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A Practical Journal for the Rural Family

QUALITY
RELIABILITY
SERVICE

NUMBER SEVEN

Can We Use Peat to Make Humus? III

By EZRA LEVIN

Extension Specialist in Muck Crops, M. A. C.

IN a previous article we started the discussion of the use of peat as a fertilizer. It was pointed out that drawing up and plowing under of raw peat was not advisable. However, the use of weathered peat and muck, while not the ideal practice, would be profitable. The time required for weathering peat depends on the type of peat and the season. The period of weathering should embrace the spring and summer, warmer temperatures hastening decomposition.

It was suggested that muck or weathered peat can be drawn up, spread and handled like a green manure crop. Experience has indicated that a light application of manure, harrowed in or plowed under with it, is a paying practice.

In these times of farm labor shortage, a new idea must be economical in labor. Drawing weathered peat directly upon the field may not be the best practice. It may not pay as well as composting, but it pays. We are sure of that. Note the following statement from Vermont Bulletin No. 165:

"As a fertilizer and soil amendment in some sections peat is drawn directly from the bog and spread as a top-dressing. Good results usually are attained though they may not be at once apparent. The benefit, however, seems to be a lasting one. Theoretically, this is not an ideal practice. Peat nitrogen is but slowly available. Other methods which more quickly render this element available are to be preferred as a preface to soil application. Furthermore, the organic acids commonly formed as a result of fermentation, tend to inhibit or unfavorably to alter crop growth. However, this very acidity serves some good purposes. The basic elements of plant food, such as calcium, potassium, magnesium and others, normally exist in insoluble silicate combinations which the organic acids thus developed tend to dissolve, forming relatively soluble and available humates."

Considering this statement regarding raw peat, it seems that the application of weathered peat and muck would be effective. A discussion of the factors involved in such a practice is necessary. We have compared peat to straw. It is well known to the farmers who have spread straw that the same quantity of old straw yields a better crop than the same quantity of new straw plowed under. At first, this would seem antagonistic to the facts. Recent investigations indicate that organic matter left exposed to the elements undergoes chemical transformation due to germ activities and the effect of the atmosphere. Nitrogen is lost and part of the other essential elements may leach away. There is no reason to believe that the old straw has gained plant food, in fact, we know that there has been a loss. However, the organisms have increased on the old straw abundantly; it is slimy with them. When incorporated in the soil, the accelerated decay promotes ideal soil conditions. The humus of the organic matter is rapidly incorporated in the soil and its important functions are quickly apparent. But new straw plowed under decays slowly. It does not become part of the soil rapidly. The less fertile and more sandy the soil, the more clearly has this been brought out. The difference between new and

old straw is less apparent on soils heavy and well stocked with organic matter.

We have no direct evidence that similar factors are concerned in the greater comparative value of weathered peat as compared with raw peat. Experimental evidence has proved the existence of favorable organisms in raw peat and their rapid increase after drainage and aeration. The germ activities have been shown to increase even more rapidly upon the addition of some lime. The lime requirement of peat soil will be taken up in another article, but it might be said at this point that peat being composed largely of organic matter, contains large quantities of lime. The addition of humus to a soil has the effect of reducing the lime requirement of the soil. "Humus in the soil tends to overcome acidity and functions as an alkali." This may be due not only to the lime, but to the other physical and chemical properties of the humus. However, experience of peat growers has very clearly estab-

lished this point, namely, that drainage, aeration and working the peat, destroys the acidity and reduces the lime requirement. Many times, of course, the decomposition must be started by the addition of one or two tons of lime, but this is much less than the calculated lime requirement of the peat. As applied to the subject of this article small quantities of limestone, or marl applied to peat which is weathering will unquestionably quicken its decomposition.

Weathered or raw peat applied to soil which is not deficient in lime will become available more rapidly and be of more immediate value than if applied on a "sour" soil.

Rapidity of Decomposition Important. The rapidity of decomposition and immediate availability of organic matter is important, perhaps more important in our light soils than in our heavy soils. The question which is now under consideration is a fundamental one in our agriculture. Why is it true that sandy land farmers will continue to apply large quantities of organic matter and yet these large applications do not build up the soil permanently. It must be continually applied or the soil will rapidly revert back to its original non-fertile state. The answer to this question is paramount in the building up of our light soils and is intimately concerned with the application of peat on light lands. It must not be assumed that organic matter which is not avail-

able for this year's crop, that is, the residue, will be entirely available for the next crop. As we have said before, the organic matter, the humus of the soil, is continually being broken down by the organisms of the soil. In a clay soil, the effect of the organic matter residue will be seen over a longer period than in a sandy soil. A clay soil is not easily aerated. Its physical properties make an excess of moisture a frequent condition. The type of germ activity which is conducive to breaking down the organic matter does not take place rapidly. Thus we can see the effect of straw or peat on clay soil slightly each year for a number of years. We can put humus in a clay soil, but it does not respond quickly because it is not broken down rapidly and a large part of the organic matter remains only partially decomposed.

In a light soil, we have an opposite set of conditions. Complete aeration and good drainage being about ideal conditions for increased germ activity and decomposition. When organic mat-

would have the effect of a larger immediate crop. Furthermore, indirectly, the increased residue of the crop removed, added to the residue of the organic matter applied, will produce a better cover crop and a more valuable green manure.

It is clear and has been borne out by countless experiences of sandy land farmers, that rapid availability of organic matter is most desirable and most profitable, and what has been said should be taken into consideration not only on light soils, but on heavier soils. Of course, the lighter the soil and the less the organic matter, the more important is this factor of immediate availability. To obtain this condition, we apply rotted manure, which is composted manure and straw, or as we propose, composted manure and muck. In fact, composted decaying matter with anything to which the decay of the organism can be communicated.

The compost peat—it is the secret of the Old World fertility. It is the means by which the lands in China, used for thousands of years, have been able to maintain their fertility. It is the ideal way of making our muck valuable for our light uplands.

We will discuss the compost in the next article.

WHY FATHER HAS GOOD SEED CORN.

Father has good quality, germinable seed corn to plant next spring. This in spite of the fact that his farm is in northeastern Indiana where but very little corn matured last fall. In talking this over a short time ago father and I concluded there are at least two big reasons why there is plenty of good seed corn upstairs: Year after year planting of a medium-sized corn that matures near the middle of September, and selection of the seed ears on stalks in the field, storing it shortly after the first frost killed the plants.

More than twenty years ago my father adopted a policy of planting only house-grown seed corn. At first it was hand-selected at husking time. But five years ago he began choosing ears from standing stalks, about twice as many of them as will be required for planting the coming year's crop. Ears chosen are not necessarily the largest ones. The aim is, rather, to get a medium length ear—eight and one-half to nine inches long.

An ear from a single stalk hill is not taken, neither is one from a two-stalk hill unless the two stalks have produced three good-sized ears. Most ears come from three-stalk hills that have produced at least three ears and often four. The ears are marked when the corn is well dented, by cutting off the top of the stalk. After the first heavy frost the ears are collected, or earlier if the corn is cut before frost.

Selecting corn in this way for a number of years, father has a corn that is as thoroughly adapted to climatic conditions as possible. It matures a little earlier than the varieties lots of his neighbors raise, and is not quite so large. Not all of his corn matured last fall, because a very backward spring put forward the planting of one field to June 21. But the two fields planted at the normal planting season—May 10

(Continued on page 206).



Farm Buildings of Albert M. Petersen, of Montcalm County.

ter is plowed under it is broken down comparatively quickly, and there is a greater loss of the essential elements. More of the organic residue is broken up and lost. Thus straw or peat applied so late that it has little effect on this year's crop is likely to be a loss on a light soil because the residual effect of the organic matter will probably not be seen in the next year's crop. Here we have the fundamental reason for a cover crop or green manure crop. This loss of the organic residue can be converted to an asset if we provide for some crop to benefit from the remains of that precious stuff, which the crop taken off could not utilize.

This accounts for the discouraging experience of the farmers who have drawn decomposed muck on the lighter high lands, and who have harrowed in this organic matter just before planting. They met with slight results the first year and less the following year. It was not the fault of the humus—it was the fault of the system.

The green manure crop would have conserved part of the organic matter. As has been mentioned before, drawing raw or weathered peat or muck is not the ideal practice. The ideal practice in the face of the evidence, is that practice which will give us the value of the organic matter immediately, not only the elements in the muck, but the effect of the products produced by the increased germ activity upon the unavailable plant food of the soil. This

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CURRENT COMMENT.

The Live Stock Situation. Notwithstanding the comparatively heavy marketing of live stock during the past year, the February estimate made by the crop reporting board of the United States Department of Agriculture shows an increase in the number of animals on the farms of the country for each important division of live stock.

This report shows the total number of horses on hand January 1 to be 21,563,000, an increase of 353,000 over last year, or 1.7 per cent; of mules on January 1 there were 4,824,000 on the farms of the country, an increase of 161,000, or 2.1 per cent; of milch cows there were a total of 23,284,000 on January 1, an increase of 390,000, or 1.7 per cent; of other cattle there were 43,546,000, an increase of 1,857,000, or 4.5 per cent; of sheep there were 48,900,000, an increase of 1,284,000 or 2.7 per cent; of swine there were 71,734,000, an increase of 3,371,000, or 5.7 per cent.

In point of farm value the increase is much more impressive. The total increase in the value of horses for the year is \$66,319,000, of mules \$63,058,000, of milch cows \$278,388,000, of other cattle \$232,431,000, of sheep \$238,338,000, and of swine \$599,378,000. This gives a total increase of value of the live stock on farms since January 1, 1917, of \$1,527,912,000, or 22.7 per cent. The total value of all animals on farms as estimated for January 1, 1918, was \$3,263,524,000.

An analysis of the reports of movements of live stock for 1917, in relation to the figures above given will be of interest. The total movement of cattle to fifty-three markets aggregated 22,209,718 in 1917, as compared with 17,522,566 in 1916. Notwithstanding this increase of nearly 5,000,000 head in the number of cattle shipped to these fifty-three markets, we have an increase in the number of cattle maintained on the farms of the country as compared with one year ago, which speaks for an increased capacity of production. That this increase may be expected to be maintained during the coming years is indicated by a further analysis of the estimates of cattle on

farms on January 1, 1918, which reveals that the increased percentage is accounted for by a considerable increase in the percentage of calves and heifers maintained on the farms, thus indicating a contemplated increase in the number of cattle maintained.

The report of movements of hogs to the fifty-three markets above mentioned shows a total movement of 35,732,687 in 1917, as compared with the movement of 43,112,123 in 1916. Apparently this decrease in the movement of hogs during the past year was due to a poor pig crop rather than any general inclination to sacrifice breeding stock, since an analysis of the estimates shows an increase of 4.5 per cent in swine over six months old as compared with one year ago. The same argument would hold true in the reduction of sheep movements amounting to nearly 2,000,000 head as compared with 1916.

Altogether this estimate of the amount of live stock on the farms of the country is most encouraging in the present emergency, when many students of the situation were fearful that high grain prices would cause a general cashing in on breeding stock, to the detriment of our food supply. The farmers of the country, taken as a whole, appear to have been particularly sane on this point. We trust that the farmers of Michigan have helped to bring about this gratifying increase in the live stock resources of the country.

Farmers Not Unpatriotic. During recent weeks charges have frequently been made in the public press that the farmers of the country are not exhibiting a patriotic spirit, and as proof of these statements it was alleged that the producers are hoarding supplies upon their farms. Those in a position to know the attitude of producers realize clearly that the above charges are not founded upon fact. There may be instances where farmers have a larger supply of farm products in store than is customary, but the majority of these cases may be, and likely are, the result of natural causes and not of a feeling of indifference on the part of the farmers toward the government. The past season has been an unusual one, and conditions have been unfavorable to the moving of farmers' products to market. In the first place the season of harvesting was so late that fall marketing was rendered almost impossible. Then cold weather set in so early that it again became difficult to move products that are likely to suffer from extreme temperature. The railroad situation has also added to the troubles of our farmers in delivering their products the same as it has handicapped the merchant and manufacturer.

Notwithstanding these conditions, however, the last report of the Secretary of State on the amount of wheat marketed by Michigan farmers from August until February 1 aggregates 5,750,000 bushels, as compared with 5,500,000 bushels for the corresponding period in 1916-17. So far as wheat is concerned, these figures would seem to indicate that producers are marketing as liberally as last year, and this under conditions that have been altogether unfavorable.

The stern realities of war have come home to many Michigan Farmer readers during the past week more forcibly than at any previous time since our forced entry into the conflict. The sinking by a submarine attack of a transport bearing United States troops to the front was fortunately attended by comparatively small loss of life, but the uncertainty as to whether their boys or their friends were on the ill-fated transport was but the forerunner of other anxious hours in thousands of homes throughout the country until the final victory shall have been won

The Realities of War.

and a lasting peace declared. When measured by this anxiety, the inconveniences which are of necessity suffered because of the war fade into insignificance, and the hardships and handicaps with which we are confronted as a result of the war seem trivial in comparison. The manner in which preparations for the war have been conducted has of late been subjected to severe criticism both in congress, in the public press and by private citizens. In so far as this criticism has been constructive it has doubtless been helpful toward the desirable end of speeding up preparations which will hasten the day when our country may be the decisive factor in bringing about a just and lasting peace. While mistakes have undoubtedly been made, the substantial progress which is indicated by the rapid shipment of troops to Europe is a matter for sincere congratulation.

With the bringing home to us of the realities of war as they have been forcibly brought for the first time since our entry into this conflict, we should not make the additional mistake of permitting the indulgence of criticism to hamper our action. This is essentially the time for action, and cooperative action on the part of every citizen who remains at home is just as essential as action on the part of the boys who are being sent to the western front. Let none of us forget our responsibility in this direction as citizens of the United States when we are making our plans for next year's farm campaign. Let us do the best we can, even under the difficult conditions with which we are confronted, to shorten the war by providing an abundance of food for our own and allied armies who are fighting the battle for individual and national freedom throughout the world.

HAPPENINGS OF THE WEEK
Foreign.
The European War.—Artillery activity has increased on the western front this past week, particularly along the line defended by American forces have the big guns been spreading havoc in hamlets and villages to the rear of both the American and German lines. An enemy battery has been destroyed and a number of German patrols put to rout by Pershing's forces. At Verdun a few German raids were undertaken. The general opinion prevails that the renewed activity of the artillery corps presages the coming drive for which the Germans have been preparing for some time.—The Italians are also expecting that another attempt will be made by the central powers to force an issue in northern Italy early in the spring. During the inactivity that has prevailed on this front it has been learned that the Germans and Austrians were bringing in large supplies preparatory to a renewal of the attack. No doubt Germany calculates that by defeating Italy she will have large forces to release for the great contest of arms that is certain to come on the western front.

The most important war news for Americans during the week has been the torpedoing of the British transport *Tuscania*, which was carrying over 2000 United States soldiers to join Pershing's forces. A complete report has not yet been made, but the latest death estimate is placed at 147 soldiers and several members of the boat's crew. The transport was under the patrol of British men-of-war when the torpedoing occurred. Of the soldiers aboard, ninety-five were from Michigan. It has not been definitely learned whether any of this number were among the victims of the disaster. An unofficial report states that David R. Francis, American ambassador to Russia with diplomatic representatives of the entente allies are enroute for Sweden under a Bolsheviki order of expulsion.

National.
Improvement in weather and transportation conditions has led to the preliminary announcement by fuel administrator Garfield that the heatless Monday program is to be discontinued after February 11.

Director General McAdoo expects to standardize railway equipment and thereby centralize the system of purchasing locomotives, cars and other equipment. The director general hopes to save many millions of dollars by purchasing under this plan. The members of the railroad wage board in session at Washington are considering the request of switchmen for increased pay and time and a half for all work beyond eight hours, as a means of relief in the operation of trains which is now being hampered through the shortage of men. Congress is discussing a bill providing for the use of convicts in the manufacture of war supplies. The proposal is to equip federal prisons for this work and to pay convicts average wages obtaining in the communities where the prisoners are located. A federal grand jury has indicted fifty-five men in Sacramento, California, charged with plotting for the wholesale destruction of industries and shipping and interfering with the prosecution of the war generally. The Michigan railroad commission is now considering a plan to settle the question of establishing metered telephone service in Detroit. Canada has created a war trade board to cooperate with a similar board in the United States, with a view to securing unity of action between the two countries in making war contracts. Colonel Theodore Roosevelt, who underwent an operation last week, was last reported as being in a much improved condition.

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MICHIGAN CROP REPORT.

Wheat.—In reply to the question, "Has wheat during January suffered injury, from any cause," 12 correspondents in the southern counties answer "Yes" and 216 "No;" in the central counties one answers "Yes" and 71 "No;" in the northern counties two answer "Yes" and 59 "No," and in the upper peninsula 15 answer "No."

Snow protected wheat in the state and the different sections 31 days.

The average depth of snow on January 15 in the state was 11.51, in the southern counties 10.90, in the central counties 11.17, in the northern counties 13.68 and in the upper peninsula 13.60 inches.

On January 29 the average depth of snow in the state was 17.07, in the southern counties 15.67, in the central counties 17.10, in the northern counties 20.53 and in the upper peninsula 23.81 inches.

The total number of bushels of wheat marketed by farmers in January at 90 flouring mills was 371,575 and at 105 elevators and grain dealers 273,831, or a total of 645,406 bushels.

Of this amount 510,761 bushels were marketed in the southern four tiers of counties, 118,871 in the central counties and 15,774 in the northern counties and upper peninsula.

The estimated total number of bushels of wheat marketed in six months, August-January, is 5,750,000. Sixty-five mills, elevators and grain dealers report no wheat marketed in January.

The average condition of live stock in the state is reported as follows, comparison being with stock in good health and thrifty condition: Horses and sheep 94; cattle 92; swine 91.

Grain and seed threshed in Michigan up to and including January 19, 1918, as per returns of threshermen, is as follows:

	Acres.	Bushels.	Yield per acre
Wheat	772,173	13,918,285	18.02
Rye	323,340	4,532,417	14.02
Oats	1,239,602	44,781,630	36.13
Barley	128,991	3,318,740	25.73
B'k wheat ..	32,279	346,141	10.72
Peas	14,820	154,231	10.41
Seed:			
Tim'hy ..	1,961	9,579	4.88
June clo..	7,112	6,720	0.94
Mam'th ..	5,046	10,733	2.13
Alsike ...	5,306	16,558	3.12
Beans:			
White ...	397,359	2,720,727	6.85
Red kid..	8,537	43,444	5.09
Brn Swed.	2,141	11,744	5.49

TWO-DAY AGRICULTURAL SCHOOLS.

The following two-day agricultural schools will be held during the ensuing week at the places and dates named. These schools are held under the auspices of the Extension Department of the Michigan Agricultural College, and will prove both interesting and instructive to both old and young in every farm family in the localities in which they are held.

- Feb. 19-20, Three Oaks, Berrien Co.
- Feb. 22-23, Ensley, Newaygo Co.
- Feb. 19-20, W. Branch, Ogemaw Co.
- Feb. 19-20, Onokama, Manistee Co.
- Feb. 21-22, Arcadia, Manistee Co.
- Feb. 22-23, Tecumseh, Lenawee Co.
- Feb. 19-20, Quincy, Branch Co.
- Feb. 21-22, Union City, Branch Co.
- Feb. 19-20, Lucus, Missaukee Co.
- Feb. 20-21, Freeport, Barry Co.
- Feb. 22-23, Lawrence, Van Buren Co.

Turning Maple Syrup Into Money

By VERNE E. VERNET

IMAGINE for the time being that you are rich. Think of yourself with so much money that the banks are not big enough to hold all of it. In your mind get a picture of yourself trying to think of something else to buy—any old thing. Maybe if your imagination is good, you will see a fellow about your build going into a candy store to do as you used to do in days of old, that is, to buy a box of candy for the hard-working and faithful partner at home—your wife. Of course, this is just a hypothetical case, so don't begin to sputter about not having any money. Just suppose you did it, this once at least.

The question is, what kind of candy will you buy?

You look over all the different varieties. You see a big mountain of sweet stuff in bulk at five cents a pound. On closer inspection you discover that mountain to be more than candy. There are many black specks in it. It looks as if it had been on the floor. Maybe you see a discolored place that looks like a finger mark left by some over-anxious child that had passed that way.

"Nix on that stuff," you mutter, and you strut away past a long counter with different kinds of candy and each kind is more expensive than the kinds you pass by.

At last you see some that looks good. It is clean and inviting. It is cut in pieces just right to eat. You taste of it. It is fine. You ask about it. The clerk says, "\$1 a pound," and she grabs a paper bag and gives you a look of inquiry concerning the number of pounds you want. But you see that paper bag and you do not like it. You want your candy in something other than a paper bag. The bag might break. The candy might get crushed. Besides, you do not want to carry a paper bag on the street. You want something better looking than that bag if you are to carry anything at all. All this time the clerk is watching you, and she understands your hesitation. She directs you to another counter where you can get candy in boxes.

You approach the last counter and see a great display of candy in fancy boxes with bright ribbons and colored paper decorations. But you find that the price is \$2.00 a pound. You try a sample. It tastes the same as the \$1.00 candy. In fact it really looks the same. In reality it is the same old brand of candy, but the way it is put up makes a world of difference with you. You want it just as it is. So you buy what you want and go home satisfied.

The maker of that candy is glad you bought the kind you did because he made more money from the sale than he would have made had you purchased the cheaper variety. If that candy maker had more customers like you he certainly would not make any more cheap candy. He would take his \$1.00 candy and put it in fancy boxes and sell it to you and your friends for \$2.00. The little trick would please you because that is the way you like to get your candy and it would please the candy maker because he would make more money.

You went into that candy store to buy candy but half the money you spent went for fancy box, the work of putting the candy into the box, and for the pretty smile the clerk gave you by way of coaxing you to come back another day and spend some more money—and maybe you did.

Poor Goods or Poor Markets?

A growing grumble has been heard for the past few years from many of the sugar makers of the state. The noise they make indicates that they are not getting rich from the syrup they have been making. The cause is not difficult to determine. It was because their syrup had an inferior qual-

ity and consequently went begging a good market, or the syrup was good and the market was no good. The first cause can not be excused. There is no reason for its existence. The second cause is a misfortune and can be remedied with some thought and less expense.

Two years ago it cost approximately seventy-five cents to produce a gallon of first-class maple syrup and to get it ready for the market. Producers who did not have to pay for help were, of course, under less expense. The selling price was around \$1.50 a gallon. Last year the cost of producing was higher by a few cents but the selling price also averaged higher. It is not risky to prophesy that there will be at least as much, and doubtless more, profit in the syrup made this year. Of course, these figures hold for producers who make good syrup and know how to sell it. There is no way to tell how much gain (or loss) a man will get to his credit if he makes poor stuff.

Capitalizing Friendship.

Last year there was a certain maple syrup maker in this state who had a

fifty cents for a quart of syrup who can not afford to pay \$1.50 for a gallon.

Where to Sell.

Somebody who has high-grade syrup put up in first-class containers and is all ready to sell for big money is going to ask, "Now that I am all ready, where am I going to sell?" The answer is, sell to somebody who has money enough to pay for what he wants. Sell to a rich man. There are more rich men in this country than there is maple syrup to supply them. If you don't sell to them some other fellow will, and then, he will have the big price they pay. Remember that poor people can not afford to eat maple syrup unless they make it, any more than they can afford to eat eggs in the winter time. Maple syrup is a costly luxury for people who have money. Ordinary people have to get along on brown sugar and water, with a little maple flavor in it. Maple syrup is so good it is almost too good. The supply of this good sweet is never large enough for the demand. The affliction known as "sweet-tooth" is no respecter of persons. Rich and poor have it, but



Glass Cans Permit the Customer to See the Syrup.

friend in California. He wrote to that friend and made arrangements for the sale of a certain amount of maple syrup. The friend was to get a commission in syrup for the amount he succeeded in selling. The friend talked the matter over with his neighbors. Many of them wanted syrup. An order was made up calling for over seventy gallons of syrup at two dollars a gallon. Figure it up for yourself and see how much more that man made on that sale than he would have made had he sold by any of the ordinary ways. And why not? Many of his neighbors sold at the first market they could find. They merely delivered the syrup and took the money. It was easy. They did not have to wait, neither did they have to think much about it. But many times a lot of work with just a little thought makes just a little money. The same amount of work with more thought is largely responsible for the rich farmer as compared to the poor one.

If one tries harder to please the customer and uses glass cans of various sizes, that is, pint, quart and two quart, he can demand a higher price yet—and get it. Every time you increase the pleasure of the customer you add some to the price of your syrup. You let him pay syrup prices for the glass can, or bottle, or any other thing he wants his syrup in. A glass container permits the customer to see the syrup, and when syrup looks as good as it tastes selling is made easy. There are many people who will pay

the rich man can afford to buy more and better "medicine" for his trouble and the chances are that he will not hesitate long for the expense if he is convinced that the "medicine he is getting is good stuff." That is the kind of man to sell maple syrup to.

Finding a Buyer.

Use your friends. Write to somebody you know or to somebody any of your neighbors know, and use the neighbor as a reference. If that somebody lives in a distant state where maple syrup is not made, he is just the man. He will be pleased to think that you know he has a sweet tooth. Tell him everything about your syrup—particularly the truth. Make a feature of that truth element. Remember you are not going to go to all this bother just so you can "soak" somebody with a lot of poor syrup. You want to get a customer who will talk to his friends about the fine syrup you sold him. You want him to make those friends feel as if they had to have some. If you succeed in capturing a customer make him act as "seed" for his part of the country. Be so good to him that he will have to talk to his friends about you. Send him a little box of sugar cakes as a present about a month after he has sent you an order. When he sees that sugar he will forget he is living. He will pass it around to his friends and tell them the story all over again. If the fellow has any children, you need never fear that your name will be forgotten in that family. Usually you can reach a man's heart through his stom-

ach but you can always reach his pocket-book that way.

Another way.

Get a Sunday paper that is published in one of the big cities, Chicago, for instance. Search that paper, advertisements, society notes, everywhere look for the names and addresses of people who appear to have money in so far as you can judge from what the paper has to say about them. Spot those advertisements about hotels, restaurants, etc., particularly the high-class eating places. Look in the advertising sections of several magazines and pick out the names of the hotels found there. Get about fifty names and addresses of each.

Write a letter and send a copy of it to each of the places you have selected. Be sure the letter is a good one before you send it out. If it is possible, by all means, have the letter typewritten. If you do not have a typewriter get somebody's stenographer to do the work for you. The expense will be almost nothing. The appearance of the letter will be improved beyond words and will go far towards selling your syrup. Be sure that your letter has been properly attended to as regards such matters as spelling, punctuation, grammar and form. Use white paper and stamped envelopes to match.

The person who reads your letter will pass a snap judgment on your syrup simply by examining your letter. If the letter is soiled, carelessly constructed or shows any sign of haste or slovenliness it is pretty certain that your syrup will be condemned as inferior in quality, even though the man who condemned it never saw any of it. In most cases he would be right because people who are slipshod and careless in selling their syrup are almost sure to be the same in making it. It is a sort of habit with them. And who wants to eat syrup that is full of dirt.

If you are not accustomed to the writing of business letters, try this form or adapt it to your needs:

Lansing, Michigan.
March 30, 1917.

Mr. Henry Mann,
Manager of the Sun Hotel,
Chicago, Illinois.

Dear Sir:

I have one hundred gallons of pure maple syrup. Every gallon I made in my own sugar grove from the sap of my own sugar maples. I guarantee my syrup to be free from adulteration of any kind, absolutely no glucose, no brown sugar, no hickory bark flavor.

