal to that made by putting corn into the silo at the proper stage; (3) refilling a silo in the middle of the winter with corn fodder prevents the loss in feeding value which occurs, especially toward spring, when fodder is left in the shock; (4) it is more convenient to feed from the silo than from the shock; (5) cattle eat more of the stalk when it is in the form of silage, thus conserving a large amount of feed which, as shock corn, would be wasted.

It is doubtful if putting dry corn fodder into the silo will ever become a general practice on account of the large amount of feed which, as shock corn, would be wasted.

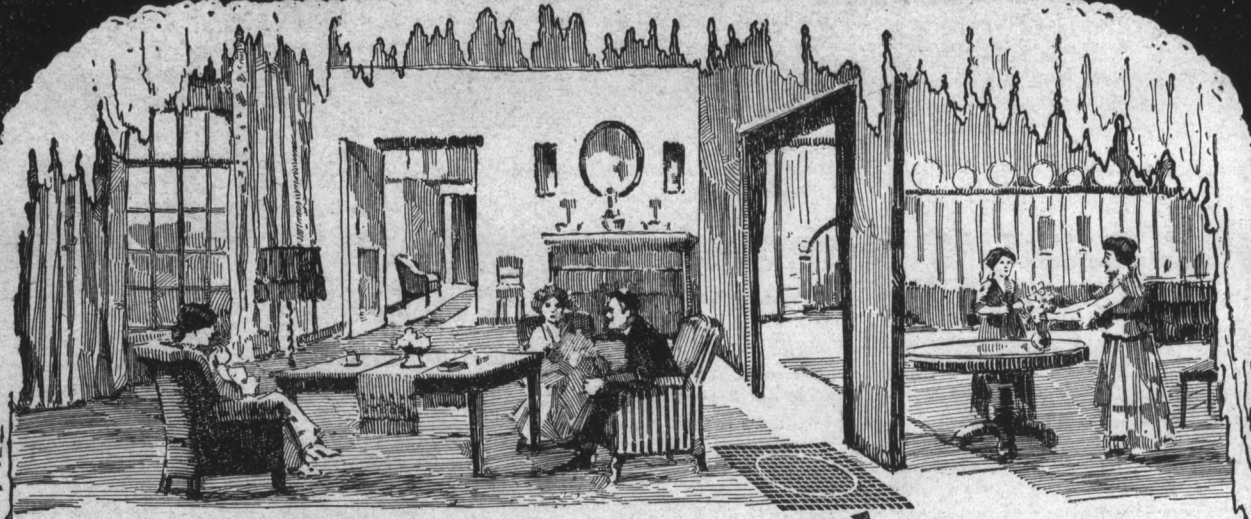
It is doubtful if putting dry corn fodder into the silo will ever become a general practice on account of the large amount of water which is required to put it in proper condition. On most farms it is entirely out of the question to consider putting the dry corn into the silo because of not having an abundant and convenient water supply. The studies made at the Missouri College of Agriculture with different amounts of water show that the corn which has stood in the field until it has thoroughly dried requires about a ton of water for each ton of corn fodder. This amount of water gives the silage about the normal composition found when corn is put into the silo at the right stage. If, on account of wet weather, the fodder is damp at the time of filling the silo, the amount of water may be reduced a little but if this amount is much less than equal parts with the fodder used, more or less mold will develop in the silage. Failure to add enough water was the most common fault found with the silage made from corn fodder in the ten or twelve silos visited.

More or less silage will decay at the top unless the silo is sealed over or unless feeding is begun soon after filling. To prevent much of this loss, some farmers seal the silo with three or four loads of green corn from which the ears have been removed, some use other sorts of heavy green crops, while still others use sawdust satisfactorily. In every case it is advisable to soak this covering thoroughly with water and tramp it regularly for several days after it has been placed in the silo.

THE NATIONAL DAIRY SHOW.

The National Dairy Show will be held this year at Columbus, Ohio, October 18-27. Elaborate plans have been made to make this show a decided success in every department and it will be worth the while of everyone interested in dairying to attend. Food conservation and its relation to dairying will be given special attention.

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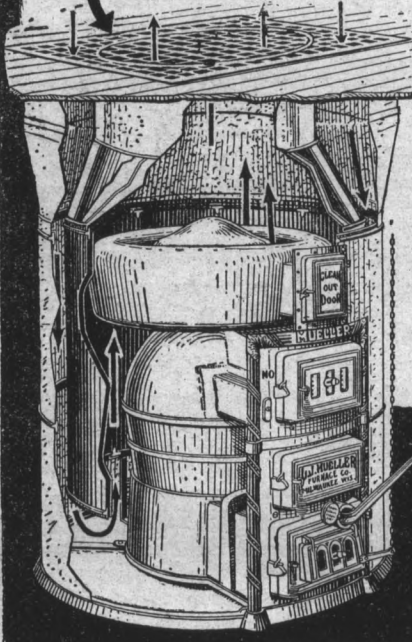
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Barn Ventilation In the U.P.

By ROSWELL G. CARR

I ONCE considered taking a job in a dairy in Northern Minnesota and I was advised against it by a prominent live stock man. He said when you open the stable door on some thirty-below-zero morning the steam that bursts forth will push you over. And since coming to the upper peninsula of Michigan I have seen exactly that condition. The barns are built very tight in order to protect the cattle from the severe cold. When no provision is made for ventilation the air that is confined in this almost air-tight chamber is breathed in and out, over and over, by first one and then another of the usually large number of cattle in the building, and finally becomes heavily laden with moisture. When the door is thrown open this air, coming in contact with the low outside temperature, forms a white fog. To be sure, some are able to keep the stable quite warm by this method, but I doubt if the moist air at a slightly higher temperature is as comfortable as a dry air at a lower temperature. A proper system of ventilation will remove the moist air and consequently the foul air without lowering the temperature remarkably and thereby have a purer, and I believe, more comfortable atmosphere.

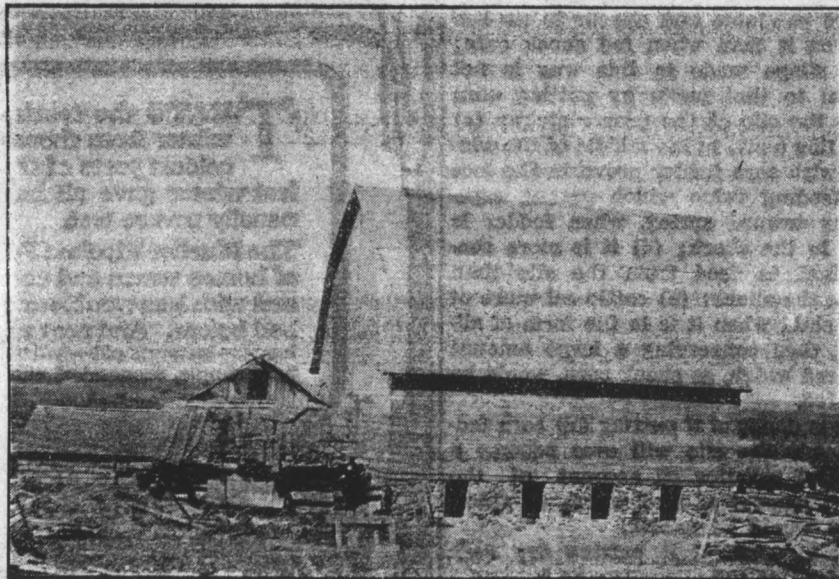
The barns here in the upper peninsula that are not ventilated gather quantities of frost on the walls and ceilings, formed from the moist air by low temperatures. This thaws in the spring, runs down the walls and drips from the ceilings. The barn is in a nasty condition from the time cold weather sets in until the cows go out to pasture. The well ventilated barns have no frost on the walls. I have in mind two bunches of steers brought into this county for pasturing purposes a year ago, and wintered over. One bunch of one hundred head were kept in a well ventilated, well lighted barn and not one died during the winter; another of some fifty head in a barn with no ventilation and poor light, lost twelve head. I saw them turned out one morning to water when the temperature was twenty-six degrees below zero and they were actually wet all over. They were very uncomfortable. The difference in the way the two herds came through the winter seemed to me to be due entirely to the ventila-

tion. The feeding and care was very similar—in fact, I would trust cattle to the man who handled the steers in the bad barn before I would to the other. The steady cold weather seems to be at least as favorable for live stock as the changeable weather, but housing against low temperatures and providing no ventilation does not get good results.

Ventilating the barns proves such an advantage that a large number of our farmers are doing it. They realize that this is a live stock country and as fast as they can are taking advantage of our natural conditions, putting in the stock, raising crops to feed them and building good barns to house them. The accompanying picture shows the old barn and the new of one of our men. The old one is low, dark, damp and filthy. The new one is high for

thick, the barn is warm. The air intakes are tubes built of rough boards and set in the masonry as the wall was built. They open outside above the snow line and on the inside at the stable ceiling. The air outtakes are built of two courses of lumber with paper between and run from the stable floor up the wall and between the rafters to the peak of the roof, they are tight and will keep the air warm till it gets out. Ten per cent interest on this investment in ventilation will not amount to fifty cents per head per year for the cows, the barn will hold, and everyone of them will give at least \$1.00 per month more returns throughout the winter. And that is not all—if there is any place that tuberculosis and other live stock diseases will thrive and spread, it is in a warm, damp, unventilated stable. And the live stock farmer who doesn't take such diseases into consideration before he gets them sure will have ample opportunity to afterwards.

Poorly constructed ventilating sys-



A New Barn Beside the Old Stable on an Upper Peninsula Farm.

hay, with plenty of windows for sunlight and has a good system of ventilation. The stone wall is two feet and build it right the first time.

Housing Farm Animals

By I. J. MATHEWS

THE time of year is fast approaching when all the animals on Michigan farms must be housed and this matter of stabling is of some importance. The arguments on each side of the question must be weighed and each given due consideration in planning for the comfort of the animals and for the pocketbook of the owner.

Among stockmen today there is quite a dispute as to how warm the stables should be for different animals, and this question is answered largely by the type of animal and by the requirements which are made of them. It is very true that cold animals will use up the body flesh in furnishing warmth and the flesh thus used up can only be replaced by good food which is expensive. Carbohydrate feeds do not generally range as high in expense as the rich protein feeds, but present prices are very high indeed. It seems then, that any precaution or extra care in housing will be well repaid by the ease of keeping which will result. It costs somewhat more to winter a feeder steer over and keep him growing if he is kept out doors in the cold, than as though he is sheltered from the elements. Then there comes the valid argument that the labor involved is one of the greatest costs in any of the farm activities and so the problem of the feeder is to balance these things over against each other and decide which will prove the most profitable.

With fattening stock, especially where labor and building materials are high, feeders find it more economical to use the open shed for their stock.

This reduces the labor for the forage and grain can be easily distributed to the stock and the labor of removing the manure is reduced to the minimum. Of course, more bedding must be supplied in this case, but that is a small matter when compared with the other considerations. Added to this, the open shed which affords protection for the animals in inclement weather is also a factor in conserving the manure product. The more nearly the air can be entirely excluded from the manure, the more perfect will be its preservation and for this reason, the constant trampling of the stock keeps the fertilizer elements from passing off and prevents fire-fanging.

Dairy Cows Must be Kept Warm.

The moment we pass from fattening animals to dairy cattle, the problem becomes altogether different and the solution must assume another angle. Since the product of the cow is largely protein and fat, she cannot do her best at milk producing and at the same time use up a large amount of the food which comes into the body for supplying heat. She cannot be expected to do this; the good cow usually does one or the other, but seldom proves very successful at both the same winter. Cows that are forced to stand out in the cold usually commence to go dry when cold weather comes on, and while it is not true that housing is all there is to making a cow give milk, it is true that it influences the milk flow to quite an extent.

The exact temperature at which the dairy barns ought to be maintained is (Continued on page 312).

Weaning the Colt

It is now time to wean the colts that were foaled during April and May. It is detrimental to both a colt and its mother for the colt to suckle after six months of age, especially if the mare is in foal again. If the colt has been properly handled previous to this time the weaning will not be much trouble. Indeed, in many instances, colts that have learned to eat at an early age will practically wean themselves if they are given regular feeds of oats and bran right along. All colts should be taught to eat oats and to nibble at hay as soon as they can be induced to do so. Even though the fact that it has learned to eat does not cause the colt to wean itself, the taste for food which it has acquired will enable it to go through the weaning period without suffering the setback which colts receive that have not learned to eat readily before being weaned. The colt that has always been dependent upon its dam for its principal source of sustenance is sure to fall off somewhat when deprived of this suddenly.

The colt should be taken away from the mare when between five and six months of age. In order that the weaning may be accomplished with the minimum of discomfort for both colt and dam, commence the process gradually. Allow it to suckle for a short time twice daily for a week or so, then once daily for another week, at the end of which time it should be weaned entirely. The dam will then be secreting no large quantity of milk, but she should receive some special attention for a time. Feed dry, non-heating foods which will tend to check the milk flow. Draw the milk from the udder only often enough to prevent inflammation from setting in. If it can be arranged a complete rest for the mare until she has dried up entirely is desirable. But if she must perform work, avoid getting her hot.

Feed a Grain Ration.

The colt requires some feeding in connection with its pasturage. A pound of grain daily for each one hundred pounds of live weight should be given. A good grain ration is composed of one-fourth corn, one-fourth bran and one-half oats, or one-fourth corn, three-eighths bran and three-eighths oats. Crushed oats are to be preferred to whole oats. A feed box in which to place the feed can be put in the pasture field if other stock will not interfere with the colt while eating. In late fall as the pasture grass grows short it should be supplemented with clover or timothy hay, all the colt will eat. The colt at pasture should have access to drinking water regularly. If there is no drinking water in the pasture field, turn the young animal in to the water trough just as regularly as the work horses are turned to water.

When the nights become cold and frosty the young colt should be sheltered each night, but allow it its liberty again the following morning. It never pays to confine a colt unnecessarily, as it needs lots of exercise, fresh air and plenty of good feed in order to develop bone and muscle and to grow into a large shapely animal. Half of a horse's growth is made during the first twelve or fifteen months of its life, hence during this period the aim should be to secure a uniform and proper development of all the parts of the young animal. Keep the colt in a thrifty, growing condition every day during its first winter. Feed liberally; it is costly economy to stunt the colt by stingy feeding. The growing colt should never be in high flesh, however, but just in good growing condition. By good management an ordinary colt can be made to grow as large as either dam or sire. Feeding colts is like feeding any other class of stock: Good judgment must be exercised by the feeder at all times.

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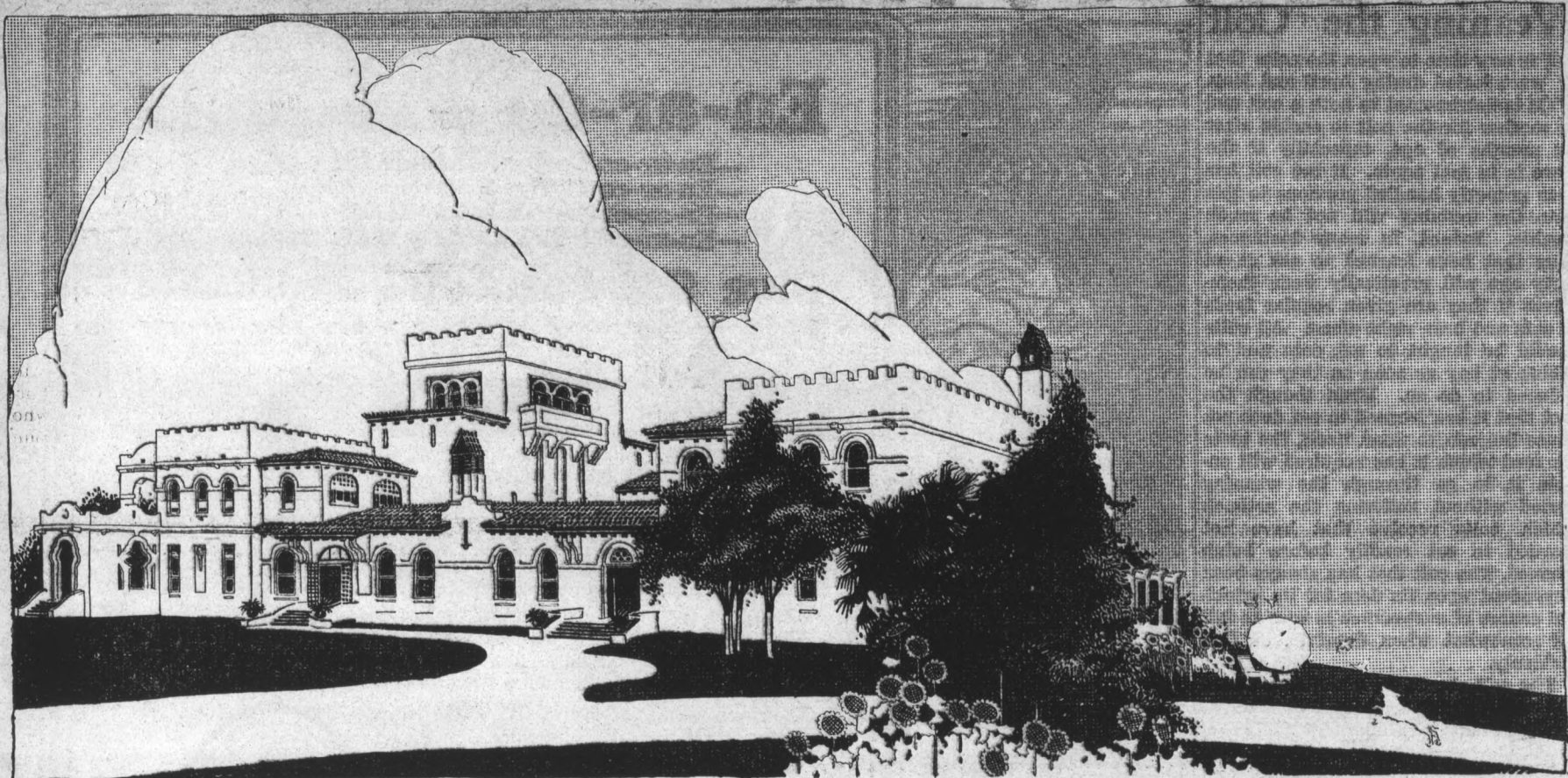
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THE individuals who blazed the trail along which wealth and prosperity daintily picked their way through the wilds of Michigan were men and women of spunk, bravery and fortitude. They were self-trusting and could wait quietly until their feet sank so deeply into the plastic clay of our early history that the ruthless hand of Time can never obliterate their footprints. Among these dauntless pioneers should be enrolled the names of Colonel John Amsley and his splendid wife, of Marengo, Calhoun county.

In the year 1831 they came to Michigan from their home in Pennsylvania. They aver that they were victims of "Michigan fever" which spread entirely over the east and carried hundreds of men and women away to the wild,

forbidding territory of what is now our beautiful state. Mr. and Mrs. Amsley were in the full vigor of youth, and favored with splendid constitutions, and these were their only fortune. They made a sale of all their belongings saving only a "salt dish and a few bed clothes." When they started for the then far west, their only possessions consisted of a chest of carpenter's tools, a daughter less than one year old, and three hundred dollars in the coin of the realm.

It is needless to say that it required a great deal of determination to say good-bye to family and friends, perhaps

for the last time, and take a farewell look at everything dear and familiar. On their way to Detroit, they stopped over Sunday at Scottsville, New York, and heard a sermon, the last they should hear for many months to come. Arriving in Detroit, they had the good fortune to meet a man who was on his way to Battle Creek, where he had located. This gentleman advised them to settle in Calhoun county, as he believed the region had great possibilities and time has demonstrated that there was good reason for the faith that was his.

Mr. and Mrs. Amsley had no con-

veyance of their own and there was no stage, interurban or jitney service in the direction they wished to go. Fortunately, they fell in with a man who was moving to the vicinity of Calhoun county and an arrangement was made with him to haul their trunks, Mr. Amsley to proceed on foot and Mrs. Amsley to ride when convenient and the roads were good. It was under this arrangement that they left Detroit in the hope of soon beholding the beautiful plains undulating gently down to magnificent forests, of which eastern people had heard so much. But disappointment lingered just around the corner. The roads were abominable, the water unfit to drink and the land like anything but that of their dreams. The weather was hot, the wee daugh-

(Continued on page 302).

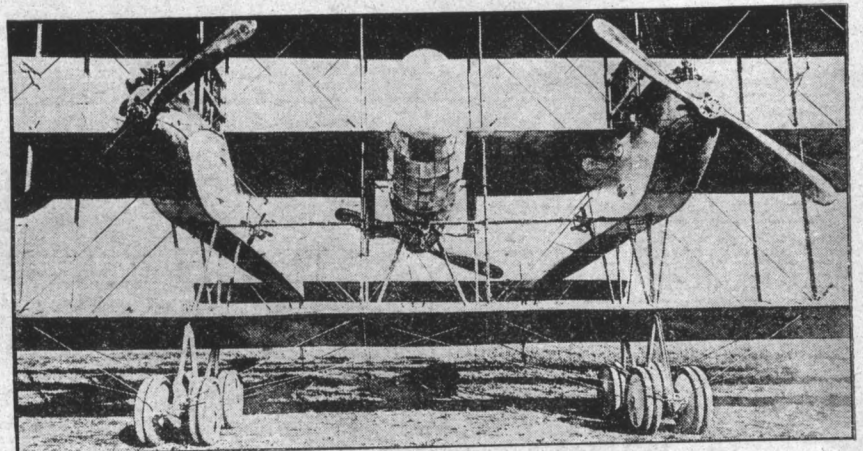
Pioneering In Michigan

By MARY L. DANN

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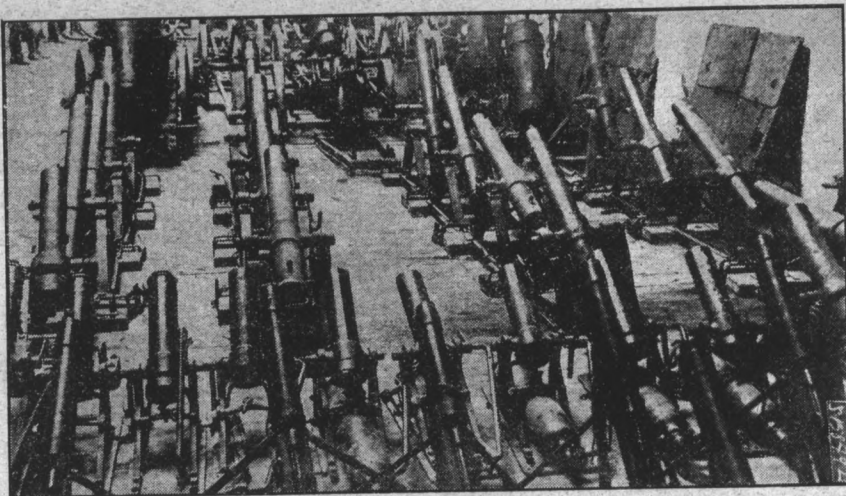
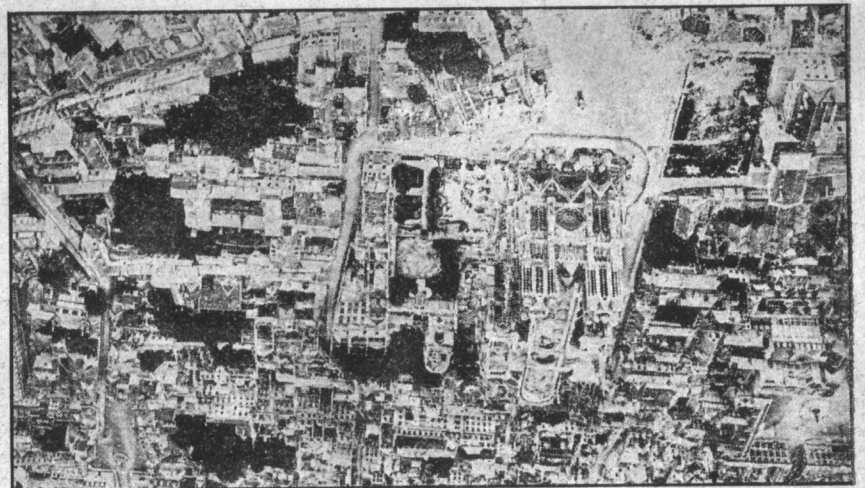
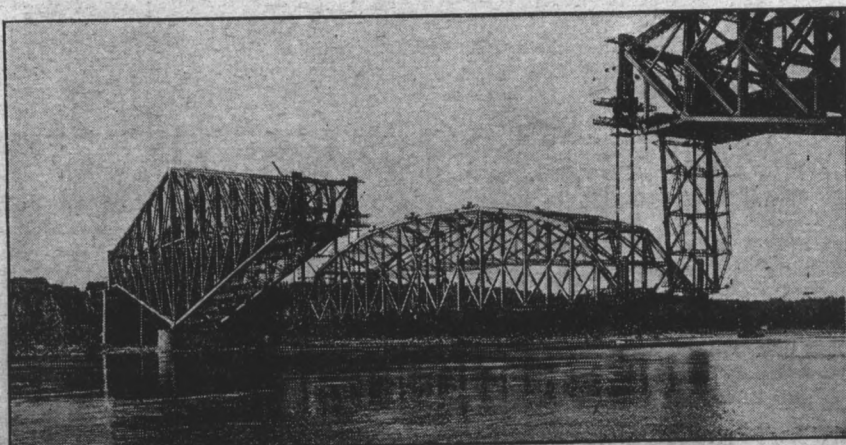


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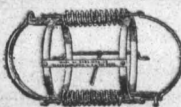
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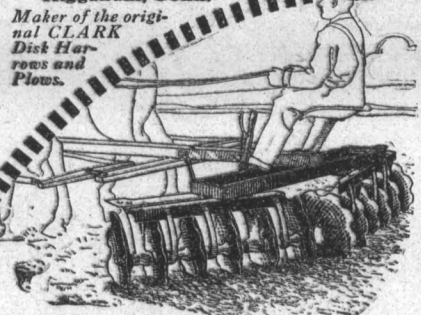
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"Contraband" RANDALL PARRISH

"Who is it?" Low as the whisper was, I felt convinced the speaker must be Leayord.