My syrup is pure and clear, light colored and well flavored. I guarantee it to weigh eleven pounds to the gallon and have at least sixty-five per cent solids. A thicker syrup will tend to crystalize and a thinner syrup will tend to sour. Mine is just right.

My prices are:

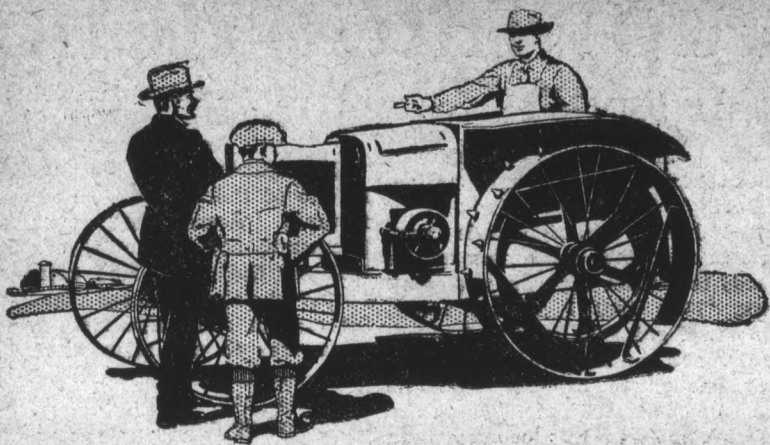
- One gallon\$1.80
- Two quarts 1.00
- One quart50
- One pint30

A post card will bring you a sample. If you try the sample I know you will give me an order.

Respectfully yours,

JOHN JONES.

The prices named are merely suggestions. Make them higher or lower as you see fit. If you do not want to send samples omit that sentence from the letter. Samples, by the way, make the best kind of advertising. So if you do not send samples, doubtless it would be wise to increase the number of letters you send out. But even then the method would not be so effective as it would be if the samples were given. The samples should be no larger than a four-ounce bottle of syrup because a bottle of that size, or smaller, can be sent through the mail if precautions are taken to keep it from breaking. A cigar box would make a good container for the bottle, which should be packed in tightly with sawdust or cotton wool. The idea in packing it is to get enough packing around the bottle to absorb all the syrup in the bottle should the



Your Boy Can Run a Parrett




Solve your farm labor problem with a Parrett. For five years farmers have been using the Parrett Tractor in practically every part of the United States and have found it unusually easy to operate, remarkably simple in construction. Boys and women can easily do a good days work with a Parrett.

It is a one-man machine. It is self-steering in the furrow. No special hitch is required. A sensitive governor insures at all speeds a minimum of fuel consumption. And it possesses many other equally convenient—equally practical features.

The Parrett will pull three 14-inch bottoms, run a 20-inch to 26-inch separator, plows at a steady speed of two and three-eighths miles per hour, burns kerosene and is made by a firm whose entire energies are spent in making good tractors. Write for the catalogue now.

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

PARRETT

12  25

Use More Plant Food

It is good economy to buy less low grade and more high grade fertilizer. It has been proven that the larger amounts of plant food bring the best results. You get more plant food to the ton and have less freight to pay.

Farm crops are sure to bring good prices this year, but every dollar invested in fertilizer should be made to go as far as possible.

A. A. C. Fertilizers economize labor. They produce big crops and decrease the cost of production.

If we have no agent in your town, we want one. Write us for our nearest agent's address or ask for an agency yourself.

The Company maintains an Agricultural Service Bureau conducted by Dr. H. J. Wheeler, for many years Director of the Rhode Island State Experiment Station, whose Crop Bulletins, services and advice are free to all farmers.

USE THIS COUPON

Send me "How to Make Money with Fertilizers." I expect to use..... tons of fertilizer this season. MF 20

My Name.....

My Post Office Address.....

My County..... State.....

My Crops for 1918.....

The American Agricultural Chemical Co.

P. O. Drawer 814, Detroit, Mich.

We serve our trade from 60 points.

When writing to advertisers please mention the Michigan Farmer.

bottle break. Unless the bottle is packed in this way it can not be sent by parcel post.

The letters you send out will doubtless bring some kind of a response in a good percentage of cases, particularly if the samples are offered. Those people who do not answer your letter should be reminded of your syrup. Maybe some will order if coaxed a little more. It is a good plan to have a follow-up letter for such people. A post card will do. Write on it something like this:

"My stock of pure maple syrup is growing smaller. Better get in your order before it is too late."

Under these two sentences list your prices the same as you did in the letter. A notice of this sort sent two or three weeks after the letter is almost sure to catch some trade that otherwise would have been lost.

CORN AND WHEAT.

I have been reading in the market reports of the paper of the great expectation of a big movement of the corn crop in the near future. Now, in my opinion the country will soon awaken to the fact that there is not the corn in the United States that has been figured on. Take the situation here in Monroe county, for example. There is no corn that will grind without artificial drying. I had in some fifteen acres. It looked good for ninety to 100 bushels of ears to the acre. We could not cut it until late, but we did not have any killing frost here until the ninth of October.

But after the corn was cut and shocked it would not dry out fit to husk, so we left it and soon there came a heavy freeze and this corn has been frozen solid ever since. We are drawing it into the barn and husking as we feed it. I am feeding it to six milch cows, four fattening cattle, and five calves. We take a crate in the house night and morning and put it on the furnace register. When it thaws out, break it up and feed to these cattle. With this we feed about forty pounds of ground oats with the two bushels of ears of this corn. For roughage we have fed nothing but cornstalks. This stock runs out in the barnyard about two or three hours each day, and have all the oat straw they care to eat, but they eat very little straw. The cows are giving about seventeen pounds of milk each per day.

This corn is soft, with but a few mature ears among it. And when we came to husk it we find that it will not yield over one-half as much as we expected when cut. My corn is better than the average for this locality, but I have not got a bushel that would make corn meal fit to use in the household for cooking purposes. I don't see how anyone in Michigan could use part corn meal instead of all wheat flour, unless they get it from without the state.

There is one-fourth of the corn crop of 1917 yet in the field around here, and of course, there is not one single ear of this corn now in the field that will grow, and but little if any of it that is fit for seed. I see that seedsmen are asking from \$8 to \$12 per bushel for seed corn. It seems to me this is a thing for the government to look into. If the farmers are to raise, or try to raise, a big crop next season they want some encouragement in getting seed.

As for the wheat crop, I have my doubts of it making a good crop around here. The crop was sown late and the weather was so cool and cloudy that it made but a very small growth, and the winter came on while the ground was bare; then came a snow and some sleet, which left a slight crust upon what little snow there was on the ground. So, although we have had lots of snow since then, it has mostly blown off, owing to this smooth surface, and

the result is that instead of having our wheat well covered with snow, there is only a thin sheet of frozen snow over a great portion of the fields.

As the United States government wants all the wheat raised this year that is possible, how would it be for Michigan farmers, should the fall wheat kill out this spring, to sow spring wheat? I have never sown any, and don't know what one might expect per acre should they sow it in Michigan, but under war conditions the farmer might be patriotic enough to try it. Of course, they should get the seed at reasonable prices.

Monroe Co. JAMES F. BARRY.

HOW TO TEST FARM SEEDS FOR GERMINATION.

During the remaining months of winter is a good time to test for germination seeds which are to be used for spring planting. For nothing is more discouraging to a farmer than to spend a lot of time and do a lot of hard work getting a field ready for a crop, and then learn when it is too late that the seed he has used is of low germinating power.

If it is important in ordinary years that we know whether or not our seeds will grow well before planting it is doubly so this year. For we have had at least three rather poor years in succession at a time when we really needed extraordinary good years.

Never before was food so scarce as at the present time, therefore we cannot afford to put any seed in the ground which will not grow, for by so doing we are losing food at both ends of the season. In the spring through the seed, and in the fall through the crop we should harvest, and do not because of no stand, or a poor stand of plants on account of poor seed.

It is a very simple matter to test any of the following seed: Oats, barley, peas, beans, garden seeds, clover, alfalfa and grass. In a later article I will explain in detail a method of testing each individual ear of seed corn.

To test the above seeds take common tea saucers and securing blotting paper or outing flannel cut a piece large enough to cover bottom of same, count out a given number of seeds of the kind to be tested (100 is a good number to use) put upon the paper or cloth and fill saucer about one-third full of warm water. Put over the seeds a piece of paper or flannel similar to the one they are on, and turn a common saucer over the cloth and seeds to check evaporation. Put the saucer in a warm place and look at same at least twice each day to see that the seeds are supplied with the proper amount of moisture.

Some seeds germinate slower than others but at the end of about ten days for most kinds and much sooner for others, it will be possible to tell the percentage of germination.

W. C. ECKARD,

Ass't County Agr'l Agent.

WHY FATHER HAS GOOD SEED CORN.

(Continued from page 203). seed corn. Unfortunately for neighbors now without seed corn, one of these fields was hogged, off and the other supplied corn to fill the silo.

I know of but one other farmer in father's township who has seed corn. He selected his seed from one of father's fields last fall because he was afraid his big corn would not mature.

Growing a medium corn adapted to climatic conditions, and selecting corn on standing stalks and storing it early are the reasons why father has good seed corn. He knows it is good, for a general test of two hundred ears selected at random early in January gave 95 per cent of germinative ears.

Indiana. JAMES R. WILEY.

The War and Soil Fertility

By N. A. CLAPP

THOSE who give the matter consideration realize that the influences of war on the present and future of crop production is seen, felt and realized. New conditions which have developed among the warring nations of Europe are likely to bring about changes that were never thought of before the past few years may leave in their wake of immediate stirring events, effects which may require not only skill, but considerable time to correct.

Our President made a wise remark when he declared that "the sinews of war are existing in the farmer's fields, and it requires the labor, patience and skill of the tillers of the soil to bring them out." If that be true there is a grave and great responsibility resting on the American farmers. The United States is looked upon as the granary of the world and the greatest live stock emporium in the world. We are called upon to furnish not only the grains but the meats needed to go with them to make up a mixed diet for the contestants and defenders of the great cause of human liberty on the battle fields, over the seas and in the air.

It will be well for us to stop, think and consider before we make radical changes in our manners and methods of farming. In times of peace what is called general mixed farming usually prevails. In times of war farmers are prone to specialize. In other words, they are likely to select one, two or three crops which they think will pay best and devote their attention to those crops and neglect nearly, if not all, others.

When the changes mentioned are made the regular rotation of crops on the farm are broken up and serious damages to the soil may follow as the result. If the crops selected to raise are what we call immediate cash crops like wheat, beans and potatoes, the necessity of keeping up the supply of organic matter in the soil is likely to be overlooked. The immediate income from the wheat and beans may be so tempting that they will sow wheat after wheat and plant beans after beans and use up the humus in the soil at a rapid rate. In a short period of years the realization of a depleted soil is a fact. If the ones who perpetrated the crime of robbing the soil of some of the essentials for crop production are not present to view the barren condition of the soil, others will be there with strong epithets with which to curse them.

Maintain the Organic Matter.

While space at present will not allow a full discussion of the importance of keeping organic matter in the soil, I feel constrained to give a hint now and ask for a deliberate consideration of the matter before the venture is made toward the one crop plan for immediate financial gain. When nature formed our soils of the leaf mold which came from the leaves from the primal forest trees which grew here before the advent of civilized man, there was present an abundance of vegetable matter which was mixed with the dirt at and near the surface, making possible the circulation of air in the soil and holding the moisture which would hold in solution the plant food which the roots of the grain crops growing could take up and grow to maturity and provide abundantly. When the virgin soil was tickled with the plow, while the process of fermentation and decay of the vegetable matter went on, plant foods were released, and in due time the fields laughed with a golden harvest.

When the one crop system is followed the crime of soil robbing is practiced. Not only is the decaying vegetable matter used up, but the soil is poisoned by the one crop. If the crop

is wheat there exudes from the roots of the wheat a substance which is poison to the wheat if you attempt to grow it on the same ground year after year. Consequently losses from several directions follow. An old saying, "grow wheat after wheat and you will have nothing to eat," has a strong hint of truth in it.

The general crop grower has the remedy at hand if he will use it. As Prof. Kedzie used to say, "Let the red-headed captain, June clover, have a place and lead in the system of rotation and the farm cropper can endure for a long time." Let clover follow wheat, beans follow clover, then wheat after beans, followed by clover, and the cash crop system is not so dangerous. The roots of the clover not only improve the physical condition of the soil, but when there is a heavy crop it adds about eight tons of vegetable matter to each acre of ground on which it grows. Then if the crop of clover hay which grows above the surface is fed to the teams and other live stock kept on the farm, and the manure returned to the soil, there is a still farther addition to the organic matter which can be put into the soil.

Mixed Farming Best.

From what has been said we must conclude that for the best interests of all, and for the benefit of both the present as well as future generations, a well regulated system of mixed farming can be made to serve the farmers best, as well as those who are depending on the farmers of this country to furnish food for them while they defend and contend for the universal liberty which must come and be maintained if life among the civilized nations is to be worth living.

There is a general demand for meat as well as bread, and if the farmers are willing to do the best service for all, their plans will be laid by which they can grow grains and special crops and at the same time produce the meats needed.

As citizens, business men and patriots, the fertility of the soil should be ever present in the minds of those who till the soil. To give attention alone to raising special crops is to neglect an opportunity to do a double service by providing both grains and meats on the farms. The cows, the sheep, the pigs and the poultry, are contributors to the support of the family and to conserve the manure and return it to the soil should be looked upon as a duty as binding as the duty to make an effort to secure an honest living. To neglect to save and return the manure to the soil is to shirk a duty which may be called an unpardonable sin.

When a well regulated system of mixed farming and a well regulated system of rotation is universally followed, clovers and the manure from the live stock are the sources from which the supply of organic matter is kept in the soil. The farmers who follow those systems can be if they follow the plans with a good degree of intelligence, good soil builders and soil improvers instead of soil robbers.

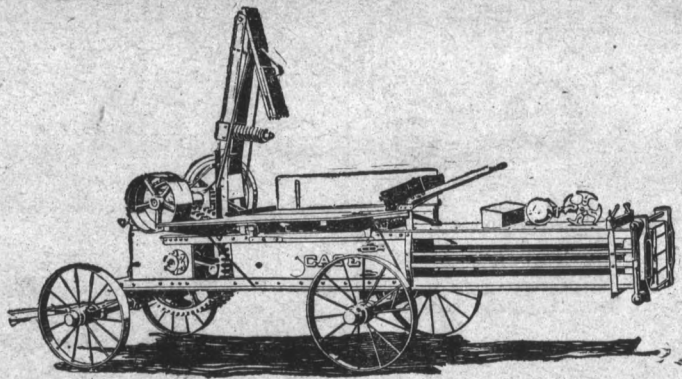
It is our duty first to meet the immediate needs of the families on the farms, the laborers in the various industries which contribute to the needs of the people of our nation, and to the armies in the service of the allied nations; and yet, while we have those things in mind, let us not forget that we should not work and plan for the present alone. There are generations which will follow whose interests it is our duty to keep in mind. If we are soil builders we may do well by the generation and leave a heritage of fertile soil, the richest and most useful legacy for the benefit of those who come after us.



Founded 1842

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Famous the World Over



Extra Strong Weighs Less Big Capacity

EVERY farmer owning a Tractor should also have a Baling Press. It extends the use of your Tractor, and makes money where your engine would ordinarily stand idle. You can not only take care of your own hay, which brings more money when baled, but there is always an opportunity to do custom baling for your neighbors.

Case Baling Presses have extraordinary features not found in other machines. Case Balers handle extra large feeds without danger of breakage.

Case belt power Balers are built in two sizes, 14x18 inches and 17x22 inches. The former has a capacity of 3 to 4 tons per hour, and the latter 3½ to 5 tons per hour.

They are constructed entirely of the best steel, the frame extra heavy and hot riveted. This keeps all parts permanently in line, and eliminates an endless amount of trouble found in balers constructed of wood and cast iron.

In addition, we also manufacture a sweep power press for those who do not require the capacity of belt power balers. Write today for our booklet which describes Case Hay Balers in detail, with pictures. A copy will be sent free for the asking.

We also call your attention to the other Case power farming machinery named below, should you wish information regarding Tractors, Threshers, etc.

J. I. CASE THRESHING MACHINE CO., Inc.
(Founded 1842)
789 Erie Street, Racine, Wis.

Send For This Descriptive Printed Matter. All Free.

Below are listed the different series of booklets and folders. Tell us which interest you.

FREE Books

- 1-Kerosene Tractors
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- 3-Grand Detour Plows
- 4-Threshers
- 5-Hay Balers
- 6-Silo Fillers
- 7-Road Machinery
- 8-Automobiles

Write Today

Or, if you wish, ask for our General Catalog, describing the entire Case line. It is free.

MORE WORK FROM YOUR HORSES

Heavy spring work takes the surplus flesh from the horse. His collar no longer fits. His neck and shoulders chafe and gall. He can't do his full share of work and you lose money. Prevent these evils by using TAPATCO Pads.

A NEW AND BETTER HOOK ATTACHMENT

Consisting of wire staple, reinforced with felt washer (note where arrows point). This gives the hook a better hold and prevents pulling off. The weakest point is made strong and life of pad greatly lengthened.

Found Only on Pads Made by Us. Look For The Felt Washer.

SOLD BY DEALERS EVERYWHERE
The American Pad & Textile Company
GREENFIELD, OHIO

Canadian Branch: Chatham, Ontario.



Pat. in U. S. Dec. 1, 1914.
Pat. in Can. Apr. 6, 1915.

Haul A Load Each Way

Crops must be hauled to town, and fertilizer must be hauled home.

Why Not Combine the Trips?

When you take a load to town



Plan to haul a load of **SPRING FERTILIZER**



on the return trip

Play safe and get your fertilizer stored in your own barn.

War conditions have decreased the supply of fertilizer and increased the demand. Late orderers may be disappointed.

Co-operate With Your Dealer

Few dealers have sufficient storage space to carry large fertilizer stocks on hand. Shipments in less than capacity car loads—40 to 50 tons—are discouraged—even refused.

Co-operate with your dealer—place your order now—enable him to combine orders and make up a full car load. When your car arrives haul as soon as possible—on one of your return trips. Take part of the fertilizer directly from the car if you can. Hasten unloading—free the car for other uses.

Order Spring Fertilizer NOW

Make certain of your supply and at the same time do your part toward relieving railroad congestion.

Send for literature to Dept. 9

Soil Improvement Committee
National Fertilizer Association
Postal Telegraph Bldg. Chicago The Munsey Bldg. Baltimore

MORE CORN BETTER CORN

from the same acres on each acre
No Additional Expense for Labor is the natural result from using **THE TOWER CULTIVATOR NATURE'S WAY IS OUR WAY**



Because it assists nature in conserving soil moisture and at the same time eliminates weeds, thus promoting the growth of the plant. Best for all cultivations and under all conditions.

Destroys none of the feeding roots as some methods of cultivation are sure to do. The Tower system, based on "Nature's Way" increases the yield 8 to 17% and hastens maturity ten days to two weeks, a very important item in 1917. They cost no more than similar tools that are less effective.

F. C. Hartung, a dealer of Pocahontas, Ia. writes: "I had a funny thing happen today. A farmer came into the store and asked if I had any Tower Cultivators; I said I had; he asked the price; I told him; he said, 'I will take all three of them.' My brother used the Tower last year and his corn got ripe, while mine did not. I cannot afford to take any more chances."

Read our "Reasonable Reasons Why Every Corn Raiser Should Use Tower Tools;" one copy free on receipt of your address. If your dealer cannot furnish these cultivators with the name "TOWER" on the tongue, advise us and we will quote f. o. b. your town. Address

The J. D. Tower & Sons Co., Mrs.
37th St. Mendota, Illinois

Salesman Wanted—Low priced, high quality paints and we pay liberal commissions. The American Oil & Paint Co., 5511 Euclid Ave., Cleveland, Ohio.

Community Sentiment

By E. C. LINDEMANN

THE world can never be made safe for democracy until democracy becomes safe in our own midst. The war will have been fought in vain if its purpose does not sink into the hearts and the consciences of the people of every city, village and rural community of our country. Communities must be brought to think together before they can act together. The purpose of this article is to analyze some of the factors which have prevented community sentiment, and further to state a few of the factors which will develop community sentiment.

Factors Which Prevent Community Sentiment.

In this discussion the problem will be treated from the standpoint of rural communities.

Our Country Has Not Been Permanently Settled.

In many European countries, such as Germany, the rural population is in a large degree permanent. The same families and their descendants live on the same land and in the same community for generations. In America this has not been true. There have been veritable tides of shifting populations in our history. The New England families came first to the middle west. The next generation moved on still farther west. Another movement brings them to the far west. Then begins the era of rising land values. Land is not considered a family possession but a commodity to be bought and sold. Farm tenantry sets in as an ever-increasing force. Hence it is that our rural populations (the same is true of urban centers also, but the causes differ), are unsettled. Community sentiment depends upon a community mind and a community conscience. There can be no community mind and hence no community sentiment when the factors which go to make up the community are constantly changing.

Our Populations Are Made up of Various Nationalities.

America is still a new country. Its population is made up of immigrants of nearly all the nationalities of the earth. Some of these immigrants have attempted to carry the spirit of their own nation into the life of this nation. The so-called German propaganda was an attempt to have Germans who lived in America continue to be Germans in spirit. They might have a certain amount of loyalty for the community in which they lived, but they were to maintain also a loyalty for the Fatherland. Because we are still in our infancy as a nation, and because we are all first, second, third or fourth generation "somebodies," it has been difficult to develop community solidarity. We have not had time to entirely lose our various national identities. From a community standpoint this problem presents the following racial difficulties:

- Differences in language.
- Differences in religion.
- Differences in education.
- Differences in family customs.

With all of these factors tending to divide people into cliques and racial groups the problem creating a unified community becomes extremely difficult.

American Farmers Live Separately and Not in Centers.

Due to our extensive type of agriculture we have developed a form of rural life which makes it necessary for families to live apart. In Europe where intensive agriculture became a necessity a long time ago the populations live in closer communion. The hamlet system, in which the people who work the land live in small hamlets, going to and from their work each day, is common to many sections of central Europe. This frequent contact makes liv-

ing together an easier task. Cooperative societies of various kinds grow naturally out of such conditions. In order to develop a working community sentiment people must have frequent social intercourse. Good roads, automobiles, telephones and other means of transportation are factors which are constantly increasing the possibilities of social intercourse for our rural populations. It can still be considered a factor in hindering the growth of community sentiment.

Prosperity Has Not Forced American Farmers Into Economic Cooperation.

With a few exceptions caused by unusual conditions we have enjoyed a more or less general prosperity as producing farmers. We have not felt the grim necessity of hanging together for fear of hanging alone. With fertile land that could be purchased at reasonable prices and with a constantly rising market it has been possible for good farmers to succeed financially. We are told that Denmark saved itself from economic ruin through rural cooperation. As a nation Denmark was face to face with the problem of a decadent agriculture. Cooperative buying, selling and soil-building became a necessity rather than a theory. This issue has not been forced upon American farmers. There are many signs at the present time which point to the conclusion that we shall soon face a similar crisis. Economic cooperation is the proper foundation for community sentiment, providing the means is not mistaken for the end. Economic cooperation should have a spiritual basis and because it has not had this its path has been strewn with so much of failure. If economic cooperation becomes a part of the general plan of community life—of the together spirit—it will take its proper place. If people cooperate only for the purpose of getting a few more dollars, neglecting the remainder of life, their cooperation is bound to be superficial and without permanence.

There are many other causes which have tended to separate our communities. Those mentioned above will suffice to give the reader a basis for thinking. A community leader should study his or her own community first from the standpoint of the things which separate and then from the standpoint of the things which we have in common.

Factors Which Encourage Community Sentiment.

Only a few suggestions will be made here. The problem should be attacked from the standpoint of the things which least common denominator—the thing upon which the largest number of people in the community can agree.

We Must Learn to Utilize the Resident Forces.

Community sentiment cannot come from without. It must grow from within. We depend too much upon the help that comes from away. Local forces may be stimulated in this way but if too much dependence is placed in the casual stimulant the local forces will decay through lack of activity. The writer knows of communities which have on the surface all of the marks of live and functioning groups. Outside speakers can always depend upon a large audience. Outside entertainments are well supported. Upon closer investigation, however, one finds that such communities are not in reality performing the proper functions. They have no faith in their own leadership. They do nothing of and by themselves. The surest method for developing community sentiment is by creating a faith in the powers and capacities of the people who make up the community. When a community comes to depend



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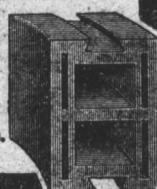
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upon its own leadership and its own resources it becomes articulate, and that means that the community mind has spoken and the community conscience is awake.

We Must Organize Our Economic Life.

This point has already been mentioned in the negative. It need only be mentioned here that a far-seeing leadership may use the economic motive as the basis for a fuller community life. In times of stress, such as the present, it is not difficult to visualize the necessity of economic interdependence. A few methods for bringing this about are suggested below:

- a. Farm loan associations.
- b. Cooperative buying and selling associations.
- c. Standardization of crops or live stock.

The discussion of economic organizations suggests a modification of the first point made under this heading. Local leadership should be used but it must first be trained. One of the reasons for failure in many farmers' cooperative organizations has been the fact that it was not appreciated that buying and selling is a very complex transaction and that it demands skilled leaders trained in business methods. Our rural populations are rapidly producing such minds, but until they are available, the larger cooperative organizations should employ efficient guidance.

We Must Organize Our Educational Life.

Although the consolidated school is undoubtedly the solution of a large number of our educational problems in the country, still we must not wait until a consolidated school becomes a reality before we begin to organize our educational life. The following suggestions for the organization of the educational life of the community may be of assistance in clarifying this idea:

- a. The school education must have a more definite relationship to actual life.
- b. The school must extend its influence into every home of the community; the process of education never stops.
- c. The teacher of the school must be community-minded.
- d. The schools and the homes must be brought into closer union; home projects through boys' and girls' clubs accomplish this.

Recent surveys have revealed the fact that there is a startling diversity of educational standards in certain communities. Until all of the members of a community, including old as well as young, attain a more or less equal standard of education there can be no real expression of community sentiment. The schools have the power to bring this about.

We Must Organize Our Social and Recreational Life.

This is a period of over-organization. There are no great dangers in this tendency so long as the various organizations appreciate their interdependence. When the multiplicity of organizations assumes the function of furnishing social and recreational advantages the danger is this: The community is likely to be divided into little cliques or groups each striving to outdo the other in its little sphere. A community council of some sort which will have as its duty the correlating of all of the various lodges, clubs, churches and other organizations in the community has been tried in some places with excellent results.

In this day when we are being called upon to think and act in terms of our state and our nation it behooves us to learn the lesson of thinking and acting together as communities. Through recreational activities this may be brought about in almost an unconscious manner. People are always at their best when they play together. The winter months are ideal for the beginning of a movement which will en-

gage the entire community in social and recreational activities such as:

- a. Community singing.
- b. Community pageants.
- c. Community dramas.
- d. Community games.

This article has been extended far enough so that readers of the Michigan Farmer will be in position to make applications to their own communities. The subject has been opened for discussion. It has not been exhausted. Is it not time for church cooperation? How long are we going to tolerate the shameful and un-Christian spirit of church competition? Is it not also the time for community cooperation in giving? There are several counties in Michigan where County Patriotic Leagues have been organized. Every movement, such as Red Cross, Y. M. C. A., Liberty Loan, etc., which requires giving secures its fund through the patriotic league. People learn to give systematically and on a scientific basis—according to their means. This has a tremendous tendency to bring the community together.