"Hollis. Stand by now; are you alone?"

"Yes; Olson and Masters are together in the bosun's quarters."

"Masters! when did they lock him up?"

"About an hour ago; he made quite a fight of it—that's how I knew what was going on, sir. Can you get me out?"

"Aye! I'll rip this bar off in a jiffy. Have you a light in there?"

"Black as the inside of a whale's belly, sir."

I got a purchase with my iron lever, and put my full strength to it. The bar was of oak, but the jambs soft pine, and the nails drew out, creaking slightly, but making no noise to create any alarm. It was so intensely dark that I could not even perceive the outlines of the man's figure, yet felt aware that Leayord fronted me in the open door. He found my hand somehow, and gripped it.

"I'm sure glad to meet you, Captain," he exclaimed heartily, "and get out o' that hole. I feel as if I'd been stuck there a month. What's the word, sir?"

"Release the others, and get busy; minutes are worth hours now."

"But tell me what's up, sir. I'll work better if I understand the game."

"Only this," and my tone revealed my impatience, "McCann and his gang are deserting ship; they have the boats provisioned, and along side already; that is why the guards have been withdrawn."

"They were going to leave us aboard locked in?"

"Aye, and with the sea-cocks open; dead men tell no tales."

He whistled, his fist smiting the wood of the door.

"The hound! And where are we, sir?"

"Off the Newfoundland coast; they think less than fifty miles, but there's nearly a hundred miles of blue water to the west of us. Here's the way of it in a nutshell: McCann compelled me to take observations; then when he thought he had the ship about where he wanted it I was locked in my stateroom the same as you. It was Miss Carrington who gave us our chance. She became friendly with McCann, and agreed to go with him. She was left free on board, and managed to release me while the crew were all on deck. The steward was left on watch in the cabin, and she had to hit him with this iron."

"She did! Lord, I'd never have thought it of that slip of a thing."

"We've both of us got plenty to learn about women yet, Leayord. But we can't stand here and talk; there's work to do."

"Aye, sir; and I'm fit and ready; but what's become o' the girl?"

"She's in her room, waiting for McCann to come down for her. She'll delay him all she can. Is this the door?"

"Aye, aye, sir; give me the iron."

He was not a minute at the job, and it required scarcely longer to acquaint the other two released men with a knowledge of the situation. Olson picked up the bar of wood for a weapon, asking simply:

"Vat we do now, Captain? Is it too fight?"

"Hush!" whispered Masters, "there's someone coming up the ladder."

We crept back into the bosun's stateroom and waited breathlessly. There was scarcely room for the four of us, and the door caught, and would not wholly close. A dim light reflected along the walls of the passage, making me aware that the fellow who was

slowly climbing the iron ladder from below, had a lantern with him. Leayord retained the iron leg, and I drew my gun, holding it tight gripped in one hand. The man's head and shoulders emerged through the round opening, and his fingers reached for the cleat which would help him to swing over to the deck. The dim light enabled me to recognize Tom Dugan. He paused on the edge, looking down.

"All quiet enough up here," he called. "You better draw the fires, Tony."

"No use o' that," answered a sullen voice from a distance. "The water will fix them in half an hour; there's two cocks open. I'm goin' on deck; that dirty millionaire don't git no chance ter drown me."

Dugan laughed.

"Always a thinkin' how to git out of a scrape safe. Yer got yer price, didn't yer?"

"Enough ter make me want ter live long enough ter spend it, anyhow. Are you comin' down this way again, Dugan?"

"No; I'll have a look at the cabin on my way up; the boss doesn't want any mistake made. You better climb out, Tony; the boys are mostly in the boats now, and thar ain't no more room than we need. There's nuthin' left ter do aboard this hooker; she's ticketed for Davy Jones."

He stared below a minute, as though to make sure of what Tony was doing down in the engine room; then, apparently satisfied, swung to firm footing on the deck of the passage, flashing his light aft. The radius was small, and his glance must have revealed nothing strange, for the fellow whistled softly as he advanced. His cold callousness to the fate of the men whom he supposed to be helplessly confined in the rapidly sinking hulk, angered me, a sudden rage almost causing me to give utterance to an oath.

He was almost at the stateroom door behind which we were hiding before he even noted the absence of the wooden bars which had confined the prisoners. He stopped, a look of amazement on his face, the lantern swung higher to throw the light forward. Before he could move a limb, I had stepped forth into the radiance, the muzzle of my revolver held within three inches of his eyes.

"Don't drop your hands, Dugan," I said sternly. "Not an inch, you brute. Here, Leayord, take the lantern from him. Move quietly, all of you. Now, Olson, if there is a sheet in there, or anything you can make a cord out of, bring it to me—yes, take the lantern a minute. Good! that will answer; now lads, make it strong, a sailor's knot."

Dugan sputtered and swore under his breath, but the shock had robbed him of all power of resistance. I never saw a more amazed look in a man's eyes. He stared at us as though we were ghosts raised from the grave to haunt him.

"Anyone below beside Rapello?" I asked, gripping his shoulder so as to make him look at me. "Answer now, or I'll take means to make you."

"No."

"No, what, you fool! You are speaking to the captain of this ship."

"No, sir."

"That's better; you were the two last men left aboard, I take it; it was your job to open the sea-cocks?"

He nodded sullenly, as I dug the revolver deep into his cheek.

"You dirty murdered! where did you leave McCann? Twist his neck, Leayord, until he finds his tongue."

"On deck," he sputtered, "close by the companion; he—he was going down to the cabin after the girl. Tony was the only one left in the engine

room, and I was sent along to see that he left the cocks open."

"The boats were all over the side then?"

"Yes, sir."

"How many of them?"

"Four."

"Where were they?"

He set his teeth, but the pressure of Leayord's fingers compelled an answer.

"Three o' them had got away, lyin' maybe a hundred yards out, and the fourth was still at the ladder, waitin' fer us to come over the side."

"This last one was McCann's boat, who were in it?"

"I didn't look ter see, sir."

"Maybe not, but you know just the same. The men were all picked for the boats. Give me the names."

"Well, thar was Liverpool, White, Dubois, Tony an' myself, the nigger, Watson, an'—let's see, Joe Sachs."

Seven—with McCann and the girl—nine; not overloaded surely, and quite a picked company, worthy their chief. The other boats held more?"

"About twelve men each, sir."

Leayord's eyes met mine in silent understanding. He was seaman enough to instantly grasp the purpose of the unequal division—the lighter boat would be the better sailor, the easier operated in a heavy sea."

"Which boat was it you fellows chose?" he asked.

"The port-quarter boat."

"I thought so. What'll we do with Dugan, sir?"

"Throw him into the bosun's bunk, and then nail up the door. We'll give him a dose of his own medicine. Move lively; there's another job waiting us on deck."

CHAPTER XXXII.

We Capture the Ship.

THEY were in no way gentle about it, yet the work was noiselessly done, and with sailor-like thoroughness. Dugan undertook to curse, but was so instantly gagged that only the first muffled word reached me in the passage. Masters held the lantern, while the two mates refastened the door, driving home the nails with the iron bar. The moment this was secure I was ready for the next act.

"Give the lantern to Olson, Masters. You've got to look after the engineroom, and leave us to attend the deck job. There'll be those sea-cocks to see to first, and then keep enough fire under the boilers for steerage-way. Down with you, and don't pay any attention to whatever we do."

Heavy as he was he went down the iron rungs of the ladder like a fireman answering a call, and the three of us who were left behing in the passage, stared into each other's faces, barely visible in the dim radius of light.

"What next, sir?" asked Leayord anxiously. "There's only three of us now, an' forty-three o' them."

"One less—you're counting Dade, and he's safe enough. The Moon boy don't count, and I imagine there are twenty men out in those boats who have no heart in this business. They'd be with us now if they had any chance—isn't that so, Olson?"

"Yas, sir—but they won't likely get no chance."

"True enough; yet it is something to know that McCann and his gang cannot count on them either, if it comes to a fight. As things stand it is all a matter of luck and nerve. Three of the boats, with thirty-six men in them, are afloat, and far enough away, if it is a dark night, so that the ship is little more than a shadow. Those lads will see nothing of what takes place on board. There are only six in the boat hanging to the foot, of the ladder, with McCann left alone on deck. We ought to be able to handle that bunch."

Leayord dug the iron bar he held into the deck planks savagely.

"What did yer tell Masters to only

keep up enough steam for steerage-way for, sir?" he asked bluntly.

"I was afraid they might notice, if he fired up."

"Tain't likely, so the funnels don't git ter blazin'. The only fellers with any brains are in that boat close in alongside, sir, and they can't see nothin' from there. Them common fo'castle rats in them other boats never would notice a bit more smoke."

"What is it, Leayord? You have a plan. Speak quick, man; we can't stand talking here."

"Tain't not much of a plan, sir," he explained briefly, "only I don't see why we couldn't just naturally heave this cuss McCann overboard, or else kill him, just as you please. Eny two of us could keep that quarter-boat crew from coming up the ladder, and then, if Masters had his boilers het up, no rowboat could ever catch us. That would leave us one hand at the wheel."

It was true, the very simplicity of it making me curse my own stupidity. I stared into his face without uttering a word of comment, yet with my mind grasping instantly the necessary details. With a single step I was bending over the ladder peering down into the depths below. A faint far-away light appeared at the bottom.

"Masters," I called, my voice thrown downward through hollowed hands.

I saw his shadow emerge into the circle of light.

"Aye, aye, sir."

"Have you any pressure now?"

"Fairly good, sir."

"Well, stand by for all the steam possible, and give it to her the instant you get the signal—only be careful not to flame your funnels. You hear me?"

"Every word, sir."

"How did you find the water?"

"Ankle deep in the engine-room, and the bunkers fairly flooded. It's drawing off a bit now. There's no great harm done, sir, and the wet coal will give me full steam in a jiffy."

"All right, stand by, and don't fail."

"Now lads," I said, standing erect.

"First it's the after cabin, and then the deck. Douse the glim, Olson; we're better off in the dark. Follow me, and mind your footing."

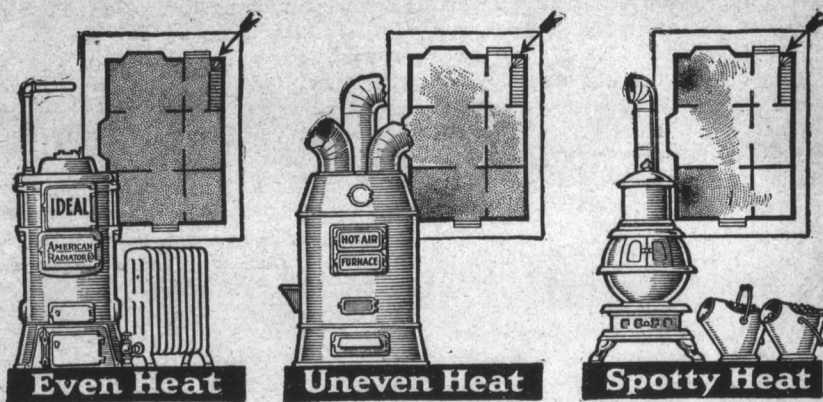
The gloom was no handicap in that narrow space where we could feel either wall with our fingers, but I emerged into the cabin with caution, fearing the possible presence there of McCann, who might even have brought a man, or two, back on board to assist him. The hanging lamp had been extinguished, or else it had burnt out from lack of oil, but there was a faint glimmer of light in Miss Carrington's stateroom, enabling me to discover at a glance that the main cabin was unoccupied. Her door stood wide open, but with no signs of confusion within.

What had happened? There was nothing to tell me the truth. Had McCann succeeded in inducing her to accompany him on deck? Had he taken her there by force, or had the girl finally yielded to his insistence, after exhausting every form of delay, her last faith in my return having vanished? Nothing remained but to follow them, and find out what had occurred and, if not already too late, attempt a rescue.

"There's no one here," I said in a whisper. "We'll try the deck; quiet both of you."

We reached the head of the stairs on our hands and knees. I had my revolver in my fingers, Leayord his iron bar, while Olson had found a hatchet somewhere in the darkness. The companion door was but half closed, and I squeezed my body through the opening, assured no one occupied that immediate portion of deck. The other two followed noiselessly, and we huddled close together in the black shadow of the cabin. So still it was I could hear their breathing, and my eyes, trained by long service in the darkness below, were able to distinguish objects forward beyond the mainmast. There was nothing living visible; to all appear-

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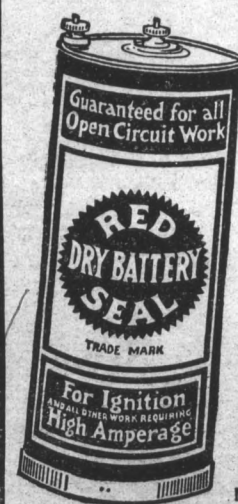
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ances the ship was totally deserted; the last stragglers had taken to the boats. It was a black night enough, but with scarcely a breath of air stirring, and only a slight roll to the sea. The ship rose and sank rather sickeningly as in the tropics, the loose cordage slapping heavily against the yards aloft. I could only catch the gleam of a single star overhead, and the obscuring clouds hung low, and unbroken. It seemed to me the heavy atmosphere prestaged a storm before many hours; there was a sluggishness to it most unusual in that latitude. Olson, who lay next me on the deck, jerked my sleeve.

"There's two of 'em," he whispered. My eyes caught the indistinct outlines, unable for the instant to make them appear human. Indeed I was still in doubt when McCann's voice, with the old hateful sound in it, called into the darkness.

"Below there; are you still fast?" "Aye, fast enough, an' blamed tired o' holdin' on," grumbled someone below testily. "Why don't yer come along down?"

"In a minute. Is everyone in the boats?"

"I don't know nuthin' 'bout the steward; nobody ain't seen him yet, 'less he got in somewhar else; nor Tom Dugan. Tony sez he's in the cabin."

"Well, he isn't; I just come up from there. We won't wait for the fool any longer. You flooded the engine-room, Tony?"

"Sure I did, with both cocks wide open; there's five feet o' water in her by now."

"Good; then it's time we're off. Send a hand up here to help me, Liverpool—the girl won't go along."

The men below laughed. "Can't yer handle that little bit o' thing, mister?" sang out a new voice, "without the help o' a sailor man?"

"Stow it, Joe Sachs," roared Red, and there was the dull thud of a fist blow. "Now up yer go to give the lady a lift, me lad. Jump er I'll take the tiller ter yer next."

Sachs must have started his upward climb, for McCann drew back from the rail, and, as he did so, the girl broke free from his grasp. The man, however, although apparently taken by surprise, was quick enough to get between her and the companion. She only escaped the grip of his hand by shrinking back against the rail. I was already on my feet, and, as McCann wheeled about, we fronted each other. What he thought I may never know, but the shock of thus seeing me must have momentarily paralyzed the fellow and his mouth remained wide open. But I gave him no time even to utter a cry of alarm, my only thought being to rid the deck of such scum. Before he could move to escape, or even throw up a hand in self-defense, I had him by the throat, my other hand twisted in his waistband. He was a man nearly, if not quite my own weight, yet, at that moment, mine was the strength of a giant, and with one mighty effort I lifted him clear off the deck, as helpless in my grip as if he had been a child, and, with one desperate heave, swung him out over the rail, and let go. I staggered back, weakened for an instant by my own violence; I heard him cry out, the sound muffled in his throat as he fell; Vera gave utterance to a sob, and the whirling body struck the black water below with a splash plainly audible. Still gasping for breath, I leaned out and looked down. The only light was a lantern held up in the hands of a man in the boat at the foot of the ladder. I could see his face, and the dim figures of three or four others; beyond that narrow radius all was black. I could not even perceive Sachs, half way up the ship's side, yet I knew he was there, clinging tight, because of the tautness of the rops strands. There was no need to conceal the facts longer; we must fight in the open now.

"Leayord, come here," I ordered.

"And you, Olson, take the wheel, and ring the engine-room for full speed ahead. Jump into it lads." I sent my voice below, stern with threat.

"Get down that ladder, Sachs, just as quick as the Lord will let you. Let go, you man with the lantern, or we'll swamp you alongside. Do you hear the steam, Liverpool? It's full steam ahead, you fool!"

It was Red's voice which echoed back:

"Is that you, Captain? What happened? Who went overboard?"

"McCann; he's astern of you, and you better pick him up as you go. Move quick! You haven't a second to lose. Let go, man, you'll be sucked under, if you don't let go!"

They were seamen enough to realize the imminent danger of their position. Liverpool and White both called out, and the others, grasping their oars, backed water furiously. I saw Sachs tumble back into the boat, and a face or two staring upward. Voices roared at us, the fellows cursing lustily; then the darkness seemed to swallow them completely, and I knew from the tremor of the deck planks that we were under way. I sprang to Vera, and lifted her to her feet.

"You are not hurt?"

"No, only frightened and bruised. He threw me to the deck. Are we safe? Have they all gone?"

"Yes, all who can make any resistance. Hold her just as she is, Olson; there's a bone in her teeth already; it will take more than oars to overhaul us. Does anyone know if those fellows picked up McCann?"

"I think most likely they did, sir; they was swingin' the lantern alongside."

"Bring me the night-glasses, Leayord—they're on the shelf in the captain's stateroom."

He returned with them before I had finished whispering a word of hope into the girl's ear, but even that short time had so broadened the expanse of water I could conceive few details through the lens. Three of the boats were close together, bunches as though their occupants were still unaware of just what had occurred; the fourth boat—the one we had just left, no doubt—was much nearer, and must be entirely out of sight of the others. I got it fairly within my focus, but the occupants were indistinguishable at that distance; all I could be sure of was that the fellows were engaged in rigging up a jury mast for a sail, and that they were no longer attempting to pursue us, or making any effort to rejoin the other boats.

"Do you see 'em, sir?" asked Leayord, impatience overcoming him.

"Yes; Liverpool's boat is out there, heading due west, and the men are rigging a sail."

"And the others, sir?"

"To starboard, at least a quarter of a mile away."

"That's the game, then," he said, staring out into the blackness as though he saw it all. "Them fellows don't care what becomes o' the first three boats so long as they git safe ashore. I'd bet they rather they wud drown than not. I wonder did they pick up that millionaire?"

"No reason why they shouldn't. He must have struck within ten feet of the boat. They wouldn't be likely to leave him behind, when he's their meal ticket if they ever get ashore."

"Where they heading for?"

"White Fish Bay."

"Well, they may git thar, if it ain't too fur. That's a good boat they're in, Mr. Hollis; an' Liverpool an' White are both sailors all right. I'll say that for 'em. But just the same they're a goin' to have ter show their train'n before many hours."

"You mean a storm? I don't like that mist myself."

"Tain't only that, sir; it's in the air; you kin sorter breathe it like. Besides I took a squint at the barometer

when I went below—it's fallin' ter beat the band."

"Then we better look to our own safety; we are far too short handed to stow sail before a wind."

"I reckon there ain't so awful much to stow," with a glance upward into the blackness aloft. "There's only the jib, sir, left on her; an' she needs that, or else no one man could ever hold her wheel. Likely enough we may have to reef that canvas if it blows great guns; besides Masters can't git along alone down below; he'll have to have a fireman."

"All right; there are two men below deck now you can rout out and put at work."

"Two, sir?"

"Aye, Mr. Leayord—Dugan and the steward. The latter you will find in one of the staterooms aft; here is the key. I leave it to you to persuade the fellows to take hold."

"I'll do that, sir, with pleasure; and maybe, come the need, even the owner would give us a hand?"

"We will not count on Mr. Bascom; he could scarcely keep his feet in a seaway," I answered firmly. "But we have one more in the crew, nevertheless—Miss Carrington, here."

"The lady, sir?"

"Yes," she broke in eagerly. "Captain Hollis knows, Mr. Leayord, for he has tested my seamanship. I could take the wheel such weather as this. May I not relieve Olson now?"

"Yes," I said, feeling it best to encourage her enthusiasm, and truly possessing faith in her capability to handle the ship. "I'll keep you there while we get snugged away. Mr. Olson!"

"Aye, aye, sir."

"Let Miss Carrington relieve you. Stand by a moment until certain she has the trick of it; and then come forward."

"Aye, aye, sir," but less heartily, a strong doubt in his voice.

"It's all right, Olson; she'll hold her this weather. Now, Mr. Leayord, bring the other two men on deck."

CHAPTER XXXIII.

We Sight a Boat.

WHAT immediately followed; how we made ourselves shipshape the best we could, and held on for the next few hours, has comparatively but little to do with the interest of this story. I know I worked as hard as any of the others, convinced by a hasty glance at the steadily falling barometer that the time was not long absent when we would be struggling for life in the grip of a storm of no ordinary severity. Even without that guide, the increasing ugliness of the sky was sufficient warning to one accustomed to the moods of the sea. Yet, work as I would, the one dominant memory, as I look back now, is that of the slender figure at the ship's wheel, barely visible to those of us on the main deck below, as outlined against the slightly brighter sky, her hands gripping the spokes, her hair and skirts flapping in the wind. More than once I hailed her anxiously, fearful lest the sea, which was steadily rising, should make the strain too heavy, but only to receive cheerful response, and a refusal to be relieved. And there was so much to be done, I was not insistent.

Leayord brought the two men on deck, and as Dade was no sailor, but more likely to prove faithful, he was sent down the ladder to assist Masters in the fireroom. Dugan took the change in administration aboard with sea-going philosophy, seemingly feeling no animosity because of the rough handling received, and went to work under my orders with hearty good will. We were all four of us capable seamen, and an hour of hard work placed the Indian Chief in very fair condition, so far as deck and running rigging was concerned. We even managed to reef the jib, and take an extra turn about the stowed canvas aloft

before I felt reasonably satisfied that all was shipshape. At the end, however, standing on the forecandle, and staring aft, I had faith that we could handle the hooker, even with that small crew, and bring her safely into the harbor of St. John's. Our earlier weather predictions were not yet verified, at least to any serious extent. There was more weight to the wind, and less steadiness, while the sea was perceptibly rougher, the spray already flying above the forecandle head, and showering the deck forward. The girl had dropped us off a point to ease her arms, but the screw was working bravely, and the vessel answered to her helm like a thing of life. Indeed, there was nothing particular to worry about, excepting that temporary steering apparatus, and it had worked long enough now so as to give me confidence.

"What do you make of it, Mr. Leayord?" I questioned, indicating both sea and sky by a wave of the hand. "Was it a circular storm, leaving us outside of its radius?"

"No, sir; it's not that," and he drew the back of his hand across his lips. "Dugan an' I talked about it on the mainyard yonder, an' 'tis our judgment, sir, that it's just a slow brooder. There won't be no quick change, but the weather'll just gradually get heavier until we're scuddin' under bare poles. It'll be maybe tomorrow night before we get its full weight."

"But you have no doubt we'll weather it?"

"Barrin' an accident, sir. We had to disconnect the chains and use ropes on the rudder; the best of hemp will chafe."

"New cordage?"

"Brought up from below hatches; as good as the best, sir."

"Then it ought to stand; we've had good weather of it so far. Mr. Leayord, you and Olson lie down within call and get some sleep. We'll have to doze as we can. I'll keep Dugan forward, and take the wheel myself for the next hour."

"Aye, aye, sir; when do you expect to make that port, sir?"

"St. John's. Well, we're a bit off our course now. I'm afraid we may be another night afloat."

He stood motionless, one hand shadowing his eyes, as he gazed out over the port rail.

"I was a' thinkin' o' them poor cusses out there in the boats, sir," he said finally. "I'm betting that most o' them wish they was back on this deck by now."

"No doubt; but there's no way we can help them, and we've got our own work to do. You and Olson go below."

I watched the two disappear through the companion, spoke a word to Dugan, posting him where he could hear me call if necessary, and then went aft to the wheel. I had not realized the full weight of the gale until I reached the top of the ladder, and stood erect without any protection from the cabin. For an instant I had to grasp the side rail, shading my eyes with an arm; then I

(Continued on page 303).

IN BOYHOOD.

BY J. A. KAISER.

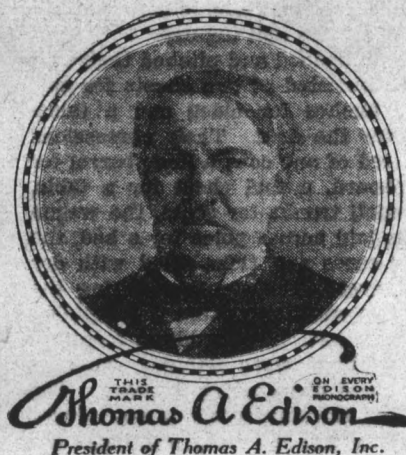
The wild flowers bloomed in beauty there,
Long paths where once I bare-foot strayed;
None since have blossomed quite so fair
As when a boy I bare-foot played.

The robin built and reared his young;
The bluebird and the swallow came;
The oriole's swinging nest was hung,
And none, since then, seems quite the same.

The grass grew greener in the lane;
The sun shone from a bluer sky;
The lark sang yet a sweeter strain;
The sailing hawk did soar more high.

The berries tasted sweeter then,
That grew in clusters ripe and wild;
And all the world seemed glorious when
I was a bare-foot, sun-browned child.

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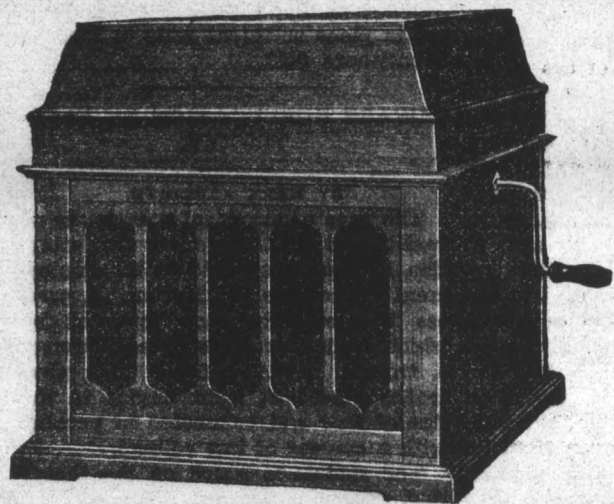
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A COUNTRY SCENE.

BY ALONZO RICE.

Now, down woodland ways a hurry
Marks the advent of the day,
As across the heavens scurry
Clouds with trailing skirts of gray;
And, there is a note of worry
In the robin's morning lay!

See! the squirrel's cheek is pouted
With the ruddy, ripened grain,
And the idea so long scouted,
Now is obviously plain;
For a night or so 'twas hinted
Mr. Frost had made a call;
Now his signature is printed,
To be read by one and all:
On the leaves of maples turning
To a deep, delicious red;
On the sturdy sumachs burning,
And the ivy overhead.

From the thicket comes the whistle
Of the bonny little quail;
And along the air the thistle
Lightly now begins to sail.
To the cider mill the golden-
Fruited store the wagons draw;
And there is the rapture olden,
Sucking cider through a straw!
Many other baskets heaping
With the orchard's ruddy store,
Bear the prize for winter keeping
Safe behind the cellar door.

Cornfields are appearing rather
Like the Red Men came to raise
Wigwams, as the farmers gather
Tented shocks of golden maize!
As the sunlight tints the tassels
Of the sheaves they homeward bring,
To no rulers are they vassals,
But each reaper is a king!

Round the stackyard pigeons cooing,
Tell of all the garnered store;
When the wintry storm is brewing,
Winds in vain assail the door.
For we know the storm's appearing
Can be reckoned close at hand,
By the lines of wild geese steering
V-shaped to a warmer land.

Few bright days there are to follow
Autumn's advent we may learn
By the southward-speeding swallow
From the rule of winter stern!

And there is note of worry
In the robin's morning lay,
As across the heavens scurry
Clouds with trailing skirts of gray,
While down woodland ways a hurry
Marks the advent of the day!

PIONEERING IN MICHIGAN.

(Continued from page 297).

ter fretful and Mrs. Amsley was obliged to walk from three to five miles at a stretch, carrying the child, who clung to her mother and would permit no one else to take her.

After two of the most strenuous days they had ever known, they arrived at Ann Arbor, where they remained for a two day's rest. They again set forth and proceeded as far as Thorny Creek. Mr. Amsley decided that it was unwise for Mrs. Amsley, with the child, to accompany him further. He rented part of a small cabin already occupied by two families, numbering nineteen in all. Mr. Amsley fared forth, leaving Mrs. Amsley to enjoy her new home as well as she could. There was but one bed in the house and that was generously turned over to the oldest member of the household, the rest stretching themselves for slumber on any spot within the cabin, that happened to be unoccupied at the time, up stairs or down.

Not many days elapsed before Mr. Amsley's return. He had found a location that suited him on the site of what is now Marengo. He had purchased one hundred and sixty acres of land and they were now ready to move to their new home. However, it was first necessary to go to Ann Arbor, a distance of about five miles, to purchase some provisions and articles for housekeeping. No team being available, they set out on foot, intending to secure a conveyance at Ann Arbor to bring their purchases back. About half the distance had been covered, when Mr. Amsley suffered an ague seizure and laid down by the roadside, shaking with a chill. The July sun was blazing, the half-sick baby wailing, and Mrs. Amsley the only person to save the day. She made Mr. Amsley as comfortable as possible and walked

on to Ann Arbor. Some hours later Mr. Amsley dragged himself into the town and was promptly put to bed, leaving Mrs. Amsley to make the purchases alone. The scorching sun was setting, a blazing red ball in the west, before Mrs. Amsley had completed her purchases. By this time Mr. Amsley had so far revived as to be able to get about and hire a team and, weary, heartsick and homesick, they started on their five-mile drive through the gathering dusk, over wretched roads, behind an ox team. To them life appeared a fierce, unequal struggle. Mrs. Amsley declares in her written reminiscences that she suffered so much from pain in her head and chest that she thought she would never live to get back to the crowded little cabin, where she could at least stretch herself on the floor and rest. Can we, as we turn out our lights and snuggle cosily in our comfortable beds, imagine ourselves wrestling victory from the jaws of defeat in the face of privations such as these?

Mr. Amsley hired a man with a team to take them to their new home and then stay and do some plowing. There were few bridges and no crossings and they were compelled to ford streams and wade marshes. As they neared the vicinity of what is now Leoni, the country seemed less forbidding, but just beyond lay a wide, turbid, slummocky swamp, directly in their path. Mr. and Mrs. Amsley had no inclination to turn back and go around and the marsh manifested no signs of moving, so straight across seemed the only alternative. Straight across they started, only to find themselves securely stuck in the mud about midway of the marsh. They climbed down from the wagon and waded across, narrowly escaping the venomous fangs of the massasaugers, with which the swamp abounded.

After the human freight was unloaded, the teamster hitched four yoke of oxen to the end of the wagon tongue, thinking to bring it out, but all to no avail. Here, indeed, was a situation. Having no idea of how far they were from human habitation, their teams and wagon mud-bound, themselves wet, weary and wilted, they sat on a bit of high ground at the edge of the swale, listening to a bullfrog singing at the bottom of his voice, and the occasional howl of a hungry wolf or the cry of a night bird shrilling the news of the arrival of these impudent invaders. However, there is generally the shadow of a rock in the weariest land, and, to their great rejoicing, there soon appeared another sojourner like themselves, driving three yokes of cattle. They enlisted his services and the entire seven teams were hitched to the wagon, which brought the leaders on high ground, and in this way they were able to extricate their wagon from its muddy moorings. They drove on to the Grass Lake House, where they spent the night.

The next morning, much refreshed and with courage restored, they again proceeded on their way, only to find themselves, before nine o'clock, stuck fast in the mud and compelled to go a half mile for help. At twelve o'clock that day they arrived at Jacksonburg, where they were graciously received by the keeper of the one hostelry the place afforded, and after a hearty dinner of green peas and new potatoes, their faith in the country was sufficiently restored to induce them to proceed. They found but three houses between Jackson and Marengo. They intended to spend the night about midway between the two places, but finding the only available camping ground occupied by a band of Indians, with their dogs, guns, squaws, papooses and ponies strewn in every direction, they considered the vicinity a bit too thickly settled to suit them, so they drove the entire distance, arriving at Squire Neal's in Marengo, at about eight o'clock in the evening. The Neals were

hospitable but handicapped. There being no floor in the cabin, the visitors were compelled to spread their blankets on the sand, and they cooked their breakfast the next morning beside a log. That forenoon they drove the short distance to the spot which they should thenceforth call home. There were only "green calm below and blue quietness above," and unmolested nature in all her still dignity.

They unloaded and pitched their tent which consisted of two sheets for covering, bushes for sides and a tablecloth for the door. Their possessions consisted of one cow, a flour barrel for a cupboard, a tool chest for a table, two small trunks for seats, the wagon boards laid across poles for a bed, the pillow cases and ticks filled with dry oak leaves. The weather during the period in which the cabin was building was very wet. The bedding, furniture and clothing were deluged when it rained and dried when it shone. The finish on the furniture was not injured by water and the baby was kept dry by placing it under a washtub until the shower was over.

Inside of three weeks they moved into their cabin, which was guiltless of a chimney or upper floor, but had a lower floor of hewed planks.

About midwinter, finding themselves out of groceries and nearly out of money, Mr. Amsley set out for Ann Arbor, a distance of sixty-five miles, to purchase such supplies as his means would permit. He carried with him for luncheon a loaf of bread baked in a bake-kettle, which was greased with the marrow he had saved to oil his gun, that being the only fat left in the house. He was gone about one week and got along without accident until within three miles of home, when one ox laid down and died. Mr. Amsley took the end of the yoke himself and in this way drew the load home.

One ox having died, they sold the other one and spring found them without a team or money to buy one. Such a small inconvenience was not discouraging. Mr. Amsley felled a tree, sawed some wheels from the round log and made a wagon, upon which he and Mrs. Amsley, pulling together, managed to get in place sufficient rails to fence a twenty-acre field.

SEWAGE PURIFICATION BY ELECTRICITY.

BY MARK MEREDITH.

The uses of electrical energy are so vast that it is little wonder that attention is now being paid to its employment for sewage purification. A process has recently been invented by which crude sewage is passed through a trough, partially fitted with electrodes placed at right angles to the line of flow and connected in parallel with a current of low voltage.

The system is based on the theory that sewage containing table salt and other electrolyses is rapidly decomposed by the passage of the current and that caustic soda, nascent chlorine, hydrogen and oxygen are thus evolved. Part of the freed chlorine combines with the soda, lime and iron thrown off by the electrodes, and hypochlorites are thus formed, which attack and break up the organic matter.

Experimental plants on this system have been provided in several small communities with varying success. Another method has been tried in the borough of Queens, New York, and at the stock yards in Chicago. This system differs from the former by the provision of a paddle between each electrode, the rapid motion thus engendered keeping the sewage constantly agitated and the face of the electrode well scoured. To obtain the requisite standard of purification, quantities of lime are added, and engineers are by no means in perfect agreement as to whether it is the lime or the electrolysis which performs the more efficient work of purification.

"CONTRABAND."

(Continued from page 300).
struggled forward, until my hands gripped the wheel.

"Why didn't you call for help?" I asked. "This was too much for any woman. I never realized forward how it was blowing."

"It—it does kick some," she panted, "and I was almost afraid I might let go. I—I am glad you came. I couldn't hold to the course, but that doesn't matter, does it?"

"Not at all; we are in no shape to fight the storm, with only man in the stokehole. You will have to creep to the ladder."

"You—you wish me to go below?"

"I order you to."

"And you are going to remain at the wheel—alone?"

"Dugan is forward, within easy call. I have sent the two mates below for an hour's rest. There is nothing for us to do now, but hold on until the storm abates. I'll simply lash the wheel, and stand by. You are absolutely exhausted, and must go below—you will go?"

"Yes; if—if you think it best. I am so tired—the strain or it; the fear that I could not hold out—"

"I know." I bent and kissed her, and she clung to me. "But do not think of that any longer; you must go to your room at once and lie down."

"There is really no danger?"

"Nothing serious; we must run for it, but as long as Masters can keep up steam, the ship is safe enough."

"But you will stay on deck all night?"

"Not unless the storm increases. In an hour or so I'll call the others, and lie down myself. Come, dear, you belong in the watch below."

That certainly seemed a lonely deck after she had disappeared down the ladder. I had served many a quiet watch at sea, many a memorable one, but that hour taught me the real lesson of loneliness. It was all black forward—and silent, except for the wind howling through the rigging. I knew Dugan would be there, wide-awake, crouched in some out of the wind corner, but I could see nothing of him. We were driving forward recklessly into a wall of darkness, utterly impenetrable to the eye. What horror might be lurking just ahead of the plunging bow, no imagination could picture. From where I stood, clutching the spokes of the wheel, I could not even trace the yards of the mainmast, nor could I perceive on either side the water through which we drove. It was all black, sea and sky of one solid color, not so much as a winking star visible; the only gleam of light aboard the faint glimmer within the hood of the binnacle. Yet it was not this which pulled so at my nerve. I had stood at the wheel often before guiding a great ship through impenetrable blackness, and amid the immensity of the ocean. But then I was one of a crew, alert and ready, merely performing my part of a given task. But now I could not drive from me the consciousness that I stood there alone; that on all that space of deck forward only one solitary man crouched in the blackness; that below in the engine room, and stokehole, only two more, already worn and weary with toil, stuck grimly to their work; that under my control this great freighter, loaded almost to the deck beams, was flying before the storm, plunging through the wild waters of the mid-Atlantic, with death hovering above in the shriek of the storm. Yet I clung to it grimly, no longer making any attempt to hold any settled course, but merely choosing the easier way in which to meet the force of the storm. A few miles of drift would make small difference, and I knew so little of the ship under me that I possessed no courage to fight, for fear of a strained butt or a frayed rope, which might leave us a helpless wreck at any instant.

(Continued next week).

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Woman and Her Needs At Home and Elsewhere

Red Cross Knitting Directions

MAJOR GRAYSON M. P. MURPHY of General Pershing's staff, the Red Cross Commissioner for Europe, who knows better perhaps than any other man just how badly things are needed, has cabled: "Last winter broke the record for cold and misery among the people here. We inexpressibly dread the coming winter finding us without supplies to meet the situation. We urge you, on behalf of our soldiers and those of our allies, who will suffer in their frozen trenches, and also thousands of French and Belgian refugees, to begin shipping at once 1,500,000 each of sweaters, wristlets, mufflers and socks. They must come before cold weather."

The American soldiers are furnished with uniforms and overcoats and shoes and everything that the army regulations call for. The knitted articles are for their extra comfort—and in the case of the refugee civilians, are absolute necessities.

Every reader of this article is urged to get a supply of yarn and needles, and knit—or have someone else knit—as many of these articles as possible and as quickly as possible. The knitted goods should be sent by the knitters of the central division to the nearest Red Cross chapter, which will send them with all speed to the Red Cross Supply Service, Waken & McLaughlin Warehouse, 225 East Illinois street, Chicago. In case the knitter cannot get in touch with a Red Cross chapter, she may send the goods direct to the warehouse.

Equipment.

Knitting machines may be used if the quality of their work is up to standard.

Yarn may be either gray or khaki. The Red Cross Supply Service will carry the gray oxford mixture, four-ply 10's construction.

Knitting needles, as prescribed, will be of three kinds: No. 1, 135-1000 inches in diameter; No. 2, 175-1000 inches, and No. 3, 200-1000 inches.

Yarn and needles can be had through Red Cross chapters.

General Directions.

Do not cast on stitches too tightly. Knit evenly and firmly, and avoid holes.

Join by splicing, or by leaving two or three inches at each end of the yarn to be carefully darned in.

Carefully avoid all knots, ridges or lumps, especially in socks, as they may blister the feet.

Sleeveless Sweater.

Three hanks of yarn (¾ lb.); one pair Red Cross needles, No. 3.

Cast on 80 stitches. Knit 2, purl 2 stitches for 4 inches. Knit plain until sweater measures 25 inches. Knit 28 stitches, bind off 24 stitches for neck, loose. Knit 28 stitches. Knit 5 ridges on each shoulder, cast on 24 stitches. Knit the 25 stitches on 2d and 3d needle 2 stitches for 4 inches. Sew up sides, leaving 9 inches for armholes. Two rows single crochet around neck and 1 row single crochet around the armholes.

Wristlets No. 1.

Half hank of yarn (½ lb.); 1 pair of Red Cross needles, No. 2.

Cast on 48 stitches, knit 2 and purl 2 for 12 inches, and sew up, leaving 2 inches open space for thumb two inches from the edge.

Wristlets No. 2.

(Made in One Piece).

Half hank of yarn (½ lb.); use

four of the Red Cross needles, No. 1. Cast on 52 stitches on three needles: 16-16-20. Knit 2, purl 2 for 8 inches. To make opening for thumb, knit 2, purl 2 to end of 3d needle, turn; knit and purl back to end of 1st needle, always slipping first stitch; turn. Continue knitting back and forth for two inches. From this point continue as at first for four inches for the hand. Bind off loosely and buttonhole thumb opening.

Muffler.

Tow and a half hanks of yarn (¾ lb.); one pair of Red Cross needles, No. 3.

Cast on 50 stitches or 11 inches. Plain knitting for 68 inches.

Medium Sized Man's Sock.

Four Red Cross needles, No. 1; ½ lb. (2 hanks) of yarn.

Set up 60 stitches, 20 on each of three needles. Knit 2 plain and 2 purl for 35 rows (4½ inches). Thirty-sixth row knit four plain stitches, knit 2 together; repeat this until the round is completed. There are now 50 stitches on needles. Knit 50 rows plain until leg measures 11 inches; (6½ inches of plain knitting). Take half the number of stitches (25) on first needle for the heel (leaving 12 and 13 stitches on the second and third needles for the instep), add on the 25 stitches knit 1 row, purl 1 row alternately for 26 times (or 3 inches), always slipping the first stitch. Begin to turn heel on the wrong side, slip 1, purl 13, purl 2 together, purl 1.

Turn work over, slip 1, knit 4, slip 1, knit 1, and pass it over slipped stitch, knit 1. Turn, slip 1, purl 5, purl 2 together, purl 1. Turn, slip 1, knit 6, slip 1, knit 1, and pass it over slipped stitch, knit 1. Continue working toward the sides of the heel in this manner, leaving 1 more stitch between decreases on every row until all the stitches are worked in. There should then be 15 stitches on the needle. Pick up 13 stitches on side of heel; now knit 25 stitches on 2d and 3d needle on to one needle, which becomes your 2d needle; with your 3d needle pick up the 13 stitches on other side of the heel, and knit 7 stitches off your 1st needle so that you will now have 21 stitches on the 1st needle, 25 stitches on the 2d needle, and 20 stitches on 3d needle. First needle (a) knit to within 3 stitches of end, knit 2 together, knit 1; 2d needle (b) knit plain; 3d needle (c) knit 1, slip 1, knit 1, pass slipped stitch over, knit plain to end of needle. Knit around plain (d).

Repeat a, b, c and d until you have 13 stitches on 1st needle—25 stitches on 2d, 12 stitches on 3d. Knit plain for 4½ inches. First needle (e) knit 10 stitches—knit 2 together, knit 1; 2d needle (f) knit 1, slip 1, knit 1, pass slipped stitch over, knit 19 stitches. Knit 2 together, knit 1; 3d needle (g) knit 1, slip 1, knit 1, pass slipped stitch over, knit 9 stitches, knit 2 rows plain (h).

Repeat e, f, g and h 5 times, then narrow every other row until you have 5 stitches on your 1st needle, 9 stitches on your 2d needle and 4 stitches on your 3d needle. Knit the 5 stitches on your 1st needle on to your 3d. Your work is now all on 2 needles opposite each other. Break off yarn leaving 12-inch end. Thread into worsted needle and proceed to weave the front and back together as follows: Pass worsted needle through 1st

stitch * of front knitting needle as if knitting and slip stitch off—pass through 2d stitch as if purling—leave stitch on, pull thread through 1st stitch of back needle as if purling, slip stitch off, purl thread through 2d stitch of back needle as if knitting, leave stitch on. Repeat from * until all the stitches are off the needle.

Sock when finished should measure:

Foot, from tip of heel to tip of toe, 11 inches.

Leg, from tip of heel to tip of leg, 14 inches.

CORN IS KING.

The "stranger" in the Blue Ridge leaned on the rail fence talking to a long, rangy mountaineer. His eyes wandered over the poor little hill farm. You know the kind—a perpendicular field of rocks and stumps and spindly corn, that is cut at the top of the hill and then picked up at the bottom. "How much corn do you raise?" asked the "stranger".

"Enough to do me," was the answer. The answer was ultimate; the mountaineer had solved his problem. Enough corn to "do him."

Corn is king in America today. There is enough corn to "do us," more than three billion bushels. Yet Europe starves while we sit in the midst of this golden plenty.

We have thirty bushels apiece and eat during the year less than a bushel apiece.

Four-fifths of all the farmers in America grow corn.

One-third of all the land under cultivation is in corn.

Then what is our answer to our Allies?

We will double the amount of corn meal we eat. Yes, treble the amount we eat, and release the wheat for you.

Let this be your answer to the plea of heroic France for bread.

Let this be our answer to the men who have held the line against our common enemy for three years. Let this be our answer to the women who have stood back of those men and held the second line. Let this be our answer to the little ones who stretch their feeble arms to us crying for bread.

DRAFT THE MEN.

For months the idea has been current that conservation is a kitchen plan—the concern of the women. But it is far more than a woman-size job. It calls for universal service—for man's work, for team work, for organized neighborhood work—even to solve the home food problem.

Women have undertaken the job with the courage of Spartan mothers. But, women, the job is too big. It is bigger than kitchen economy, it is bigger than pantry-shelf storage. Draft the men for immediate service—Somewhere at Home. Draft those husbands at once to get the smokehouse in order, to put the cellar in shape for storing winter vegetables, to dig the potato pit, and to lend a hand for gathering and hauling. Salvaging food is too big a job for any woman; draft the men.

During the hot summer the women struggled over cook stove canners and driers while the men grumbled over delayed meals. That job is too big for the women. It is too big for the outfit. It is too big for the individual family. Canning and drying are more than household jobs. They are community

jobs like many other conservation problems, and call for the cooperation and organization of the community.

So, women, draft all the men. Draft the community to finance storage facilities. Draft the community to organize for cooperative selling and buying. Draft the community now to plan for cooperative canning and drying plants next year.

Do these things for your own people. Business efficiency will tell the tale. The community must take care of itself. Germany's strength in the past has been due to the fact that she could feed herself, that she had developed home resources.

The final word to each farm, community, and state is, "Feed yourself." So draft the men of your household, draft the men of your community into organized service for home defense.

HOT LUNCHES FOR SCHOOL CHILDREN.

BY JARRET THOMAS VAN OSDEL.

In the schools of many cities of the United States hot lunches are now provided for the children. The experiment was first made in the districts of the poor where the children were supposed to be undernourished at home. Immediately there was observed so great an improvement in them, both physically and mentally, that the movement was extended to other districts where the children were, presumably, well fed at home. Here, too, an improvement was at once noticed. In most cases the children were asked to contribute a penny a day toward the expense of the lunches.

If such an arrangement is advantageous in the schools of the city, how much more so might it not be in the schools of the country districts? As a rule the country child, by reason of the greater distance he must walk to get to the schoolhouse, leaves home much earlier in the morning than does the city child and reaches home in the evening correspondingly later. In an ungraded school even the child of six, and sometimes under, remains at school from nine until four because he must wait for his older brothers or sisters to go home with him. There are not the diversions in most of the country schools that there are in the city schools, for the teacher of many grades has too difficult a task in getting in all of the work of all of the grades according to the "Course of Study" to plan much relaxation for the children, regardless as to how beneficial it may be for them. Consequently, all—from the mere babes to the boys and girls at the difficult age of pubescence—put in a hard day, a day that would be trying to even a hardy adult. And they do it on something like a couple of cold sandwiches, a piece of cake or pie and an apple or two. The average school lunch is neither tempting nor a well-balanced one. More often than not the pail is filled by the child himself from a well-stocked pantry. If he is particularly fond of sweets the lunch may consist only of slabs of cake, cookies and pie. One little girl's lunch pail was found to be filled with nothing but apples. "An apple a day" may keep the doctor away, but twenty-one apples a day—the number of Red Astrachans and Early Sweeties the child confessed to eating often in one day—may be the cause of his peremptory summons.