As was said in the beginning of this article, "Democracy must be made safe at home" if the war is to bring about the desired result. Now, as never before, must we learn to put our own selfish desires in the background so that the community may gain expression and live. There is one great certainty in our lives just now. That is this: The war must be won or our very lives will be insecure. To this must be attached the other certainty that we cannot win this war unless we present a unified front. We must fight not as "these United States" but as "the" United States, and we must contribute our share as unified communities. The farmer's share in the winning of the war is perhaps the greatest of all. If he measures up to the full responsibility of that share it will be because he has learned the lesson of submerging his own will to the will of the community, the state and the nation. That is what community sentiment does, and that is why it is so sadly needed just now.

Perhaps the greatest contribution which the war will make to our social life is this: It will teach us through common suffering to think and act together. May the suffering be not too great and may it be shortened by the patriotism of the community-minded farmer whose individual life and welfare is not so important that he cannot sacrifice it for the larger life and the larger welfare. The American farmer has been traditionally patriotic. In spite of what some false leaders now say, I cannot believe that he will now measure his patriotism in terms of dollars and cents. I have faith in the American farmer. I have seen the things for which this article has contended growing in many communities. That means that community sentiment is growing; that democracy lives in his heart and therefore it will be made safe.

HEAVY FEEDING LAMBS AVOIDED.

While lambs, yearlings and sheep of good quality have continued to sell at far higher prices than in former years, the packers and other butchers have discriminated to a greater extent than usual against heavy weight lambs, and flocks offered on the Chicago market which average 90 pounds and upward are selling at an extremely large discount from the prices paid readily for prime lambs of medium weight. Occasionally, these heavy lambs have sold better, but whenever this happened owners at once began marketing such lots so freely as to send prices down again at a lively pace. A few shearing lambs averaging around 65 to 70 pounds have been offered on the Chicago market, but as a rule the feeding lambs are few and far between. Experienced farmers who understand the sheep industry are all the time avoiding the mistake of buying heavy feeding lambs.

MORE CROP From LIME!

How Soil Becomes Acid

When you consider acidity, think of lemon juice, strong vinegar, muriatic acid or oil of vitriol. But think further—Can you imagine the thousands of bacteria of growth so necessary to plant life flourishing in a soil saturated with these acids? Unquestionably not, for the BACTERIA SIMPLY WON'T LIVE.

Acidity develops in the soil on your farm in one or all of three ways:

- 1st—The original rock or mineral elements from which the soil has decomposed were acid or of an acid-producing nature.
- 2nd—Rotting leaves and grasses, to the yearly influence of which your soil was subjected hundreds of years before put under cultivation, have made the soil sour—for rotting vegetable matter produces acid just as silage becomes sour when it decomposes.
- 3rd—The turning under of green and stable manures, in order to supply necessary plant foods, continually produces sour soil thru its decomposition. Poor drainage often aids this acid-producing process, but careful cultivation and rotation delays the process.

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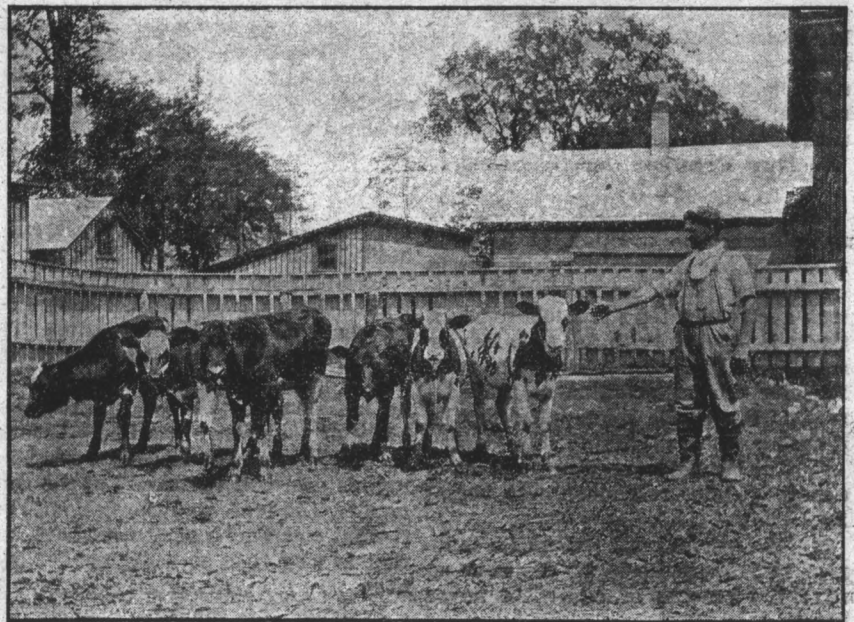
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Developing the Young Heifer

By W. F. TAYLOR

I WISH I might say a few things upon this subject in a way that would be of practical assistance to a large number of people in Michigan who, through improved methods of breeding have now on hand numbers of promising calves that will make excellent cows later on if they are properly fed and cared for. The writer has had experience of varying kinds in this line. He wants to confess right here that he has grown some cows that are too small today, that are limited in productive power on that account, because he did not know how to feed a calf, and because he did not appreciate the importance of keeping the young heifers growing every day until they were fully developed. Today the younger cows on our little farm are larger than the others and our young heifers are much more promising because while we have a great deal yet to learn we have discovered some things that help. First. We are feeding more new milk to the young calf than we formerly did.

to eat if we proceed slowly enough. In time, when the calf is accustomed to grain it may be given all it will eat up clean without any danger of trouble. The matter of roughage is as important as that of grain. Hereto we should begin carefully and proceed slowly. A very little clover or alfalfa at first, or even mixed hay or dry corn stover will answer. I would only give the calf a little. What the animal wastes does it no good. By the time the calf is four weeks old it may begin to eat ensilage. Indeed, I have fed ensilage to calves as the only roughage and had them do very well. With hay at present high prices, and with silos filled with the abundance of corn that was worth little for anything else, I should not feed much hay to calves this winter. As soon as I had determined the amount of grain the calves would clean up with a relish I would put that grain on the ensilage exactly as for the older animals, always taking care not to feed them a greater amount than they will



A Promising Bunch of Youngsters.

It takes courage to feed whole milk to a calf when butter-fat is above fifty cent, we may modify it with skim-milk is absolutely essential to the proper development of the calf. It is possible, however, to feed too much. I believe that from three to four per cent in milk is enough for any calf at any time and if we are sure that our cow is giving milk that tests from five to six per cent. We may modify it with skim-milk to the above proportions. In my own practice I discontinue most of the whole milk by the time the calf is four weeks old, substituting it with skim-milk. But I continue to allow the calf two pounds of whole milk per day for two or three weeks longer.

consume in from half to three-quarters of an hour. The practice of keeping feed constantly before young animals is bad. The ideal feeder will know how much the animals will consume promptly. He will feed them to this limit and will not be in the least disturbed to see their mangers perfectly cleaned until the next feeding period arrives. A friend of mine, one of the most successful dairy men I know, says he wants his cattle to be anxious enough for their feed so that they will try to jump into the silage car as it passes in front of them, and yet several of those heifers are making two pounds of fat per day during this cold weather. Nobody ever saw a bovine animal with that kind of an appetite if it were in the hands of a careless feeder.

The danger of over-feeding must always be guarded against. More calves are compelled to drink too much skim-milk than are fed too little. The amount they are able to take with profit depends upon their weight and upon their individuality.

Now, a word about the kinds of grain and roughage. It is fortunate for us that there are many things that can be fed to calves with almost equal success. Some people think it necessary to feed the prepared calf meals. Now they will not injure calves and can be used with success in the hands of a careful feeder, but they are not "fool-proof" by any means, they are not necessary and they are expensive. They are no more so, however, than many of the prepared breakfast foods that we human beings eat. The advantage that we possess is that we can swallow a lot of good stuff that is printed on the outside of the package and the calf cannot.

The matters of grain and roughage are very important in the development of the calf. Calves should begin to eat a little of grain by the time they are three weeks old, but only a little. The practice of putting a small amount of grain in the bottom of the pail after the calf has finished the milk is not objectionable, but if handled right the animal will soon learn to eat grain dry from a box and this is a more convenient way of feeding it. Great care should be taken not to give the calf too much grain at the start. If we do we shall disturb the digestive processes, the calf will get a set-back, will refuse to eat the grain and we shall have a lot of unnecessary bother. There is not the least trouble in the world in teaching a calf to eat anything it ought

I used to think that it was necessary to feed the calf ground flax seed to furnish oil to replace the fat removed from the milk, but ground flax seed is expensive, and while it is good it is

(Continued on page 212)

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Pulverized lime rock for "sour" soils. WE SELL YOU DIRECT. Shipments from our Muskegon, Mich. yard. Write for sample. Literature, analysis and price. LAKESHORE STONE COMPANY, Milwaukee, Wis. P. O. Box 175.

PRACTICAL DAIRY NOTES.

The starting of a pure-bred dairy herd is expensive because the demand for good cows seems greater than the supply. However, a farmer can start a pure-bred herd on a small scale by purchasing heifer calves and then breeding them to a pure-bred bull. It is surprising how soon three or four years pass by on a busy farm and how much can be accomplished in that time in the improvement of a dairy herd.

The dairy cow produced on the farm can be obtained for the least expense. The home-raised cow understands the owner and he knows her characteristics. Also, there is a lot of satisfaction in producing good cows, for then you are sure to have them and if you depend on buying the cows they may be hard to find and you may not have the money available for their purchase.

A farmer who owns a pure-bred bull and furnishes service to the neighbor's herds should receive the squarest kind of a deal from the neighbors. This means that fees should be paid promptly and not neglected, as has been the case in some communities. Some farmers never appreciate the privilege of using a pure-bred bull on a neighboring farm until the owner discontinues the privilege. Then it often means a return to scrub breeding or a long trip up the road. A community-owned bull will be a fine investment in every farming section.

The use of a tank heater in winter will make a saving in feed, as the cattle will not need so much to keep them in condition as is necessary when they have to heat ice water after drinking it. Cattle will drink more water if the chill is removed and this will cause an increase in the milk flow. The dairymen in our section have not all had a supply of coal for their tank heaters this winter, and it has caused much inconvenience. Wood cannot be safely used in one of these heaters because of the sparks that may be carried near the barn or straw stack. Some insurance policies stipulate that wood must not be used in a tank heater. The farmer without enough fuel to use in his tank heater is surely losing money and if possible enough coal should be stored next summer to avoid a repetition of this trouble.

Every cow in a herd will have individual characteristics which must be studied in order to give the animal the proper care. Carelessly feeding the same amount to every cow will mean that some receive too much and others not enough. This will not result in the economical production of milk and the situation can be remedied by watching the cows at feeding time.

The lantern is one of the tools of the dairy business on farms without electric lights. A strong wire stretching through the stable, or plenty of substantial hooks will be needed to keep the lantern from being tipped over or kicked into the straw. Near our section a farmer once placed his lantern on the floor near a horse. The horse later became frightened and kicked the lantern into a pile of hay without putting it out. Burning oil on the hay spread rapidly and the barn was burned to the ground.

It will pay to attend some of the pure-bred stock auctions in your community even if you are not a prospective buyer. They furnish an opportunity to study good cows and compare them with the stock on the home farm. It makes an interesting day for a dairyman and it is a stimulation for the business.

On still days in winter when the sun is shining it will pay to allow the cows outside the barn. They enjoy the exercise and it helps to keep them in good condition. Watch the weather when they are out to avoid undue exposure, because of sudden changes in the temperature.

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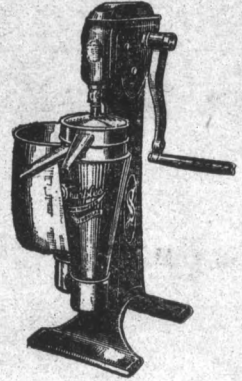
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We Buy Them. Send Exact Sample In Tin Can. Cull Beans For Sale. W. L. IRELAND & CO., Grand Ledge, Mich.

Mention the Michigan Farmer when writing Advertisers

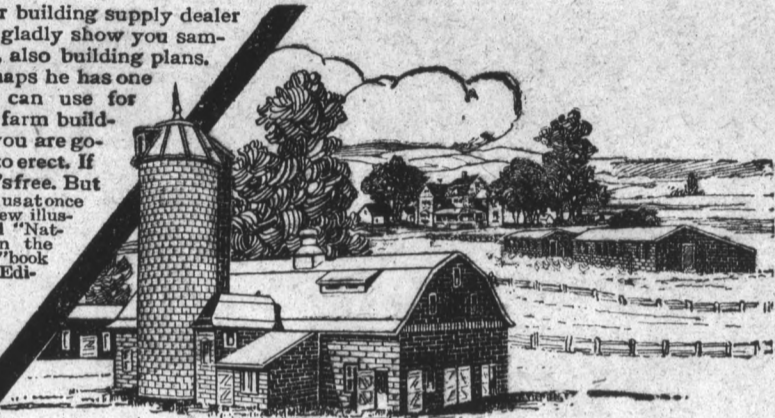
Rats or Profits?

Every rat on your place, according to experts in the U. S. Department of Agriculture, will cause a loss of more than \$2 during the coming year. It is no uncommon thing for farm buildings to harbor forty to fifty rats and great numbers of mice. The resulting loss amounts to a pretty big sum. Build your granaries and barns with

Natco Hollow Tile

Natco buildings are vermin-proof and fire-proof as well. Will stand for generations—save painting. The smooth glazed walls will not absorb odors and are easy to clean. Air chambers in the walls keep out the bitter cold of winter and the scorching heat of summer. Also keep the buildings dry and free from mildew. Save coal in the house and grain in the bin. Natco buildings will reduce your insurance rates yet add to your real protection.

Your building supply dealer will gladly show you samples, also building plans. Perhaps he has one you can use for that farm building you are going to erect. If so, it's free. But write us at once for new illustrated "Natco on the Farm" book—1918 Edition.



National Fire Proofing Company

1115 Fulton Building

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23 Factories assure a wide and economical distribution



THIS is the trade mark of Krause Dairy Feed—a feed that has made a high record as a milk producer for thousands of dairymen.

Krause Dairy Feed contains ten ingredients—each of which has distinct and specific values and they are so combined as to form a perfectly balanced ration.

This high grade feed will give your cows exactly what they need for big, rich milk production and keep them healthy and vigorous.

Feed "Krause" this winter and make more milk money. Write at once for free sample and useful record book. Give name of your dealer.

KRAUSE
HIGH **24** PROTEIN
DAIRY FEED

CHAS. A. KRAUSE MILLING CO.,

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MILWAUKEE, WIS.

The Cow's Health - First of All

To think of the milk yield first and the cow's health afterward is putting the cart before the horse. Many "poor milkers" only need to have their systems working properly to become good producers.

KOW-KURE, the great cow medicine, makes cows healthy and keeps them healthy. Working on the digestive and genital organs, it is a prompt, sure remedy for Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite and Bunches. Try **KOW-KURE**; druggists and feed dealers sell it—55c and \$1.10 packages.

Write for "The Home Cow Doctor," free.

DAIRY ASSOCIATION CO.,
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As low as \$13.15

\$10,000.00

Bucks this **SAW**
Hertzler & Zook
Portable Wood

This is the cheapest saw made. Only \$13.15 saw frame to which a coping table can be added. Guaranteed 1 year, money refunded and all charges paid if not satisfactory. Write for catalog. Hertzler & Zook Co., Box 23, Belleville, Pa.



Only **\$2** DOWN!!
ONE YEAR
TO PAY

\$29 Buys the New Butterfly Junior No. 2. Light running, easy cleaning, close shimming, durable. Guaranteed a lifetime against defects in material and workmanship. Made also in five larger sizes up to No. 5 shown here. Earns its own cost and 30 DAYS' FREE TRIAL more by what it saves in cash. Postal orders from catalog-holder and direct from factory offer. Buy from the manufacturer and save money. ALABOUGH-DOVER CO., 3105 Marshall Blvd., CHICAGO



When writing to advertisers please mention The Michigan Farmer.

DEVELOPING YOUNG HEIFERS.

(Continued from page 210).

very doubtful if much direct benefit results from the oil it contains. It has been clearly proven that this oil will not take the place of the butter-fat in the animal economy. I am satisfied now that any of the ordinary grains, grown on the farm, will answer well for the calf. Whole oats are very good, corn, either whole or ground, is excellent, a little wheat bran may be mixed with these grains, if we have it, either of the above grains may be fed alone, barley is as good as anything else, and the mixed grain ration, fed to the dairy cows, may be shared by the calves with equal profit, providing it does not contain cottonseed meal.

As to roughage, I should place alfalfa first, with a good clover hay a close second, after which I would prefer corn ensilage. One should be careful about the quality of ensilage fed to the calves. It should be fresh and free from mould and the animals should be given no more than will be promptly cleaned up.

There is a tendency not to continue the skim-milk long enough in the life of the calf. We have been getting splendid results from skim-milk without knowing why. Personally I used to think of it merely as a source of protein, but I did not know that the protein in the milk was two and a half times as available as the protein in grains, and yet such is the case. I used to think of the value of the milk sugar but did not fully understand its availability but the thing we all overlooked in the past, I am sure, is its mineral value. No animal can be developed normally without a proper proportion of mineral in the ration. To deprive a young animal of milk is to limit its ultimate size. If we are constructing a building we first erect the frame. We cannot build a dairy animal without a frame, and to make the frame takes mineral in plenty, and we cannot get it anywhere so easily or so cheaply as in skim-milk. We should continue it until the animal is six months old at least, and preferably for a longer time.

It is hard to over-estimate the value of good pasture for young dairy animals. Last fall I turned a bunch of heifers into some very fine clover and it was interesting to watch them grow. I have been in the upper peninsula when pastures were at their best, when cows would come up at night so well satisfied with the ration of the day that they would look at bundles of green corn with much the same feeling as that of a man who turns from the choicest of fare in a popular hotel to a miserable attempt to bridge over wheatless-day in a third-rate restaurant and I have wished that I might take that magnificent pasture and somehow spread it over the brown scorched acres on which our cows were passing their time in fighting flies and waiting for their evening ration. Yes, good pasture is all right, nothing in the world is better for dairy animals of any age, but it is scarce and where it is not good we must supplement with something else. It will not do to let these young animals stop growing. A little grain once or twice a each day, some oats and peas in their season, sweet cornstalks a little later on, a patch of alfalfa close by, all these will help. Perhaps the most convenient thing of all is the summer silo but the all-important matter is in some way to keep these young animals growing.

The dairy heifer at from two to two and a half years of age should be a well developed animal. If she has been neglected she may be partially developed after her work as a cow has begun but she will never reach the extent of production of which she might otherwise have been capable. The writer has a cow of very strong milking tendencies. When a calf she was unfortunate in having more than a calf's

share of indigestion. When she freshened the first time she was under size. She soon gave thirty-two pounds of Jersey milk per day, but she could not consume feed enough to continue at that rate of production so she borrowed from her little body until her production diminished to a point where she could eat enough to keep even. She is naturally a good cow but I am losing anywhere from \$10 to \$25 a year by not having assisted that animal to grow a strong body that was able to do the work for which her inheritance has fitted her.

And now may we say a word in closing, about feeding the heifer during her first period of lactation. Here again it is up to the man. Truly, it takes a wise man to develop a dairy animal, to know just how and when to feed, to know what to feed and how much, to watch the cow from day to day and feed her as an individual and not simply as a member of the herd. These are requisites of a good dairy man but to acquire them takes application and experience. No heifer is fully developed at two years. The lighter breeds may begin milking then with profit, but the Holsteins should have a little more time. During the first milking period two objects should be kept constantly in view. First, the further development of the animal, and second, the production of milk in paying quantities. We must not over-feed for we do not want to impair digestion and limit development, we must not under-feed because if we do the animal will fall off in flesh, then in vitality and we shall be very sure to fail in our purpose.

The all-important thing is to hold on. In the old days when it took twenty-five cents to send a letter and the stamps would not stick well at that, and if the stamp did not stick the postage must be paid again at the other end, an unfortunate fellow who had had some previous experience, stamped his letter and wrote under it, "Paid if the — thing sticks." Now, reader, this is a good place to stop. Our thought, our research, and our labor in the development of a profitable dairy will be rewarded only on condition that we stick.

MEETING OF DETROIT AREA MILK PRODUCERS.

Delegates representing the locals of the Detroit area met at the Detroit Board of Commerce rooms last Thursday. Seventy-three locals were represented by about 300 delegates.

President Hull, of the Michigan Milk Producers' Association, gave an address which was replete with good counsel and encouragement and was greeted with outbursts of applause from the delegates.

The general tie-up of all business as a result of the severe weather and the scarcity of fuel has had an effect upon the milk industry. As a result of this the milk producers have met severe losses. The disposition on the part of the housewife to Hooverize on all expenditures has also reduced milk consumption. As a result of these and other conditions, there is much less of this product being consumed in Detroit now than at any time during the past year. To meet these new conditions Mr. Hull urged that constructive business principles be applied.

Field Secretary Reed continued the argument of Mr. Hull's by urging a forward movement along the line of advertising dairy products. Every other commodity of commerce is being advertised liberally except the products of the farm and dairy. Through advertising he believes it possible to protect the market and the public from a decreased consumption of this wholesome food. To this end he urged that an advertising campaign be at once inaugurated to acquaint the people of

(Continued on page 214).

Cleanliness In Dairying

By C. E. RICHARDSON

ONE morning recently, I was over to the next township on some business. I went in to see a friend of mine, who has a large farm. I walked out to the barn where he was just finishing his "chores." I was surprised to see the change that had taken place in his tie-up.

"Good morning," I said to him, "this is certainly a surprise! The last time that I heard from you, I understood that you were going out of the dairy business. Now here you have your tie-up all made over; what does it mean?"

"Well, I've found out a thing or two, since I saw you," he replied. "Yes, I was pretty well discouraged then. You remember I had been having more or less trouble with the creamery. They were 'kicking' about my cream all the time; they said it had 'off' tastes and would not keep. I could not seem to tell what the matter was; I thought perhaps that they were prejudiced. I was ready to sell my cows.

"One morning as I was milking my cows, the county agent came in. We got to talking about things and he advised me not to give up. 'I think you can make things all right,' he said. He called my attention to the condition of my cows. They were all covered behind, on their flanks and tails, with dirt and manure. Even their udders were none too clean. But I did brush those off when I milked. But with the cows that way I was unable to keep the milk clean when I milked, pieces of dirt and dust would get into the pail. You see, I got careless and did not clean them off regularly. Nor did I give them much bedding and they would lie down in the droppings and get all dirty.

"You notice that I now have swing stanchions hung on chains? If you remember, I used to have them tied with chains around their necks attached to a pole. With that arrangement they had too much freedom so that gave them a chance to get dirty. By the county agent's advice I put in these stanchions; these give them enough liberty and at the same time keeps them from getting too dirty.

"I began to keep them cleaned off and I was very careful not to allow any dirt to get into the milk. You see, I always supposed that the separator took out all the impurities! I know now after he explained to me, that it might do so with the large particles but by letting the large pieces get in, there was more or less of the dirt that got dissolved and went through the separator into the cream. I know of farmers that have that same idea; they think that the separator can purify the milk. That is not so.

"Well, since I made these changes in the tie-up, and also have been careful to keep everything clean when milking and separating, I have had no more complaints from the creamery."

"I am glad that you discovered the cause of your troubles, and have had such good success in correcting them," I told him.

"I was pretty well discouraged, one while," he stated, "but now things are different, just by taking a little pains each day. Now that I know how to produce clean milk, I am thinking of retailing it; you know, I have a chance to do so as I am near good markets. But before, I never dared to think of it. Really, cleanliness pays."

"It's too bad many other farmers do not realize it, too," I remarked.

Making Good Dairy Butter

The butter made on the farms of the United States may be materially improved in quality in most cases, if standard methods are employed and greater care is exercised in carrying out the necessary details. The department of Agriculture gives the following outline of the essential steps to be taken in making good farm butter:

1. Produce clean milk and cream. Cool the cream immediately after it comes from the separator. Clean and sterilize all utensils.
2. Ripen or sour the cream at from sixty-five to seventy-five degrees F. until mildly sour. Always use a thermometer in order to know that the right temperature is reached.
3. Cool the cream to churning temperature or below, and hold at that temperature for at least two hours before churning.
4. Use a churning temperature—usually between fifty-two and sixty-six degrees F., that will require thirty or forty minutes to obtain butter.
5. Clean and scald the churn, then half fill it with cold water and revolve until the churn is thoroughly cooled, after which empty the water.
6. Pour the cream into the churn through a strainer.
7. Add butter color—from twenty to thirty-five drops to a gallon of cream—except late in the spring and early in the summer.
8. Put the cover on tight, revolve the churn several times, stop with bottom up, and remove stopper to permit escape of gas; repeat until no more gas forms.
9. Continue churning until butter granules are formed the size of grains of wheat.
10. Draw off the buttermilk through the hole at the bottom of the churn, using a strainer to catch particles of butter. When the buttermilk has drained out, replace the cork.

11. Prepare twice as much wash water as there is buttermilk, and at about the same temperature. Use the thermometer; do not guess at temperatures. Put one-half the water into the churn with the butter.

12. Replace the cover and revolve the churn rapidly a few times, then draw off the water. Repeat the washing with the remainder of the water.

13. The butter should still be in granular form when the washing is completed.

14. Weigh the butter.

15. Place the butter on the worker and add salt at the rate of three-quarters of an ounce to a pound of butter.

16. Work the butter until the salt is dissolved and evenly distributed. Do not overwork.

17. Pack in any convenient form for home use, or make into one-pound prints for market, wrapping the butter in white parchment paper, and inclosing in a paraffined carton.

18. Clean the churn and all butter-making utensils.

AMERICA'S RESPONSIBILITY.

With the world's supply of ships about twenty per cent short of normal and the allies' need of food imports increasing, the following facts about shipping will interest American farmers: A ship can make two trips from the United States to Europe and back in the time required for one round trip to the Argentine. And it can make three from the United States to Europe and back in the time required for one round trip to Australia or the Indian Ocean. Shortage of ships has reached the point where the long journeys must be given up and the ships used on the trans-Atlantic routes. The great task of rural America this year will be to supply enough food to load these ships and others being built.

Three Important Reasons For Buying a

NEW DE LAVAL CREAM SEPARATOR

At Once

THERE are three very strong reasons for the immediate purchase of an up-to-date De Laval Cream Separator.

In the first place, a new De Laval machine will now save its cost in a few months—in more and better cream and butter and in time saving—at the present very high butter prices and great need of every minute of time.

In the second place, the patriotic duty rests upon every producer of butter-fat to save every ounce of it, and nothing is of greater food value to a nation at war. All European countries are encouraging the sale of the best cream separators in every way possible.

In the third place, railway delays are such that you can't depend upon quick delivery, and if you don't order your De Laval now there is no telling when you can get it. Moreover, the supply of labor and material is uncertain and all last year De Laval deliveries were nearly two months behind.

Again, De Laval prices have advanced very little thus far but must go higher if present industrial conditions continue, let alone become more difficult. Present prices hold good until March 1st only.

There was never a time when the immediate purchase of a latest improved De Laval Cream Separator was more important to every one separating cream, or when it could less wisely be delayed.



See the nearest De Laval agent at once. Arrange to try a new De Laval machine for your own satisfaction. See for yourself just what it will do for you. If you don't know the nearest agent simply address the nearest General Office.

The DeLaval Separator Co.

165 Broadway, New York 29 E. Madison St., Chicago

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

PERFECTION MILKER

The Labor Problem Solved

ONE man with a Perfection Milker can do the work of three men at milking time. In case of emergency your wife or your little boy or girl can do it.