That the hot lunch at noon,—or at least one hot item—is practicable in the country school has been demonstrated. A teacher in central Illinois started to serve hot cocoa at noon. During the cold weather she cooked it on the stove that heated the room. When the weather grew warmer, she bought a wood alcohol lamp and heated it on that. At first she furnished the cocoa while the children brought the sugar and the milk. When she saw that her experiment was a success

—that the children did much better school work and went home less physically exhausted at night—she talked the matter over with the mothers. One mother said that her Susie no longer complained of headache every evening; another said that her Fred now slept well at night, whereas formerly he had slept fitfully, sometimes starting up calling or crying or waking in nervous terror; another said that her Minnie had gained back in flesh all that she had lost during the first two months of school before the hot cocoa was served. They all wished to help the teacher in her hot lunch scheme. So enthusiastic were they that it almost seemed they would be carrying regular dinners to school for their children at noon. But they agreed with the teacher when she explained that a heavy noon dinner was not desirable for a student, but rather a light nourishing lunch.

With the co-operation of these women, the teacher was relieved of the chief burden of the lunch and the monotony of the cocoa diet was varied. The women agreed to it that they would provide a pail of soup, sufficient for all the pupils, two days of the week and on one day a pan of baked beans. This left two cocoa days. For some reason the baked bean day was the favorite of the children. How the expense was divided up in this particular instance I do not know. But it was highly satisfactory to all and the results more beneficial. Naturally, even the child most fond of sweets, would be apt to bring some bread and butter to eat with his soup and beans, while the little apple girl would likewise mend her appetite ways.

A plan that has been successfully tried out in one country school would probably meet with success in other schools. But it cannot always be left with the teacher to take the initiative. Too often the teachers in country schools are young girls who would not even think of taking such a step unless it were at the instigation and with the help of the parents.

Enthusiastic as the mothers and the teacher were over the immediate beneficial results of the hot lunch, it is a thought to cherish that the good done does not end here but reaches on into the years of maturity when the boys and girls will be more efficient men and women because their health has not been undermined during the years of school work.

HOME QUERIES.

What will remove lime from the inside of a teakettle?—Subscriber.

Can any reader help?

Gather beans and peas before they shatter out, dry for ten minutes in a warm oven to insure against getting wormy, and store safely. These beans may not be used as seed in the spring.

Gather the walnuts and hickory nuts, they will help in salads, breads, cake fillings and candies.

Think ahead of winter needs and save like an Indian squaw for the long winter. Nobody knows just yet how hard a job you will have on your hands but this is a certainty; nothing saved will come amiss.

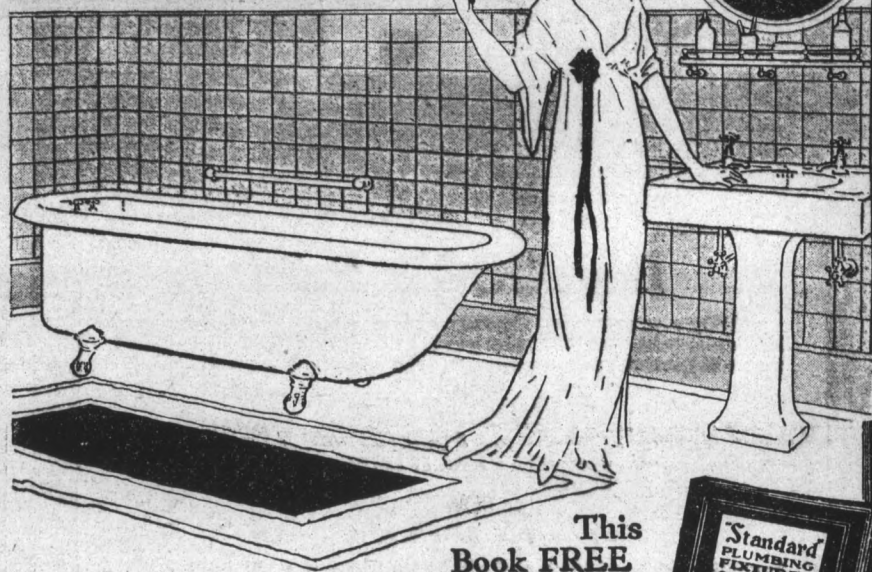
STORAGE OF VEGETABLES.

For information on storage of winter vegetables, beans, peas, cabbage, potatoes, etc., write the United States Department of Agriculture, Washington, D. C., for Farmers' Bulletins, 433, 847 and 879.

Write for Farmers' Bulletin No. 824, "Foods Rich in Protein." Address the Department of Agriculture, Washington, D. C.

Make fruit pastes or "leathers" for winter goodies. It can be stored in boxes or any sort of receptacles. (Farmers' Bulletin 841, U. S. Department of Agriculture, Washington, D. C.)

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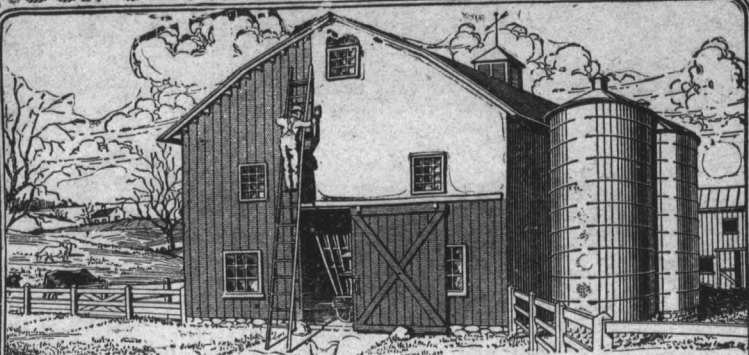
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DUPONT

Marketing By Telephone

THE farmer who drives to town line and does not have a large quantity with a load of produce which has no definite market value knows very well that he does not wish to carry the load back to the farm if there is any way of getting rid of it. Unfortunately there are some local dealers who fully understand the situation and sometimes they offer the farmer much less than his goods are worth, with the knowledge that he is anxious to get home, needs the money and probably will be glad to get rid of it as soon as possible.

The farmer with a telephone does not need to haul products to town until he knows who is going to buy the goods and the exact price they will pay. In selling broilers one dealer may be paying two or three cents per pound more than another, due to the fact that he is out of broilers and is expecting a good demand from his customers. One dealer may wish a couple of crates of broilers on Thursday and be willing to pay a fair price. The farmer with a phone finds out early in the week when this dealer will buy his stock and he hauls them to town on Thursday morning. Another farmer without a phone may take down his broilers on Thursday morning and find that he must canvas the town in order to sell them, or possibly haul them back to the farm and feed them for another week.

A farmer with an automobile can frequently pick up money as a side line by hauling truck and poultry products to city buyers in the evening, although he is not specializing in that

line and does not have a large quantity to sell. The phone enables the producer to tell the city buyer the number of eggs he has on hand or the quantity of miscellaneous garden truck and frequently sales can be made at little expense and the products can be hauled to the city in the car. The whole deal can be made more of an evening pleasure trip than a job of hauling something to market. The phone enables the deal to be carried out, as no farmer would wish to carry a lot of garden produce and eggs to town in the evening unless the customers were informed and ready to take the goods so that the transaction could be finished in about five minutes.

Customers in the city will frequently order products of a farmer with a phone, and if these orders come in at a time when trips to town are necessary there is little extra expense to the transaction. Friends with automobiles often motor through the country evenings and sometimes telephone ahead to know if certain products can be ready for them. In this manner the phone assists in marketing and more than pays for itself in a short time. A farmer who is extensively engaged in poultry farming or truck gardening can scarcely manage his business without the use of a telephone, but even when such ventures are only on a small scale the phone is an important factor in reducing the worries of marketing and increasing the income from the odds and ends that are produced on the farm.

Ingham Co.

R. G. KIRBY.

Merchandising for the Community

The Tecumseh Cooperative Association has the reputation of successfully operating a cooperative store. Of the many forms of cooperative activity the live stock shipping organization is the

credit which each member loans to the association. The members sign a joint note wherein the liability of each is limited to \$100. With this note the management of the association has been able to obtain a line of credit at the local banks which is sufficient to properly finance the enterprise.

FRUIT AND VEGETABLE MARKET.

Comment on the general condition of the fruit and vegetable markets, jobbing prices and shipments for the United States for the period of September 18-25, inclusive, are given below. The information is based upon wire reports received and compiled by federal agents.

New York State Elbertas in Full Swing.

The heavy movement of Elberta peaches from New York is now under way and from 200 to 400 cars per day have been shipped this past week. A total of 1,662 cars have been shipped from New York this week as compared with only 193 for the previous week. As a result of this heavy movement out of New York state, the total peach shipments for the week amounted to 3,387 cars, as compared with 1,927 the previous week. Michigan shipped considerably heavier than a week ago but the movement was relatively small. Only 225 cars have moved out of that state to date, as compared with 1,704 last year for the corresponding time. It is estimated that the Michigan crop this year will amount to 744,000 bushels, which is only a little over one-third of last year's production. On the other hand, the New York crop is estimated at 22,244,000 bushels, which is nearly double the crop of last year. New York Elbertas are jobbing at \$1.25 to \$2.65 per bushel, as compared with \$1.15 to \$1.85 last year at this time. However, the season is about ten days late this year so prices are hardly comparable. F. o. b. prices at Rochester are \$1.25 to \$1.50 per bushel which is quite a decrease from the price a week ago. Michigan Elbertas are selling f. o. b. \$1.80 to \$1.90 per



simplest, most easy to start, and most certain of success; and the cooperative store is the most difficult, the most complex, and the least likely to make a satisfactory showing. Between the extremes are the other cooperative enterprises, such as the cooperative creamery, grain elevator, feed mill, fruit shipping association, etc.

The Tecumseh farmers through their cooperative association have tackled both the easiest and the hardest proposition and in addition several of the intermediate enterprises. Their cooperative association ships the live stock grown by its members and conducts in their behalf a cooperative store. It also markets more or less of their farm produce, including cream. Through the store thousands upon thousands of dollars worth of farm implements are bought for the members of the association. The association also aims to keep its members provided with fuel, building material, stock feeds, harness supplies, etc.

The capital for operating the many enterprises is obtained from the money paid in by the members and from the

LET US TAN YOUR HIDE.

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Then we have recently got out another we call our Fashion book, wholly devoted to fashion plates of muffs, neckwear and other fine fur garments, with prices; also fur garments remodeled and repaired.

You can have either book by sending your correct address naming which, or both books if you need both. Address The Crosby Frisian Fur Company, 571 Lyell Ave., Rochester, N. Y.



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bushel, "AA" pack. Jobbing prices have advanced slightly.

Supply of Apples Heavier and Prices Firmer.

About 150 cars more of apples were shipped this week than the week previous. Illinois, Virginia, New York and Missouri have moved a large number of cars and shipments from all of these sections were heavier than for the week previous. Illinois has moved to date 1,126 cars, which is over twice as many as for the same period last season. In spite of the increased supply, the prices have held firm and even advanced in some cases. Jonathans are selling f. o. b. Michigan at \$4.25 to \$4.75 per barrel, and Ben Davis at \$3.50, which is an advance of about 25 cents per barrel. Jobbing prices have also continued firm. Jonathans are jobbing at \$4.50 to \$6 and Wealthys at \$4.25 to \$6.25.

Cantaloupe Prices Declined.

Colorado cantaloupes, which make up practically the whole supply on the market at present, arrived in poor condition generally this past week. They were in poor demand and prices declined to \$1 to \$2.50 per crate, which is about 25 cents less than a week ago. Colorado shipments are now declining.

Irish Potato Movement Heavier.

Irish potato shipments were heavy and prices declined slightly. As a result of the high prices last week, growers dug heavily in all sections and nearly 750 cars more of potatoes were shipped than a week ago. With heavy shipments, jobbing prices declined slightly. New Jersey Giants are jobbing at \$1.10 to \$1.35 per bushel, or about 10 cents less than a week ago. Minnesotas are jobbing at \$1.18 to \$1.30 per bushel, as compared with \$1.20 to \$1.40 the week previous. F. o. b. prices at Presque Isle, Maine, have advanced steadily all week. Spalding Rose are selling f. o. b. at \$2.75 to \$2.80 per eleven-peck measure, and Bliss at \$3. Jersey Giants, however, have declined steadily until yesterday, when prices advanced slightly.

Other Fruits and Vegetables.

Grape shipments were a little heavier this week and prices have continued firm. New York and Michigan shipped nearly twice as many as a week ago, but California's movement declined slightly.

Celery shipments are getting a little heavier. New York has shipped twice as many cars to date as to the same time last year.

Nearly 150 more cars of cabbage were shipped last week than a week ago. New York has moved nearly four times as many as for the same period last year.

Jobbing prices of onions continue firm, with some advance for stock from Ohio. The Massachusetts movement is now heavy. To date 545 cars have been shipped from that state, which is about a hundred more than last year for the same period.

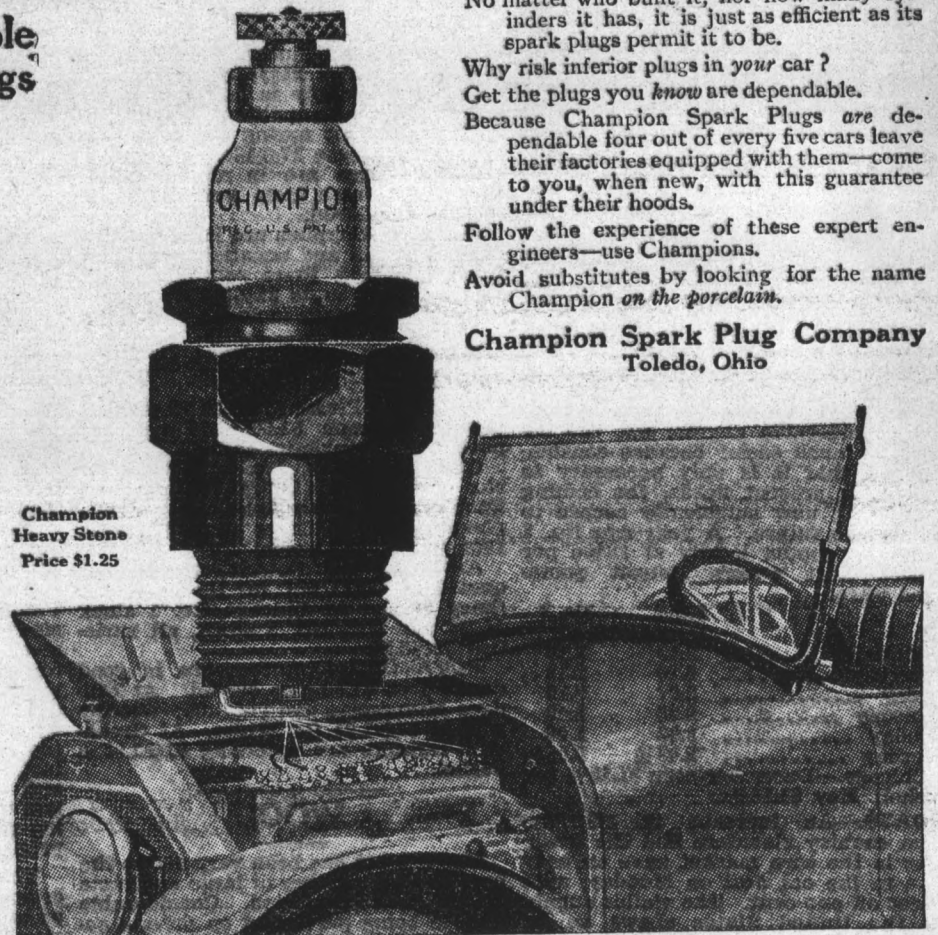
MICHIGAN'S 1917 CROPS YIELDING HEAVY.

The Legislature of Michigan during its last session enacted a law providing for the licensing of threshers and also for the reporting to the State Department on the acres and numbers of bushels threshed on each and every farm. A penalty is attached for non-compliance to this law. According to the returns of threshermen in Michigan under the provisions of this measure up to and including August 15 reports, the average yields of the following crops are:

Crop.	Yield per Acre. Bushels.
Wheat	19.43
Rye	15.01
Oats	39.12
Barley	29.30
Peas	17.38
Mammoth seed	5.22
Mammoth clover seed	3.75
Alsike clover seed	5.75

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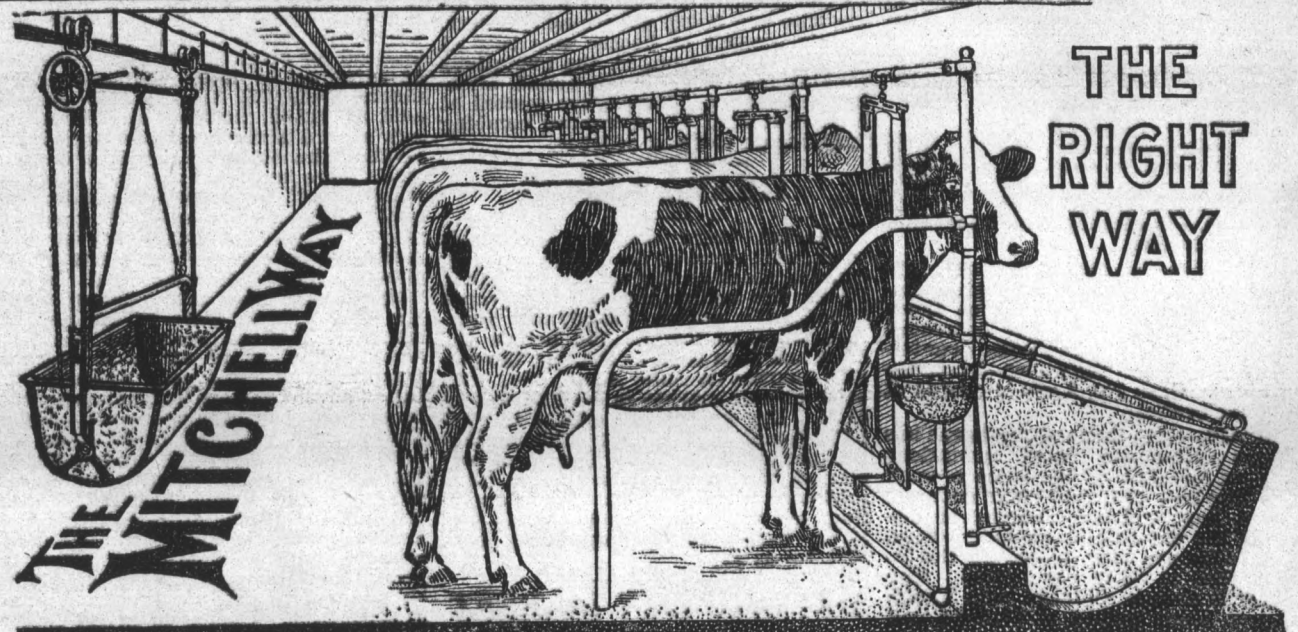
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4 Jay St., Oshkosh, Wis.

Markets.

GRAINS AND SEEDS

October 2, 1917.

WHEAT.—A readjustment has been made in the official wheat prices for this market that reduces the local quotations two cents below those reported since the official price went into effect. A similar change has been made at the Toledo and New York markets. A satisfactory explanation for this readjustment has not been offered. Wheat is being delivered more liberally and mills are finding it less difficult to fill flour orders. A year ago No. 2 red wheat was quoted locally at \$1.57½ a bushel. The readjusted prices are: No. 3 red wheat \$2.17; No. 2 mixed \$2.15; No. 2 white \$2.15.

CORN.—Corn prices have declined with the continued favorable weather of the past week, and the promise of a few more days without killing frosts. Supplies have not been increased to any considerable degree, but the demand is much easier because consumers feel that it is only necessary to look after present needs, the coming crop being now sufficiently secure to satisfy the future. A year ago No. 3 corn was quoted locally at 88½¢ per bushel. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	2.10	2.12
Thursday	2.10	2.12
Friday	2.07	2.10
Saturday	2.05	2.08
Monday	2.03	2.06
Tuesday	2.03½	2.05½

Chicago.—December corn \$1.19½ per bushel; May \$1.16½.

OATS.—An increase in offerings from country elevators and the weakness in the corn market gave an easy tone to the oat deal on Monday, with prices off one cent. The visible supply for the United States shows an increase of 1,606,000 bushels. A year ago standard oats were quoted locally at 51½¢ per bushel. Last week's Detroit quotations were:

	No. 3 Standard.	No. 3 White.
Wednesday	62½	62
Thursday	62½	62
Friday	62	61½
Saturday	62	61½
Monday	61	60½
Tuesday	61	60½

Chicago.—December oats 59c; May 61¼¢ per bushel.

RYE.—Rye was quoted the same this Monday as a week ago, although quotations had been higher between these days. Export demand has decreased somewhat, but this has been counterbalanced by small deliveries at country elevators. Cash No. 2 rye is quoted at \$1.88 per bushel.

BEANS.—The demand for beans has become active and local quotations show an advance of 50c since a week ago. The new crop will come onto the market late, which is helping to dispose of the old crop at stronger prices. Cash beans are now quoted on the local market at \$8.25 per bushel. The market is firm at Chicago with Michigan pea beans quoted at \$7.85@8 and red kidneys at \$6.75@7.

SEEDS.—Prime red clover \$13.50; October \$13.75; alsike \$12.50; timothy \$3.60 per bushel.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$11.50; seconds \$11.30; straight \$11.10; spring patent \$12.10; rye flour \$11.30 per bbl.

FEED.—In 100-lb. sacks jobbing lots are: Bran \$36; standard middlings \$39; fine middlings \$43; cracked corn \$83; coarse corn meal \$78; corn and oat chop \$65 per ton.

HAY.—In carlots at Detroit: No. 1 timothy \$19.50@20; standard timothy \$18.50@19; No. 2 timothy \$17.50@18; light mixed \$18.50@19; No. 1 mixed \$14.50@15; No. 1 clover \$14@14.50.

Pittsburg.—No. 1 timothy \$24@24.50 per ton; No. 2 timothy \$22@23; No. 1 light mixed \$21.50@22; No. 1 clover, mixed \$21.50@22; No. 1 clover \$22@22.50.

STRAW.—In carlots on the track at Detroit: Rye straw \$9.50@10; wheat and oat straw \$8.50@9.

DAIRY PRODUCTS

BUTTER.—Supplies are not large; firm at 42½¢ for fresh creamery firsts; fresh creamery extras 43½¢.

Elgin.—Market steady and trade is

fair. Buyers bid 43½¢ without finding sellers.

Chicago.—A moderate business is being transacted with slightly advanced prices. Creamery extras are quoted at 43½¢; extra firsts 43c; firsts 41½¢@42½¢; packing stock 37c.

POULTRY PRODUCTS

POULTRY.—(Live).—Poultry firm and in good demand where the quality is good. Spring chickens 25@26c per lb; hens 21@26c; ducks 25@26c; geese 17@18c; turkeys 24@25c.

Chicago.—Supply is larger, and the market in good condition. Fowls sell at 21½¢ per lb; spring chickens 22c; ducks 19c; geese 17@18c.

EGGS.—Eggs are in ample supply and easy. Fresh firsts were quoted at 38@39c per dozen.

Chicago.—Supplies are large and the market is dull and unsatisfactory. The fresh Michigan firsts sell for 36½¢@37c; ordinary firsts 35½¢@36c; miscellaneous lots, cases included 35@36½c.

FRUITS—VEGETABLES

FRUITS.—Plums \$1.25@1.75 per bu; pears, common \$1.50@1.75 per bu; peaches, late varieties \$1.75@2.25.

Chicago.—Pears, Bartlett's \$2.50 for No. 1; Howell \$1.50@1.75; peaches, Michigan Elberta's \$2@2.25 per bu; plums, Michigan Green Gage \$1.75@2; Damsons \$3 per bushel.

APPLES.—At Detroit apples are quoted at \$4@5 bbl. for the common; fancy \$6.50. At Chicago No. 1 stock \$4@6 per bbl; No. 2 stock, all varieties \$2@2.50.

POTATOES.—Potatoes are in good demand at \$1.30 per bushel. At Chicago Minnietas are \$1@1.05; Wisconsin at \$1@1.05 for White. At Greenville farmers are receiving \$1@1.03 a bushel.

WOOL

The market has been very active the past week, a number of large contracts having been completed. Considerable wool is being purchased on private account, although the bulk is being taken by the government and by manufacturers who are filling government orders. A fair amount of fleeces was sold at strong to higher prices, the quotations ranging from 56@85c per pound. Michigan unwashed delaines are quoted at Boston at 70@72c; unwashed combing 73@77c; do clothing 56@64c.

GRAND RAPIDS

Peaches were cheaper early this week, with some of the stores retailing canning stock as low as \$2 per bushel. Plums are selling around \$2; grapes \$1.50@1.75; apples 75c@1.50. Potatoes were as low as 75c before the frost and then shot up 50c, but the outside market is now about 90c, with sales on this market in a small way at \$1.25. Dry onions are quoted at \$1@1.25; tomatoes \$1@1.50; cabbage 40@50c per dozen heads. The local hay market has advanced to \$15@18. Live fowls are worth 19@20c. Grain quotations as follows: Wheat \$1.11; rye \$1.70; barley \$1.25; corn \$2.15; oats 65c; beans \$7.

DETROIT CITY MARKET

Operations were on a large scale on Tuesday morning, with products selling at steady prices. Potatoes \$1.40@1.55 per bushel; tomatoes \$1.40@1.75 for ripe and 50@75c for green; melons \$1; onions \$1.50@1.75; string beans \$2; cucumbers, medium to large \$1.50@3; picklers 35c per 100; grapes \$1.80@2.15 per bu; cabbage 45@50c for green, \$1 for red; carrots 75c; corn 25c per dozen; pears \$1.35@1.50; apples \$1.50@2.50; peaches \$2; peppers green \$1.75@2; eggs 50c per dozen; loose hay steady at \$14@18 per ton.

LIVE STOCK

BUFFALO.

October 1, 1917.

Receipts here today as follows: Cattle 232 cars; hogs 50 d. d.; sheep 18 d. d.; calves 1100 head.

With 232 cars of cattle here today the trade was very slow except on a few handy butcher grades which sold strong. The bulk of the medium kinds were about steady. The big packers were out of the market and did not buy any steers to go to New York so that left an unevenly lower trade on everything that had any weight, as there were enough light cattle to fill the butchers' demands. The bulk of the cows, heifers and stock stuff sold about steady, except some of the common grades which were lower. We would advise being very careful in buying these common canners as the regulars

hate to take hold of them on account of so many of them being condemned. We look for a fair run of cattle next week and about a steady trade.

Receipts of hogs were fully up to expectations, about 50 double decks; the market was active but prices 10@15c lower in most cases, with a few of the light common hogs very little changed from the close of last week. A few hogs here today good enough to bring \$20, with the bulk ranging from \$19.65@19.86; pigs and lights \$18@19, as to weight and quality; roughs \$18.50@18.75; stags \$15.50@17. Everything sold at the close and prospects are no better.

With a moderate run of lambs today our market opened up active and prices 35c higher than the close of last week. All sold and we look for steady prices the balance of the week.

Lambs \$17.50@17.75; cull to common \$12@16.50; yearlings \$12.50@15; wethers \$11.50@12; ewes \$11@11.50; bucks \$7@9; best calves \$16@16.25; common and light \$13.50@16; heavy \$10@14; grassers \$6@7.50.

CHICAGO.

October 1, 1917.

Cattle. Hogs. Sheep.
Receipts today..24,000 19,000 22,000
Same day 1916..26,686 36,408 40,772
Last week.....92,817 61,405 105,184
Same wk 1916..64,064 138,754 121,843

There was a good cattle supply today, although receipts were very much smaller than on Monday a week ago, when they aggregated 42,377 head. Trade during the early morning was slow, but prices were called mostly steady for the general run and strong for the choicer lots. Kansas City reported receipts of 38,000 cattle for today. Hogs were mostly 5@10c lower, with an early high sale at \$19.60, the top price of Saturday. Hogs received last week averaged 234 lbs. Lambs and fat sheep sold much higher than last week's close, both killing and feeding range lambs selling for \$18.25 and prime range ewes for \$11.75.

The past week was the first time in several months that cattle prices failed to score gains over the previous session. The top for the week was \$17.85 or five cents below the high spot of the week before. The general quality was poorer, while at the same time the demand for prime heavy cattle was not as large as of late. Prime yearling steers averaging around 1000 pounds sold at \$17.65, thereby establishing a new record which was five cents higher than the old mark. Prices for the week were unevenly lower. Declines of 25c@1.25 were noted, depending on quality. On account of the Jewish holidays the call for heavy beefs was small, which caused that grade to decline. Prime yearlings and handy weights sold weak to 25c lower, while the plain steers were \$1 off and in some cases more, from the previous week. The run of cattle at Chicago was the largest in a year, while the total at seven western markets was the largest on record for one week. About 28,000 western range cattle were received during the week, against 30,000 the week before. Common to fair steers off grass sold around \$8.25@9.65 with the inferior grades down to \$7.50 and lower. Steers of plain to decent quality sold at \$9.75@11.40 with medium to good light short-fed beefs at \$11.50@13.40 and good to choice corn-fed at \$13.50@15.90. Choice to prime heavy steers had value around \$15.75@17.60. Good to prime yearlings went at \$14.35@17.65 and common to fair yearlings at \$10.50@14.25. The decline in prices for heavy steers during the week is taken to be only temporary as the trade is of the opinion that the crop of such steers is small and prices will remain high. The market for cows and heifers declined 75c@1 from the week previous. Medium grades of cows and heifers went off most. Good cows sold late in the week around \$7.50@8.25 while only prime kinds went up around \$8.50 and higher and the plain grades went down to \$7 and lower. Heifers of good to choice grade went at \$8@9 with only the prime grades higher while medium classes went around \$7.50@7.75 and common kinds lower. Real choice kinds were scarce and a few went up to \$13 and higher. The stocker and feeder demand was the largest of the year. Receipts were large but prices ruled 25@50c lower outside of the real best grades which held steady. Heavy weight western feeders sold up to \$13 while numerous lots of strong weights of choice quality sold around \$10@12 and the good grades mostly around \$8.50@9.75 and medium grades around \$7.75@8.25 and the common and plain sorts down to \$7.50 and lower. Calves sold 25c lower during the week. Best late went at \$15.75 while a good grade went at \$15.50 and a common to plain grade around \$14.75@15.25.

The hog market ruled 50@75c higher during the past week. The top late at \$19.60 was 70c higher, while most of the plainer grades showed more advance. Receipts were very light while the general demand was good. A good class of hogs late sold around \$19.30@19.50 while good quality mixed packing grades went around \$19@19.25 and the common grades went around \$18.50@18.90. Pigs sold 75c@1 higher, prime kinds late going at \$18@18.25 with fair kinds around \$17.50@17.75. The average weight was lighter on account of more pigs in the receipts. With continued light receipts and the present good demand the trade looks forward to the reappearance of record prices.

The sheep supply was the largest of the year, but the general demand was so good that the market acted well. Aged sheep and yearlings sold fully steady with the previous week, while native lambs sold steady and range offerings to killers looked 25c lower. Feeding lambs sold 15c lower. Most good to prime native ewes sold around \$11@11.25 with odd wethers around \$12.50 and yearlings around \$13.50. Common to good bucks sold at \$7@8.50 with a few up to \$9. Best native lambs late sold at \$17.25 while rangers went at \$17.75 and Idaho and Montana feeding lambs sold up to \$18.

The horse market was fairly active on army account. Practically all the business was done in this end. Both the English and United States buyers worked all week, and took bulk of the offerings. The commercial trade was rather small. General receipts are running far under a year ago as the army buyers are not as busy as they were at that time.

Chicago Top Prices a Year Ago.
Best heavy steers \$11.25; medium grade \$9.80; butchering cows \$9.80; canners \$4.60; cutters \$5.40; stockers \$5.25; feeders \$7.50; calves \$12.75; hogs \$10.50; ewes \$7.50; wethers \$8.50; yearlings \$9; lambs \$10.85.

LIVE STOCK NEWS.

William Riggs, of Sullivan county, Indiana, recently marketed 280-pound hogs at \$18.75. These hogs were purchased last February, averaging 76 lbs. and cost \$8.75, allowing more than \$10 range between the cost and selling price. For the first three months of the feeding period these hogs received three-quarters of a pound of corn per head per day and the droppings from five loads of cattle which they followed. There were 119 hogs in the lot. On May 1 they were put on feed, the whole batch getting ten bushels of corn, and put on clover and blue grass pasture. They averaged about 100 pounds at that time. This was continued until June 1, when the corn ration was increased to 15 bushels and the hogs put back with the cattle. They had access to 40 acres of blue grass and a like area of clover. A ton of hay per acre was cut from the clover fields, on which 80 steers were grazed. This system enabled Mr. Riggs to gather about \$750 worth of hay from the clover field, together with lots of cheap pork and beef. Ordinarily this clover would yield about three tons per acre. All during the period the hogs were fed a conditioner powder which the feeder claims kept them in good shape and helped their appetites.

During recent weeks the Chicago market has witnessed the largest trade for stockers and feeders noted in more than a year. This was brought about largely by the increased receipts of western range cattle, that are always in keen demand at this season of the year. Feeder prices are still relatively low when compared with other years. Thy figure \$3@5 higher than a year ago while top beef steers show \$6@7 advance over that time. This shows that cattle feeders have at least a \$1 margin to work on in comparison to other years. Prospects of a good corn crop has caused a large number of feeders to come in quest of raw material, but not many are taking the thin cattle, which are generally in demand for late pasturing. This has caused a wide range of prices between strong weight stockers and the prime strong and heavy weight feeding cattle.

Live stock production in Hillsdale county, Mich., will be increased this year, according to Rex Rossman who was recently at Chicago buying feeding cattle for which he paid \$10 per cwt. The cattle he bought, while light, were of good quality. Frost hurt the corn in that section, and he said that while some of it will mature it will be chaffy, making it a better proposition for feeding purposes. He pointed out that chaffy corn, while it has a good feeding value, has not the market worth of corn which has not been damaged by frost. Quite a few of the farmers in that section are buying feeders in order to get most out of their poor quality corn. He plans on feeding barley along with the corn to this lot. It will be the first time he ever tried such a ration but believes it will help to make good beef.

THIS IS THE LAST EDITION.

The first edition is sent to those who have not expressed a desire for the latest market. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

October 4, 1917.

Cattle.

Receipts 1906. Canners steady; others 20@30c higher than last week, and active.

Best heavy steers \$9.50@10.50; best handy weight butcher steers \$8.50@9.75; mixed steers and heifers \$7.50@8.75; handy light butchers \$6.50@7.50; light butchers \$6@7.25; best cows \$7.25@8; butcher cows \$6@7.25; common cows \$5.75@6.50; canners \$4.50@5.65; best heavy bulls \$7.25@8; bologna bulls \$6.50@7; stock bulls \$5.50@6; feeders \$7.50@8.50; stockers \$6.50@7.50; milkers and springers \$4.50@5.50.

Bishop, B. & H. sold Hammond, S. & Co. 4 cows av 950 at \$6, 3 do av 1060 at \$7, 2 do av 935 at \$6; to Parker, W. & Co. 18 butchers av 670 at \$6.50, 12 do av 620 at \$6.50, 2 do av 625 at \$6.25, 7 do av 886 at \$8, 15 do av 763 at \$7, 4 cows av 925 at \$5.75, 4 do av 860 at \$6.75; to Golden 8 butchers av 685 at \$6.50; to Sullivan P. Co. 21 steers av 875 at \$7.60, 4 do av 941 at \$7.50, 12 do av 880 at \$7.50, 2 cows av 1010 at \$6.50, 2 do av 1140 at \$6.25, 1 steer wgh 1040 at \$8, 3 do av 1117 at \$10, 10 do av 870 at \$8.25, 7 cows av 1067 at \$7.25; to Nagle P. Co. 3 steers av 823 at \$8, 7 do av 1000 at \$9.25; to White 5 cows av 1040 at \$5.80; to Goose 3 butchers av 817 at \$5.75, 5 do av 634 at \$6.50, 7 do av 760 at \$7; to Kamman B. Co. 8 steers av 862 at \$8.75; to Hammond, S. & Co. 22 do av 880 at \$8.75, 3 cows av 920 at \$6.25; to Parker, W. & Co. 3 do av 917 at \$5.75, 4 do av 1082 at \$6.75, 17 steers av 1012 at \$8.75, 4 cows av 1042 at \$6.75, 8 steers av 700 at \$6.75; to Nagle P. Co. 2 do av 1150 at \$9.50, 1 do wgh 980 at \$8.50; to Thompson 2 do av 1225 at \$10; to Sullivan P. Co. 5 do av 1004 at \$9.50; to Ratner 10 butchers av 682 at \$6.75.

Erwin, S. & J. sold Conway 5 stockers av 686 at \$6.35, 7 do av 680 at \$6.35; to White 4 cows av 1020 at \$6.10; to Shipiro 6 butchers av 703 at \$6.75, 5 do av 580 at \$6.25; to Black 21 feeders av 882 at \$8.50, 6 do av 841 at \$8; to Newton P. Co. 5 steers av 1036 at \$7.25, 6 do av 905 at \$8.25, 2 do av 1010 at \$9.75, 1 bull wgh 1470 at \$7.35; to Fineman 6 butchers av 500 at \$6.50, 1 cow wgh 1100 at \$6.60; to Thompson 1 steer wgh 920 at \$9, 14 do av 850 at \$8.60; to Mich. B. Co. 5 do av 784 at \$8.75.

Veal Calves.

Receipts 561. Market steady and strong. Best \$15.50@16; others \$7@15. McMullen, K. & J. sold Sullivan P. Co. 6 av 155 at \$15.50, 4 av 150 at \$13.50, 4 av 300 at \$8; to Thompson 2 av 200 at \$14.50, 1 wgh 110 at \$13, 2 av 180 at \$16; to Rattkowsky 4 av 155 at \$15.50, 14 av 140 at \$15.50, 2 av 135 at \$16.

Erwin, S. & J. sold Thompson 2 av 190 at \$14, 6 av 165 at \$15.50, 18 av 160 at \$15.50; to Mich. B. Co. 3 av 155 at \$16; to Rattkowsky 4 av 175 at \$16; to Mich. B. Co. 6 av 125 at \$15.50, 5 av 185 at \$15; to Burnstine 2 av 155 at \$16.

Sheep and Lambs.

Receipts 3979. Market strong and \$1 higher than last week on lambs; sheep strong. Best lambs \$17@17.25; fair lambs \$15.75@16.25; light to common lambs \$13.50@15; fair to good sheep \$9.50@10; culls and common \$6.50@8.

Bishop, B. & H. sold Chapman 13 ewes av 120 at \$11.25, 13 do av 130 at \$11; to Nagle P. Co. 91 lambs av 75 at \$16.50, 62 sheep av 95 at \$8.25; to Wahlburg 53 sheep av 95 at \$10; to Nagle P. Co. 77 lambs av 65 at \$16.50, 8 sheep av 105 at \$9, 63 do av 70 at \$17, 141 do av 80 at \$17, 62 do av 85 at \$17, 81 do av 80 at \$17, 11 do av 90 at \$17, 12 do av 75 at \$17, 47 do av 80 at \$17, 110 do av 73 at \$16.50, 47 do av 75 at \$16.40; to Sullivan P. Co. 13 sheep av 100 at \$9.25; to Chapman 10 ewes av 124 at \$11.50, 4 do av 145 at \$11.50; to Sullivan P. Co. 94 lambs av 75 at \$17, 69 do av 75 at \$17.25; to Hammond, S. & Co. 66 do av 75 at \$17, 49 do av 65 at \$16.50, 31 do av 75 at \$17, 42 do av 68 at \$16.50; to Nagle P. Co. 107 do av 74 at \$16.75, 46 do av 80 at \$16.75, 74 do av 70 at \$16.65, 70 at \$16.50, 56 do av 65 at \$16, 17 do 81 do av 80 at \$16.75, 44 do av 80 at \$17, 35 do av 55 at \$16, 16 do av 80 at \$16.25.

Hogs.

Receipts 4419. Market slow; a few choice at \$19; bulk of sales \$18.50@18.75; pigs \$17@17.25.

VETERINARY.

Bursal Enlargement.—My mare ran away 18 months ago and injured fet-

lock joint; since then remedies I have applied fail to reduce the bunch. Our local Vet. says it is a leakage of the joint and advised me to apply a bandage. J. M., Ionia, Mich.—A bunch of this kind your mare has can never be entirely reduced; however, if you will apply equal parts of tincture iodine and spirits of camphor once a day, and occasionally bandage, you will gradually but slowly reduce the enlargement. If your mare is not lame and is not for sale, it might be just as well to discontinue treatment.

Vertigo (Blind Stagers).—I have a ten-year-old gelding that I think has periodical attacks of blind staggers. He suddenly throws up his head, staggers, muscles quiver, breathes fast and he very often falls, but only remains down a short time. He is able to get up without any help and does not appear to be much sick. C. P., Romeo, Mich.—An ailment of this kind is usually considered incurable; however, if you will keep his bowels open, exercise him daily, if fleshy, reduce him somewhat. Also give him 2 drs. of potassium bromide at a dose in feed or drinking water three times a day, he will doubtless soon show improvement. Are you not working him in too short a collar?

Nasal Catarrh.—Please give remedy for distemper in sheep. J. W., Kingston, Mich.—This ailment ordinarily results from exposure to the cold or rain; furthermore, during the latter part of August and September when hay fever is prevalent, sheep very often suffer from nasal catarrh. Mix together one part of powdered sulphate iron, one part salt, two parts of ground red cinchona, two parts cooking soda and six parts ground gentian; give each sheep half a teaspoonful at a dose in ground feed once or twice a day. It is perhaps needless for me to say that feeding nutritious food and proper shelter during storms will have a whole lot to do with your sheep's recovery.

Partial Paralysis—Convulsive Fits.—I have a fine Shepherd dog three years old which, during the hot weather acted ill, and refused to eat for a number of days. Soon lost control of his hind quarters, hardly being able to stand. He recovered from that and now has spasms or fits, falling down and struggling for a short time and frothing at the mouth. He has one or two spells every day, but has a very good appetite and seems to be all right, except when these spells are on him. Is there anything I can do for him or had I better destroy him? E. L. P., Harbor Beach, Mich.—Doubtless your dog is incurable and you had better destroy him. Giving him a full dose of castor oil every ten days will help ward off future attacks; also give him 5-grain doses of potassium bromide in feed or drinking water two or three times a day will do him good.

Poisoned with Food.—I have several pigs four months old; some of them took sick at the same time, one soon died, two more are yet sick, but are some better. First they refused to eat, became dull, one of them showed weakness in hind quarters. I fed them on skim-milk and middlings. They also ran in clover. R. G., Clarion, Mich.—I do not believe your pigs suffered from disease, but were poisoned with the food they ate. Clean feeding utensils, be painstaking in keeping clean the milk you feed them. Are you sure they didn't eat decomposed meat of some kind? Give sick pig dose of castor oil, 2-oz. dose is about right. Change their feed.

Infected Ear.—Several weeks ago I removed wart from ear of colt, soon after face and lips swelled and I applied gasoline and camphor, which seemed to take down swelling. Now ear lops and there is some swelling. D. R. K., Rapid City, Mich.—Apply equal parts tincture iodine and camphorated oil to swollen parts three times a week also give 20 grains of potassium iodide at a dose in either feed or drinking water twice daily.

Barren Young Cow.—When my two-year-old heifer was pregnant she fell; some time later she had calf, womb came out, which was replaced by our local Vet. twice. Since she recovered she has been repeatedly bred, but fails to get with calf. Miss S. F. M., Hopkins, Mich.—If she has vaginal discharge dissolve 1 dr. permanganate of potash in three quarts of clean tepid water and wash out vagina three times a week until she is well. When she comes in heat wash out vagina with a soda solution made by dissolving ¼ lb. cooking soda in half a gallon of tepid water three or four hours before she is served.

EGGS

We paid 4c to 6c above Detroit quotations last week for New Laid Stock. If you have real Fresh Eggs and want premiums, write us.

AMERICAN BUTTER & CHEESE CO., Detroit, Mich.

WANTED IMMEDIATELY

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STRICTLY FRESH EGGS

HOBERG BROS.,

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A Big European War Map

For You If You Send to The Grand Rapids Herald for It. First Come, First Served—We Have Only 1,000 Maps for Michigan Farmers

LISTEN!

The big magazines of the country have recently been advertising a "War Map" for One Dollar. That's the standard price on real War Maps—and they're cheap at the price because they are tremendously expensive to produce.

The Herald has fortunately secured One Thousand of the best War Maps—right up to the minute—we have ever seen. They are corks. And absolutely complete. YOU can have one of them. And certainly you OUGHT to have one of them—because with this big map hanging in your home, you and the whole family—including your young folks—can intelligently follow the mighty struggle overseas.

This map which we have for you is printed in six colors—beautifully lithographed on high-calendared paper. It is bound with a metal ferule, with a hanger which you can use in suspending it from the wall.

This map is three feet long and two and one-half feet wide.

It hangs in two sheets.

On the front of one sheet is a big, comprehensive map of the French and Belgian front from the North Sea to Rheims—showing every important point, all the great battle-grounds, the present fighting lines, etc. With this in your home, you can intimately follow the war as it progresses to a glorious American victory. And you can keep step with our own home boys when they "go over the top" with Old Glory.

On the reverse of this sheet is a similar map of the Franco-German war zone from Luxembourg to Switzerland and also the Russo-German War Front from Riga to Lemberg. Really, this is a household necessity.

Meanwhile, the second sheet carries on one side a general map of all Europe in big lines, with separate maps on a larger scale of each of the countries in the war; and on the other side, a flat map in colors of the entire world.

We know something about "maps" here in The Herald Office. In fact, The Herald itself is famous for carrying from day to day in its own newspaper columns the greatest war maps that are printed by any newspaper in the northwest. So we know something about maps. And we tell you that this is the GREATEST WAR MAP we have ever seen. That explains why we eagerly took advantage of the chance to put 1,000 of these maps into Michigan homes.

Now, Then; Here's How To Get Your Map

While others are charging \$1.00 for War Maps (very inferior to this map) alone, we will send you, postpaid, carefully packed and wrapped, your copy of this big War Map on a basis you cannot afford to overlook. This is our offer—with the understanding that only the first 1,000 orders can be accepted.

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This offer will not be repeated. Act today. Tomorrow may be too late. Bring the war news HOME to your HOME. Understand it! Send one dollar to the subscription Department, the Herald, Grand Rapids, Michigan. We'll assume all risk. And we'll send you not only the Greatest War Map, but also three months of your Greatest Michigan Newspaper. If, after receiving the map, you are not perfectly satisfied say so and we will refund your money.

The Grand Rapids Herald, Grand Rapids, Michigan

EGGS, ETC. Small consignments from producers in your territory bring very attractive prices. Returns day of arrival. Refer to Dan or Bradstreet. Zenith Butter & Egg Co., 170 Duane St., New York, N.Y.

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

HAY SHIPPERS! quote us lowest price on cars at your station. The E. L. Richmond Co., Detroit, Mich.

HAY WANTED Can you ship us any hay direct to Boston, Mass.? Wm. S. SAWIN & CO., Roxbury, Mass.

SHEEP

OXFORD RAM

3 years old registered. He is a fine Ram and will be sold reasonable. I cannot use him any more in my flock. Irving Becker, 220 W. Grand Boulevard, Detroit, Mich.

RAMS: Rambouillet and Hampshire for sale. A. A. WOOD & SON, Saline, Mich.

Registered Shropshire Yr. and Lamb Rams, one 3 yr. old flock header. A 1 wool-mutton type. G. P. ANDREWS, Danville, Mich.

Registered Spanish Merino Black Top Rams for sale. 1 and 2 yrs. old. RALPH N. HAYNEE, Webberville, Mich.

MERINOS & Delaines, having quality, size, oily fleeces, long staple, heavy shearers. Rams for sale, delivered, S.H. Sanders, R. 2, Ashabula, Ohio.

Shropshires a few choice Ram lambs: one three yrs. old, 10 ewes. DAN BOOHER, R. 4, Ewart, Mich.

Meadow Brook Herfords Two 2 yr. old bulls, 3 yearlings and 15 calves for sale. EARL C. MCCARTY, Bad Axe, Mich.

FOR SALE A few registered American Delaine Rams, 1 and 2 yrs. F. H. CONLEY, Maple Rapids, Mich.

Registered Oxford Down Ram lambs for sale. Address OLMSTED and J. SPANNS, Muir, Mich.

PURE BRED Hampshire Ram Lambs—Will rooster. Wm. O. SMITH, Phone 31F21, Rochester, Mich.

Shropshire Rams, 4 yearlings, 10 ram lambs by a Son of Senator Bibby. O.J. THOMPSON, Rockford, Mich.