The Perfection milks as the calf does—suction, downward squeeze, release. The Perfection is simple. It does not easily get out of order. No harness to bother with. The Perfection teat cup fits all sizes of teats. The pail is made of "Wear-Ever" aluminum, easy to clean and non-rusting.

L. C. Richards of Grand Forks, No. Dak., says:

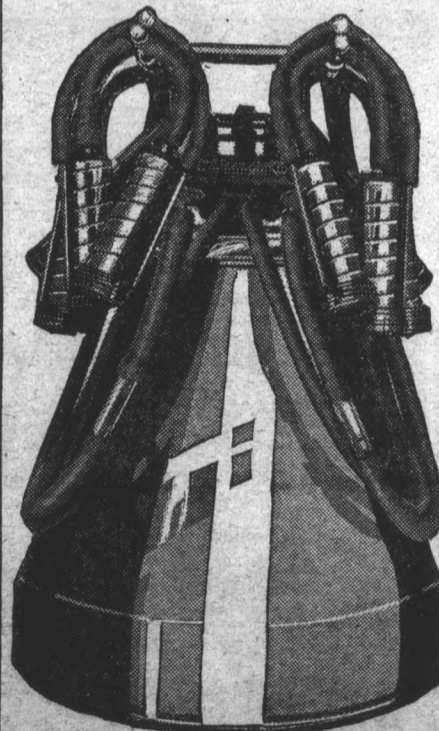
"The Perfection Milker is doing fine. We milk 40 cows in an hour easily and the men like the work. With the present scarcity of help, I am afraid to think of what might happen if we did not have the Perfection."

C. E. Van Meter of Loveland, Col., says:

"The Perfection Milking Machine is giving entire satisfaction. We are saving one man's work with it on 20 cows, which will pay for the machine in 10 months."

Let the Perfection Milker relieve you of the labor problem and you will find that the world will seem much brighter.

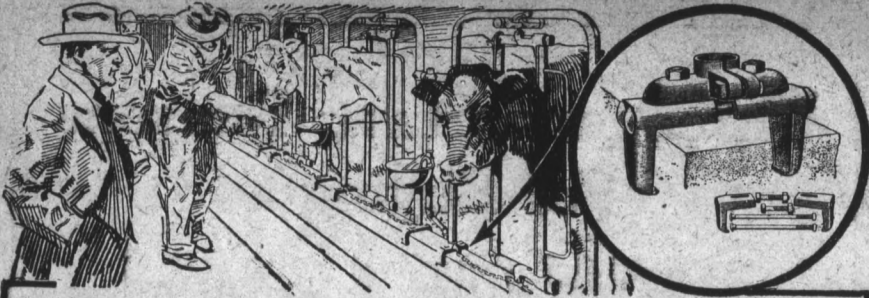
Write for your free copy of our new illustrated catalog. You will find in it much valuable information.



Perfection Manufacturing Company

2126 E. Hennepin Ave.

Minneapolis, Minn.



What the Curb Clamp Does for STAR Stalls

The STAR Curb Clamp has been an undying friend of every user of STAR Barn Equipment because it makes the installations of these stalls the work of minutes instead of hours.

Since it is patented, the Curb Clamp is found exclusively on STAR Steel Stalls. It does away with templates and anchor bolts and enables you to finish up your curb along with the rest of the concrete work.

To set a stall the STAR Way, just drop it in place—tighten up the Curb Clamp draw bolts and the job is done. And the stall is set in sixty seconds—taught, tight and permanent.

STAR Steel Stalls, Stanchions and Litter Carriers

Among the many exclusive features of STAR Stalls are the Arch Construction giving sanitation and strength—the Unit System by which your stalls grow with the herd and the fact that our stalls are assembled in the factory not in your barn.

The Giant Star Stanchion is easily adjustable to any animal's neck—is wood-lined and the strongest made in addition to being equipped with the One Hand Lock and Automatic Sure Stop. The STAR Line of Litter and Feed Carriers meets every possible need and requirement in every size and shape of barn. Our catalogs are very interesting and gladly sent free for the asking.

STAR goods sold by best dealers everywhere

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

Get 100% Efficiency From Your Feed

At present prices you cannot afford to waste a pound of feed. But you are wasting it—losing good dollars—if your horses, mules, cattle, sheep and swine are not digesting it perfectly because of poor condition. Make your live stock get the full benefit of everything they eat by using

Pratts Animal Regulator

America's original Stock Tonic and Conditioner. It corrects common live stock troubles in a natural way. Sharpens the appetite—assists digestion and assimilation—regulates the bowels—tones up the whole system—makes rich, red blood—assures 100% feed efficiency—prevents loss and swells profits.

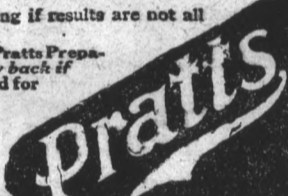
Begin using Pratts today. A thorough trial costs you nothing if results are not all we claim.

Our dealer in your town has instructions to supply you with Pratts Preparations under our square-deal guarantee—“Your money back if YOU are not satisfied”—the guarantee that has stood for nearly 50 years.

Write for 64-page Stock Book—FREE.

PRATT FOOD COMPANY

Makers of Pratts Poultry Regulator and Remedies
Philadelphia Chicago Toronto



Feeders' Problems

Dried Beet Pulp for Fattening Steers.

We would like your opinion as regards feeding dried beet pulp to fattening steers and cattle. Is it better to feed it dry, or should it be soaked? How much should be fed per cow or steer at a time? Steers are two years old. Should it be combined with any other food to get more good out of it?
Kent Co. J. B.

Dried beet pulp is a very good food for fattening steers as a portion of the ration. Unless the steers are kept in a good warm barn, I would advise feeding it dry instead of moistened. It will not be liable to freeze before it is all eaten up. Then again, if the steers are not housed and are allowed to run out in the open very much, it is best not to feed too much succulent food because cattle that eat very much corn silage or moistened beet pulp would not be in as good condition to resist this cold weather as animals that were fed a dry ration. If you feed succulent foods in the winter time you must give your animals as near as possible summer conditions. But the cows, for instance, are nearly all kept in warm barns. Many herds don't get out of doors at all in cold weather. These cattle can be fed good large rations of succulent food with no detriment, but when you turn a cow or steer that has had a good big feed of succulent food out of a warm barn, the cold weather affects them more than as if they had had dry feed. Then again, it is not necessary to moisten dry beet pulp to feed to cattle or to sheep to get good results. If you were feeding this dried beet pulp to horses it would have to be moistened or you would be liable to have trouble from its choking the horses. Horses eat much faster and the beet pulp is so dry that it sticks to the throat when they swallow it, and then absorbs moisture and swells up and in many instances closes the passage, but you will have no such trouble in feeding dried beet pulp to cattle.

Dried beet pulp is a feed that you can feed almost any amount of with safety. If you choose to do so you can feed all they will eat up clean twice a day which would be several pounds of the dry feed. This feed has a somewhat similar analysis of food nutrients as corn meal. In an experiment performed at our own experiment station dried beet pulp was substituted for corn meal and gave fairly satisfactory results.

Beet pulp being a carbonaceous food should be fed always with some other food rich in protein, like cottonseed meal or oil meal or gluten feed. By doing this you will balance the ration and will get more good out of the dried beet pulp and also out of the cottonseed meal than you would if you fed either alone.

COLON C. LILLIE.

KEEPING BREEDING RECORDS.

The job of keeping breeding records is one that most of us farmers find trying. The simplest and most efficient method is trouble enough. A system that the writer finds very convenient is to use a desk calendar or a memorandum file as they are sometimes called, like a city business man uses to remind him of his appointments. The date of breeding can be set down on the day bred. Then all that is necessary is to add the number of days in the gestation period of the animal to the number of the day, the year of the day bred, and the sum obtained will be the number of the day of the year on which the gestation period should end. For example, a sow is bred on January 3. The number of days in the gestation period of a cow is 112. January 3 is the third day of the year. Add 112 to three and we have 115. Turn the leaves of the calendar to 115 and we find the 115th day falls on April 25. That is the date the new-born pigs should arrive.

It is a good plan to indicate on a page of the calendar a week or ten days previous the fact that such an animal should be expecting a birthday party in so many days. Then when this warning page comes up your attention will be called to the fact and preparation can be made in time. Your presence in the hog house at the proper time may help to save several piglets that might get lost and chilled or crushed beneath the sow.

A calendar like the one mentioned can be procured from any city stationer if they are not to be had in your country town. One should be sure that the calendar has the number of the day of the year on each page. I have seen them with simply the date and day without the day number. These day numbers help a great deal in determining the end of the gestation period because with them you simply have to add the number of days in the gestation period instead of counting each page as would be necessary without the day numbers. The standard which holds the pages that can be used year after year costs from 75 cents to \$1.00. The filler, or pad, costs 50 cents for each year. That may seem a little expensive but if it is the means of saving one pig the profit on the one pig will keep you in pads for the next ten years.

Besides keeping breeding records other dates of importance can be indicated. The dates of maturity of notes can be indicated on the proper date and prompt settlement can be made. This will establish credit and prestige with your banker. Dates of sales that you wish to attend can be indicated. In fact, a complete and useful diary can be had year after year if one cares to set down important events from day to day. These calendars are necessary equipment to a business man in the city and as we farmers are being more and more regarded as business men we should endeavor to encourage the idea by using business-like methods.

Monroe Co.

C. H. GREEN.

MEETING OF DETROIT AREA MILK PRODUCERS.

(Continued from page 212).

our cities with the real value of dairy products.

The delegates present gave unanimous support to Secretary Reed's appeal, and at once set about to devise ways and means to accomplish the end suggested. The method of distributing the cost of such an undertaking was discussed by the delegates. After carefully analyzing the situation it was voted that the buyers be requested to take from each patron's check one cent for each one hundred pounds of milk sold and remit this directly to the association treasurer to provide funds for the conduct of a publicity campaign. This action will necessitate the changing of some of the agreements already existing. However, it is believed that these changes can be effected.

As some of the Detroit area locals had sent the state association their regular membership fees prior to January 1, in addition to the one-half cent commission authorized by the milk commission, it was voted that if any local in the Detroit area expresses by vote that they desire the return of this membership fee, and shall so notify the field secretary of the state association, this money will be refunded to the local.

In order to further the publicity work a number of men are available to assist in increasing the strength of the milk producers' organization to a point where it is certain to stand unitedly behind any reasonably undertaking that may be authorized. Those locals desiring to push the work in their communities should get in touch with Field Secretary R. C. Reed at Howell, and arrange for meetings at once.

WERTHAN PAYS HIGHEST PRICES FOR EMPTY BAGS

CASH FOR EMPTY BAGS

We pay highest prices and also freight charges. Be sure to get our prices before disposing of your bags. They're worth money to you and we'll pay you best cash price for them as soon as received and assorted. Write us at once stating how many you have.

WERTHAN BAG COMPANY
61 Dock Street St. Louis, Mo.

Hinge-Door Silo

The Man Who Climbs the Silo always votes for the Hinge-Door. It's SAFE and EASY to Operate. The one silo forming a perfect ladder. Convenience and safety—NO RISK. Doors always in place. Lock operated by one hand—any boy can operate it. Keeps ensilage perfectly next to door. Prevents freezing in winter and drying out in summer. Will not sag, freeze in, bind nor stick. Circular FREE. Agents Wanted. Lansing Silo Co., 304 E. St. Lansing, Mich. Formerly Woods Bros. Silo & Mfg. Co.

Lump Jaw

The farmer's old reliable treatment for Lump Jaw in cattle.

Fleming's Actiniform

Price \$2.50 a bottle. Sold under a positive guarantee since 1890—your money refunded if it fails. Write for FLEMING'S VEST-POCKET VETERINARY ADVISER. A book of 192 pages and 67 illustrations. It is FREE.

Fleming's Chemical Hornstop

A small quantity, applied when calves are young, will prevent growth of horns—no need to dehorn later. A life tube—sent postpaid—is enough for 25 calves.

FLEMING BROS., Chemists
252 Union Stock Yards, Chicago, Illinois

BUILD AN EVERLASTING SILO

\$25.00 to \$50.00 Saved by Wise Buying

Write for special money-saving proposition and buy an EVERLASTING glazed Vitritified Tile SILO at agent's price.

LEWIS McNUTT
Clay Products
28 S. Walnut St., Brazil, Ind.

DEHORNING STOPS LOSS

Cattle with horns are dangerous and a constant menace to persons and to other cattle. Dehorn quickly and easily with a

KEYSTONE DEHORNER

All over in 2 minutes. Not a harsh method. A clear, clean cut. Cows give more milk; steers make better beef. Send for free booklet.

M. T. Phillips, Box 26, Pomeroy, Pa.

"How To Feed Silage" FREE

Send for 36-page birds-eye on handling silage—a chapter from "Modern Silage Methods," 1917 edition of this book 25c. 254 pages. Answers all silage or silo questions. Ohio Silo Filler Catalog FREE.

The Silver Mfg. Co., 390 Salem, Ohio

More Sheep for Michigan

MICHIGAN sent twenty delegates to the fifty-ninth annual convention of the National Sheep and Wool Growers' Association, held at Salt Lake City, January 17-19, and though they arrived a day late, due to a snow storm, their efforts to interest the western flock masters in the cut-over grazing lands of this state seemed to be entirely successful. Very close to 1,000 members of the association were in attendance and they came from almost every state and from five foreign countries. A. C. Carton, of Lansing, secretary of the public domain commission, was at the head of the state delegation and 1,600 copies of a forty-eight-page illustrated booklet entitled "Michigan for Sheep," were distributed at the convention. This booklet was prepared by the public domain commission and told of the feeding possibilities on our cut-over lands, while soil maps of both peninsulas were enclosed.

Leo C. Harmon, president of the Upper Peninsula Development Bureau, spoke in part as follows: "Cloverland, or the upper peninsula of Michigan, consists of over 10,000,000 acres, not more than ten per cent of which is at present occupied. We have several tracts from five to fifty thousand acres now available for pasturing live stock. We have made a partial survey and have checkings now on nearly two million acres ready for your inspection. Many of the inviting conditions that brought men into the sheep game in this western country and helped make for success exist today in Cloverland. Of the fifteen counties of the upper peninsula, one-half ship to outside sections a large tonnage of hay annually, one county alone shipping a million dollars' worth in 1917. One of the first acts of the federal government, after taking over the railroads, was to issue a priority order directing the Soo Line to rush to Rudyard, in eastern Cloverland, 800 cars to move hay ordered for export.

"Your winter feeding problem is indeed an easy one. Lumber for fencing and sheltering your flocks may be had at extremely low prices. In some cases you will find enough timber on your lands to take care of your improvements, at practically no cost outside of labor. Freight rates are a big factor. Wire fencing and other supplies needed for your ranch improvements can be shipped from Chicago, Milwaukee, Detroit, Minneapolis and St. Paul. Quick transportation facilities and low freight rates must impress upon you the low cost of doing business in Cloverland.

"Your range situation in the west is a serious problem. Droughts, lack of ranging facilities and other unfavorable conditions now compel you to seek other locations. We have millions of tons of range feed going to waste annually for the want of live stock to use it. From a patriotic and economic standpoint, and as American citizens striving to do our utmost during these war days we feel that you owe it to yourselves and to your country to make a careful, business-like investigation of the ranges of the great lakes region. That is why the officers of this bureau are here today. We are not here to sell you lands because we have no land to sell. We are here to interest you in trying out our lands without cost to you. Our big land owners, who wish to cooperate in this matter have turned over to our bureau 250,000 acres of desirable lands in tracts of one to twenty thousand acres for submission to you on the following terms: First, you may use these lands for two years without cost. Second, you are to pay the taxes during the third year. Third, you are to pay the taxes and a rental based on six per cent of the purchase price during the fourth and fifth years. Fourth, at the end of the last year you are to pay ten per cent of the purchase

price and make such future payments as agreed upon between you and the land owner. Fifth, the prices of the lands are to be \$10, \$7.50 and \$5.00 per acre.

"We want to impress upon you that we are not here to sell lands. We are not land agents and there is not a land agent from upper Michigan here today. We have asked them to stay at home because we want to prove to you that our proposition is based on two great principles—patriotism and development. We want you to come into Cloverland after lambing time next spring and be convinced that when Frank Hagenbarth, your president, said that we have the greatest live stock country in the United States, if not in the world, he told the truth and nothing but the truth."

A number of the western sheep men have promised to come to Michigan in the spring and see the land. One man has a flock of 45,000 sheep and doesn't know what he is going to do with them next summer. Another with a band of 125,000 has promised to locate in Michigan if he finds conditions half as good as is claimed.

Harry Lauder, the world renowned singer, who is working for a five million dollar fund for crippled Scottish soldiers, was a guest of honor at the meeting. Before he came a ram had been auctioned for the benefit of the Red Cross, bringing \$6,200. After his arrival it was decided to sell the ram again at auction and give the excess money to Lauder's cause. This time it brought \$11,250.

Kent Co. ALMOND GRIFFIN.

LIVE STOCK NEWS.

The "zone" system of marketing live stock in Chicago has upset all former divisions of receipts among certain days, and now Tuesday, Thursday and Friday have ceased to be known as "off days," as formerly. Quite recently so many cattle, hogs and lambs have been marketed on two or three consecutive days as to bring about rather sharp breaks in prices, although everything in the live stock line continued to sell at far higher figures than in former years.

Louis Gayman, of Monmouth, Ill., put in an appearance in the Chicago market a short time ago with two carloads of choice cattle which brought \$13.25 per 100 pounds, their average weight being about 1300 pounds. He kept these steers on feed during a period of three months, furnishing a ration of soft corn, oats and cotton cake. Mr. Gayman has left on his big farm 162 head of cattle and 900 hogs. He fed a total of 2000 hogs last year.

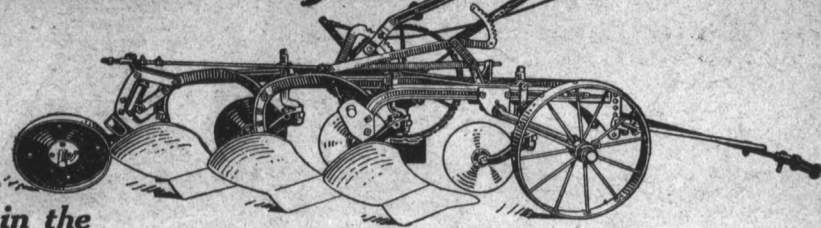
The annual report of Swift & Co., states that earnings last year were materially increased the corporation paying to shareholders a total of \$34,650,000, comparing with \$20,465,000 in 1916. The big packing firm paid to live stock raisers over \$455,000,000, an increase of \$141,000,000 over 1916, and dividends paid amounted to ten per cent on the capital. The company increased its capital stock from \$750,000,000 to \$1,000,000,000, and to pay for this new stock issue it charged the amount, \$25,000,000, out of its surplus.

There has been a steady demand for several months past for high-grade breeding ewes of Merino blood, ewes with solid mouths and good udders being wanted. Rams of good mutton type are also wanted for mating with western range bred ewes.

Stockmen report a normal cattle and hog supply in McLean county, Illinois, with promise of a substantial increase in the next crop of spring pigs. There is a short hay crop. The winter wheat and rye acreage is larger than in other years.

A stockman living in Story county, Iowa, is authority for the statement that because of the high cost of labor and feed, the beef bred steer calves are not being generally raised, nor are many heifer calves saved to mature. Fewer cattle are being fed in that district than in former years, but an increased spring pig crop is expected. As there is no hog cholera, most farmers are not inoculating their hogs. The farmers of Iowa and other states are largely holding on to their oats for feeding to their live stock, because of the inferior quality of their corn crops.

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Horse-Pace Family!—You Have Come to the Turning Point

Business-Farmer—to be longer without a motor car may affect the whole of your success, and the whole of your family's future.

Have you noticed lately that somehow the good chances that are missed by you are seized by others—others who have automobiles?

Have you noticed that, though some men you know of turn every hour and minute into profit, *your* work goes slow, *your* time is spent in fretting against delays—and that you are getting into the habit of letting many a good chance pass because you "wouldn't be able to get there in time?"

* * *

Have you noticed that your family—your girls, your boys, your wife—are steadily, steadily getting out of touch with those they ought to know? Have you realized that the families which surround you—automobile families—have a circle of friends and interests, and a radius of easy visits, far larger than your family? Open your eyes.

Have you noticed how many times you and your family have been placed under obligation by

neighbors who have cars? Aren't you tired of asking favors?

* * *

Your environment is moving at automobile pace. You and your family are limited to horse-pace and horse-radius. And in the next few months the paths of automobile families and horse-pace families will separate still more sharply. Only motor-pace will do for the conditions in which this nation is now doing its work.

You stand at the turning point.

* * *

Motor-car service now costs less than horse service for all the work that a motor car can do.

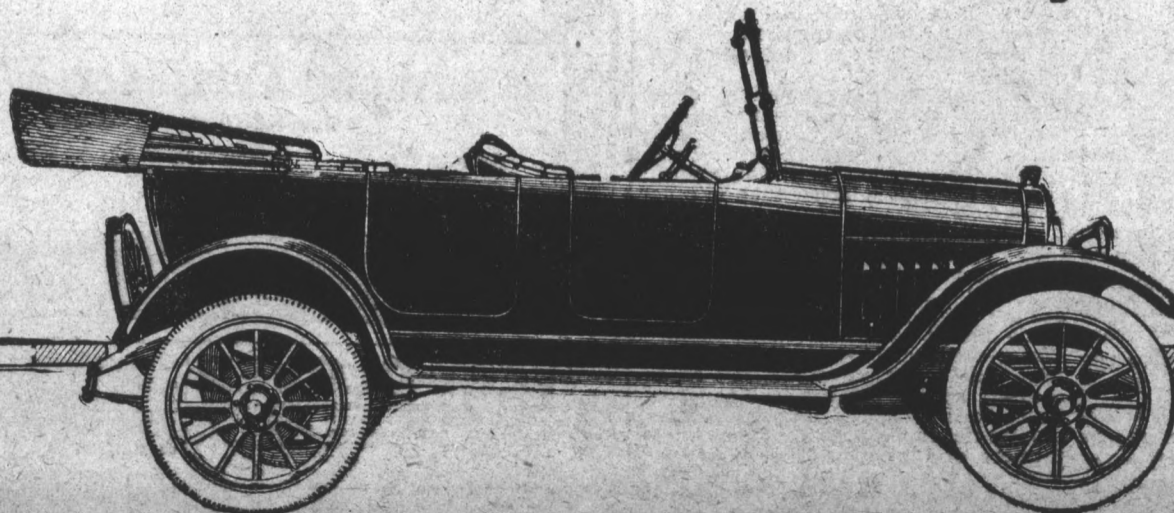
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WORLD EVENTS IN PICTURES



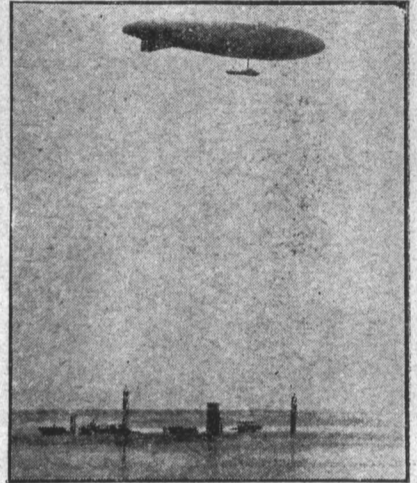
This Official Photograph shows General Allenby Entering Jerusalem through the Jaffa Gate.



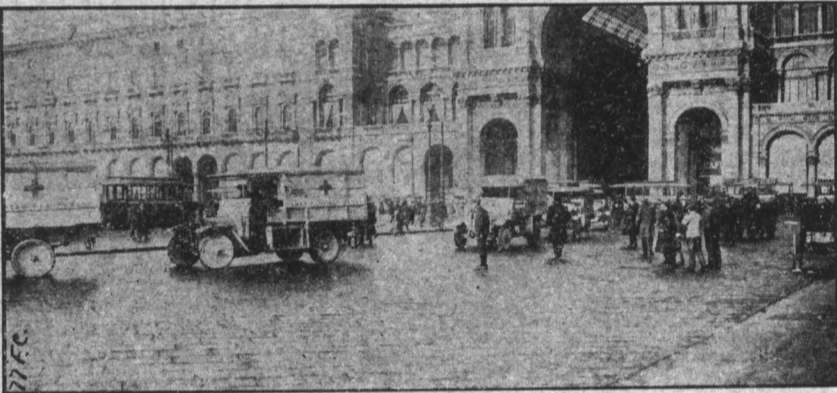
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An Expert of the U. S. Army Assembles a Machine Gun with Eyes Blindfolded.



French Dirigible Scouring the Waters to Locate the Submarine that Sunk this Vessel.



American Red Cross Ambulances on the Way through Milan to the Italian Battle Front.



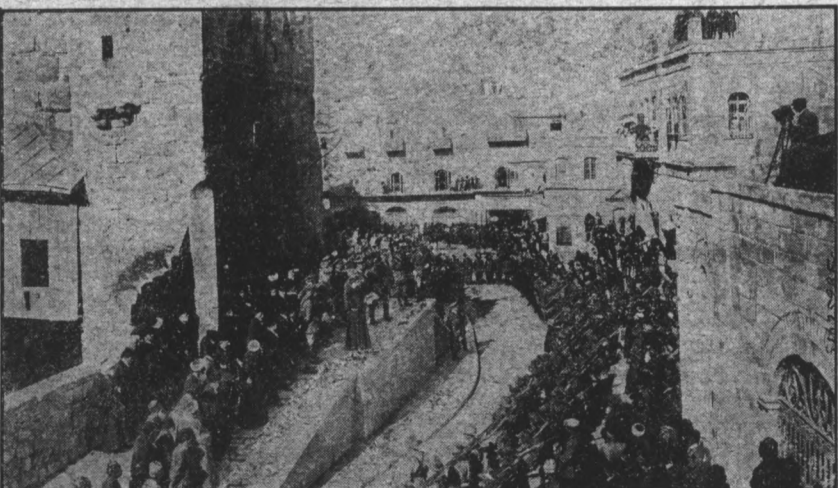
Some of the British Troops which were Rushed to Aid the Italians in Repulsing the Teutons.



British Tommies Smiling as they go to take their Position in Snow-covered Front Line Trenches.



French Photographers Working Near the Front Lines within Range of the Enemy's Fire.



The British Proclamation to the People of Jerusalem Being Read from the Steps of the Tower of David.

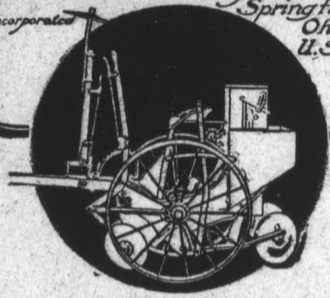


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Inside the Lines

By EARL DERR BIGGERS & ROBERT WELLES RITCHIE

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A Spy in the Signal-Tower.

GOVERNMENT HOUSE, one of the Baedeker points of Gibraltar, stands amid its gardens on a shelf of the Rock about midway between the Alameda and the signal tower, perched on the very spine of the lion's back above it. Its windows look out on the blue bay and over to the red roofs of Algeciras across the water on Spanish territory. Tourists gather to peek from a respectful distance at the mossy front and quaint ecclesiastic gables of Government House which has a distinction quite apart from its use as the home of the governor-general. Once, back in the dim ages of Spain's glory, it was a monastery, one of the oldest in the southern tip of the peninsula. When the English came their practical sense took no heed of the protesting ghosts of the monks, but converted the monastery into a home for the military head of the fortress—a littledreary, a shade more melancholy than the accustomed manor hall at home, but adequate and livable.

Thither, on the morning after his arrival, Captain Woodhouse went to report for duty to Major-General Sir George Crandall, Governor of the Rock. Captain Woodhouse was in uniform—neat service khaki and pith helmet, which became him mightily. He appeared to have been molded into the short-skirted, olive-gray jacket; it set on his shoulders with snug ease. Perhaps, if anything, the uniform gave to his features a shade more than their wonted sternness, to his body just the least addition of an indefinable alertness, of nervous acuteness. It was nine o'clock, and Captain Woodhouse knew it was necessary for him to pay his duty call on Sir George before the eleven o'clock assembly.

As the captain emerged from the straggling end of Waterport Street and strode through the flowered paths of the Alameda, he did not happen to see a figure that dodged behind a chevaux-de-frise of Spanish bayonet on his approach. Billy Capper, who had been pacing the gardens for more than an hour, fear battling with the predatory impulse that urged him to Government House, watched Captain Woodhouse pass, and his eyes narrowed into a queer twinkle of oblique humor. So Captain Woodhouse had begun to play the game—going to report to the governor, eh? The pale soul of Mr. Capper glowed with a faint flicker of admiration for this cool bravery far beyond its own capacity to practice. Capper waited a safe time, then followed, chose a position outside Government House from which he could see the main entrance, and waited.

A tall thin East Indian with a narrow ascetic face under his closely wound white turban, and wearing a native livery of the same spotless white, answered the captain's summons on the heavy knocker. He accepted the visitor's card, showed him into a dim hallway hung with faded arras and coats of chain mail. The Indian, Jaimihr Khan, gave Captain Woodhouse a start when he returned to say the governor would receive him in his office. The man had a tread like a cat's, absolutely noiseless; he moved through the half light of the hall like a white wraith. His English was spoken precisely and with a curious mechanical intonation.

Jaimihr Khan threw back heavy double doors and announced, "Captain Woodhouse." He had the doors shut noiselessly almost before the visitor was through them.

A tall heavy-set man with graying hair and mustache rose from a broad

desk at the right of a large room and advanced with hand outstretched in cordial welcome.

"Captain Woodhouse, of the signal service. Welcome to the Rock, Captain. Need you here. Glad you've come."

Woodhouse studied the face of his superior in a swift glance as he shook hands. A broad full face it was, kindly, intelligent, perhaps not so alert as to the set of eyes and mouth as it had been in the younger days when the stripes of service were still to be won. General Sir George Crandall gave the impression of a man content to rest on his honors, though scrupulously attentive to the routine of his position. He motioned the younger man to draw a chair up to the desk.

"In yesterday on the Princess Mary, I presume, Captain?"

"Yes, General. Didn't report to you on arrival because I thought it would be quite tea time and I didn't want to disturb—"

"Right!" General Crandall tipped back in his swivel chair and appraised his new officer with satisfaction. "Everything quiet on the upper Nile, Germans not tinkering with the Mullah yet to start insurrection or anything like that?"

"Right as a trivet, sir," Woodhouse answered promptly. "Of course we're anticipating some such move by the enemy—agents working in from Erythra—holy war of a sort, perhaps, but I think our people have things well in hand."

"And at Wady Halfa, your former commander—"

The general hesitated. "Major Bronson-Webb, sir," Woodhouse was quick to supply, but not without a sharp glance at the older man.

"Oh, yes; Bronson-Webb—knew him in Rangoon in the late nineties—a mighty decent chap and a good executive. He's standing the sun, I warrant."

Captain Woodhouse accepted the cigarette from the general's extended case.

"No complaint from him at least, General Crandall. We all get pretty well baked at Wady, I take it."

The governor laughed, and tapped a bell on his desk. Jaimihr Khan was instantly materialized between the double doors.

"My orderly, Jaimihr," General Crandall ordered, and the doors were shut once more. The general stretched a hand across the desk.

"Your papers, please, Captain. I'll receipt your order of transfer and you will be a member of our garrison forthwith."

Captain Woodhouse brought a thin sheaf of folded papers from his breast pocket and passed it to his superior. He kept his eyes steadily on the general's face as he scanned them.

"C. G. Woodhouse—Chief Signal Officer—Ninth Grenadiers—Wady Halfa—" General Crandall conned the transfer aloud, running his eyes rapidly down the lines of the form. "Right. And, now, Captain, when my orderly comes—"

A subaltern entered and saluted.

"This is Captain Woodhouse," General Crandall indicated Woodhouse, who had risen. "Kindly conduct him to Major Bishop, who will assign him to quarters. Captain Woodhouse, we—Lady Crandall and I—will expect you at Government House soon to make your bow over the teacup. One of Lady Crandall's inflexible rules for new recruits, you know. Good day, sir."

Woodhouse, out in the free air again, drew in a long breath and braced back his shoulders. He accompanied the sub-

altern over the trails on the Rock to the quarters of Major Bishop, chief signal officer, under whom he was to be junior in command. But one regret marked his first visit to Government House—he had not caught even a glimpse of the little person calling herself Jane Gerson, buyer.

But he had missed by a narrow margin. Piloted by Lady Crandall, Jane had left the vaulted breakfast room for the larger and lighter library, which Sir George had converted to the purpose of an office. This room was a sort of holy of holies with Lady Crandall, to be invaded if the presiding genius could be caught napping or lulled to complaisance. This morning she had the important necessity of unobstructed light—not a general commodity about Government House—to urge in defense of profanation. For her guest carried under her arm a sheaf of plans—by such sterling architects of women's fancies as Worth and Doeuillet, and the imp of envy would not allow the governor's wife to have peace until she had devoured every pattern. She paused in mock horror at the threshold of her husband's sanctum.

"But, George, dear, you should be out by this time, you know," Lady Crandall expostulated. "Miss Gerson and I have something—oh, tremendously important to do here." She made a sly gesture of concealing the bundle of stiff drawing paper she carried. General Crandall, who had risen at the arrival of the two invaders, made a show at capturing the plans his wife was holding behind her back. Jane bubbled laughter at the spectacle of so exalted a military lion at play. The general possessed himself of the roll, drew a curled scroll from it, and gravely studied it.

"Miss Gerson," he said with deliberation, "this looks to me like a plan of Battery B. I am surprised that you should violate the hospitality of Government House by doing spy work from its bedroom windows."

"Foolish! You've got that upside down for one thing," Lady Crandall chided. "And besides it's only a chart of what the lady of Government House hopes soon to wear if she can get the goods from Holbein's, on Regent Street."

"You see, General Crandall, I'm attacking Government House at its weakest point," Jane laughed. "Been here less than twelve hours, and already the most important member of the garrison has surrendered."

"The American sahib, Reynolds," chanted Jaimihr Khan from the double doors, and almost at once the breezy consul burst into the room. He saluted all three with an expansive gesture of the hands.

"Morning, Governor—morning, Lady Crandall, and same to you, Miss Gerson. Dear, dear; this is going to be a bad day for me, and it's just started." The little man was wound up like a sidewalk top, and he ran on without stopping:

"General Sherman might have got some real force into his remarks about war if he'd had a job like mine. Miss Gerson—news! Heard from the Saxonia. Be in harbor some time tomorrow and leave at six sharp following morning." Jane clapped her hands. "I've just wired for accommodations for all of you—just got the answer. Rotten accommodations, but—thank Heaven—I won't be able to hear what you say about me when you're at sea."

"Anything will do," Jane broke in. "I'm not particular. I want to sail—that's all."

The consul looked flustered. "Um—that's what I came to see you about, General Crandall." He jerked his head around toward the governor with birdlike pertness. "What are you going to do with this young lady, sir?" Jane waited the answer breathlessly.

"Why—um—really, as far as we're concerned," Sir George answered slowly.

(Continued on page 220).

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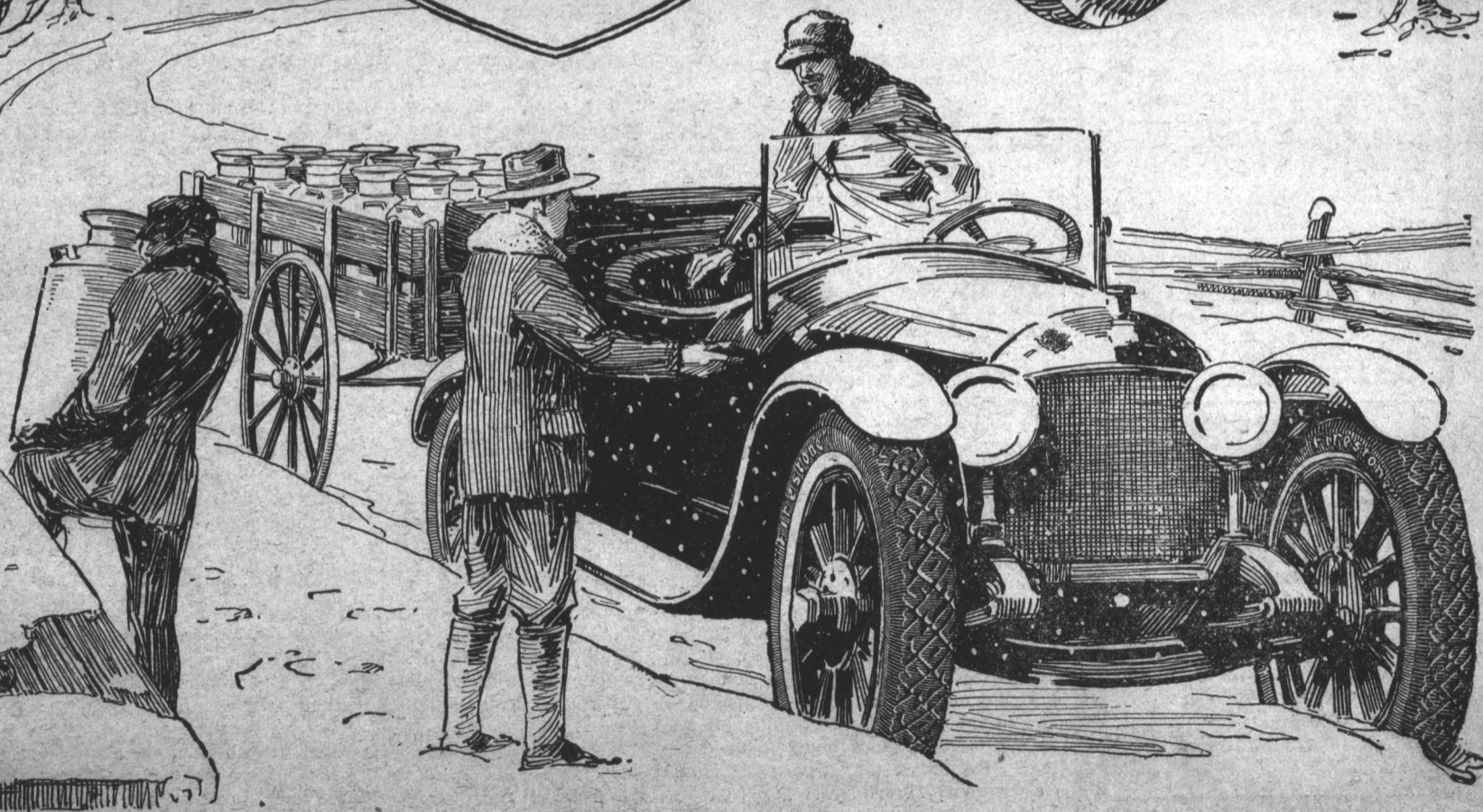
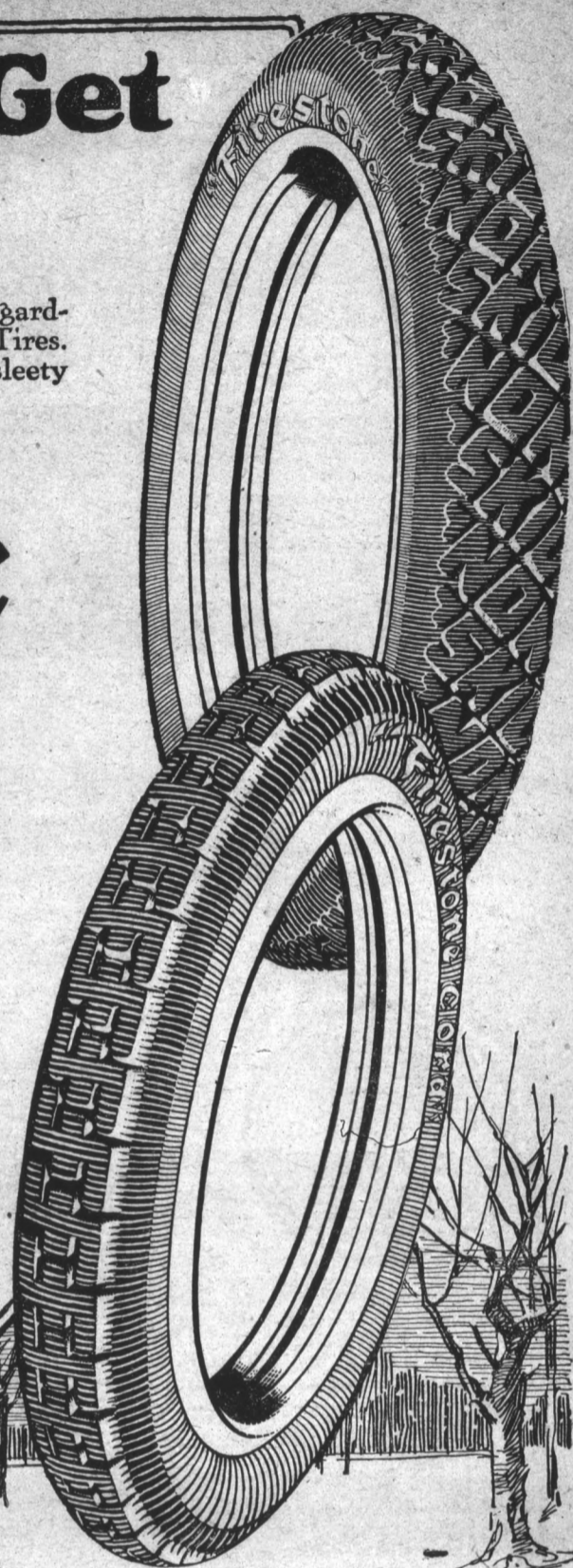
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DEPT. 418 AKRON, OHIO.

INSIDE THE LINES

(Continued from page 218).

ly, "we'd be glad to have her stop here indefinitely. Don't you agree, Helen?"

"Of course, but—"

"It's this way," the consul interrupted Lady Crandall. "I've arranged to get Miss Gerson aboard, provided, of course, you approve."

"You haven't got a cable through regarding her?" the general asked. "Her passports—lost—lot of red tape, of course."

"Not a line from Paris even," Reynolds answered. "Miss Gerson says the ambassador could vouch for her, and—"

"Indeed he could!" Jane started impulsively toward the general. "It was his wife arranged my motor for me and advanced me money."

"You really are very anxious to sail, Miss Gerson?"

"General Crandall, I'm not very good at these please-spare-my-lover speeches," the girl began, her lips tremulous.

"But it means a lot to me—to go; my job, my career. I've fought my way this far, and here I am—and there's the sea out there. If I can't step aboard the Saxon Friday morning it—it will break my heart."

Gibraltar's master honed his chin thoughtfully for a minute.

"Um—I'm sure I don't want to break anybody's heart—not at my age, miss. I see no good reason why I should not let you go if nothing happens meanwhile to make me change my mind."

He beamed good humor on her.

"Bless you, General," she cried. "Hildebrand's will mention you in its advertisements."

"Heaven forbid," General Crandall cried in real perturbation.

Jane turned to Lady Crandall and took both her hands.

"Come to my room," she urged with an air of mystery. "You know that Doeillet evening gown—the one in blue? It's yours, Lady Crandall. I'd give another to the general if he'd wear it. Now one fitting and—"

Her voice was drowned by Lady Crandall's: "You dear—"

"Be at the dock at five a. m. Friday to see you and the others off, Miss Gerson," Reynolds called after her. "Must go now—morning crowd of bustled citizens waiting at the consulate to be fed. Ta-ta!" Reynolds collided with Jaimihr Khan at the double doors.

"A young man who wishes to see you, General Sahib. He will give no name, but he says a promise you made to see him—by telephone an hour ago."

"Show Mr. Reynolds out, Jaimihr," the general ordered. "Then you may bring the young man in."

Mr. Billy Capper, who had, in truth, telephoned to Government House and secured the privilege of an interview even before the arrival of Woodhouse to report, and had paced the paths of the Alameda since, blowing hot and cold on his resolutions, followed the soft-footed Indian into the presence of General Crandall. The little spy was near a state of nervous breakdown. Following the surprising and unexpected collapse of his plan to do a murder, he had, spent a wakeful and brandy-punctuated night, his brain on the rack. His desire to play informer, heightened now a hundred-fold by the flaying tongue of Louisa, was almost balanced by his fears of resultant consequences.

Cupidity, the old instinct for preying, drove him to impart to the governor-general of Gibraltar information which he hoped, would be worth its weight in gold; Louisa's promise of a party a deux before a firing squad, which he knew in his heart she would be capable of arranging in a desperate moment, halted him. After screwing up his courage to the point of telephoning for an appointment, Capper had wallowed in fear. He dared not stay away from Government House then for fear of arousing suspicion; equally he dared not involve the girl from the Wilhelm-

strasse lest he find himself tangled in his own mesh.

At the desperate moment of his introduction to General Crandall, Capper determined to play it safe and see how the chips fell. His heart quailed as he heard the doors shut behind him.

"Awfully good of you to see me," he babbled as he stood before the desk, turning his hat brim through his fingers like a prayer wheel.

General Crandall bade him be seated. "I haven't forgotten you did me a service in Burma," he added.

"Oh, yes—of course," Capper managed to answer. "But that was my job. I got paid for that."

"You're not with the Brussels secret service people any longer, then?"

The question hit Capper hard. His fingers fluttered to his lips.

"No, General. They—er—let me go. Suppose you heard that—and a lot of other things about me. That I was a rotter—that I drank—"

"What I heard was not altogether complimentary," the other answered judiciously. "I trust it was untrue."

Capper's embarrassment increased.

"Well, to tell the truth, General Crandall—ah—I did go to pieces for a time. I've been playing a pretty short string for the last two years. "But"—he broke off his whine in a sudden accession of passion—"they can't keep me down much longer. I'm going to show 'em!"

General Crandall looked his surprise.

"General, I'm an Englishman. You know that. I may be down and out, and my old friends may not know me when we meet—but I'm English. And I'm loyal!" Capper was getting a grip on himself; he thought the patriotic line a safe one to play with the commander of a fortress.

"Yes—yes. I don't question that, I'm sure," the general grunted, and he began to rifle some papers on his desk petulantly.

Capper pressed home his point. "I just want you to keep that in mind, General, while I talk. Just remember I'm English—and loyal."

Capper leaned far over the desk, and began in an eager whisper:

"General, remember Cook—that chap in Rangoon—the polo player?" The other looked blank. "Haven't forgotten him, General? How he lived in Burma two years, mingling with the English, until one day somebody discovered his name was Koch and that he was a mighty unhealthy chap to have about the fortifications. Surely you—"

"Yes, I remember him now. But what—"

"There was Hollister, too. You played billiards in your club with Hollister, I fancy. Thought him all right, too—until a couple of secret-service men walked into the club one day and clapped handcuffs on him. Remember that, General?"

The commander exclaimed snappishly that he could not see his visitor's drift.

"I'm just refreshing your memory, General," Capper hastened to reassure him. "Just reminding you that there isn't much difference between a German and an Englishman, after all—if the German wants to play the Englishman and knows his book. He can fool a lot of us."

"Granted. But I don't see what all this has to do with—"

"Listen, General!" Capper was trembling in his eagerness "I'm just in from Alexandria—came on the Princess Mary. There was an Englishman aboard, bound for Gib. His name was Captain Woodhouse, of the signal service."

"Quite right. What of that?" General Crandall looked up suspiciously.

"Have you seen Captain Woodhouse, General?"

"Not a half hour ago. He called to report."

"Seemed all right to you—this Woodhouse?" Capper eyed the other's face narrowly.

"Of course. Why not?"

"Remember Cook, General! Remember Hollister!" Capper warned.

General Crandall exploded irritably: "What the devil do you mean? What are you driving at, man?"

The little spy leaped to his feet in his excitement and thrust his weasel face far across the dek.

"What do I mean? I mean this chap who calls himself Woodhouse isn't Woodhouse at all. He's a German spy—from the Wilhelmstrasse—with a number from the Wilhelmstrasse. He's on the Rock to do a spy's work!"

"Pshaw! Why did Brussels let you go?" General Crandall tipped back in his seat and cast an amused glance at the flushed fate before him.

Capper shook his head doggedly. "I'm not drunk, General Crandall. I'm so broke I couldn't get drunk if I would. So help me, I'm telling God's truth. I got it straight—" Capper checked his tumult of words, and did some rapid thinking. How much did he dare reveal! "In Alexandria, General—got it there—from the inside, sir. Koch is head of the Wilhelmstrasse crowd there—the same Koch you knew in Rangoon; he engineered the trick. The wildest dreams of the Wilhelmstrasse have come true. They've got a man in your signal tower, General—in your signal tower."

General Crandall, in whom incredulity was beginning to give way to the first faint glimmerings of conviction as to the possibility of truth in the informer's tale, rallied himself nevertheless to combat an aspersions cast on a British officer.

"Suppose the Germans have a spy in my signal tower or anywhere here," he began argumentatively. "Suppose they learn every nook and corner of the Rock—have the caliber and range of every gun in our defense; they couldn't capture Gibraltar in a thousand years."

"I don't know what they want," Capper returned, with the injured air of a man whose worth fails of recognition. "I only came here to warn you that Captain Woodhouse is taking orders from Berlin."

"Come—come, man! Give me some proof to back up this cock-and-bull story," General Crandall snapped. He had risen, and was pacing nervously back and forth.

Capper was secretly elated at this sign that his story had struck home.

"Here it is, General—all I've got of the story. The real Woodhouse comes down from somewhere up in the Nile—I don't know where—and puts up for the night in Alexandria to wait for the Princess Mary. No friends in the town, you know; nowhere to visit. Three Wilhelmstrasse men in Alexandria, headed by that clever devil Cook, or Koch, who calls himself a doctor now. Somehow they get hold of the real Woodhouse and do for him—what I don't know—probably kill the poor devil."

"General, I saw with my own eyes an unconscious British officer being carried away from Koch's house in Ramleh in an automobile—two men with him." Capper fixed the governor with a lean index finger dramatically. "And I saw the man you just this morning received as Captain Woodhouse leave Doctor Koch's house five minutes after that poor devil—the real Woodhouse—had been carried off. That's the reason I took the same boat with him to Gibraltar, General Crandall—because I'm loyal and it was my duty to warn you."

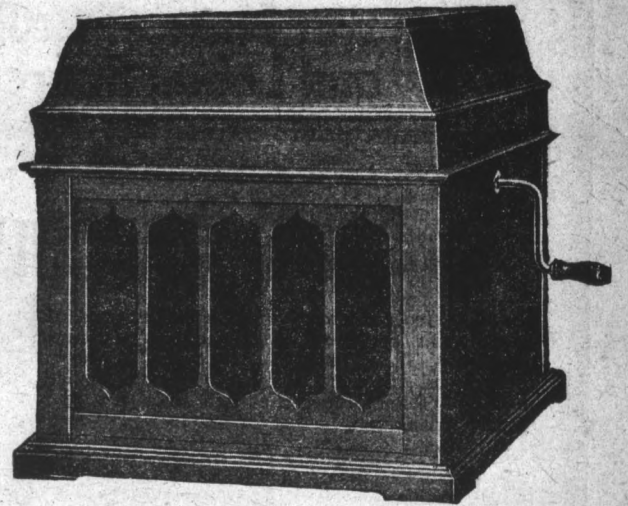
"Incredible!"

"One thing more, General." Capper was sorely tempted, but for the minute his wholesome fear of consequences curbed his tongue. "Woodhouse isn't working alone on the Rock; you can be sure of that. He's got friends to help him turn whatever trick he's after—maybe in this very house. They're clever people, you can mark that down on your slate!"

(Continued on page 223)

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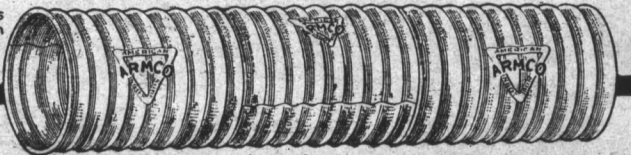
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Aircraft Production In America

By GAYNE T. K. NORTON

EIGHTEEN months of war have done more in perfecting the aeroplane than ten years have done in perfecting the automobile, the manufacture of which is our third largest industry. American made planes and motors are now equal, in some respects better, than European products. While the industry will never stop developing, aerial authorities, army and navy men, realize development has, for the moment, become secondary to production.

The one fact these men are facing is this: We need 100,000 aeroplanes to save ourselves and our allies from defeat. Every plane today is worth a hundred next year. One hundred thousand machines are needed to permit major operations against the German fleet and U-boat bases and major operations to be conducted over land at the same time.

Quantity production is now the one important thing—unproved ideas cannot be considered—and nothing can hinder the building. Congress has provided the money, countless plants have begun work, countless others are waiting, ready, but the question is by no means solved. There are almost as many types of aeroplanes as there are makes of automobiles. Few people realize the enormity of the task.

Types that have already proven their efficiency are being turned out by the dozen weekly and the number is increasing. To train the student aviators thousands of "penguin" types—with very small wings—and tens of thousands of advanced training planes are being finished. Thousands of planes for the training of naval aviators are also being made. All these machines are just a prelude to the manufacture of the various battle types.

The manufacture of the "fighters" has been started and thousands of the small combat type, the larger three-passenger armed machines, for photography, "spotting" artillery fire, reconnoitering, and other purposes, and of the very large bombing machines, to carry tons of explosives on long bombing raids. For the naval operations thousands of medium sized machines for coast patrol work others for long distance bombing raids, as well as large torpedoplanes and sea-planes, are being assembled throughout the nation.

To one unfamiliar with the subject, the scope of this phase of our warfare cannot be realized. Little is written of pre-construction difficulties, or of the amount of preliminary work. The mobilizing of aeronautic engineers and constructors, the finding and training of skilled labor with unskilled men and women and maintaining efficiency, the difficulty of securing sufficient dry lumber of the right kind, the securing of aeroplane cloth, the fitting of standard building specifications to various plants—these are but a few of the problems. In no other department of our government has there been greater need for American initiative and "pep" than here, and no department has shown more. We already have cause to be proud of our aircraft production, and before many months we will be doing things thought impossible just a few months ago.

During a recent interview Lieutenant Amaury De La Grange, a French aviator who has been helping American designers a great deal, spoke of the classes and uses of the battle-planes which we are building. These types are of three classes: The fighters, the reconnoissance and the bombing. They must have speed, handiness and the ability to climb to and maintain a high altitude. Handiness is one of the most important factors, and in attaining this speed is essential. The judgment of a pilot on a fighting ma-

chine is final: he must decide the success or failure of any design.

Lieut. De La Grange says the allied machines are more handy than the German planes, and gives this as the reason for their success. The skill of the aviators is also very important, and he mentioned one pilot, Ginnere, who is so skillful that he often attacks a German machine without being seen until it is too late. He does this by approaching at an angle which he knows renders him invisible to the foe, due to the construction of the other machine.