REG. SHROPSHIRE Choice yearlings and ram lambs. Sired by Imp. Nock ram. Also ewes. W. B. McQUILLAN, Howell, Mich.

Registered Oxford Ram and Ram lambs. Also Berkshire hogs. CHASE STOCK FARM, R.1, Marlette, Mich.

Oxford Yearling and Lamb Rams for sale. H. B. PETERS, Carland, Mich.

Several hundred Western ewes, healthy and in good flesh. Pure bred rams of different breeds. BARNARD SHEEP RANCH, R.5, Clare, Mich.

Hubbard Dale Farm Hampshire—Down choice ewes and ewe Lambs. Rams also choice ewes and ewe Lambs. HARRY ROOK, Hubbard Dale Farm, Marshall, Mich.

HORSES

Eleven (11) Head of Registered Percherons For Sale.

Stallions, brood mares, colts and fillies. A fine lot, big boned, clean limbed, strait gaited, drafty show-horse type.

I will sell cheap for cash or will give time to reliable parties.

Dr. C.L. Barber, Lansing, Mich.

For Sale Reg. Black Percheron Stallion Colt

Weighing 1600 pounds at 21 mos. old. Sired by a Stallion Weighing 2100 pounds well bred and priced to sell. M. A. Bray Est., Okemos (Ingham Co.) Mich.

SHEPHERD PONIES 200 head to select from. Special prices on colts for August and September. Write Dept. E. The SHADYSIDE Farms, North Benton, Ohio.

REGISTERED PERCHERON Mares and Stallions priced to sell. Inspection invited. L. C. HUNT.

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

Percheron Stallions One State Champion, never defeated at Grand Rapids or Detroit and two of his colts. Cheap. Also Holsteins, work horses & colts. Allegan Stock Farm, E. Brackett, Prop. Hartford, Mich.

PERCHERONS three Stallions, one five, one two, one one years old, one two year old mare in foal. E. J. ALDRICH, Tekonsha, Mich.

Sure Death to Rats!

After all, there is just one SURE, QUICK and SAFE way to kill rats, and that is to feed them the one poison that they CRAVE for, and to get which they will pass everything else in their way. That poison, a marvelous new formula, is

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Rats can't resist it. It attracts them. It KILLS THEM EVERY TIME. It succeeds where all others fail.

Special directions are given to prevent rats dying in walls or under floors. This is the one satisfactory, modern and absolutely RELIABLE method of exterminating this dreadful pest.

Do your share in the great campaign against the rat. Use *Rat-Nip*—as attractive to rats as Catnip is to cats. For sale in 15c and 25c safety tubes at all reliable dealers. Sent direct if dealer cannot supply.

Buffalo Specialty Company,
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150 Laying Yearling White Leghorn Hens

In lots from 6 to 50 for immediate sale. Also Yearling Hens Brown Leghorns, Barred Plymouth Rocks, White Wyandottes, Rhode Island Reds, Rose Comb Black Minorcas.
Yearling Cocks and Cockerels Barred Plymouth Rocks, Rhode Island Reds, White Wyandottes, Single Comb Black Minorcas, White and Brown Leghorns. Everything we sell is guaranteed: each customer is to be fully satisfied.
We are planning for a more extensive sale of Day-Old Chicks next Spring, so that all orders may be filled.
HOMESTEAD FARMS, Bloomingdale, Mich.

BREEDING COCKERELS

Trapped, bred-to-lay stock. S. C. White Leghorns, \$2 each. Barred Rocks and S. C. Reds, \$3 each.
SUNNYBROOK POULTRY FARM, Hillsdale, Mich.

JOHN'S big beautiful hen-hatched Barred Rocks, good layers. Breeding pens (5 birds) \$10 to \$20. Eggs \$3, \$2.50; 100, \$7. Circulars, Photo. John Northon, Clare, Mich.

Barred Rocks: EGGS FROM STRAIN with records to 297 eggs a year, \$2 per 15. Delivered by parcel post, prepaid. Circular free. **Fred Astling, Constantine, Mich.**

Barred Rock Hens Great Layers first class breeders 10 for \$25.00.
W. C. COFFMAN, R. 3 Benton Harbor, Mich.



Ferris White Leghorns

A real heavy laying strain, trapped 17 years, records from 200 to 264 eggs. Get our special summer prices on yearling hens, breeding males, eggs for hatching, 8-week-old pullets and day old chicks. We ship C. O. D. and guarantee results. Catalog gives prices; describes stock, tells all about our farm and methods; results you can get by breeding this strain. Send for your copy now—it is free.
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Fowlers Buff Rocks. Eggs one half price for 1st. of season
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RHODE ISLAND REDS and PLYMOUTH ROCKS Males 5 to 12 lbs., according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs., eggs 15 for \$1.00; 100, \$5; 120, \$6.00. Mammoth Bronze Tom Turkeys. 8 to 28 lbs., according to age \$6 to \$25, 10 eggs \$3. **J. Morris & J. Barsan, Vassar, Mich., Successors to A. E. Cramton.**

R. and S. C. Reds. Good breeding hens at \$1.50 each for short time. Also Belgian Hares. **O. E. Hawley, Ludington, Mich.**

R. I. Red Summer Sale. Rose Comb cocks and hens. Single comb hens and pullets. All at bargain prices. Cockerels after September 15th.
INTERLAKES FARM, Box 39, Lawrence, Mich.

R. C. Br. Leghorn Cockerels, Pekin ducks, W. China Geese, Order early, the supply is limited.
MRS. CLAUDIA BETTS, Hillsdale, Michigan

Silver Spangled Hamburg Eggs setting \$1.50 Balance season, young Belgian Hares pedigreed \$6.00 pair. Pedigreed Persian Kittens great hunters \$10 each. Send stamp. **Riverview Farm, Vassar, Mich.**

S. C. W. Leghorn hens for breeding \$1.50 each. Cockerels from trap nested stock we have them priced \$3 to \$5 each. **O. S. Sturtevant & Sons, Ypsilanti, Mich.**

SILVER Golden and White Wyandottes. Choice breeding stock of sale after Oct. 1st, a few bargains in yearling hens. **C. W. Browning, R. 2, Portland, Mich.**

S. C. W. Leghorns. April Hatched. Standard Bred Cockerels on free range at \$2.00 each. **White Line Poultry Farm, Hillsdale, Mich.**

WHITE Wyandottes. A. I. layers. Eggs for hatching, \$1, \$2, \$3 for 15, \$7 for 100. Special matings \$5 for 15. **DAVID RAY, 709 Norris St., Ypsilanti, Michigan.**

Poultry Keeping Costs

THE investigator into production costs gets at figures quite easily among commercial poultrymen. Farmers in general may be lax in keeping track of things, but the men who run egg factories are not. They keep careful account of all income and outgo. They figure interest on investment, depreciation of equipment, cost of labor.

Housing costs run from \$1 to \$3.50 per hen. For \$2 a hen the poultryman can build a substantial house of good lumber, equip it with cement floors and a running water system, and cover it with shingles and clapboards. For \$1 a hen he can build a good house, but the material used will be lower grade and the covering will be roofing paper. The life of the building will be shorter. Three dollars and fifty cents a hen obtains a henhouse built as well as most dwelling houses.

The variety kept influences the cost of building. Heavy varieties, like the Plymouth Rocks, the Wyandottes, and the Rhode Island Red, require four square feet of floor surface for each individual. Light varieties, like the Leghorns and Campines, require but three square feet.

An Economical Way of Getting a Poultry House.

If the poultryman buys a second-hand house, the cost may fall considerably below \$1 per hen. Second-hand or unused, houses can be bought to advantage in nearly every town and city. Commercial poultrymen do not like their investment in buildings to exceed \$2 a hen.

Feeding costs have been calculated with great accuracy. Before the war, five mills a day would feed an average hen under average conditions. Grain is now much higher. In some henneries the past winter, six mills a hen was the basis of calculations, in others seven mills, and even more. Feed cost per annum ranges from \$1.75 to \$2.75 per hen. These figures are for commercial flocks. On general farms, where the hens are scavengers, costs are of course much lower.

Average Production.

The possible production of a large flock does not interest the commercial poultryman nearly so much as actual, average production. Where several hundred hens are kept, the egg percentage in winter is rarely above thirty-five per cent of the theoretical possible, i. e., an egg a day from every hen. In summer sixty-five per cent is seldom exceeded. The man with a large flock whose annual output averages 120 eggs per hen is doing well. Moreover, he is making money. Only in very exceptional instances has an average of 150 eggs been obtained.

Much larger records are made in small flocks. Given equally intelligent care, hens always do best when kept in small numbers.

Unless a commercial poultryman increases his income by selling hatching eggs or day-old chicks, \$2 a hen is his maximum annual profit over feed. The average annual profit over feed is under \$1 per hen, and of course, many commercial hen farms never pay at all. Backyard flocks, too, are frequent failures, though proportionately they yield better profits. Backyard flocks sometimes return \$3 profit per hen; \$2 per hen is not at all unusual.

Amount of Man Labor Necessary.

Theoretically, one man can care for 1000 hens. Probably for such a flock year-round labor will average about one man's time a day. In practice the man handling 1000 hens requires considerable help during the busy spring hatching season and in winter has two or three idle hours daily. It is very difficult to hire labor and make money with poultry. Those who do so act as superintendents and have several men under them.

Incubation costs vary with methods.

B. F. Kaup found at the North Carolina Experiment Station that chicks hatched by hens, eggs and feed for the sitting hens being considered, cost four and eight-tenth cents, reckoning eggs at thirty cents a dozen, the current market price. In these experiments eggs averaged to hatch eleven chicks to 15.1.

This was efficient, cheap incubation. Concerns which do hatching by machine commonly charge two cents an egg. This is the so-called custom hatching. The price mentioned gives a good, but not undue, margin of profit over labor, fuel, and interest on the investment.

Other Considerations.

Hen manure sells for twenty-five cents to \$1.25 a barrel. It will usually offset expenditures for litter and green food, the first of which costs \$10 to \$17 a ton and the second fifty cents a barrel up. Oat straw is the usual litter material on commercial poultry farms.

One of the greatest devices ever invented for poultrymen was the trap-nest, used in obtaining individual records. Its adoption has not been nearly so widespread as at first anticipated. Poultry mathematicians got busy and found a trapping system, properly handled, cost fifty to sixty cents per hen annually for labor alone. Few poultrymen except those who specialize in the sale of breeding stock now trap-nest to any extent.

There is a fairly good supply of skilled poultry helpers. They are mostly young fellows who have taken courses at agricultural colleges. Poultry managers get \$75 a month up to \$125. Others get about \$35 a month and board.

Commercial poultrymen ship in cases of two kinds. Permanent, returnable cases cost forty-five cents to \$1.25 apiece. So-called light western cases, non-returnable, cost five to fifteen cents each. Egg producers expect to pay about one cent a dozen for transportation and another cent, perhaps two, when selling through brokers, for commission.

New England poultrymen have calculated it costs seventy-five cents to raise a pullet to laying age. But obviously production cost is variable, depending on cost of chicks, percentage of chick mortality, the feeding system, labor cost, and other less important factors, like interest on investment.

Colorado.

J. T. BARTLETT.

RAISE RABBITS TO INCREASE THE MEAT SUPPLY.

Rabbits, which have proved a valuable source of food in Europe during the present war, may well be raised more extensively in America by way of reducing the drain on the ordinary meat supply, according to biologists of the United States Department of Agriculture. The business of growing rabbits, the specialists point out, can be carried on by youths and adults not engaged in military or other national service, or in regular industrial employment. The animals may be raised in back yards of cities and towns as well as on farms.

The Belgian hare, says a statement by the United States Department of Agriculture, breeds rapidly, matures quickly, and produces a palatable and highly nutritious meat. The cost of production is less than that of any other meat, not excepting poultry. The supply can be greatly increased within a few months, without requiring space that may be needed for the production of crops. Practical experience has demonstrated that rabbit meat can be produced in unlimited quantities at a cost of about six cents a pound; and by utilizing lawn cuttings and other vegetation that would otherwise be

wasted, the cost can be made even lower.

The Belgian and Flemish giant rabbits are recommended for meat production, as the ordinary tame rabbit is smaller and develops more slowly. Stock of Belgian hares may be bought from breeders in nearly all the states at \$1 to \$3 each. They may occasionally be had from pet stock dealers. Fancy pedigreed stock is not required for meat production.

Rabbits are easily kept. They eat hay, grass, lawn cuttings and green vegetation of many kinds. Females should be allowed to breed when eight or ten months old, and during the year should raise four litters of about six young each. Well fed, the young reach marketable size when three to four months old and average from five to six pounds live weight.

SELECT WINTER LAYERS NOW.

No business man with any concern for the safety of his resources would invest his money in a leaky enterprise, or one which brought only assessments and no dividends, and no poultryman, with feed prices making common corn almost a luxury can afford to keep in his flock hens not earning their keep. The weeding out of the non-producers and the retention of those whose productivity is certain, is necessary if a poultry business is to be made to pay.

What are the best hens to keep?

The late moulter, as a rule, is the heaviest producer. The hens found to be laying well in August and September are the hens to keep for another year's work. Those two years of age, but which are laying now can safely be kept for another winter. Hens at the college two, three and even four years of age that are producing as many as fifteen to twenty eggs in August, will be kept over for another year. One hen, a Barred Rock with a record of twenty-seven eggs in August, is nearing five years of age. She will be kept in our pens. Do not understand that we recommend the keeping of all old hens, but we do recommend the keeping of such individual hens as have the "come back" in them and are vitally strong and in perfect health.

When selecting pullets, retain only the ones showing they have put to good use the food fed to them. Pullets should now be of good size. Never keep small, rusty individuals in the hope that they will come on, for they only serve to spread trouble in a flock. Make the flock as uniform in size as possible.

Do not feed pullets and old hens alike. To ripen up the pullets give them a mash of equal parts by weight of corn meal, bran and middlings, to which has been added fifteen per cent by weight of high-grade meat scrap. Moisten with sour milk, and feed once a day in troughs all they will clean up in twenty minutes, but not more.

Mich. Ag. Col. C. H. BURGESS.

PRACTICAL POULTRY POINTERS.

In selling poultry and eggs to private consumers it is necessary to use every precaution to deliver nothing but quality goods. One tough old hen will destroy the reputation built up by twenty that were tender, fat and juicy. One bad egg in a hundred will cast suspicion on every other egg in the lot. When a reputation for quality has been established it is worth money and it should never be carelessly sacrificed. Never sell an egg from a stolen nest, or a fowl not up to the standard demanded by the consumer.

If young chicks have been allowed to run in the garden watch the tomato patch when the fruit begins to turn. The birds will ruin the tomatoes if a temporary fence is not placed around the plants or the green fruit picked and ripened in the house. Many kinds of garden truck are benefited by having the young chicks range among the

plants gathering bugs and weed seeds. Even old hens can be allowed to range in strawberry patches after harvest time and they will be of value in keeping down the weeds.

Hold a fowl with the legs projecting outward and the body resting on the hand and fore-arm. In that manner the heaviest fowl can be held still without any of the scratching and flapping of the wings which is present when a bird is held by the feet with the head hanging downward. Holding a bird in this position gives the poultryman a fine opportunity to examine the feathers, hunt for lice, or make an inspection of the bird's physical condition.

One difficulty in marketing poultry to private consumers is the fact that they will expect a uniform supply at all seasons of the year. Of course, the poultryman cannot expect to supply as many customers at some seasons as at others. The best method is to only supply a few regular customers throughout the year and then take on additional buyers with a thorough understanding that the business will only be temporary. The farmer is helped in serving his customers by the fact that many buyers use the largest number of eggs when eggs are low in price and the low prices come when eggs are the most plentiful.

Dead poultry, rats, and all farm animals that die should be cremated or buried deeply to avoid future contagion. If a chicken is buried a few inches beneath the soil it is quite apt to be scratched out by the hens or the family dog. If left around the poultry yards it may be eaten by the fowls and then sickness promptly results. The poultryman cannot afford to lose healthy fowls through carelessness of this kind.

Ingham Co. R. G. KIRBY.

EGGS AT TOP NOTCH PRICES.

To secure the highest price for your eggs it is necessary to produce uniform colored eggs and to produce eggs of large size. To do this it is necessary to keep but one breed and that breed pure. Never cross the breeds,

as it does not produce a uniform product and is disastrous. Do not send eggs to market that are dirty, too small, thin-shelled, from stolen nests, or that have been set on. Keep the broody and setting hens separate. If you do not want to set the hen when she becomes broody, make a coop two feet by three feet, of slats of scrap lumber and put her in this coop until she no longer wants to set. If you want her to set, move her to a vacant room or a combination setting and brooding coop.

Saying a product is good does not make it so. If you send to market only eggs known to be absolutely fresh your eggs will soon have a demand. On the other hand, if you place among these eggs those stolen from nests, that have been under broody hens, eggs that are dirty and eggs kept on hand for a long time, your eggs will not command the highest prices, consequently, your returns will not be what

All farm eggs should be gathered at least once a day in the fall and winter and twice a day in summer. Keep the eggs in a cool place, where it is dry and away from bad odors and dust.

Eggs too small, checks and weak shells, dirty eggs or eggs from stolen nests or that have been set should be rejected. These eggs should be used on the farm or thrown away, as they are sure to injure a first-class trade. You cannot build up a first-class trade and accept this grade of eggs.

Never use filthy fillers. Discard all smeared and filthy fillers. There is a space of about one inch which allows of corrugated cardboard or excelsior pads to fill in the space on the top and bottom to act as buffers. If loose excelsior or other material is used it must be spread very evenly and the top of the lid must rest level and not bulge upward.

Get a good steady city market for your eggs, shipping them on given days, thus permitting securing the best market all the year. Profits from eggs means everlastingly keeping the demand supplied with fresh laid eggs. New York. E. W. GAGE.

Wheatless Egg Rations

WITH wheat so high, poultrymen will be interested to learn that on the United States Department of Agriculture experiment farm, excellent egg-laying results were secured with a wheatless ration. Thirty Leghorn pullets to which this ration has been fed for one and a half years, produced an average of 147.3 eggs per hen for the pullet year. This compares favorably with egg yields secured on other rations containing wheat and therefore more expensive. This pen, moreover, during the first sixteen weeks of its second year has averaged 28.5 eggs per hen, 17.5 eggs per hen being produced in March.

The same wheatless ration has been fed since last November to a pen of Buff Orpington pullets which have laid fifty-three eggs per hen in twenty weeks, and hold the highest egg record of any of the large feeding pens of pullets at the farm this year. Two other pens, however, are less than one egg per hen behind this pen.

The ration used was as follows: Scratch mixture, two pounds cracked corn, one pound of oats. Dry mash, three pounds of corn meal, one pound of beef scrap.

The scratch mixture was fed sparingly so that the hens ate about equal parts of this mixture and of the dry mash. The total grain consumption of feed for the year was fifty-two pounds, of which twenty-six pounds was the scratch mixture. Throughout the year it took 4.6 pounds of feed to produce a dozen eggs.

This scratch mixture, with wheat \$2.57, cracked corn \$1.35 and oats sev-

enty cents per bushel, is forty-nine cents per hundred pounds cheaper than the regular mixture of equal parts of cracked corn, wheat, and oats. Another mash which is slightly cheaper than this one, is made of four per cent each of bran and middlings, twenty-six per cent of beef scrap, and sixty-six per cent of corn meal.

If the wheat is omitted from the ration it is very essential to feed a considerable proportion of beef scrap in the mash, but with present prices, beef scrap is one of the cheapest poultry feeds, considering its high protein content.

These experiments, the specialists say, prove that wheat is not essential in an egg-laying ration and that excellent results can be secured by using corn and oats as a scratch mixture, provided this is fed with a good mash containing twenty-five per cent of beef scrap.

MEAT SCRAP GOOD FOR THE LAYING HENS.

"Hens require some protein of animal origin if best results in egg production are to be secured," said W. J. Buss, poultryman at the Ohio Experiment Station. "In our work meat scrap has produced increased egg yields and more than paid for itself, but soy beans generally are not a satisfactory high-protein feed." In recent feeding tests at the station, hens fed soy beans laid only a few more eggs than those given no feed high in protein. Skim-milk and tankage are also suitable for use in rations for laying hens.

Straight Answers to Timely Questions

What is Pratt's Poultry Regulator?

A positive tonic and conditioner for poultry of all kinds and ages. A health-builder and health-preserver. Not a food.

What does it contain?

Roots, herbs, spices, mineral substances, etc. Each ingredient performs a certain duty. The combination spells "health insurance."

What does it do?

Pratt's Poultry Regulator makes and keeps poultry healthy, vigorous and productive. It sharpens the appetite, improves digestion and circulation, hastens growth and increases egg-production. It saves feed by preventing waste due to poor digestion. It prevents disease by keeping the birds in condition to resist the common ailments.

Has it been fully tested?

Yes! In general use for nearly fifty years. The original poultry conditioner. Imitated, but unequalled.

Does it give general satisfaction?

Positively! Satisfaction guaranteed or money refunded. Test it at our risk. Increased egg-production will prove that "Pratt's makes hens lay."

How is it best used?

Daily, in small quantities. For adults, a tablespoonful daily for 10 birds. Younger stock in proportion. Mix with dry or moist mash.

What does it cost?

Nothing, because it pays big profits. One cent a month per hen is the investment required.

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From 60,000 Pratt dealers. There is one near you. Direct from the manufacturer, prepaid, if your dealer can't supply you.

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Ask the Pratt Food Co., Philadelphia, for valuable FREE BOOKS on poultry keeping. Write today!

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28 N. Sacramento Blvd., Chicago, Ill. Carey M. Jones, Pres.

HOUSING FARM ANIMALS.

(Continued from page 294). a disputed point; some authorities claim that 70 degs. F. is about right, while others say the proper temperature is some 30 degs. below the first figure. Owing to the fact that the covering of hair decreases the necessity for artificial heat, most successful dairymen agree that the temperature for dairy cows ought to be maintained at from 40 to 60 degs. F. This does not mean that the barn should be supplied with steam heat or artificial heat of any kind, but it does mean that the barn should be so built and cared for that in the coldest days in winter, the inside temperature never goes below 40 degs. F.

In some instances, this matter of heating is overdone. A man having money and living near Cincinnati, Ohio, decided to go into the dairy business. Wanting to have things extra fine, in order to produce a good product and to develop strong cattle, he put steam heat into the barn and provided each stall with an electric fan. All that was nice, but it was neither sensible nor economical, and as a matter of fact, the vitality and vigor of the herd was noticeably decreased after four years of such housing and care. There is a heat at which a cow is comfortable, just as there is a certain heat at which a man is comfortable. Add to that heat and the animal is worried and made uncomfortable; lower that heat and the animal supplies it with high-priced feeds to the detriment of the quantity of milk produced.

Avoid Drafts but Provide Plenty of Fresh Air.

Fresh air sufficiently warmed never hurt any animal but cold drafts have brought on many ailments which have resulted disastrously. The mistake that is made in the construction of a great many Michigan stock barns is that of excluding the air too much and not providing any means of ventilation at all. Bank barns seldom are ventilated at all and while they may be just right as far as warmth is concerned, the absence of plenty of pure air is detrimental to the stock; they are compelled to re-breathe the same air so many times that the body processes cannot take place as they should.

Since fresh air is so free, especially here in Michigan and since it can be so easily and inexpensively supplied to the stock, and at the same time not subject them to drafts, there is little excuse for not supplying it. I know that the moment I speak of ventilating a stable, someone is going to think immediately of a high-priced ventilating system which will take more money than he can rake and scrape to pay for but such a system is a luxury and not a necessity.

Intakes Should be Small and High Up; Out-take is Single and Low Down.

The thing to be remembered in any method of ventilating is that cold air is heavier than warm air and so, if the air is allowed to get out through the top of the stable, the stable will be cold for all the fresh air will be supplied at the bottom. On the other hand, if all the fresh air is supplied at the top through one large opening and is conducted out at the bottom through another single exit, the pure air is not sufficiently warmed, and besides, a draft is created.

In some stables, enough air can get in around doors and windows, but others are too tight so a stale stable results; open the doors in winter and stable odors and impure air roll out in sufficient quantities to be noticeable in the extreme. In order to have the air well warmed, it should come in at several places, preferably near the top of the stable.

King, of Wiscon, found after extensive trials, that the average 1,000-lb. cow breathes 2,804 cubic feet of air in twenty-four hours. There should not be more than three per cent of breath-

ed air in the stable at any one time and on these calculations, there should be provided 3,500 cubic feet of pure air per day for each 1,000-lb. animal. Fresh air is just as essential as is good food.

CREDIT FACILITIES FOR LIVE STOCK PRODUCTION.

In a recent letter to the chairmen of the respective State Bankers' Associations, the United States Food Administration made some suggestions which are of particular interest to live stock men. Extracts from this communication follow:

"No one will question the economic importance of agriculture in the structure of the nation's business or the necessity of live stock in any scheme of successful agriculture. For more live stock means greater fertility; greater fertility means larger yields per acre; increased production per acre means more net to the farmer, and should mean a less cost, both of raw materials for manufacture and of food supplies to the consumer.

"The above facts, coupled with the pressing necessity of increasing our food supplies, are our justification for appealing to you to exercise your large power and influence in making live stock credits both more abundant and less expensive.

"In a recent letter to the Food Administrator, Mr. Harding, Governor of the Federal Reserve Board, states: "The Board will, through the Federal Reserve banks, call the attention of member banks to the opportunity that is now afforded them to render very effective help in the present food crisis by reducing their interest charges upon cattle paper to as low a rate as possible."

"It is reasonable to expect from the above that the rediscount privilege of live stock paper will be at all times accorded the consideration its importance deserves.

"We desire to call your attention to the fact that in innumerable instances one sow can be handled to advantage and an economic production of pork brought about, where five sows would mean production of pork at a loss. The one sow would largely mean utilization of what is now waste; five sows the purchase of high-priced feed for turning progeny into pork, with the result of high cost of production. The one-sow man is the farmer who can come to the rescue of the nation in this emergency. Make it possible by furnishing the necessary credit at a low cost. The same principle applies to both sheep and cattle. It is the man who will produce in small units whom we must rely upon to get our increased supply of live stock. The essential thing is to make the important factor of credit available at a reasonable cost to him. From its importance to the whole nation, no industry is entitled to easier credit or credit at a lower cost.

"The above policies made effective, together with a continued exploitation of the 'Boy and Girl Clubs,' will meet the nation's need of putting live stock upon every farm.

"We confidently expect that both business and patriotism will commend this service to you and that your intelligence will find a way to do the work effectively."

FEEDERS' PROBLEMS.

Ground vs. Cooked Barley.

Will you tell me which would be the best for me to do in feeding barley to growing pigs, grind it or cook it?
Eaton Co. R. H.

A large number of experiments conducted at different stations have shown that it does not pay to cook grain feed for hogs except certain feeds which are rendered more palatable and digestible by the cooking process, such as beans and also vegetable feeds such as potatoes.

(Continued on page 314).

Grange.

STATE GRANGE EXECUTIVE COMMITTEE MEETS AT JACKSON.

An important meeting of the executive committee of the Michigan State Grange was held at Jackson on September 6.

As most of the patrons of Michigan know, the annual State Grange session is to be held in Jackson this year. One of the objects of the meeting was to begin arrangements looking toward this meeting. The board of commerce of the city are a unit in the wish to do all that can be done to make the coming meeting one of the pleasantest in the history of the Order. The spirit of the people of Jackson and that of the members of our Order in the surrounding country is notable, in that they are most anxious to do everything possible to make the coming great meeting a splendid success.

Worthy Master Ketcham is planning a Grange revival effort for October and is lining up a large number of people, each of whom will promise to organize one new Grange or reorganize one that has become dormant. In this work he will have the cooperation of all loyal patrons to the extent of their ability and we confidently hope for results. The success of this "Drive," however, will be greatly increased if every subordinate Grange can but catch the spirit of the hour, and help. Granges, don't leave it all to Brother Ketcham and the members of the executive committee. Help in every way possible.

At the last session of the State Grange a representative of organized labor appeared and invited us to send a delegate to their convention in order to bring the working people of the city a little closer to those who live out on the farms. It was voted to send a delegate and the appointment will be made by the worthy master.

Someone has suggested closer union of Granges in contiguous states in order to secure better prices of those things that are bought through our Grange contracts. It is thought that with an increased demand for goods contracted for, a much more favorable price may be secured, which fact will lead to still larger purchases on the part of our people. To this end it is planned to arrange a meeting of the executive committee of the states of Wisconsin, Ohio, Pennsylvania, and Michigan some time in the near future, probably the last of November.

It is probable that no other state has done so large an amount of cooperative buying as has Michigan.

Our trade in binding twine, fence and fertilizer has been very heavy. If we could secure the cooperation of the three states mentioned above, and then take hold with a will, and do the amount of hustling that is the price of success in any line of business, something worth while must surely come of this union of cooperative effort. The writer is very anxious to see this plan tried out, because he is certain that it can be made to work.

The rank and file of our membership are just now all ready for anything in the line of business cooperation that is not too complicated, providing they have the right sort of leadership. I am convinced that large as our purchases through Grange contract have been, they are not one-fourth of what they might be if only the membership of the Order were awakened to the advantages of this method of buying the things they need on the farm and in the home.

A letter was addressed to General Crowder asking that farm boys be not called to the various training camps until fall seeding is accomplished and crops are harvested.

The letter received the unanimous endorsement of the committee. The Michigan State Grange is loyal to the

Farmers' Clubs

THE FARMERS' CLUB AS A UNIT FOR "FIRST AID."

The leading article in this issue is a plea for the cooperation of Michigan Farmer readers in the matter of extending "first-aid" to the state's agriculture in the present crisis. So accustomed have we become to peace conditions that it is difficult for us to adjust our point of view to war necessities. But it must be done and the sooner and more thorough we make the readjustment, the better it will be for us as individuals and for the important industry in which we are engaged.

In such a readjustment there can be no more helpful agency than the public discussion of the problems involved, and there is no better forum for such discussion than the local Farmers' Clubs of the state. But the Farmers' Clubs can perform a service in the present emergency far beyond that of mere discussion. The local Club offers a nucleus for the formation of cooperative organizations which may become most essential to the efficient operation of the farms of the members. The discussion of possible action along this line will prove most beneficial, and we believe that the Farmers' Clubs of Michigan should discuss the "first-aid" problem in a constructive spirit, to the end that the organization may render the efficient aid in the present emergency of which it should be capable. May we not hope that numerous feasible plans may be evolved and reported for publication in this column, which will help in the solution of the vexed problem now confronting Michigan farmers.

CLUB DISCUSSIONS.

Discuss Household Economy.—The Wells-Dayton Farmers' Club, of Tuscola county, met at the home of Mr. and Mrs. Walter Kelley, Wednesday, September 5. The program, prepared by George Walls, was the best in several months. It was opened with a song by the Club, followed by prayer. A number of good musical and literary numbers were rendered. Mrs. C. L. Coffeen, of Lansing, was present and gave a paper on the "Planning and Serving the Meal," which was very helpful, as it showed how to economize as well as still serve nourishing food. The county agriculturist, Mr. McVitty, was present and gave a short talk on general farm topics. The question box was given to the discussion of seed wheat and the preparation of the soil. In closing, all sang "Annie Laurie." Mrs. Edith Johnson served a fine supper.—Mrs. C. Harmon, Cor. Sec.

The executive committee which represents the State Grange during recess, is not asking for exemption of farm boys as a class, we are not even now asking that more farm boys be exempted, but we do feel that under the circumstances it would be most unwise to take these boys from the farms at once, when by waiting a few weeks, crops might be harvested, and preparations made for winter, both of which seems highly necessary if we are to do our part in feeding the world, in this time of unprecedented shortage of the food staples.

Had he the power, the writer might go farther, and actually exempt every practical farmer from service at the front while he remained on the farm and actually worked. He would try so to frame the rule that no "slacker" from town or country could go out on a farm and hide behind a tree or a bunch of hay while someone else did the greater part of the work.

Three members of the executive committee are to be elected this fall by primary ballot. Granges have already made nominations. On examination, it was found that the retiring members were renominated, and that while a large number of persons received one or more endorsements, no others were honored with the necessary ten, and so the names of B. B. Lincoln, N. P. Hull and Wm. H. Welch are the only names to appear on the ballot.

The meeting was a very pleasant one, and all the members left for their homes early in the evening.

W. F. TAYLOR.

Come to Detroit
The Automobile Center and
LEARN THE AUTOMOBILE BUSINESS-EARN \$75 TO \$300 A MONTH

Detroit trained men get preference and jobs quickly. Think what it means to learn in the Michigan State Auto School. Factories endorse our School, glad to employ our graduates or offer them territory. Men are needed everywhere as testers, repair men, chauffeurs, garage men. Hundreds of our graduates start in business for themselves. 44 auto factories in Detroit and 140 parts factories. Students get actual experience in handling all kinds of electrical auto equipment. Just installed a Sprague Electric Dynamometer for block testing purposes for students' use.

Detroit Is Place to Learn—Start Any Time

We teach you to handle any auto proposition. Students actually build cars from start to finish, getting factory training in assembling, block-testing, road testing, everything. Special complete course in Oxy-Acetylene brazing, welding and cutting, separate from regular course. All leading types of starting, lighting and ignition systems in operation. Six cylinder Lozier, eight cylinder King used for road instruction. We have the following completely equipped classes—

Studebaker "6" 1917 chassis	Hudson Super-6 1917 chassis	Chalmers "6-30" 1917 chassis	Winton "6" 1917 chassis
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School Open All the Year. Graduate in 10 to 12 Weeks. Enter Classes Any Time, Any Day. Three Classes Daily: Morning, Afternoon, Evening.

Money Back Guarantee

We guarantee to qualify you in a short time for a position as chauffeur, repair man, tester, demonstrator, auto electrician, garage man, or automobile dealer, paying from \$75 to \$300 monthly or refund your money. We have constantly more requests for Michigan State Auto School graduates than we can supply.

THIS IS ONE OF FEBRUARY, 1917, CLASSES.

Prepare to Serve Your Country NOW

The United States needs thousands of truck, transport, aeroplane and motor cycle drivers. Trained competent men are needed, men who can take care of the machines, men who know how to keep them in service. Any piece of motor-driven machinery the government owns or will own must be in service. Preference will be given to trained men. No matter what service the Army is doing, it must be fed. If it is on the firing line, it will need thousands of rounds of ammunition. The importance of trained men is very evident. Food and ammunition must be delivered regularly. Then too the army must often be transported.

Quartermaster Department and Signal Corps Need Trained Men

No matter what happens to a truck or pleasure car a Michigan State Auto School graduate is competent to repair it. Cars in the care of a graduate give highest efficiency. This is the kind of men our Government wants and is daily enlisting. This branch of the Army service pays good salaries. Wonderful opportunities for the trained motor mechanic.

LEARN A SUBSTANTIAL BUSINESS

Men who become trained in the Auto Business and serve their country can go into a permanent business as soon as their services are no longer needed. The trained mechanic is always in big demand. Ours is the largest Auto School in the country. Better jump on a train and come to Detroit as hundreds have done. You can do your bit best as a trained Auto Mechanic.

ACT QUICKLY Get full particulars, "Auto School News" and new 128 page illustrated Catalog, absolutely free.

MICHIGAN STATE AUTO SCHOOL
THE OLD RELIABLE SCHOOL. A. G. ZELLER, President
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No. 6 COLUMBIA IGNITOR DRY CELL

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FOR US PAT. OFF. GENERAL IGNITION

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National Carbon Co. Cleveland, Ohio
Faintest stock spring-clip binding points, no extra charge.

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"Kero-Oil" Engines

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I Save You \$15 to \$200

Farms and Farm Lands For Sale

The Best Farm Land

In Central Michigan

Near good market cities. Clear title. Prices and terms right. Buy from the owners.

Stafford Brothers,
15 Merrill Bldg., Saginaw, West Side, Michigan

160 Acres, Eleven Cows and Heifers, 60 Tons Hay, Hundreds

of bushels corn, beans, potatoes, turnips, vegetables apples and oats with straw, corn fodder, 40 tons ensilage, 4 oxen, 2 hogs, 36 hens, moving machine, horse rake, hay rack, 2 plows, 3 harrows, 2 cultivators, roller, corn planter, feed cutter, wagon, cart, carriage, 3 sleds, sleigh, ox yokes, small tools, cream separator, etc., etc. all included by aged feeble owner if taken immediately. Near school, only 1 1/2 miles to village with creamery, grange hall, high school, stores, churches, etc. Estimated 35,000 ft. timber ready to cut and 2000 cords wood bringing \$8 per cord in city only seven miles away. 75 bbls. apples last year. 500 sugar trees, sap house, evaporator and equipment. Good 8-room house, 20-cow barn and poultry house, insured for \$2000. \$1500 takes all. Easy terms arranged. For instructions to see this money-maker see page 6 Strout's Fall Catalogue. Copy mailed free. E. A. STROUT FARM AGENCY, Dept. 101, 150 Nassau St., New York, N. Y.

FOR SALE 100 acre farm, 85 acres under cultivation, balance fine pasture. Well fenced and tiled, running water. Excellent stock and grain farm. Six miles northwest of Leslie, Michigan. For particulars address: LLOYD H. SLAUGHT, R. 1, Leslie, Mich., Citizens Phone.

245 Acre farm near Davisburg, Oakland County. Basement barns, 10 room house, 175 acres. Flow land, 40 acres timber, good gravel clay loam soil, and very productive. Price \$14,900. BROOKS & MONTGOMERY, 412 Hammond Building, Detroit, Mich.

120 ACRE farm for sale. All fenced; half in cultivation; running water; excellent stock farm; one mile from good town on railroad in northeastern Michigan. Particulars write, Box C. 31, Michigan Farmer, Detroit, Mich.

Rainy Lake Farm Lands. Clay loam soil, guaranteed fertile, on long time, small cash payment. Write JNO. G. KRAUTH, owner. Millersburg, Mich.

WANTED to rent a good stock and grain farm of 200 to 400 acres, cash or shares, Apr. 1, 1918 by a man with plenty of help, stock and tools. Near S. D. A. church. ANDREW KNEEHT, Bitley, Mich.

Lake Carriers' Offer to Assist Government to man Merchant Marine

Few, if any, other occupation offer such advantages and promise as sailing on the Great Lakes. The wages paid are the highest paid for like service anywhere in the world and are now the highest ever paid on the lakes. Now our Government is about launching a great American Merchant Marine on the high seas and will require thousands of seamen and licensed officers with the door wide open for advancement. Vessels on the Great Lakes have undertaken to recruit sailors for the purpose, giving every encouragement to able-bodied young men of good character to take up this work by employing them at regular wages, with good conditions of living while teaching them seamanship. Ambitious men will find this field full of opportunity for rapid advancement, with the certainty of unprecedented opportunity for advancement in the new merchant marine. Inquiries may be addressed to Lake Carriers' Association, Cleveland, Ohio, or any customs officer or steamboat inspector, or officers of any vessel will give details concerning this employment.

When writing to advertisers please mention the Michigan Farmer.

A. R. O. THE OCTOBER SALE A. R. O.

Sale Pavilion, Howell, Michigan
Wednesday, October 17th '17

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75 head of high-class Holsteins, each with an A. R. O. record or out of an A. R. O. dam. Every animal guaranteed a breeder. No damaged udders. Every animal over six months of age carefully tuberculin-tested and all guaranteed free from disease.

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In S. C. White Leghorn cockerels, Ram-bouillet rams, Hampshire pigs (either sex) and Holstein bulls. A good chance for a small investment to reap the benefit of a large expenditure of capital and years of expert breeding.

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Herd established in 1900, Trojan-Ericas and Black birds only. Bulls in service: Black Brandon 208322, Enos of Woodcote 191332. Also breeders of Percheron and Saddle Horses.
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Bulls, Cows and Heifers for sale. GEO. HATHAWAY & SON, Ovid, Mich.

CHOICE Angus Bulls for sale. Have several well bred, excellent type Angus Bulls at reasonable prices. M. L. Smith, Glenwood Farm, Addison, Mich.

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Stock always for sale. May Rose Strain—Herd Tuberculin tested annually. Never had a reactor—no abortion. J. M. WILLIAMS, North Adams, Mich.

Guernsey Bulls of service age and calves from choice. Adv. reg. breeding.
T. V. HICKS, Route 1, Battle Creek, Mich.

GUERNSEYS—REGISTERED BULL CALVES
Containing blood of world champions.
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Guernseys—For Sale, four young registered cows, Tuberculin tested. Geo. N. Crawford, Holton, Mich.

Registered and Grade Guernsey cows, bulls, yearlings, heifer calves; will sell 20. Some with records; choice of 45; must reduce herd; tuberculin tested. Avondale Stock Farm, Wayne, Mich.

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Offers at the sale of the Michigan Breeders Consignment Sale Company, at Howell, Michigan, October 17, 1917, twelve splendid females, all A. R. O. or with A. R. O. dams. Six daughters of Dutchland Colantha Winnana Lad, Grand Champion Bull at the Michigan State Fair. Also two males, ready for fall service. One a 29.5-lb. son of Crown Pontiac Korndyke; the other a son of a 31.7-lb. sire from an 18.5-lb. 2yr. old daughter of Crown Pontiac Korndyke, whose 18 tested daughters average: 21.407 lbs. butter and 429.7 lbs. milk in 7 days at an average age of 3 yr. 4 m. 19 d. You cannot afford to miss this sale.

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REG. HOLSTEINS: Herd headed by Albina Bonte Butter Boy No. 93124. Dam's record at 6 yrs. butter 28.53 lbs. milk 619.4. Yearly record at 2 1/2 yrs. butter 802 lbs. milk 18622 lbs. W. B. READER, Howell, Mich.

842 Lbs. BUTTER

Is the average of the semi-official records of our herd bull dam (at 2 yrs.), his grand-dam (at 3 yrs.) and his great grand-dam. Three choice young bulls from A. R. O. dams. Herd tuberculin tested annually. Holsteins of course. Peaceland Stock Farm, Three Rivers, Mich. Chas. Peters, Herdsman. C. L. Brody, Owner, Port Huron, Mich.

For Sale A Yearling Heifer, pure bred Holstein, Sire, Colantha Johanna Cream-elle Lad, Dam, Elizabeth Segie Lyons. If you want something good, write, Geo. D. Clarke, Vassar, Mich.

Registered Holstein Friesian Heifers. 3 to 6 mos. old. Some from 30 lb. sires. Priced to sell. Fred J. Lange, Sebewaing, Mich.

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Have Some Fine Registered Stock For Sale

Buy Your Bulls From Parham's Pedigree Stock Farm
Choice Registered Holstein calves from A. R. O. cows.
RAY B. PARHAM, Bronson, Michigan.

I Always Have Holsteins To Sell

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

L. E. CONNELL, Fayette, Ohio

3 Holstein Heifers 30.21 lbs. sire. Their dam's dam A. R. O. sister to dam of 35 lb. cow bred to 3/4 brother to 30 lb. 4 yr. old. Terms if wanted. M. L. McLAULIN, Redford, Michigan.

Registered Holstein cows and heifers. Some fresh and others to freshen soon.
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"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.

Here is a young bull with inherited ability, and rare individual merit. He was born Dec. 24, 1915.
His Sire's Dam's Record
Butter 30 Days 33.62
Milk 30 Days 130.73
Butter 1 Year 215.70
Milk 1 Year 838.41
His Sire's Sire's three nearest Dams average Butter 7 Days 30.87. (Including a junior three and senior four yr. old.)
His Dam's Record: Butter 7 Days 31.24
3 Yrs. 14 Days 1 Milk 7 Days 152.8
Dams' Dam's Butter 7 Days 29.40
Almost 30 lbs. Price low for this quality.

McPherson Farms Co., Howell, Mich.

WINWOOD HERD REGISTERED HOLSTEINS

Holton, Mich.

Reference: Old State Bank, Fremont, Mich.

Flint Maplecrest Boy sire in service
His sire is Maplecrest Korndyke, his 3 Nearest Dams each over 30 lbs. of butter in 7 days. His dam and grand dam both made over 1232 lbs. of butter in 1 year. It is the yearly cow we are looking for to deliver the goods. Flint Maplecrest Boy's Dam is Gluck Vasser Bell, 30.57 lbs. of butter in 7 days and 129 lbs. in 30 days. Her butter fat test is 5.27. This looks about right to the man who goes to the creamery. We have Bull Calves from 2 weeks to 8 months old for sale at dairy farmers' prices all out of A. R. O. Heifers. Write & tell us the kind of a bull you want.
John H. Winn, (Inc.), Holton, Mich.

OAK LEAF FARM

Ypsilanti Sir Pietertie De Kol

Registered Holstein cows & bull calves fine individuals cows safe in calf satisfaction guaranteed.
E. H. Gearhart & Son, Marcellus, Mich., R. No. 4.

WOULD You want a bull from a 30 lb. dam and a 30 lb. sire for \$100? Can't be did, but we have one for \$600, also one from a 27.58 lb. heifer for \$260, and one from a daughter of Pontiac Aggie Korndyke for \$260. Good ones as low as \$80. All from World Record Sire.
LONG BEACH FARM, Augusta, Michigan.

Butter Fat Counts

Holstein Bull Calves from a 30 lb. 53* Sire. Dam are grand daughters of the King of the Pontiacs. Their dams grand daughters of Sadie Vale Concordia. The first 30 lb. cow. Edwin S. Lewis, Marshall, Mich.

FOR SALE young Holstein bulls, sired by bull out of a world record cow and with 3 sisters having records of over 1200 lbs. butter. Best of breeding. Priced not much higher than beef. ALLEGAN STOCK FARM, E. Brackett, Prop. Hartford, Mich.

FOR SALE 4 head Reg. Holsteins, 1 A. R. O. cow bred 10 years old 3/4 white easy milker \$175. 1 heifer 20 months old 3/4 white bred to 30 lb. bull large \$200. 1 heifer 8 months old 3/4 white a beauty \$100. 1 bull 8 months old 3/4 white good one \$75. The young cattle all sired by a grandson of King Fayne Segie the sire of the 50 lb. cow. All well grown and guaranteed sound. Price of bunch \$525. Write LEWIS J. BENJAMIN, R. D. 1, Olio, Mich.

On Our Easy Payment Plan we will ship you any registered Holstein Bull calf in our stables. Prices from \$50 up. Ypsilanti Farms, Ypsilanti, Michigan.

RINKLAND HERD BULL CALVES from A. R. O. cows at farmers prices.
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REG. Sept. and Oct. bull calves from College bred bull and heavy milking dams for sale. Price right.
C. L. HULETT & SON, Okemos, Mich.

REG. Holstein Bull Calf. The last one until winter. A good one with A. R. O. backing. Write for pedigree and price.
Elmer E. Smith, Redford, Mich.

Holstein Bull Calf two months old. Dam sixty pounds milk A. R. Sire from 30 lb. cow.
A. R. GRAHAM, Flint, Mich.

FOR Sale One registered Holstein bull calf. Sire's twenty nearest dams have 7 da. records av. 25.58 lb. butter. Dam to be tested. A finely marked, growthy individual. Long Veiv Farm, R. 3, Box 10 A, Rochester, Mich.

Wanted Fifty head high grade Hereford heifers—Calves or yearlings. Kindly specify breeding and price. W. E. MOSS, 710 Union Trust Bldg., Detroit.

The Wildwood Jersey Farm offers for sale choice young bulls from R. of M. dams, good enough to head any herd. We invite inspection.
ALVIN BALDEN, Capac, Mich.

For Sale Registered Jersey bull, two years old, Splendid individual
A. B. GOODMAN, Tustin, Mich.

FOR SALE JERSEYS Ready for service bull calves, backed by good records. Waterman & Waterman Meadowland Farm, Packard Road, Ann Arbor, Mich.

Jersey Bulls for Sale from high-producing dams, with testing asso. records, also on semi-official test. O. B. Weber, R. 6, Allegan, Mich.

Jersey Bulls for sale, ready for service. Out of good producing dams. Prices right.
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Hillside Farm Jerseys. For sale ten months sides by R. of M. dams with high official records.
C. & O. DEAKE, Ypsilanti, Michigan

Lillie Farmstead Jersey Cattle. Bull calves from R. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Lillie, Coopersville, Mich.

For Sale Two registered Jersey bull calves, Splendid individuals. Good pedigrees. Priced to sell. Long Veiv Farm, R. 3, Box 10A, Rochester, Mich.

Maple Lane R. of M. Jersey herd offers for sale tuberculin tested cows, bulls, bull calves carrying the best R. of M. blood of the breed.
IRVIN FOX, Allegan, Mich.

(Continued from page 312).

The best way to feed barley to growing pigs would be ground and in connection with skim-milk if same is available. If the skim-milk is not available, some other nitrogenous feed should, for best results, be fed with the barley, which is quite closely comparable with corn as a grain ration for pigs.

The Feeding Value of Cheese.

Is there any feeding value to cheddar? There is a great deal of cheddar in the wheat near here and if it has any feeding value we would be glad to feed it.

Genesee Co.