Reconnoissance machines need the qualities of the fighters, but must carry more weight. The fighters go to great heights and lay in wait for enemy machines to rise, then they swoop down upon them, firing; they must be very swift and carry but one man. The reconnoissance machines carry, beside the pilot, an observer, fuel supply and bombs. Less skill is required of these pilots, for they do not ascend until the fighters have cleared the sky of enemy machines.

Night flying in these spotting machines, as well as in the fast scouting planes, which travel more than a hundred and thirty miles an hour, is increasing. German troop trains move at night and accurate count can be kept of them through certain stations; from station to station the number is checked and in this way the new disposition of troops is learned. Ammunition to concealed batteries is also moved at night and the location of the big guns is learned by following the trains.

The way the aviators are able to land at night is by the light of gasoline flares and a searchlight. The field is surrounded by the flares and the light indicates the entrance. Our advanced student aviators are being thoroughly trained in this night work, flying, spotting and landing.

The training of aviators is just as important as the building of machines. Men are wanted badly and entrance into the American flying corps, which will very soon be the best in the world, is not as difficult as is supposed. The essential qualifications are a sound body and a college education or the equivalent, though the latter is not an iron clad rule. Knowledge of a gas engine helps and one must possess the mysterious sixth sense, that of balance, which is only to be discovered through the physical examination. Much misunderstanding is current about the physical examinations, but they are not as terrifying as pictured, guns are not fired back of the blindfolded "victim," nor are pins suddenly stuck into his flesh. The element of danger in this branch of service is not as high as supposed; thanks to Mr. Sperry, and other inventors, the art of flying is fast losing its danger.

In training the students our allies have given as much assistance as they have in building machines. Thanks to them the men we send over now are ready for real work, they do not have to go into training camps and have a lot to unlearn and as much new to master. This is shown in the recent arrival of a number of machines from Italy. The Italians might be called the "wizards" of aeroplane design and these new machines certainly do the country proud. They are the Caproni tri-planes, with three wings, one above the other, spreading one hundred and thirty feet—the most destructive aircraft yet built. They carry three motors which develop nearly 1000 horsepower. They carry a fuel supply for eighteen hours and four tons of bombs. They have three cockpits, a speed of ninety miles an hour and can attain a height of five miles in twenty-six minutes. They carry Lewis machine guns and a three-inch rifle firing explosive

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INSIDE THE LINES

(Continued from page 220).

"Ridiculous!" The keeper of the Rock was fighting not to believe now. "Why, I tell you if they had a hundred of their spies inside the lines—if they knew the Rock as well as I do they could never take it."

Capper rose wearily. "Perhaps they aren't trying to capture it. I know nothing about that. Well—I've done my duty—as one Englishman to another. I hope I've told you in time. I'll be going now."

General Crandall swung on him sharply. "Where are you going?" he demanded.

Capper shrugged his shoulders hopelessly. Now was the minute he'd been counting on—the peeling of crackling notes from a fat bundle, the handsome words of appreciation. Surely General Crandall was ripe.

"Well, General, frankly—I'm broke. Haven't a shilling to bless myself with. I thought perhaps—" Capper shot a keen glance at the older man's face, which was partly turned from him. The general appeared to be pondering. He turned abruptly on the spy.

"A few drinks and you might talk," he challenged.

Capper grinned deprecatively. "I don't know, General—I might," he murmured. "I've been away from the drink so long that—"

"Where do you want to go?" General Crandall cut him off. "Of course, you don't want to stay here indefinitely."

"Well—if I had a bit of money—they tell me everybody's broke in Paris. Millionaires—and everybody, you know. You can get a room at the Ritz for the asking. That would be heaven for me—if I had something in my pocket."

"You want to go to Paris, eh?" General Crandall stepped closer to Capper, and his eyes narrowed in scorn.

"If it could be arranged, yes, General." Capper was spinning the brim of his bowler between nervous fingers. He did not dare meet the other's eyes.

"Demmit, Capper! You come here to blackmail me! I've met your kind before. I know how to deal with your ilk."

"So help me, General, I came here to tell you the truth. I want to go to Paris—or anywhere away from here; I'll admit that. But that had nothing to do with my coming all the way here from Alexandria—spending my last guinea on a steamer ticket—to warn you of your danger. I'm an Englishman and—loyal!" Capper was pleading now. All hope of reward had sped and the vision of a cell with subsequent investigations into his own record appalled him. General Crandall sat down at his desk, and began to write.

"I don't know—at any rate, I can't have you talking around here. You're going to Paris."

Capper dropped his hat. At a tap of the bell, Jaimihr Khan appeared at the doors, so suddenly that one might have said he was right behind them all the time. General Crandall directed that his orderly be summoned. When the subaltern appeared, the general handed him a sealed note.

"Orderly, turn this gentleman over to Sergeant Crosby at once," he commanded, "and give the sergeant this note." Then to Capper: "You will cross to Algeciras, where you will be put on a train for Madrid. You will have a ticket for Paris and twenty shillings for expense en route. You will be allowed to talk to no one alone before you leave Gibraltar, and under no circumstances will you be allowed to return—not while I am governor-general, at least."

Capper, his face alight with newfound joy, turned to pass out with the orderly. He paused at the doorway to frame a speech of thanks, but General Crandall's back was toward him.

(Continued next week).

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Woman and Her Needs

At Home and Elsewhere

Working Together

IN a talk before a gathering of agriculturalists, J. C. Ketcham, Master of Michigan State Grange, emphasized a point which many besides farmers would do well to ponder.

"Together," a small word and a simple one, but one which counts for a great deal more than many of us stop to consider. Mr. Ketcham used the word to impress on farmers the need of cooperation if the many problems confronting them are to be solved soon or correctly. The labor problem, the market problem, the seed problem—all may be worked out more expeditiously and to a better advantage if farmers all pull together.

A motto that is good for agriculturalists is good for all, certainly one which emphasizes the need of team work. A majority of all the failures in life are caused by lack of it, in the home and outside. Divorce courts would have to go out of business if husband and wife worked together, for it is only in homes where one pulls one way and the other in the opposite direction that we hear of unhappiness. A couple marry, and instead of merging interests, the wife wants to go her own way, to keep up all her girlhood friendships, her work, if she had worked before marriage, possibly two or three clubs. And all too often, her old family relations are put first. The husband has the notion that he should come first and his interests should take first place, so the first rift in the lute begins. Children arrive and each has notions of bringing them up and insists on carrying them out. Instead of getting together they get farther and farther apart. Dissension treads upon the heels of dissension until, if there is no actual separation in the courts, there is a very vital one never-the-less which shuts out all possibility of happiness or a successful home life.

Business failures occur right along through want of harmony between partners. There is no getting together, no talking things over, no compromising. Each partner thinks he is the better man, and one works contrary to the opinions of the other, thus bringing failure as a natural consequence.

We women could bring it a little nearer home, in the war work. There are even hints that the women are not all pulling together; that the work of different organizations is overlapping and once in awhile someone is taking her dolls and flouncing home because things aren't going her way.

In ordinary times this lack of team work wouldn't matter so much. A failure or two more or less wouldn't loom up so big, but just now when the fate of the nation is at stake we've all got to pull together, or, as a revolutionary hero put it, "we must all hang together unless we want to hang separately." This is no time now for sticking for our own ideas. The other fellow's may be a whole lot better, only our glasses need cleaning. The great idea is to bury self and selfish interests, and return to that blissful state (if it ever existed), when

"None were for the party, but all were for the state." **DEBORAH.**

START THE DAY RIGHT WITH A GOOD BREAKFAST.

The following is the first of a series of food leaflets which are to be issued by the food administration. Cut each

one out as it appears and save for constant use.

"Start the day right with a good breakfast—fruit, cereal and milk. These make a meal, nourishing, easy to cook, good, cheap, of foods the government asks us to eat.

"Use fruit. Fruit helps to keep your body in good health and to prevent constipation.

Use fresh fruit when possible.

Use prunes, dried apples, dried apricots. Soak them in water over night, and cook them long enough to make them tender.

"Use dates, or raisins. These are good, added to the cereal ten minutes before taking it from the stove. Then you will not need sugar.

"Use ripe bananas with dark skins. Bananas with greenish-yellow skins are hard to digest unless cooked.

"Use cereals. Corn meal mush, oat meal, rice, hominy grits.

"These are cheaper than the ready-to-eat breakfast foods. A ready-to-eat breakfast food may cost fifteen cents for a big package, but if the package contains only one-quarter of a pound—sixty cents for a pound of cereal! This is eight or ten times as expensive as corn meal at six or seven cents a pound. Look at the weights printed on the package and get the most for your money.

Corn meal mush and oat meal are good only when well cooked. Many people use too little salt and do not cook them long enough.

"To cook corn meal mush for five people use one and one-half cups of

corn meal, two teaspoons, level, salt, five or six cups of water. Bring salted water to a boil, stir in the meal slowly. Don't let it lump. Cook at least thirty minutes. It is better when cooked for three hours or over night. Use a double boiler on the back of the stove, or a fireless cooker.

"For oat meal use two and a half cups of oat meal, two and a half teaspoons of salt, five or six cups of water. Bring water to a boil, stir oat meal in slowly and cook one hour, or over night.

"Eat the cereal with milk or syrup, or butter or butter substitutes. You don't need bread besides.

"A large amount of either may be cooked at one time. The unused part put in a greased bowl may be kept for a few days in a cool place. Do you know just how good sliced, fried oat meal is?

"Instead of oat meal you can take bread—preferably one of the war breads. Corn bread and milk is delicious."

"Use milk. Milk is an excellent food. A quart of whole milk gives as much nourishment as one pound of lean meat.

"Children, especially, need it to make them grow strong and keep well. It is good for grown people, too. Give each child at least a glass for breakfast. Drink it hot or cold, or use it on cereal or make it into cocoa. Even at a high price milk is a cheap food for children.

"No coffee or tea for children. They are not food. Let the grown people have them if they want them, but do not give children even a taste. The children's drink is milk."

Keeping Clothes at Their Best

By EMMA GARY WALLACE

The young woman who lives in the country often envies her friend who lives in the town or city the chic, spick and span appearance of her garments. Perhaps the rural dweller attributes the fact that her own garments are often lacking in freshness of appearance to her having to ride several miles before reaching the place where she is to shop or call.

No matter where one lives garments may be kept in prime condition by reasonable care. It is a matter of economy and necessity to clean and press suits and cloth dresses as often as they need it. It does not take over much experience to do this at home, or a professional cleaner can be employed to do the work. It is not at all hard to sponge and press a skirt, coat, or other article if one has a good-shaped ironing board, a bottle of ammonia, hot irons, and a good-sized piece of cheese-cloth.

First of all, dust should be removed by brushing and a gentle beating in the air. Spots should be cleaned with a little pure soapy water into which a few drops of ammonia have been put. Frequently it is a good plan to sponge over the whole garment, freshening it nicely. Then the surface to be pressed should be stretched out, the cheese-cloth wrung out of clean water, and laid over the clothing, and the pressing begun. Pressing will not be a success unless time enough is taken to restore the garment thoroughly and to restore to it its original creases and folds. It is simply remarkable how much extra satisfactory service may

be gained from a suit that is kept in perfect condition by this simple attention. Sometimes it is money well spent at the beginning of the season to send a garment to a professional cleaner. When it comes home notice just how the work has been done and where the creases in sleeves and sides are placed.

If a garment becomes damp through being out in the rain it should never be hung carelessly but placed upon a hanger to dry and if necessary pressed before being worn. The young woman who would be dainty at all times does not hang her clothing in the closet at once as soon as she takes it off but puts it in a current of air to dry and thus to be freed from all odor of perspiration. Any small repairs necessary should be made before a piece of clothing is put away that it may be ready for instant use when needed.

This is really the secret of being well dressed with a few properly chosen clothes. In truth, it is much better judgment to have just enough and not a garment too much. Our war time economies will teach us that we do not need an extensive wardrobe to appear at our best at all times. In selecting clothing we will no longer buy what appeals to us wholly but rather the coats, suits, waists, skirts, shoes, etc., which supplement what we have so that we can dress appropriately for street, church, an afternoon or evening social function, or appear well at home. Sometimes people fail to round out their wardrobe carefully and so find that they have three or four articles suitable for dressy affairs and not a single

street costume complete from head to foot.

True economy consists in making the best use of what we have. Proper care in the way of cleaning, pressing, laundering, and prompt repair work will double the life and service of any garment. It is surprising what a lot of money may be hung in the form of out-of-style clothes if one is not careful. It is vastly more satisfactory to have sufficient to dress in the mode and thus to save waste and remodeling. A new collar, a slight alteration of the sleeves, or attention to length of the skirt will often bring a suit up to the moment and do away with the necessity of buying something new. The thoroughly attractive woman is the one who is never overdressed but always neatly and suitably attired, and who is gracious in her manner.

Aprons are great aids to a neat appearance and fancy or serviceable ones should be on hand at all times to save one's dress about the house. There are few people who can wear the same clothes about their work or about the house which they wear upon the street and look neat, so the vogue of the house dress is a sensible one and a first aid to economy as well.

HOME QUERIES.

My Dear Deborah.—I take it that you are in charge of the domestic pages of the Michigan Farmer, hence I address you for a reply to some queries that have been a problem in our home for some time. I believe a reply to them would be acceptable to other housekeepers.

1. We are told that cheese should be cooked at a low temperature. Then how obtain the nice brown effect that we all like in a dish of macaroni and cheese?

2. Is there any difference in the sweetening qualities of cane and beet sugar? Why has brown sugar disappeared from the market?

3. In substituting sour for sweet milk in recipes, should the proportion be altered?

4. Why does cocoa often settle at the bottom of the pitcher after making, but not always?

5. I have never been able to add melted chocolate to boiled frosting with success. Why?

6. Why does chocolate often remain in flakes in sauces or other forms of cookery and refuse to assimilate?

7. Is the use of honey instead of sugar any cheaper, or does it simply release the sugar?

8. Nothing is so hard for me as to "add a little grated lemon peel." Is there an easy way?

9. In a recent issue a recipe is given for parched corn meal biscuit which calls for one cup of peanut butter. Is that the correct proportion?

10. Also, in the issue of December 1, in a recipe for spider cake, it says: "The original recipe calls for one-fourth cup of white flour." Then it goes on to say, "instead, use one cup of corn meal, etc." Just what, in the recipe as given, is supposed to be used instead of the white flour?

These questions may seem very elementary, but I am a timid cook and fear to launch away, even after many years of experience. Although we are only semi-farmers, we always read the Michigan Farmer with great interest.

—R. H. A.
1. My book, which is prepared by a leading domestic science expert, specifically states, "set the dish in a hot oven." The top layer is usually buttered cracker crumbs, which should brown quickly.

2. No. The sugar factories are not making it. I presume because granulated is desired for shipment abroad.

3. No.

4. Mine always settles, and I have never seen any that didn't. I have been told by older cooks that if you mix about one-eighth of a teaspoon of corn starch with each tablespoon of cocoa it will not settle. I have never tried this.

5. As I do not know how you make your frosting I can not tell why you can not add it. The melted chocolate should be beaten into the syrup before it is poured onto the egg. If you do this it should mix.

6. Probably because the sauce is not prepared right. The chocolate should

be melted over hot water and sugar stirred in. Then the hot milk, or water, added, and the mixture boiled and stirred until it is smooth and glossy. Not less than five minutes.

7. Sugar is eight and a half cents a pound. Honey, if bought in ten-pound pails, is 17½ cents. It simply releases sugar. Few of the substitutes we are asked to use save us money.

8. I never knew of but one way. If you will tell me how you add it perhaps I can help you.

9. It is the proportion given in the bulletin.

10. The recipe should have read, "One cup of corn meal, two slightly rounding tablespoons of corn starch." I am sorry the mistake was made. The original recipe calls for three-fourths of a cup of corn meal and one-fourth of a cup of white flour.

CLEANING BEDS IN MARCH.

BY OLIVE RICHEY.

"Clean the beds in the dark of the moon in March," was the slogan of our grandmothers. We, of the younger generation, may scoff at the idea of the dark or light of the moon having any effect on bed-bugs, but the idea, in the main, is not a bad one. Should there be eggs on the beds they will not have a chance to hatch if the beds are cleaned before the first warm days.

Several years ago, we purchased a home that had been occupied by indifferent tenants for quite a while. Housecleaning of any kind was deferred until late spring on account of a number of repairs that were being made in the house. When we finally started to clean house, we found the house literally lined with bed-bugs. They seemed to thrive on window-frames and splashboards, as well as the beds. After much painting, papering, disinfecting and the using of bed-bug powder, the bugs were finally subdued. All that season, however, the bugs would occasionally make their appearance on two wooden beds. These beds were of walnut, and were not only very valuable, but were heirlooms. We did not wish to dispose of them, but it seemed like we could not get them entirely free of bugs.

"Forewarned is forearmed," and last year I started in early and well-armed to work on those beds. I finally saw that there were cracks and crevices in the beds that could not be reached by powder or brush. I purchased from the druggist a small bellows and a spray. The spray was an ordinary throat spray. I first sprayed the entire bed with gasoline. After waiting a few minutes for the gasoline to dry, the powder was blown into the crevices by means of the hand bellows. To be sure that there would be no bugs left in the walls I fumigated the room, using a sulphur candle for this purpose. Closing all doors and windows tightly, I placed the candle in a pan, lighted it and left the room.

Household Editor.—We noticed in your issue of December 1 that Deborah says we are not saving wheat when we give our family macaroni. In a bulletin sent out by the Extension Division of M. A. C. and the United States Department of Agriculture, is the following statement: "Macaroni is made of durum wheat flour, a flour containing too much gluten to be used in making a good loaf of bread. Dishes using macaroni may therefore well be served at either meatless or wheatless meals." We have had speltz ground and are using that instead of the whole wheat flour, and have estimated that we are saving more white flour by using the speltz, corn and oat meal breads, than if we had one wheatless day and the wheat bread the rest of the week—Mrs. V. N.

This was brought up at a lecture given by Dr. Wilbur during his trip through Michigan. I can not remember his exact answer, but my impression of the discussion was that "wheat is wheat" this year, whether it is bread flour, wheat or durum. Therefore, the statement in this column on December 1 to which you draw attention.

Save Pillsbury's Best



By mixing with these other flours



Home Mixing Of Flours

To make our wheat supply go farther, and to take care of our soldier boys as well, housewives are asked to mix rye flour, barley flour, corn meal, etc. with our wheat flour.

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The Flour Question Settled

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Our Boys and Girls At Work and play

These Boys are Busy With Their Sheep

By GEORGE F. PAUL

SIXTEEN boys of Tippecanoe county, Indiana, are going after the wool production problem in a practical manner. They have formed a club under the Council of Defense rules, have each bought three bred ewes, and are all determined to work with a will and win one of the handsome prizes that will be given this fall at the county fair. Six of these boys have registered Shropshire ewes; the others have high-grades, all bred to pure-bred Shropshire rams. They paid \$30 apiece for the registered ewes and \$20 apiece for the grades. Some of the boys had the ready money to pay for their ewes; others got their fathers to help them out by endorsing notes.

The bankers and clothing merchants of Lafayette are going to see to it that every boy wins a prize of some sort next fall. They have donated several fancy sweaters, nobby hats and fine suits of clothes. These business men are as much interested as are the farmers in doubling the wool production of Tippecanoe county.

The Sheep Club rules are as follows:

1. The age of the club members shall be from twelve to eighteen years.
2. Each member shall tend to three or more ewes of the Shropshire breed.
3. Ewes shall be bred according to the instructions of the county agricultural agent, or other designated leader.
4. Members shall be furnished with bulletins and blank record books.

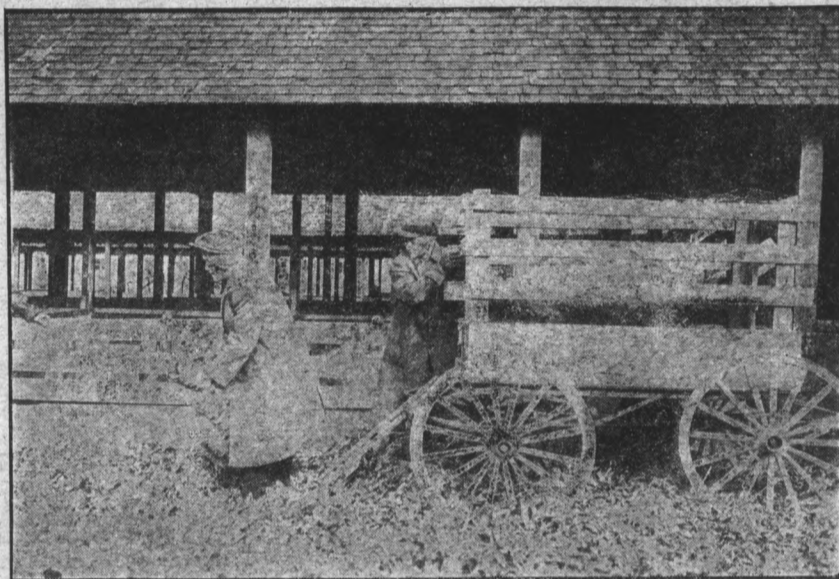
5. Ewes must be cared for according to instructions; a record must be kept covering the period from the weaning time of the ewes for one year following or until the succeeding breeding period.

6. The record shall include housing, quantity and kind of food, roughage and forage, method of handling and management.

7. Lambs raised must not be disposed of without the approval of the com-

mittee representing the County Council of Defense or the county agricultural agent.

8. The basis of award shall be:
- Percentage of lambs raised..... 20
 - Best lambs for type shown..... 30
 - Record and story, neatness and accuracy, completed account..... 20
 - Largest gains:
 - Increased weight of the ewes and lambs over first weight of ewes 15
 - Weight and quality of fleece..... 15
 - Total100



Bankers and Business Men Made it Possible for the Boys to Get Good Sheep to Start With.

New Poultry Project for the Boys and Girls

AS a result of the increased food production program being carried on by the United States Department of Agriculture, the Boys' and Girls' Clubs and the Poultry Departments of the M. A. C. have united forces in bringing about a plan for an increased production of poultry products, and a plan by which good laying stock will be introduced into the various communities throughout the state.

The boys and girls interested in poultry work will be organized into clubs by the field agents of the Boys' and Girls' Club Department, and through Professor Burgess, of the Poultry Department of the Michigan Agricultural College, settings of eggs will be furnished to the club members at \$1.50 a setting from the best egg-laying strains at the college poultry plant.

Settings of the following breeds can be obtained: 1, White Leghorns; 2, Barred Rocks; 3, R. I. Reds (only a limited number of settings).

The club members selecting this project will hatch their eggs and rear their chicks according to instructions furnished them from the college. In October after receiving personal instruction from the field agents in poultry on "Culling the Flock," these members will select their best pullet and send them to the college where they will be entered in a one-year egg-laying contest beginning November 1, 1918. At the end of this period the hen will be returned to the member, or the college will be willing to buy it, paying a price upon which the two parties can agree.

Other members that wish to enter into the work and who find it impossible to purchase their settings from the

college, because of the distance of transportation, etc., can purchase their settings from some reputable poultry man in the community. Care should be taken, however, that all settings are from good stock. Members that carry on the work under this plan will receive the same amount of attention and instruction as the above mentioned members, only in this case the pullets raised can not be entered into the egg-laying contest provided for in the plan offered by the poultry department of the college.

The requirements for any boy or girl wishing to enter the work are as follows:

1. Every member or contestant must be between the ages of ten and eighteen years.
2. Each member must select a hatching and brooding project, or an egg and meat production project, or they can combine the two.
3. The members selecting the hatching and brooding project must set at least three settings of eggs and rear the chicks. Large numbers of settings are especially recommended to the members who can handle large flocks, because it will bring about a greater production of poultry products, the thing that we should aim for.
4. The members selecting the egg and meat production project must feed and care for a flock of not less than four months. In this case larger flocks are also recommended where it is convenient to handle them.
5. All members are required to keep an accurate report of costs, operations, income, profit, etc.
6. The members selecting the hatching and brooding project are required

to exhibit a pen of not less than three pullets and one cockerel, the exhibit to be accompanied by a complete report of the work.

7. The members selecting the egg and meat production project are required to exhibit one dozen eggs prepared for the market and a pen of not less than four hens and one cockerel; exhibit to be accompanied by a complete report.

Exhibits.

All the clubs are required to exhibit their work at local or county exhibit as mentioned in the above requirements for poultry clubs. In addition all poultry club members are invited to exhibit at the West Michigan State Fair at Grand Rapids, Michigan, and the State Fair at Detroit.

The following is a tentative program for the poultry club demonstration teams at the State Fair to be held in Detroit in August.

1. Each of the five districts in club work in the state will send two teams to this fair, the expenses to be paid by the State Fair Association.
2. Each team will be required to perform the following work at this fair:
 - a. Demonstrate the construction and use of a self-feeder, (the purpose of this part to correlate the work of handicraft and poultry club work).
 - b. Culling a flock for best layers.
 - c. Identification of the standard utility breeds of Michigan.

Note.—Material for these demonstrations will be sent to all club leaders, and the members of the State Staff of the Boys' and Girls' Club Department will help to train the teams. These demonstrations can be con-

ducted at community meetings, achievement day programs, county fairs, etc. The prizes to be awarded at the State Fair will be on the order of thrift stamps, liberty loans, scholarships, etc., the object being to discourage as much as possible the large cash prizes.

In addition to these prizes all members completing all requirements will be eligible to the 4-H achievement pin, which is given out by the Boys' and Girls' Club Department.

The Boys' and Girls' Club Department will furnish record cards, literature, report blanks, etc., on poultry work. This year each member will receive two report blanks, which can be made out in duplicate, one being retained by the club member for use at the local exhibits, and the other sent to the Boys' and Girls' Club Department before November 30, 1918, in order that a report of the work may be sent into the Washington Office of the Boys' and Girls' Club Department.

Anyone wishing further information regarding the poultry project, write to A. G. Kettunen, Emergency Assistant State Club Leader, in charge of poultry, East Lansing, Mich.

SOME INTERESTING FACTS ABOUT AGRICULTURE.

E. C. L.

The first American book on agriculture was written by Jared Eliot in 1750.

At the close of the American Revolution there was not an agricultural paper in the United States.

The first agricultural society was formed in Charleston, South Carolina, in 1784.

Henry Clay imported the first Hereford cattle into this country in 1817.

In 1885 congress passed a law making it possible for each person to buy 640 acres of land at one dollar an acre.

Eli Whitney invented the cotton gin in 1793. This machine revolutionized the cotton industry.

In 1795 the annual production of cotton was 8,000,000 pounds. In 1807 it had increased to 80,000,000 pounds.

Charles Newbold, of New Jersey, patented the first cast-iron plow in 1797. Jethor Wood, of New York state made the first practical iron plow.

The first steel moldboard was made by John Lane in 1833 in his little shop which stood on the shores of Lake Michigan where the City of Chicago now stands.

James Oliver, of South Bend, Indiana, produced the chilled steel moldboard in 1869.

Cyrus McCormick and Obed Hussey worked out the device known as a reaper at about the same time. Hussey's machine was patented December 31, 1833, and McCormick's on June 21, 1834.

McCormick sold the first reaper in 1840. Fifty were sold in 1845.

In the legal suits for patent rights McCormick employed Abraham Lincoln as his lawyer at one time.

In 1853 the first railroad reached Chicago. This opened the way for the settlement of the prairie lands.

NOW IS THE TIME.

For the very reason that our country and state were never so dependent upon her man-power for the necessities of life as they are today, makes the opportunity unusual for our boys and girls to render valuable service.

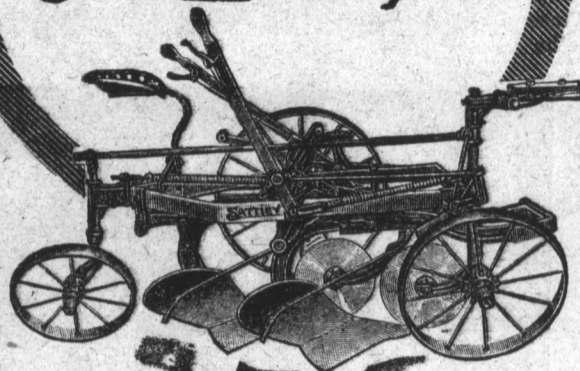
It furnishes a splendid chance for the young people to undertake business adventures, especially in some line of farming where the demand for agricultural products are great and the available labor small.

The need for young leaders was never so acute. To fit one's self for service by directing the work of a group of young people should not be lightly thought of. The acceptance of an opportunity for looking after some organized effort may reveal the qualities of leadership which can be developed with practice for, as one succeeds in directing a small group he is certain to be elected or appointed to a larger service.

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A Boy Can Handle the SATTLEY Gang Plow



And Here's the Reason Why In the Sattley Special Features

Because the single bail together with a special governing rod and bell crank give this plow its GREAT FLEXIBILITY which makes light draft and level furrows in any kind of land.

The governing rod shows you when your hitch is right. No side thrust on tongue.

Solid one piece frame, extra strong, being 2 9-16 by 5/8 inches.

Powerful foot lift, easily operated, 1000 mile axles—dust proof caps.

Rolling coulters have long distance bearings and malleable hubs.

Special 4-horse Equalizer fits any plow.

Read this Letter by a Man Who Knows

August 22, 1917.

James R. Logue of Springfield, Illinois, says:— I have been using Sattley plows, planters and cultivators for the past thirty years and always found them to work well; in fact, much better than some others I tried during this time. At the present time I have no other make of plows and cultivators except the Sattley line. There is quite a saving in buying the Sattley line of implements and I thank you for past favors and courtesies.

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Now you can buy genuinely satisfactory, high standard farm implements—Sattley Implements—direct from the manufacturer, at factory prices. Sattley Implements have achieved a reputation as good implements that is surpassed by none other.

Quick Shipments—Special Repair Service

We are prepared to give you prompt service by making quick shipments from our factory and warehouses. We have also arranged to carry stocks of repairs in different localities in order to give you special service in filling repair orders. Orders for complete machines must be sent to Chicago or Kansas City but you can send your orders for repairs to the point nearest you and the parts will be shipped promptly.

Fill out the coupon for full information on the Sattley line of high grade farm implements.

How Sattley Implements are Made

Sattley Implements are made of the best materials we know of for the purpose. They are made in our own factories by highly skilled mechanics using up-to-date machinery. And the same, satisfaction giving, Sattley Implements which have been high standard farm implements for more than half a century, are produced.

Sattley Implements are known all over the country as high standard farm implements. It is possible that you are using them now, and it is highly probable that some of your neighbors are. If you don't know all about Sattley implements check and send us the coupon below for full information.

MAIL THIS COUPON TO-DAY

MONTGOMERY WARD & CO., Dept. 90103, Chicago or Kansas City

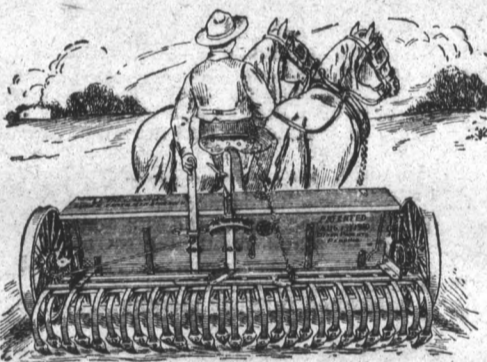
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Check the implements in which you are interested

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- Disc Harrows
- Corn Drills
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GUARANTEE MANUFACTURING COMPANY, Department B. 6, Baltimore, Maryland

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Are you suffering from rupture without any hope of relief? Get the Brooks Rupture Appliance on free trial and know the comforts of a sound man.

The automatic air cushion clings closely without slipping or chafing. Guaranteed to comfortably retain the hernia. Draws and binds together the parted tissue and gives Nature a chance to knit them firmly.

As specialists of 30 years' experience we have perfected a comfortable, sure relief from hernia in the Brooks Rupture Appliance. Endorsed by thousands of physicians. Sent on trial to prove its worth. Made to your measure. Durable—cheap.

Write today for measure blanks. BROOKS APPLIANCE CO. 494 State St. Marshall, Mich.

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The corn that makes the farmer satisfied and prosperous

Makes the best ensilage in eighty days, fully ripened and glazed in ninety days—sold under yellow tag Guaranteed. We have established distribution points in Michigan and solicit your orders. Catalogue and price list on application. Please advise how many acres you plant.

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\$40.00 FUR COATS MEN'S and LADIES

AT FIRST COST—FACTORY PRICE, COMPLETE **\$12.00**



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and make them into Coats, Robes, Furs, Gloves, Mitts and Caps. Sylvania Tanning Co. Sylvania, O.

WANTED—Man with \$1500 to \$5000 to invest in stock. Man with family preferred. We have the land to grow unlimited feed and pasture. Also four silos. Will help the right man financially. Write Woodward Bros. Co., Constantine, Mich., for particulars.

Experienced farmer wants work on farm by month or year. By year preferred, married. HARPER WESTFALL, B. I., Big Rapids, Mich.

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Our Boys on the Fields of Battle are singing them. Our Sailors on the Sea Fighters and the Boys in Training Camps; everyone is wild over them. THE LATEST WAR HITS such as Over There; Where Do We Go From Here; I May Be Gone For a Long, Long Time; Answer Mr. Wilson's Call; Good-bye Broadway Hello France; It's a Long Way to Berlin; Somewhere in France; We're Going Over; Send Me Away with a Smile When the Boys Come Home; and 100 others. All for 10 cts. and 2 cts. postage. PIKE PUB. CO., Dept. 66 So. Norwalk, Conn.

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PRIZE SEED CORN

All Long Island Crown—High Germination. Wood's Northern White Dent—Best early white. Long's Champion Yellow Dent—The prize early dent variety. Eureka, Giant Yellow Dent. Price—\$5.50 per bushel (bags free) f. o. b. Floral Park, N. Y. In ordering state preference, freight or express. This is the finest Seed Corn obtainable. All prize strains. Illustrated catalogue of Seeds, Bulbs and Plants—free. JOHN LEWIS CHILDS, Inc., Floral Park, N. Y.

SEED BEANS Michigan Wonder Pea Beans. From most abundant crop, are hard and dry and perfect in every way, save money by ordering before March 1. Write G. W. Selleck, Breckenridge, Mich.

For Sale Reclaimed "Wisconsin pedigree" barley and "Worthy" oats. Also can spare a few more M. B. hen turkeys. Bobt. P. Beavoy and Son, B. I., Caro, Mich.

43½ Bu Wheat Per Acre

Mr. W. Loat Writes:

"I had 203 acres of wheat that averaged 43.5 bushels an acre, 13 acres of oats that averaged 65 bushels, 25 acres of barley that averaged 50.5 bushels per acre."

Such remarkable reports are coming in every day from Western Canada. Farm crops in Manitoba, Alberta and Saskatchewan are making records never before equaled.

Bushels	
Wheat	30
Oats	53½
Potatoes	148
Barley	37
Rye	27½
Flax	13½

This is the 1915 average per acre from Government statistics.

FREE!

128,000 Farms

In this most fertile farming section you can get one of these 128,000 newly surveyed homesteads of 160 acres near the Canadian Northern—"The Road to Opportunity." You can get results as successful in grain growing, mixed farming or stock raising as did Mr. Loat.

Best Farm Lands \$15 to \$25 Per Acre

Rich, centrally located farms adjacent to the Canadian Northern can be purchased at from \$15 to \$25 per acre—easy cash payments, or part cash and part crop payments. Crops produced equal to crops on farms costing \$150 to \$200 per acre in more densely settled communities.

Special Low Fares

The Canadian Northern Railway, which takes you to all parts of this territory, provides special low fares to home-seekers and settlers.

Send for FREE Book

"Home-Seekers' and Settlers' Guide" contains valuable and interesting information based on government returns, and it tells you exactly how to make a home in Western Canada. Here is a home and wealth for you.



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Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

Motherless Chicks Win Championship

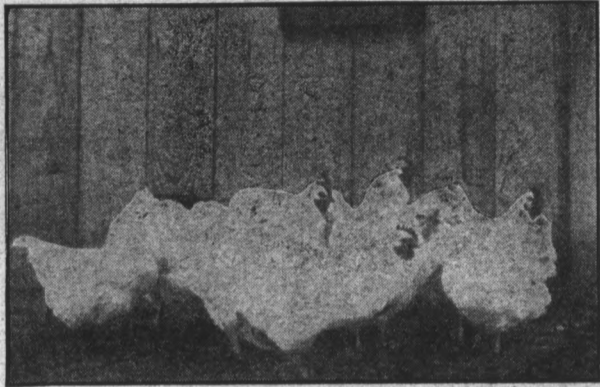
By GEORGE F. PAUL

FLORENCE FENBERT, girl champion poultry raiser of Ohio, has good reasons to feel proud of the honors that she won, for she personally adopted fifteen shivering little chicks after their mother had died and brought them through safely to a state championship.

The contest was conducted by the Ohio State University. Each contestant competed against those of the county, or of the state in the state championship. The contestants were required to set a certain number of eggs, and the number of chicks raised to the age of four months counted a certain number of points. Additional points could be earned for extra work, such as brood coops, attending meetings, etc. At the end of the season each contestant submitted a story on "How I Raised my Chicks."

Florence chose for the contest the White Plymouth Rock chickens of the Owen strain. Contestants were permitted to set either two settings (thirty eggs) or three settings

days during the hatching period. This left fifteen fertile eggs. Every one of these eggs hatched and she succeeded in raising every one of them. At the time that the chicks were five weeks old, the mother hen died. Florence, however, was equal to the emergency, for she did not want to lose her chance at the championship. She put them in a snug box that she had lined with flannel to keep their toes warm, and this served as a brooder for the or-



A Close View of the Prize Winners.



Miss Florence Fenbert, Ohio's Champion Poultry Raiser, Feeding Her Flock.

(forty-five eggs). She set two settings. Fifteen eggs were tested out during the first and second testing, which took place on the seventh and fourteenth

phans. They soon became great pets and were trained to follow her about and to show off their good qualities to the very best advantage.


As a result, when the chickens were exhibited at the county fair, the judge from the Ohio State University, Mr. W. H. Palmer, thought that the record Florence had made entitled her to compete for the state championship. This she accordingly did, with the happy result that she was declared the state champion.

The following table of points shows that she went about the work of raising chickens in a business-like way and is fully entitled to high honors:

	Points.
Number of chicks raised to age of four months, (percentage raised of chicks hatched)	100
Quality of chickens exhibited at the county fair	200
Attendance at club meetings.....	50
Reports on bulletins studied.....	50
Story of production and records.....	100
Total	500


Extra credits earned as follows:
Building brood coop and run according to plans furnished by state leader

Keeping complete record of food consumed for four months..... 50



Boys' and Girls' Club Notes

Conducted by E. C. Lindemann



Kalamazoo county is the latest to make arrangements for a county club leader. The new leader will begin work on March 1. He will have charge of the rural clubs as well as the gardening work in the city of Kalamazoo.

George D. Gilbert, District State Club Leader for Northeastern Michigan, has been drafted and will soon enter the army. His successor has not yet been appointed.

The Girls' garment-making clubs have added aviators' jackets to the list of Red Cross materials which they are furnishing for the men in France.

Handicraft club members are making sock-stretchers and wooden knitting needles for the Red Cross.

Seven girls of the Bear Lake Canning Club completed their project and held an exhibit in connection with the Mid-winter Farmers' and Teachers' Institute. The seven girls canned 789 quarts of fruits and vegetables valued at \$272.47. Mary Humphrey won first

place with a record of 252 quarts valued at \$83.35. The best story was written by Lina Mannilla and the best exhibit was made by Alice McIntosh.

Tryphena Humphrey won the championship in the Bear Lake Sewing Club. She completed eleven garments valued at \$31.

"Gardening, a War Program for Boys and Girls," will be the motto for the second annual gardening conference to be held at the Michigan Agricultural College on March 6-7.

State, district and county club leaders will meet at the Western State Normal School at Kalamazoo March 14 and 15.

A YOUNG FARMER.

The following letter from a mother tells what her son is doing on their farm:

"We call our farm The Busy Wee Farm. We came here last September

1. I am practically an invalid, and Ferd, of fourteen summers, has all the work to do.

"Couldn't see our fences for sumac when we came. The road has been cleaned and plowed ready for spring seeding. Six acres plowed ready for oats and peas. Six acres stoned and stumped ready for the plow for potato ground, and four acres ready for corn.

"He cuts all the wood for the home, cares for one cow, and is studying for the eighth grade. Is there another fourteen-year-old boy farmer in the state who is doing more for his mother? Crawford Co. ALTA M. TOMPKINS.

City Boys as Farmers

IN every rural community there will be city boys helping with the farm work this coming summer. They are enlisting by the hundreds and thousands to go out and work for such farmers as are willing to teach them something about the great business of agriculture. I wonder how our boys and girls from the country are going to greet these strangers?

This seems to the writer to be something that our young people in the country can look forward to. They have the chance to make these boys from the city welcome. There are many things in the country that will be strange to them. Instead of laughing at their mistakes it will be much better to do all you can to help them to become acquainted with farm ways and practices.

The meeting should be looked forward to for another reason, and that is, that these city boys are going to bring something to the country. Most of them are high school students and are from refined families. They have lived under quite different surroundings and have seen and experienced many things that country young people might know with profit.

Here is a letter from two brothers who went to the country last summer and worked on farms. It is worth reading and should inspire every person who may come in contact with city boys to make them feel at home in the country. We are confident that these boys were good workers, but we also believe that their employers got a whole lot of satisfaction out of their relations with them outside of the actual farm work that they did.

Dear Sir:—
My brother and I were awarded the medals of honor last Thursday evening by Governor Sleeper, and we surely are proud of them. They bring back to us memories of hard work and the best kind of treatment, together with pleasure. Our work was really a pleasure, because the farmers for whom we worked showed an active interest in us and made things as pleasant as possible.

My brother and I went on farms at our father's request. Our purposes were many, namely: To gain strength that we might play football in the fall; to help "Uncle Sam" in his most grave food problem, and also to help win the war by taking the places of others who were then in training camps, and lastly for the experience. We gained all of these things, and besides enjoyed the best of health and learned endurance. It seemed a great undertaking at first, but all turned out well. Such an experience is worth a great deal to us and well worth remembering.

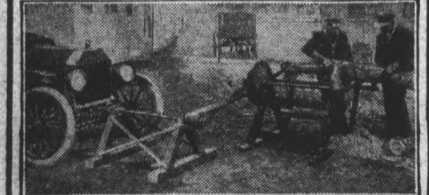
Although we were on different farms, we were located only three-fourths of a mile from each other, and so saw each other quite frequently.

Mr. Potts, my employer, was very considerate and fair in assigning work for me, as was Mr. Luchtman to my brother. At times Mr. Potts played ball with me, went swimming, took me for a ride, ran races in the water as well as on land, and joined in all the sports that boys like, while Mr. Luchtman took my brother for rides in his auto to Mt. Clemens and other nearby towns, and in other little ways showed consideration. He even gave him one whole day off and then took him and his family to Lake Orion for a picnic, all because he had showed an interest in getting the hay in as soon as possible before a heavy rain came.

But, of course, there was plenty of hard work and lots to learn for us two "city seeds." We were both inexperi-

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to GRIND YOUR FEED FILL YOUR SILO SAW YOUR WOOD SHELL YOUR CORN PUMP YOUR WATER ELEVATE YOUR GRAIN



Ward Work-a-Ford

Gives you a 12 h. p. engine for less than the cost of a 2 h. p. Ford builds the best engine in the world—it will outlast the car—and you might as well save your money and use it to do all your farm work. No wear on tires or transmission. Hooks up in 3 minutes. - No permanent attachment to car. Cannot injure car or engine.

Friction Clutch Pulley on end of shaft. Ward Governor, run by fan belt, gives perfect control. Money back if not satisfied. Ask for circular and special price.

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enced and felt that about all we could do would be to put our honest efforts into our work. I suppose that Mr. Potts appreciated this one thing more than the results, although they weren't very bad, and this caused him to speak well of us in several meetings. But we do not feel that so much praise is due us as most of our efforts were caused by the willingness to help, and the interest of both Mr. Luchtman and Mr. Potts in our welfare and happiness. We therefore join heartily in expressing our appreciation for their co-operation with us in making our undertaking as farmers a success, and we

both feel sure that there are many other just such farmers who will show just as much consideration, respect and interest in city boys employed on their farms, as did Mr. Potts and Mr. Luchtman.

We learned much about farming, but we do not know it all yet, and still both of us have been offered an experienced man's wages for this year's work.

Hoping that the army of city boy farmers will be enormously large this coming summer, we are,

Very respectfully yours,
BYRON and ROBERT AYRES.

Bumper the White Rabbit

By GEORGE ETHELBERG WALSH

Copyright, 1917, by Geo. E. Walsh

Bumper Becomes the White King of the Rabbits

WHAT Bumper saw and smelt when he hopped into the burrow under the rocks made a great impression upon his mind. It was a large burrow directly under the huge rock, with no other entrance to it than the one through the hollow tree trunk. No wonder the fox couldn't reach the rabbits. They were as well protected from him as if they lived in a house of stone.

There were all sizes of rabbits around him—little ones scarcely able to hop around without falling over, big, husky fellows with fierce looking muzzles and eyes, and very old ones who seemed too feeble to move very fast. But it was the one who had commanded the others to let Bumper in that attracted his attention the most.

He had been a big, stalwart rabbit at one time, and his frame was still large and angular, but age had shrunk his body and haunches, and his cheeks were thin and wrinkled. The eyes stared straight at Bumper as though they would go right through him. It was not until later that Bumper understood it was blindness that made that stare seem so penetrating.

"Tell me your name again!" this old patriarch said when Bumper stood trembling before him.

"Bumper the White Rabbit!"

The old one hopped nearer, using one of his companions as a guide.

"Is it true," he asked finally, turning to the others, "that he's white?"

"Yes," they all responded in chorus.

"No gray or brown hairs on him?"

"No gray or brown hairs on him."

"Be sure!" commanded the old leader. "Lick him to see if the gray shows underneath."

Several obeyed this order and Bumper felt as if he was being washed all over. So vigorously did the tongues of his cousins lick him to discover any fraud.

"He still remains white," one of the rabbits said finally. "There are no gray or brown hairs underneath."

"That is well!" ejaculated the blind leader. "Now tell me the color of his eyes."

"Pink!" they cried.

"Ah!" The blind rabbit seemed suddenly excited and trembled with emotion. "Pure white, you say, and pink eyes! Is he a young rabbit, or very, very old?"

"He is young, no older than Piggy."

"Then it must be true," murmured the old blind patriarch. "It must be true."

The others were all quiet and waited for their wise, blind leader to speak again. This he did after a long pause.

"Years ago," he began slowly, "there was a white rabbit who was sent to us as a leader. He was the wisest and shrewdest and bravest of our kind. Where he came from no one knew. We made him kind, and he ruled wisely and well for many years. He died before I was born, and that you know was a long time ago. Before he died he told us that some day another white

rabbit, with pink eyes, would come to us, and his coming would be as strange and unknown as his."

The speaker stopped and seemed to weigh his words. All the rabbits held their breaths, and glanced from the blind leader to Bumper.

"When he came—this white rabbit, with pink eyes—we were to receive him and make him our king and leader. His wisdom would be greater than that of all ours combined, and in time he would deliver us from our enemies. You know how it is with us in the woods here. We're the meekest and most innocent of the wild animals. Even the birds prey upon us at times, and Mr. Fox and Buster the Bear hold us in contempt because we cannot defend ourselves. We would live on friendly terms with all the wild creatures of the woods, but they won't let us."

He sighed, and then continued: "Our only weapon is our teeth, but we never use them except to chew our food. Yet they are as sharp as those of the Squirrel, and nearly as long as those of the Fox. Yet we don't know how to use them in defence, or if we do we're too timid to attempt it. We're cowardly, and easily get frightened so that our enemies kill us without danger to themselves. They all hold us in contempt here in the woods."

This remarkable speech made many of the rabbits drop their heads in dejection, for the truth of it was all too well known to them.

"But this new leader and king was to deliver us from our fear and timidity," the blind speaker continued. "He was to show us how we could make friends with all through his wisdom and foresight. We have been waiting for him for many, many years, and now that he has come we should be glad and joyful. Let us do homage to Bumper the White Rabbit, for he is our new king! I am happy to live to see the day come when I could welcome him! My only regret is that age has blinded me, and I cannot see him with my own eyes. I could die in peace then!"

With that the blind, old rabbit humbled himself before Bumper and kissed one of his paws. This apparently was the signal for all the others to do likewise. They came to him in turn, and promised to follow and obey his word, secretly admiring his white fur and pink eyes.

To Bumper this sudden change of hostility to adject admiration and worship was embarrassing. His mind was all in a whirl, and when the others knelt before him and kissed his paw he could find no words to say. He simply smiled as graciously as he could, and accepted the homage in silence.

Without knowing it this was the correct thing to do. It was more impressive than if he had protested or tried to explain that there was a mistake. He was almost king-like in his attitude without trying to be so.

(Continued on page 231).

ECONOMY THAT DOESN'T HURT



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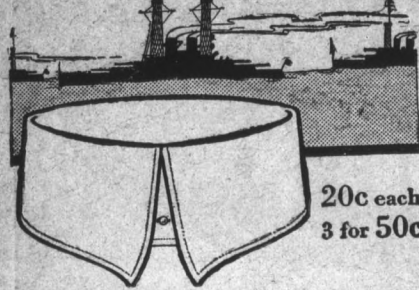
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The Grizzly King

By **JAMES OLIVER CURWOOD**
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They had descended half the distance of the slope when the wind brought something to Thor. A deep-chested growl rolled out of him as he stopped for a moment, the thick ruff about his neck bristling ominously. The scent he had caught came from the direction of his cache, and it was an odor which he was not in a humor to tolerate in this particular locality. Strongly he smelled the presence of another bear. This would not have excited him under ordinary conditions, and it would not have excited him now had the presence been that of a female bear. But the scent was that of a he-bear, and it drifted strongly up a rock-cut ravine that ran straight down toward the balsam patch in which he had hidden the caribou.

Thor stopped to ask himself no questions. Growling under his breath, he began to descend so swiftly that Muskwa had great difficulty in keeping up with him. Not until they came to the edge of the plain that overlooked the lake and the balsams did they stop. Muskwa's little jaws hung open as he panted. Then his ears pricked forward, he stared, and suddenly every muscle in his small body became rigid. Seventy-five yards below them their cache was being outraged. The robber was a huge black bear. He was a splendid outlaw. He was, perhaps, three hundred pounds lighter than Thor, but he stood almost as high, and in the sunlight his coat shone with the velvety gloss of sable—the biggest and boldest bear that had entered Thor's domain in many a day. He had pulled the caribou carcass from its hiding-place and was eating as Thor and Muskwa looked down on him.

After a moment Muskwa peered up questioningly at Thor. "What are you going to do?" he seemed to ask. "He's got our dinner!"

Slowly and very deliberately Thor began picking his way down those last seventy-five yards. He seemed to be in no hurry now.

When he reached the edge of the meadow, perhaps thirty or forty yards from the big invader, he stopped again. There was nothing particularly ugly in his attitude, but the ruff about his shoulders was bigger than Muskwa had ever seen it before.

The black looked up from his feast, and for a full half minute they eyed each other. In a slow, pendulum-like motion the grizzly's huge head swung from side to side; the black was as motionless as a sphinx.

Four or five feet from Thor stood Muskwa. In a small-boyish sort of way he knew that something was going to happen soon, and in that same small-boyish way he was ready to put his stub of a tail between his legs and flee with Thor, or advance and fight with him. His eyes were curiously attracted by the pendulum-like swing of Thor's head. All nature understood that swing. Man had learned to understand it. "Look out when a grizzly rolls his head!" is the first commandment of the bear-hunter in the mountains.

The big black understood, and like other bears in Thor's domain, he should have slunk a little backward, turned about and made his exit. Thor gave him ample time. But the black was a new bear in the valley—and he was not only that; he was a powerful bear, and unwhipped; and he had overlorded a range of his own. He stood his ground.

The first growl of menace that passed between the two came from the black.

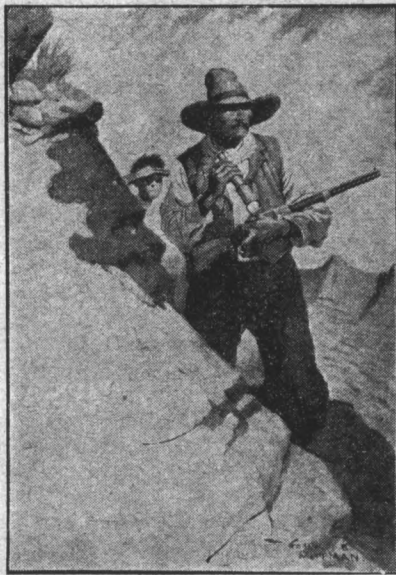
Again Thor advanced, slowly and deliberately—straight for the robber.

Muskwa followed half-way and then stopped and squatted himself on his belly. Ten feet from the carcass Thor paused again; and now his huge head swung more swiftly back and forth, and a low rumbling thunder came from between his half-open jaws. The black's ivory fangs snarled; Muskwa whined.

Again Thor advanced, a foot at a time, and now his gaping jaws almost touched the ground, and his huge body was hunched low.

When no more than the length of a yardstick separated them there came a pause. For perhaps thirty seconds they were like two angry men, each trying to strike terror to the other's heart by the steadiness of his look.

Muskwa shook as if with the ague, and whined—softly and steadily he whined, and the whine reached Thor's ears. What happened after that began so quickly that Muskwa was



"Come on—" he cried. "The black's dead! If we hustle we can get our grizzly!"

struck dumb with terror, and he lay flattened out on the earth as motionless as a stone.

With that grinding, snarling grizzly roar, which is unlike any other animal cry in the world, Thor flung himself at the black. The black reared a little—just enough to fling himself backward easily as they came together breast to breast. He rolled upon his back, but Thor was too old a fighter to be caught by that first vicious ripping stroke of the black's hind foot, and he buried his four long flesh-rendering teeth to the bone of his enemy's shoulder. At the same time he struck a terrific cutting stroke with his left paw.

Thor was a digger, and his claws were dulled; the black was not a digger, but a tree-climber, and his claws were like knives. And like knives they buried themselves in Thor's wounded shoulder, and the blood spurted forth afresh.

With a roar that seemed to set the earth trembling, the huge grizzly lunged backward and reared himself to his full nine feet. He had given the black warning. Even after their first tussle his enemy might have retreated and he would not have pursued. Now it was a fight to the death! The black had done more than ravage his cache. He had opened the man-wound.

A minute before Thor had been fighting for law and right—without great animosity or serious desire to kill. Now, however, he was terrible. His mouth was open, and it was eight inches from jaw to jaw; his lips were drawn up until his white teeth and his red gums were bared; muscles stood out like cords on his nostrils, and be-

tween his eyes was a furrow like the cleft made by an axe in the trunk of a pine. His eyes shone with the glare of red garnets, their greenish-black pupils almost obliterated by the ferocious fire that was in them. Man, facing Thor in this moment, would have known that only one would come out alive.