M. H. P.

The seed of cheddar or chert has considerable feeding value, containing 6.2 per cent of digestible protein, 60.6 per cent of carbohydrates and 1.5 per cent of fat. It has a nutritive ratio of 1:10.3. It contains more fibre than other grains with similar analyses, but would be valuable to grind with corn to be used in connection with some other nitrogenous feed. It has almost as wide a nutritive ratio as corn meal, but would lighten up this feed to some extent which would be an advantage. Cheddar should, of course, be ground before fed, in order to avoid the possibility of spreading it over the farm.

CLEARING UP WASTE PLACES IN THE FALL.

"I would like to know how to do good farming without sheep," declared Mr. George McKerrrow, of Wisconsin, one of the best and most widely known sheep breeders of America, upon a recent visit to the Food Administration in Washington. "Why?" he continued. "Because my sheep use up the wastes of the farm. They clean up the grass, weeds, brush and gleanings, and in so doing turn into cash what otherwise would be lost."

Mr. McKerrrow knows sheep and his knowledge comes from a broad experience gained in fifty-one years of breeding them. His is a story filled with romance, faith and devotion to an ideal that covers a span of years from the time an eight-year-old farmer lad, who had saved his pennies and nickels and bought an aged ewe, which in turn produced two ewe lambs, down to the present when thousands of sheep "eliminate the waste" on his 2,300 acres.

"Sheep," said Mr. McKerrrow, "make the most economical gains of any kind of live stock because they clean up the odds and ends. They are particularly useful on the farm in the fall of the year, for they turn into mutton the things that otherwise would not be used. At the same time they save the feed stuffs that would be given them if they did not have access to these other things."

After harvest, Mr. McKerrrow's sheep are turned into the oat fields for a few hours the first day; an hour or two longer the second day; and the time gradually increased until at the end of a week they have complete possession of the fields. The lambs are permitted to enter the corn before it is cut and they clean up on the weeds and lower corn plant leaves. Lambs do not pull down the lower ears of corn as do the sheep. Roots are grown for the cattle and sheep on Mr. McKerrrow's place, and after the larger roots are hauled into storage for winter use, the sheep are turned into the field and eat the smaller ones that remain. Both the sheep and lambs are turned into the aftermath of the meadows and this brings them into winter quarters in good condition.

Another profitable practice on this farm is that of plowing up fields that become weedy after harvest. These fields are sown to rape and turnips, and later the sheep are turned in. They eat the rape and turnip tops with relish and will later hollow the meat from the turnip, leaving but a shell.

Mr. McKerrrow has found that a frequent change of pasture is beneficial to the sheep. A thirty-six-inch woven

wire fence in twenty-rod lengths is moved about, thus preventing the too short cropping of the grass, and furthermore reducing the internal parasite plague to a minimum. Water is also an important consideration, and ewes particularly should have water the same as dairy cows.

"I would not go so far as to say that there should be some sheep on every farm," declared Mr. McKerrrow, "for peculiar conditions might not make it practical, but I do believe that there should be sheep on the vast majority of farms in this country. They turn waste into cash. The sort of saving that the good housewife is making in her kitchen can be practiced with corresponding effectiveness by the use of sheep on the farm."

LIVE STOCK NEWS.

The movement brought about for greatly increasing the sheep and lamb population of the United States is increasing in all directions, much encouragement being given by the federal and various state governments, as well as by societies and individuals. Breeding ewes are in urgent demand, and range feeding lambs are selling as fast as offered, buyers paying much of the time higher prices than are paid by killers. The sheep industry has had a great decline in recent years, and there are wonderful opportunities in the cut-over districts of Michigan, Wisconsin and Minnesota for rearing flocks at a small expense.

Farmers owning well-bred cattle or hogs can not overdo care in finishing them off in prime shape. Every week sees new high records for cattle prices, and the meager receipts of hogs are fetching far higher prices than were ever paid on the open market in past years. The hog crop was mostly marketed much sooner than usual owing to scant supplies of corn and unprecedented prices for that grain, and not many matured hogs are left in feeding districts. The Chicago packers, however, have contested some of the recent advances in prices, and after the early morning purchases of prime light and heavier swine were made by eastern shippers, ordinary to good packing grades sold off more or less. High prices seem assured for a long period, however, with only about enough hogs available for packers of late to supply the fresh meat requirements. Recent Chicago receipts of hogs have averaged in weight 233 lbs., comparing with 244 pounds one year ago, 254 lbs. two years ago and 232 lbs. three years ago. Provisions are in good demand on domestic account, and during a recent week exports of lard from the Atlantic seaboard amounted to 15,167,000 lbs., comparing with 7,107,000 lbs. for the corresponding week last year, while the exports of bacon aggregated 10,049,000 lbs.; comparing with 13,763,000 lbs. a year ago. If hog products go much higher, they will be, as mutton and lamb are already, beyond the reach of most families.

Hog receipts continue very light at all markets. The trade is looking forward to a free movement of light weight hogs to market within the next few weeks. They figure that both corn and hogs are selling at very high prices. This they believe will tempt hog raisers to market their stock at a lighter weight and take advantage of the high prices and at the same time have corn to sell at high levels. Not until hogs move to market in a freer manner does the trade look for any declines of consequence, because the trade has been on a famine basis for some time and it will require a number of hogs to work up a surplus again.

Buyers of feeding lambs certainly display plenty of nerve but they say they have plenty of confidence in the future and that is why they are taking feeding lambs at record prices. Very often within the past few weeks they have outbid killers in order to get a chance at the good range lambs coming to market at present. Being unable to get the right sort of breeding ewes, they are taking ewe lambs, which they intend keeping for a season and then producing a crop of lambs. During the week several bunches sold at a higher price than killers were willing to give.

Quite a number of strong weight feeding cattle are being taken out for a late fall pasturage and a wintering on corn. Such grades are selling at strong prices because the buyers of this class has the killers to compete with at the market. Cattle feeders think they will have plenty of corn and that fat cattle prices will be high enough to allow a profit even when the high cost now is taken into consideration.

Veterinary.

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

Shoulder Boils.—Will you kindly tell me what to do for my mare that is troubled with boils on her shoulder and neck? These boils come on her every spring and summer soon after she is put to work and she usually itches more or less after they make their appearance. F. H., Coopersville, Mich.—First of all you should use a nice-fitting collar and it should be kept clean. Dissolve ¼ lb. acetate of lead, 3 ozs. of sulphate of zinc and 3 ozs. of tannic acid in a gallon of clean boiled water and wet shoulder and neck three times a day. Also occasionally apply some of this same lotion to collar or collar pad. Give her 3 drs. of Donovan's solution of arsenic at a dose in feed or drinking water twice a day.

Indigestion.—We have a pair of twin cows that came fresh for the second time this spring. One of them seems to have lost her appetite and failed in milk yield. She is inclined to lie down quite a portion of the day. W. T., Springport, Mich.—Give cow a tablespoonful of bicarbonate of soda, two tablespoonfuls of ground gentian at a dose in feed or in a quart of water as a drench three or four times a day. See treatment for collar boils in this column.

Diarrhea.—Whenever my horse is stalled and fed dry feed, he is troubled with looseness of the bowels, but when on grass for two days his bowel movements are normal. I fed him oats and mixed hay. F. M. J., Fennville, Mich.—This kind of a case is best remedied by a change of feed; feed oats, bran, some oil meal and less hay. Mix equal parts of ginger, gentian and powdered charcoal and give him two tablespoonfuls at a dose in feed two or three times a day. Why not feed him plenty of green feed?

Injured Tendons.—Some four weeks ago our nine-year-old horse cut fore leg on barb wire, wound has healed, but his tendons between fetlock and knee are swollen. After resting a few days he travels sound, but when worked is lame. C. H. D., Oak Grove, Mich.—Apply equal parts of turpentine, aqua ammonia and raw linseed oil to tendons three times a week.

Horse Sneezes.—My seven-year-old horse sneezes not only when driven on road, but when in pasture. First heard him occasionally cough, then sneeze as if he was anxious to clear out his nostrils. He has good appetite. R. H. Decker, Mich.—Give him a teaspoonful of powdered sulphate iron at a dose in feed three times daily. Keep him in barn during cold rain storms and on chilly nights.

Rough Milking—Infected Milk.—I have a heifer which freshened last May; has given 12 quarts of milk daily since she calved, but I find some blood clots in her milk. Would fast milking cause this ailment? D. J. P., Caro, Mich.—Rough milking causes a whole lot of cows to give bloody milk. Use more cleanly methods, cool milk quickly after it is milked, keep it in a cool place and it will perhaps be all right. Give her a teaspoonful of powdered nitrate potash in feed or water once a day for ten days.

Lumpy Milk.—I am having considerable trouble with my cows giving lumpy milk, so am writing for some advice, also cause and remedy. The cows run on high land and have good clean water to drink. R. A., Northville, Mich.—Their udders may be infected, the udder should be occasionally washed with one part carbolic acid and 30 parts water, also keep the barn clean.

Loss of Appetite.—I have a cow that seems to lose her appetite occasionally and her milk yield has decreased from eight quarts at a milking to two quarts. After eating she seems to bloat and in the morning she appears rather dull and dumpish. W. B., Half-way, Mich.—Give your cow two teaspoonfuls of hyposulphite of soda and 1 oz. ground gentian at a dose in feed two or three times a day. Before commencing the treatment you had better give her one pound of epsom salts in three or four pints of tepid water as a drench; one dose only.

Indigestion.—I have a six-year-old mare with colt by her side that has a sick spell every week or ten days; she bloats more or less and seems to get over the attack in a few hours. F. F. S., Dundee, Mich.—When she has another attack, give her 4 ozs. of sodium thiosulphate in one quart of water as a drench and repeat the dose in one hour if she is no better. Give her a teaspoonful of this same medicine in feed or drinking water twice a day for ten days.

Guarantee Quality Sale of Registered HOLSTEIN CATTLE

At The West Michigan State Fair Grounds, Grand Rapids, Mich.

Tuesday, October 23, 1917

Seventy-five head of carefully selected Registered Cows and Heifers of excellent type and breeding, and a few choicely bred young Bulls from high-class sires and good producing dams, also a few choice Heifer Calves.

A large percentage of the cows and two-year-old heifers will either be fresh at time of sale, or will be due to freshen in the fall or early winter.

The cattle consigned to this sale will be very desirable additions to the herds of patrons of Condensed Milk Factories or Creameries.

Every animal over six months of age carefully Tuberculin tested, either by Government Veterinarians or competent graduate veterinarians, and Certificates of Health approved by the Michigan State Veterinarian. If interested, write for a Sale Catalog.

W. R. HARPER, Sale Manager, Middleville, Michigan.

4th Annual Sale In the Sale Pavilion at Howell, Michigan

THURSDAY, OCTOBER 25th, 1917
Eighty Head of Registered Holsteins

This sale consists of eighty females consigned by eighteen Livingston County breeders. With the exception of a few all are under 5 yrs. of age. Mostly fresh cows or soon to freshen and a few unbred heifers. Among our offerings is a 24 lb. three yr. old and her two daughters; a 23 lb. 3 yr. old, an eighteen lb. 2 yr. old, a daughter of a 28 lb. cow. A granddaughter of King Fayne Segis, a daughter of Johanna Korndyke DeKol and Granddaughter of Pontiac Korndyke and Hengerveld DeKol. Our reference sires include a son of King of the Pontiacs, a son of a lb. 32 cow, a son of a 30 lb. 4 yr. old, a son of a 29 lb. granddaughter of Pontiac Korndyke, and a son of King Segis Champion Model, the 40 lb. bull. All stock over six months of age tuberculin tested by state approved Vet. Catalogs ready Oct. 10th. Col. Perry and Col. Mack, Auctioneers.

Howell Sales Co. of Livingston County, Jay B. Tooley, Sec.

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.

H. W. MUMFORD, OWNER

BROOKWATER FARM

O. F. FOSTER, MANAGER

Ann Arbor, Mich., R. 7.

Do You Want a Cow Like Grace?



Grace is a ten year old Jersey, the best-paying cow in the Germantown-Gaithersburg Cow Testing Association, Md. All dairy breeds are represented in this Association, yet Grace produced more butter than any of the others. She yielded 12,350.7 lbs. milk and 788.4 lbs. butter. Her feed cost was \$28.11; her butter sold for \$307.15 leaving a net profit of \$218.04. You can have money-makers like Grace. Our Book, "The Jersey Cow in America", points out the way. It's free. Send today.

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FOR sale, 2 yr. old bull out of a R. of M. dam record 519.8 lb. butter in one yr. sire Majesty's Wonder R. of M. sire with 10 daughters in the R. of M. Write FRED A. BERNAN Sec., St. Clair Co. Jersey Cattle Club, Ocaspe, Mich.

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

FOR Sale—Reg. Short Horn Bulls by Maxwalton F. Monarch 2nd, a son of Avondale, from 1 to 9 mos. old. John Schmidt, Reed City, R. No. 5, Michigan.

Francisco Farm Shorthorns Big Type Poland Chinas

"They're rugged—They pay the rent." Nothing for sale at present.
P. P. POPE, R. R. 3, Mt. Pleasant, Mich.

Bidwell Shorthorns
"For Beef and Milk"
This heifer at 6 months has bone, size and quality—our own breeding. The blood of Scotch bulls, Imp. Shorthorn Albino and Imp. Villager Registered stock always for sale.
BIDWELL STOCK FARM,
Box B, Tecumseh, Michigan.

Announcing a sale of
40 Shorthorn Cattle & Pure Bred Percherons, Nov. 19th 1917
Get your name on our Mailing List.
H. B. PETERS, Garland, Mich.

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

Richland Shorthorns Largest and best IMP. Lorne, Albion Crest and Fair Acro Goods in service. A few good young bulls for sale at attractive prices. Our show herd will be at Detroit, Grand Rapids and Saginaw and we invite your inspection. Office Tawas City, Mich. Herd at Prescott, Mich. C. H. PRESCOTT & SONS.

For Sale Shorthorn Bulls 3 mo. to 2 years old from good milking cows.
R. R. Clyde Station, R. J. DeGarmo, R. 6, Milford, Mich.

SHORTHORNS Maple Ridge Herd, Established 1887. No stock for sale. J. E. Tanswell, Mason, Michigan.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos. 3 roan, 1 white, 1 red, price \$150. to \$250. 1 son of Maxwalton 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.

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 Shanston, Fairfield, Iowa, R-9.

Feeders For Sale We have six car loads of well bred Shorthorn grades. We can sell these so as to save you money as compared with Chicago. Free from contagious diseases. Write for further information. The Jennings Farms, V. M. Shoemith General Manager, Bailey, Mich.

HOGS.

Durocs and Victorias

Heavy bone, lengthy Spring Boars and Gilts from prize winners sired by one of the best Sons of the Great Defender & other noted strains. M. T. STORY, Lowell, Mich.

BERKSHIRES

We Are Not Going to Show This Year and Therefore Offer:

A few choice boars and sows from our Champion and first prize Sows at State Fair 1916. These pigs are mostly April farrow. They cannot be beat for type. You do not often have the opportunity of purchasing this class of spring pigs.

They will be large enough for breeding and service by December. We can furnish a trio unrelated.

All stock guaranteed as represented

SWIGARTDALE FARM
PETERSBURG, MICH.

Berkshires, Boars, serviceable age, best blood lines. Registered. ELMHURST STOCK FARM, Almont, Mich.

Berkshire Pigs going fast \$15.00 & \$20.00 each three months old. Registered & transferred, richly bred. Riverview Farm, Vassar, Mich.

DUROCS BOARS

Have the biggest, longest, growthiest and bred bunch of Spring boars in the state. 31st fall boars by Panama Special.
NEWTON BARNHART, St. Johns, Mich.

"Nothing But Spring Pigs For Sale"
OAREY W. EDMONDS, Hastings, Mich.

Duroc-Jerseys One Yearling Cherry King Boar, Gilts bred for fall farrow. J. H. BANGHART, East Lansing, Mich.

Duroc Sows and gilts bred to Eureka Cherry King and Crimston Critic son of Critic Model 1916 champion Iowa Fair. W. C. Taylor, Milan, Mich.

Duroc Jerseys. Fall Boars & Gilts all sold. I have some extra good heavy boned spring pigs for sale pairs not akin.
F. J. DRODT, R. 1, Monroe, Michigan.

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 those 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

Pinehurst offered: Registered Spring Boars, tried breed sows, One Great Herd Boar. Write your wants. Orle L. Dobson, Quincy, Mich.

Durocs, Good Spring pigs by Defender's E. E. Calkins. R. D. 6, Ann Arbor, Michigan.

Durocs A few good males sired by Joe Orion 2nd Dam by Orion Ch. King Jr.
A. FLEMING, Lake, Mich.

Chesters Bred Gilts all sold. Special prices on March boars, also 6 months Holstein Bull. F. W. ALEXANDER, Vassar, Mich.

Big Type O. I. C's, & Chester Whites
Special prices on all boar pigs for the next 30 days. Will sell sows only when bought in pairs. These pigs are sired by our three Champion boars that have not an equal in the country. School master King of the breed Crandell's wonder & Callaway. Edd both champions. All stock shipped on approval, satisfaction guaranteed. Get our catalogue.
Harry T. Crandell & Son, Cass City, Mich.

O. I. C. An extra fine lot of last spring pigs, either sex and months old, from good, growthy stock. Farm ½ mile west of depot.
Otto B. Schulze, Nashville, Mich.

BOARS

Big growthy fellows. The kind that please. I ship C. O. D. and pay express.
J. CARL JEWETT, Mason, Mich.

O. I. C. Boars and Gilts all sold. I am booking orders for March and April pigs either sex, single, or in pairs not akin. A. J. BARKER, Belmont, Mich. R. R.

O. I. C. Thorough bred O. I. C. Swine all sold out except fall pigs.
O. D. Somerville, Grass Lake, Mich. R. D. 4.

O. I. C's. Spring pigs and Reg. Holstein heifers from 5 to 15 months old. CLOVER LEAF STOCK FARM, R. 1, Monroe, Mich.

O. I. C. Choice Spring boars and gilts out of prize winning stock. A 1 stock guaranteed. The long bodied and Big Boned type. Write for photo and low prices. A. V. HATT, Grass Lake, Mich.

O. I. C. Pigs for sale \$10 each either Sex. Papers furnished free. Sired by a son of the \$750 Boar JAY J. NEFOY, Plymouth, Mich.

"POLAND CHINAS"

2 Spring boars—4 Gilts—3 Yearlings sows. Sired by Big Knox Jr., a 900 lb. boar at 23 months old, his sire Big Knox weight 1060 lb. at Iowa State Fair 1912. The dam, Allans Miss Ophelia, a big growthy prize winning sow sired by Hadley Over, 1st at International Chicago in 1912. We have a nice lot of July and Aug. pigs from such sires as Big Knox Jr. Big Defender Jr. and Big Hadley. We can pick you out pairs and trios of these pigs at \$5 each, here is a chance to buy the best of the breed at a moderate price.
ALLEN BROS., Paw Paw, Mich.

P. C. SWINE Big boned Apr. boars. Sows bred for fall farrow. Satisfaction guaranteed.
R. W. Mills, Saline, Mich.

BIG TYPE POLAND CHINAS

For Sale from the CHAMPION and GRAND CHAMPION and our other GREAT HERD BOARS and big STRETCHY SOWS of very best breeding and individuality.
HILLCREST FARM, F. B. Lay, Mgr. Kalamazoo, Mich.

"War is —"
So is starvation, every one should do their bit. You can raise more pork on less feed if you breed Butler's big type Poland Chinas. Sows bred for fall farrow. Boars ready for service. J. C. BUTLER, Portland, Michigan. Bell Phone

LARGE TYPE P. C. 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 livings from Parma.
W. E. LIVINGSTON, Parma, Mich.

Big Type Poland Chinas: April and May pigs, healthy and growthy: Prices right. L. W. BARNES & SON, Byron, Mich.

LARGE Strain P. C. everything sold except 1 husky yearling boar that is long, tall & deep. 1 extra choice fall boar. H. O. SWARTZ, Schoolcraft, Mich.

LARGE TYPE P. C. Some very choice summer gilts bred to farrow in August. Will sell 1 of my yearling herd boars.
W. J. Hagelshaw, Augusta, Mich.

Large Stilled Poland Chinas at bargain if taken soon, yearling Boars and early spring Pigs of both sexes.
ROBERT NEVE, Pierson, Mich.

Poland Chinas large and medium type. Prices low for quality of stock. P. D. Long, R. 8, Grand Rapids, Mich.

Big Type Poland Chinas, of April farrow, both boars and sows, for sale.
A. A. WOOD, Saline, Mich.

Big Type Poland China boar now ready to ship, buy now and get choice.
G. W. HOLTON, KALAMAZOO, MICHIGAN.

Big Type P. C. Boars, March, April and May farrow ready to ship. Sired by Grand Superba and Peters Junco, Maw Bred Boar, C. E. Garman, Eaton Rapids, Mich.

HAMPSHIRE Boar pigs only for sale \$15 and up as to age.
JOHN W. SNYDER, R. 4, St. Johns, Mich.

SHEEP

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS "The Sheeps of the East" I sell and ship everywhere and pay express charges. I will start one man in each town. Write for catalogue and descriptive price list. Oskoda, Michigan. Telephone 100. Parsons, Grand Ledge, Michigan R 9

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Prices reasonable.
Harry Potter & Son, Davison, Mich.

Why Not Breed The Good Ones Yourself?
Will sell twenty extra well bred registered Shropshire ewes at \$45 per head. Also a few ram lambs at \$40.00.
KOPE KON FARMS, Address Coldwater, Sheep at Lupton, Mich.

Registered Shropshires 50 ewes 1 to 4 yrs. old 75 ewes and ram lambs also a few yearling rams of quality and breeding. Priced right. Flock established 1887.
C. LEMEN, Dexter, Mich.

Shropshires Big, early, reg. ram lambs, for coming fall trade, sired by imp. Nock ram. Milo M. Gibson, R. 6, Lapeer, Mich.

For Shropshire Yearling or Lamb Rams and ARMSTRONG BROS., R. 3, Fowlerville, Mich.

OAKDALE STOCK FARM. Shorthorn Cattle and Shropshire Sheep. Stock for sale. W. J. Lesster, Belding, Mich.

Additional Stock Ads. on Page 309

BIG FALL SAVING OFFERS!

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Material To Build These Beautiful Homes

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Ajax high grade rubber surfaced Roofing; put up 108 sq. ft. to the roll. Complete with nails and cement. Lot No. GB302, 3 ply, roll \$1.27; 2 ply, roll \$1.17; 1 ply, roll \$1.07.

Rawhide Stone Faced Gold Medal Roofing guaranteed 15 yrs. Rolls contain 108 sq. ft., nails and cement included. Lot No. GB303, Roll \$2.20.

Our famous Rawhide Rubber Roofing, 3 ply, guaranteed for 12 years; a high grade covering. Rolls contain 108 sq. ft., nails and cement included. Lot No. GB304, 3 ply, roll \$1.50; 2 ply, roll \$1.40; 1 ply, roll \$1.20.

10,000 Rolls of Extra Heavy high grade Roofing; Red or Gray Slate Coated, Rock Faced, Brown Pebble Coat, Double Sanded, Mineral or Mica Surfaced. Lot No. GB305, roll 108 sq. ft. with nails and cement \$1.90.

28 gauge, painted, 2 1/2 in. corrugated overhauled siding sheets; 5 1/2 ft. long. Lot No. GB306, 100 sq. ft. \$2.50.

26 gauge painted 2 1/2 in. corrugated overhauled roofing sheets; Lot No. GB307, 100 sq. ft. \$3.00.

24 gauge Extra Heavy painted 2 1/2 in. corrugated overhauled sheets for roofing barns, granaries, etc. Lot No. GB308, 100 sq. ft. \$3.50.



Four-In-One Tool



Consists of vise, drill, anvil and hardie. Works easily; quickly adjusted. Steel faced jaws open 6 in.; width of jaws 3 1/4 in.; case hardened anvil. Drills up to 1-3/8 in. Drills not supplied. Lot No. GB-704. \$3.95

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Strong steel forge, well braced; height 30 in.; hearth 25 x 36 in.; 12 in. fan case. Will heat iron 3 in. in diameter. Lot No. GB-705. \$27.75

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Complete \$83.50 as low as \$13.50. Thirteen different sizes, both single and double styles, a patented sectional garage made of best lumber. Put up by anyone in a few hours. Quality and construction guaranteed. Mail coupon for booklet now.

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Four light glazed barn sash, each light 8 in. x 10 in. Typical of the many bargains in our Building Material Book. Order No. GB-809. 58c

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Well made and nicely finished thoroughly tested. Iron, full volume of water. Fits all Ford cars except 1917 model. Order No. GB-810. \$17.50

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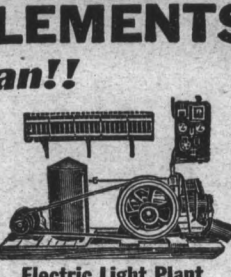
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