Thor was not a "stand-up" fighter. For perhaps six or seven seconds he remained erect, but as the black advanced a step he dropped quickly to all fours.

The black met him halfway, and after this—for many minutes—Muskwa hugged closer and closer to the earth while with gleaming eyes he watched the battle. It was such a fight as only the jungles and the mountains see, and the roar of it drifted up and down the valley.

Like human creatures the two giant beasts used their powerful forearms while with fangs and hind feet they ripped and tore. For two minutes they were in a close and deadly embrace, both rolling on the ground, now one under and then the other. The black clawed ferociously; Thor used chiefly his teeth and his terrible right hind foot. With his forearms he made no effort to rend the black, but used them to hold and throw his enemy. He was fighting to get under, as he had flung himself under the caribou he had disembowelled.

Again and again Thor buried his long fangs in the other's flesh; but in fang-fighting the black was even quicker than he, and his right shoulder was being literally torn to pieces when their jaws met in midair. Muskwa heard the clash of them; he heard the grind of teeth on teeth, the sickening crunch of bone.

Then suddenly the black was flung upon his side as though his neck had been broken, and Thor was at his throat. Still the black fought, his gaping and bleeding jaws powerless now as the grizzly closed his own huge jaws on the jugular.

Muskwa stood up. He was shivering still, but with a new and strange emotion. This was not play, as he and his mother had played. For the first time he was looking upon battle, and the thrill of it sent the blood hot and fast through his little body. With a faint, puppyish snarl he darted in. His teeth sank futilely into the thick hair and tough hide of the black's rump. He pulled and he snarled; he braced himself with his forefeet and tugged at his mouthful of hair, filled with a blind and unaccountable rage.

The black twisted himself upon his back, and one of his hind feet raked Thor from chest to vent. That stroke would have disembowelled a caribou or a deer; it left a red, open, bleeding wound three feet long on Thor.

Before it could be repeated, the grizzly swung himself sideways, and the second blow caught Muskwa. The flat of the black's foot struck him, and for twenty feet he was sent like a stone out of a sling-shot. He was not cut, but he was stunned.

In that same moment Thor released his hold on his enemy's throat, and swung two or three feet to one side. He was dripping blood. The black's shoulders, chest, and neck were saturated with it; huge chunks had been torn from his body. He made an effort to rise, and Thor was on him again.

This time Thor got his deadliest of all holds. His great jaws clamped in a death-grip over the upper part of the black's nose. One terrific grinding crunch and the fight was over. The black could not have lived after that. But this fact Thor did not know. It was now easy for him to rip with those knifelike claws on his hind feet. He continued to maul and tear for ten minutes after the black was dead.

When Thor finally quit the scene of battle was terrible to look upon. The ground was torn up and red; it was covered with great strips of black hide and pieces of flesh; and the black, on

the under side, was torn open from end to end.

Two miles away, tense and white and scarcely breathing as they looked through their glasses, Langdon and Bruce crouched beside a rock on the mountain-side. At that distance they had witnessed the terrific spectacle, but they could not see the cub. As Thor stood panting and bleeding over his lifeless enemy, Langdon lowered his glass.

"My God!" he breathed.

Bruce sprang to his feet.

"Come on!" he cried. "The black's dead! If we hustle we can get our grizzly!"

And down in the meadow Muskwa ran to Thor with a bit of warm black hide in his mouth, and Thor lowered his great bleeding head, and just once his red tongue shot out and caressed Muskwa's face. For the little tan-faced cub had proved himself; and it may be that Thor had seen and understood.

CHAPTER IX.

NEITHER Thor nor Muskwa went near the caribou meat after the fight. Thor was in no condition to eat, and Muskwa was so filled with excitement and trembling that he could not swallow a mouthful. He continued to worry a strip of black hide, snarling and growling in his puny way, as though finishing what the other had begun.

For many minutes the grizzly stood with his big head drooping, and the blood gathered in splashes under him. He was facing down the valley. There was almost no wind—so little that it was scarcely possible to tell from which direction it came. Eddies of it were caught in the coulees, and higher up about the shoulders and peaks it blew stronger. Now and then one of these higher movements of air would sweep gently downward and flow through the valley for a few moments in a great noiseless breath that barely stirred the tops of the balsams and spruce. One of these mountain-breaths came as Thor faced the east. And with it, faint and terrible, came the man-smell!

Thor roused himself with a sudden growl from the lethargy into which he had momentarily allowed himself to sink. His relaxed muscles hardened. He raised his head and sniffed the wind.

Muskwa ceased his futile fight with the bit of hide and also sniffed the air. It was warm with the man-scent, for Langdon and Bruce were running and sweating, and the odor of man-sweat drifts heavy and far. It filled Thor with a fresh rage. For a second time it came when he was hurt and bleeding. He had already associated the man-smell with hurt, and now it was doubly impressed upon him. He turned his head and snarled at the mutilated body of the big black. Then he snarled menacingly in the face of the wind. He was in no humor to run away. In these moments, if Bruce and Langdon had appeared over the rise, Thor would have charged with that deadly ferocity which lead can scarcely stop, and which has given to his kind their terrible name.

But the breath of air passed, and there followed a peaceful calm. The valley was filled with the purr of running water; from their rocks the whistlers called forth their soft notes; up on the green plain the ptarmigan were fluting, and rising in white-winged flocks. These things soothed Thor, as a woman's gentle hand quiets an angry man. For five minutes he continued to rumble and growl as he tried vainly to catch the scent again; but the rumbling and growling grew steadily less, and finally he turned and walked slowly toward the coulee down which he and Muskwa had come a little while before. Muskwa followed.

The coulee, or ravine, hid them from the valley as they ascended. Its bottom was covered with rock and shale. The wounds Thor had received in the

fight, unlike bullet wounds, had stopped bleeding after the first few minutes and he left no tell-tale red spots behind. The ravine took them to the first chaotic upheaval of rock halfway up the mountain, and here they were still more lost to view from below.

They stopped and drank at a pool formed by the melting snow on the peaks, and then went on. Thor did not stop when they reached the ledge on which they had slept the previous night. And this time Muskwa was not tired when they reached the ledge. Two days had made a big change in the little tan-faced cub. He was not so round and puffy. And he was stronger—a great deal stronger; he was becoming hardened, and under Thor's strenuous tutelage he was swiftly graduating from cub-hood to young bear-hood.

It was evident that Thor had followed this ledge at some previous time. He knew where he was going. It continued up and up, and finally seemed to end in the face of a precipitous wall of rock. Thor's trail led him directly to a great crevice, hardly wider than his body, and through this he went, emerging at the edge of the wildest and roughest slide of rock that Muskwa had ever seen. It looked like a huge quarry, and it broke through the timber far below them, and reached almost to the top of the mountain above.

(Continued next week.)

"IF I HAD KNOWN."

BY ALONZO RICE.

"I had a friend. Our souls clasped hands; Our heart-strings, like two vines, about Each other twined till twain seemed one."

If I had known thus early in the race That Death would come and claim you as his own, In crowded ways I would have sought your face,

If I had known.

My every word and action would have shown I was your friend the ties, like vines, that grace True friendship, strong as iron bands had grown!

"One shall be taken,"—yours the vacant place; And he who eats the bitter crust alone, Can cry but to the darkness and to space,

"If I had known!"

BUMPER THE WHITE RABBIT.

(Continued from page 229).

It all seemed like a dream to him. He was led away to the choicest sleeping part of the burrow, and attendants brought him food and drink. There was always someone to wait on him, no matter what he wanted to do. It was slightly embarrassing at first, but as the novelty of it wore off he accepted the situation with a smile.

"If they take me for their king, why not act the part?" he asked himself. "I believe I could do it. I certainly look more like a king than any of the others. And I'm prettier than any of my cousins.

Bumper was in danger of getting intolerably conceited, and for a time he showed it; but his better sense came to his rescue finally.

"If I'm going to be their king and leader," he concluded, "I'll try to be a wise and good one. I'll not disappoint them. I'll listen to Mr. Blind Rabbit, and when I know all he does I'll try to use the knowledge for the good of all the rabbits in the woods.

So Bumper the White Rabbit did not regret his loss of the red-headed girl and the beautiful garden, for in becoming the king of the wild rabbits he had a greater career before him.

It's faith in something and enthusiasm for something that makes life worth looking at.—Holmes.

When the eyes say one thing and the tongue another, the practical man relies on the language of the first.—Emerson.



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Cranberry Growing In Mich.

By RALPH W. PETERSON

AN increased use of fruits and vegetables has been one of the natural results of the campaign to conserve wheat and meat products for the allies. A diet consisting mainly of fruits and vegetables may be well balanced and at the same time cheaper and more conducive to good health than one having meat as a main item. As a national American dish, with the Thanksgiving turkey, the cranberry stands first in the hearts of everybody. But as the general diet becomes plainer, cranberries will have an increasing food value. Poor quality and tough meats are rendered more tender and palatable cooked or eaten with cranberries. No cores or skins are wasted and little labor is required in the preparation. Besides containing elements required for our body needs, they have medicinal value represented in the pre-digested acids that are easily assimilated and act directly on the red corpuscles of the blood.

Cultivation Increases Production.

The cranberry has come into general cultivation only since the Civil War. Since then the development has been very rapid until today the three states, Massachusetts, New Jersey and Wisconsin, produce around half a million barrels annually, with a market value of three million dollars. The cranberry grew wild in these states but it was soon found that bogs scientifically handled would produce ten or fifteen times the crop of a wild meadow. With careful construction and care, bogs will average seventy-five barrels an acre. The market is always good. The price per barrel has been as low as \$4.00 and as high as \$15, but as the cost of production and marketing on a fair-sized bog is from \$1.50 to \$3.00 a barrel, a good margin of profit still remains. The high average yield of a cultivated bog is the resultant of a number of increased productive forces not obtained on a wild bog. In place of the small, wild native vines, a standard variety is planted that produces an abundant crop of large uniform berries. Cultivation and selection has resulted in a decided improvement in the cranberry, just as in the strawberry. Then in the second place, vines in a wild bog are engaged in a constant fight with the swamp grasses and weeds, while in a cultivated bog the top four or six inches of turf is removed and replaced with sand, thereby smothering out most of the foreign growth and at the same time making an ideal cutting bed in which to propagate the vines. To insure the crop against drought, frost, winter killing and insect injury, the cultivated bog has a constant water supply available.

Michigan Conditions Good.

Michigan is one of the few states having climatic, soil and other conditions suitable for cranberry culture, but other states less fortunate in these respects have already gone ahead and worked out the main problems. The cranberry industry presents great possibilities for Michigan as the first cultivated bog in our state has yet to be developed.

Once an ideal location is found, success is assured if the bog is properly developed and cared for. An ideal location involves essentials and they will be discussed in the order of their importance.

1. A dependable water supply.
2. A supply of clean sharp sand close at hand.
3. Good drainage; ample enough to allow the water table to be kept at least two feet below the surface of the bog.
4. A peaty soil of such a nature that the water will percolate through it freely.
5. A warm climate with a growing season from May 1 to October 1.

6. A convenient shipping point.

An abundant water supply ready at all times, such as a lake or reservoir site, or a good running stream is necessary to protect vines from insect, frost and winter injury. Holding the water on the bog late in the spring, also reflooding after the harvest season, kills the pupae of the fruit worm and fire-worm, the two worst insect enemies of the cranberry. Severe frosts usually come at the time the buds are expanding in the spring or when the fruit is coloring up during September. The best protection against frost is a reliable water supply and the grower that can get a supply of water into his ditches quickly, or in case of a severe frost, overflow his bog a few inches, has little to fear as enough heat is radiated from the water to ward off frost injury. In the fall when the ground begins to freeze the bog is flooded and allowed to freeze up for the winter. The only precaution necessary is to allow all the surplus water to drain off to keep the ice from raising and heaving out the vines.

A convenient supply of sharp, coarse sand is the next essential in the development of a bog. A peat soil is constantly wet and is sure to germinate a profuse vegetation of weeds and grasses where the top six inches is not removed and replaced with sand. Besides smothering the weeds and grasses the sand forms a good cutting bed for the vines, can be well drained, and is a big factor in warming up the bog and warding off the frosts.

Bog Drainage.

Drainage is, also, very necessary; in fact, it is the first step in the development of a bog, as most prospective bogs can be cleared only at a great expense until well drained. So the system of ditches must be laid out to give the preliminary drainage and at the same time work into the system necessary for quick flooding and disposal of water upon the finished bog and to take care of the drainage water from the surrounding high lands. An outlet below the bog must be assured to prevent the flooding of adjacent land unless such land is under the control of the bog owner. Holding the water level two feet below the surface of the bog the first few years is to discourage moss, grass and weed growth, and to encourage a good vigorous root growth of the cranberry vine.

The fourth requirement of the bog is a peaty soil. If wild cranberries have grown or are growing on the bog there need be no fear as to the adaptability of the soil. Experience has taught that a bog heavily covered with marsh grass is to be avoided while one growing wild cranberries associated with sphagnum moss, leather leaf and Labrador tea is ideal. The depth of the peat is not so essential, providing it is at least one of one and one-half feet if overlaid with sand that would slip and fill in the drainage ditches.

From a climatic standpoint Michigan is well adapted to the cranberry industry. Cool summers will hold the fungous diseases in check that are a serious trial to New Jersey growers. If the bog is within the moderating influence of any one of the four large lakes bordering the state, much of the frost danger is alleviated. Berries with superior keeping qualities can be produced in Michigan.

Michigan a Good Cranberry State.

The state is, also, centrally located from a marketing standpoint. This is also an important requirement in the location of a bog. Convenience to a shipping point reduces much of the subsequent operating expense of a bog.

When these requirements are all taken into consideration it is evident that an ideal location is extremely hard to find. Without question, Michigan

has a number of such locations and this land should not lie idle but should be pressed into use. From the very nature of its soil and location, bog land suited to cranberries would be considered of little value for other purposes. The whole bog need not be developed at once but by planting a few acres at one time, the returns can be used in opening up the balance. Under the proper conditions cranberries are a sure crop and will need replanting only once in a generation. The method of developing the bog and the expense involved will be taken up in another article.

CONTROL OF FRUIT DISEASES.

Prof. Whetzel, of Cornell University, gave some valuable hints on fruit diseases at the Western New York Horticultural meeting. One disease of the apple that still is making much trouble is the scab. In wet seasons it is likely to get the better of us unless we are very thorough. It should be clear in your minds that you should spray for scab just before the blossoms open, when the buds begin to show green. The men that sprayed at this time have the clean apples. It is of the utmost importance to have the leaves free from scab. This is the way to prevent them from getting on the apples. If the leaves are kept clean at the beginning of the season, what little scab there is left is easily controlled with later spraying. Get your spraying in ahead of coming rains. When the weather is fair get the spray on quick. In a word, cover the new growth of leaves as they expand and get it in ahead of the rain.

The way to conserve in spraying is to get the scab fungus the first spraying, this will save material later on. On dusting and spraying, he said that last year there was little difference in results. About "Baldwin Spot," Prof. Whetzel said it is caused by unequal supply in the water supply of the tree. You cannot prevent it by spraying. When a dry season comes you will probably have Baldwin spot. A dust mulch, that makes the supply of water more uniform, is about all you can do.

A New Disease.

A new disease is a root rot caused by fungus, called Xylaria. It develops more in a wet season. One point we know: It is not safe to plant where old trees have died out.

Cherry leaf blight, he said, is much like the apple scab except the fungus develops a little later. Spray just after the blossoms fall, and when the shucks begin to open. Two later applications, when blossoms fall, and one still later should keep the leaves intact and healthy.

A light dusting of peaches two or three weeks before picking will help to prevent rot in handling or transportation.

TROUBLE DEPARTMENT.

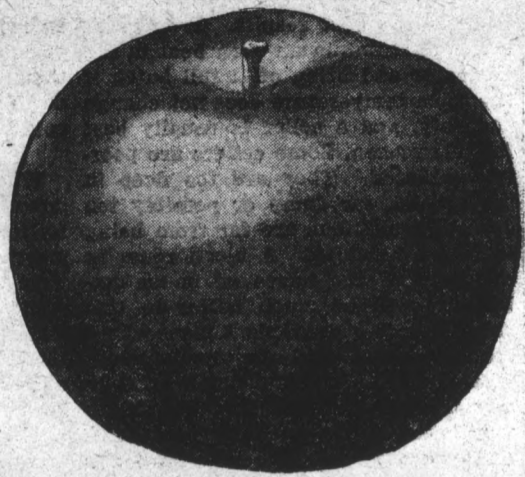
Onion Varieties.

I intend sowing some onions next spring. Which of the varieties would sell most readily on the market, red, white or yellow? Would they grow well on marsh land which is well drained?
Shiawassee Co. S. G.

Both the red and yellow varieties of onions are popular. Probably the most popular varieties are the Yellow Globe Danvers and Red Wetherfields. Both of these varieties are standard and can be obtained from most any reliable seed house.

Onions do well in marsh ground which has been thoroughly prepared and well drained. One of the secrets in onion growing is the thorough preparation of the soil.

If you did not give your marsh preliminary preparation last fall, I would advise a most thorough plowing and cultivation in the spring.



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It does more: Pyrox by invigorating the foliage, causes the fruit to hang on longer, so that it takes on size, finish and quality—what the market wants and will pay for. If you want the best price you must grow the kind of fruit the market demands.

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Pyrox is a smooth, creamy paste, all ready to measure out and mix with water. This saves labor in the busiest season when labor is hard to get. In a letter to a friend, the Editor of “The Fruit Belt” who is personally in charge of over 400 acres of

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BOWKER INSECTICIDE COMPANY BOSTON AND BALTIMORE

APPLES HANG TO TREE

Mr. Albert Cooper, West Virginia, writes:—“Where I didn’t use Pyrox I have scarcely an apple hanging on up to this time, but the trees that were sprayed are full of as nice apples as I have seen this season.”

BETTER COLOR

Mr. A. W. Davis, Missouri, says:—“The apples and leaves hang on much longer where Pyrox is used. It gives the fruit a fine color. I would not bother with the home-made spray again if the ingredients were given me.”

HARD TO FIND A WORM

Mr. Alva E. Moore, Marlinton, W. Va., writes:—“I sprayed my apples with Pyrox and it would be hard to find a wormy apple in the entire orchard. Pyrox is cleaner to apply than most sprays.”

SAVES LABOR

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With this **Guaranteed Hatching Outfit** and my **Guide Book** for setting up and operating, you can have poultry in abundance, as shown here. Order now or write today for my big **Free** catalog "Hatching Facts"—the most practical guide to success with poultry. A postal will do. Jim Rohan, Pres.

Belle City Incubator Co.
Box 14 Racine, Wis.




The Essentials of Good Hatches

A WELL ventilated cellar or basement makes the best place in which to operate an incubator and get the best results. It is much easier to maintain an even heat in the incubator and bring off a full hatch if the room temperature does not change suddenly, and a cellar is usually best for this reason. Some cellars are poorly ventilated. They are too deep in the ground, too damp or possibly too dry and conditions are far from being ideal for hatching. A clean room in any part of the house or in an out-building will be much better in this case. Choose a convenient place where the incubator will be undisturbed, where the sun will not shine on it at any time during the day, where the ventilation can be readily controlled, and you may be sure you have the best location.

Starting the Incubator.

When starting the incubator, screw down the adjusting nut on the regulator to guard against overheating at the start and breaking the thermometer. If your thermometer is not new, or you doubt in the least that it is correct, test it with a clinic thermometer from 100 to 105 degrees, and be sure to make allowances for any variations in regulating and running your machine. Always wait before putting the eggs into the incubator until you are sure the regulation is correct. Once carefully adjusted before starting a hatch, very little attention to the regulator is required.

Conditions for Incubation.

The ideal room temperature for the average incubator seems to be around fifty degrees. Many good incubators on the market will hatch successfully in a room where the temperature is down to freezing. A heated room is not advisable, except where the incubator temperature cannot be kept up without it in very cold weather, because heated air is usually dried out and not as pure as it should be when it enters the egg chamber. Correct ventilation, the right temperature and proper moisture conditions at various stages of a hatch, are the three essential "mechanical" factors in incubation and the importance of selecting the best possible location for the incubator is to give most favorable conditions outside of the machine to control the air, the heat and the moisture within. If more attention were given to the proper location of the incubator, there would be fewer disappointments; more normal hatches in number of chicks produced and more husky chicks that could be raised to profitable maturity.

Care of the Lamp.

On lamp-heated incubators a new wick should be used with each hatch. If the oil-reservoir is of the ordinary type it should be filled daily and preferably in the afternoon so that there will be enough oil to last until morning. Never fill the lamp bowl entirely full. Expansion of the oil when warmed will make it overflow. All lamp fixtures should be wiped clean and dry daily. There will rarely be any trouble with ill-smelling or smoky lamps if the burner is kept perfectly clean each day. Start with a medium-sized fire or lamp flame, and make your adjustments with such. The heat control can then be more easily handled from start to finish.

After the incubator has run at least twelve to twenty-four hours without any needed adjustments, it is ready for the eggs. When they are put in, the temperature will drop and not return to the prescribed heat for several hours while the eggs are warming up. More mistakes are made in changing adjustments on the regular the first day than at any other time. Later we shall go into greater detail about eggs and what takes place in incubation, but be it said now that the first week of the hatch is really the most critical period in the whole process, and greater care is advisable than at any other particular time. Do not be alarmed if the temperature should vary a degree, or even two, either way from time to time. If the average temperature is maintained, results will be quite as good as though the thermometer showed no variation whatever. In fact, some experienced men prefer slight variations.

Setting up the Machine.

Being satisfied that the room ventilation is the best that you can provide, everything is in readiness for the incubator. A new machine should be carefully uncrated and assembled as directed in the printed instruction sheet which each manufacturer sends out with the incubator. Every part in position and in good condition, the machine should then be leveled carefully. A higher corner or high side will be hotter and even heat over all the edges will not be possible. If necessary, block the incubator carefully so that it will stand firmly and not jar the eggs during the hatch. Some of the Mammoth incubators require a certain slight tip to the whole machine to meet the requirements of their hot water system, but directions are given in each case.

Cooling the Eggs.

Never open the door to cool or turn the eggs until the third or fourth day. From then on until about the eighteenth day the eggs should be turned at least twice daily. The length of cooling depends upon the room temperature, the period of the hatch and the condition of the eggs. Attention to instructions and close observation will add to your experience all that is necessary to become quite expert in handling the cooling operation.

A fertile egg will be warmer than an infertile one after the first week or so.

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Why take chances with untried machines when for only \$12.50 we guarantee to deliver safely all freight charges paid (East of the Rockies) BOTH this iron covered incubator and roomy brooder, fully equipped, set up ready for use. You take no risk in buying an Ironclad outfit. We give you

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We will ship you the machines—let you use them 30 days—and if you don't find them satisfactory, send them back—we'll pay the freight charges and refund your money. We give a

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Queen Incubators
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Built of genuine California Redwood. Redwood does not absorb the odor from the hatching eggs. Cheaper woods, and pasteboard lining in iron and tin machines, retain the odors to weaken and kill the hatching chicks.

The Queen is accurately regulated—taking care of temperature variation of 70 degrees without danger. Not cheap, but cheap in the long run. Catalog free.

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130 Eggs 130 Chicks

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If the thermometer is on or near an infertile or dead germ egg, it will not register correctly. This is one reason why testing the eggs is generally advised once or twice during the hatch to remove those which do not contain a live chick embryo. There are many differences of opinion on the moisture needed during the hatch. Some machines require more moisture than others, and some hatch successfully without added moisture under average conditions. It is safe to say that more poor hatches result from insufficient moisture than from too much. In many cases the best and easiest way to supply moisture is to keep the floor of the room well sprinkled, thus allowing the air to become more moist before it enters the egg chamber. It is seldom possible to get too much moisture when this practice is followed. When it is not practical to wet the floor, pails or pans of water may be set near the machine, the eggs may be sprinkled with warm water, or a shallow pan of water may be set into the incubator beneath the egg tray. The necessity for moisture is not to add water to the eggs, but to prevent too rapid evaporation of their normal water content. At the end of the first nine or ten days the eggs should not dry normally down so that the air cell in the large end of the egg is bigger than the size of a silver dollar. This can be determined by testing the eggs.

Fresh Air for Incubator.

The varying types of incubators, each with their different ventilation systems, prevent any discussion of this feature. Experts have worked it out for each kind on the market and manufacturers' instructions are usually explicit. The growing chick needs much less "fresh air" during the first half of incubation than during the last half. After the tenth or eleventh day the amount of ventilation can be increased gradually, but quite rapidly until the last of the hatch.

Do not be in too big a hurry to remove the chicks from the incubator. Let the hatch finish off and the last chicks dry before opening the door. If your incubator has a nursery tray, it is best to test it before the chicks hatch. In very cold weather the drop in temperature from the egg trays to the nursery is too much and the chicks will be chilled if the nursery is used unless it is raised.

If during the hatch you have an accident—the lamp go out and the temperature drop, or something happen so that the eggs are overheated, or should you have left them out to cool too long, do not throw away your eggs until you are convinced that you cannot get a hatch. Many good hatches have come in spite of these accidents and it is foolish to count your losses too quickly! This does not mean that the best results can be obtained without thoughtful attention to the simple care of your artificial hatcher. Three important factors govern the success of hatching: The hatcher—the eggs—and the operator. Do your part!

GETTING FERTILE EGGS.

It will not pay to waste many eggs this spring, hence an effort should be made to put as large a proportion of fertile eggs into the incubators as possible. The time for hatching will soon be here and it is time to begin to give the hens special care to produce fertility. During the cold weather, when the birds are closely housed, it is much more of a problem to get eggs that will hatch well than it is later when the hens can get out on the ground. It is almost useless to set eggs from a flock that has been closely confined for a long time. Under such circumstances the male birds are not active and it is almost impossible to furnish the feed to produce fertility.

For the first hatches, more males are needed than for later settings. We

like the plan of having two males for each pen and keeping one confined every other day. In flocks of fifteen, or even twenty hens, the eggs should hatch well if other conditions are favorable. Whenever the weather is warm enough, the poultry should have a chance to get on the ground. Scratching pens, where the breeders are kept, should have a dry earth floor if possible. If rye was sowed in any of the pens last fall, the hens should have a chance to get at it when the weather will permit. If a warm spell comes on in February, let out the birds and note how active and happy they immediately become. Strong fertility will follow such an outing.

Plenty of green feed is necessary to the production of fertile eggs. Beets and mangles are good for this purpose. One of our poultrymen neighbors last spring fed mangles until the first of March and then the supply gave out and he was obliged to substitute clover and alfalfa. Eggs put in the incubator before the first of March hatched more than one-third more chicks than those gathered after the mangle supply became exhausted. Cut bone is another food that will help in producing fertile eggs.

It will pay to take special care that the first eggs set are of strong fertility. The early chicks will make the layers worth keeping, therefore hatch early.

POULTRY QUERY DEPARTMENT.

How Much Should a Hen Eat

Would you consider it safe to let my thorough-bred Barred Plymouth Rocks run with the mongrels until a month and a half or so and then keep them separate, without danger of chicks being cross-bred? Have heard that eggs are fertile two or three weeks after the cockerels are taken away. I can keep them separate but in a smaller enclosure. About how much should a Plymouth Rock hen eat daily (by weight)? I have oats, corn and wheat and expect to purchase some barley. Could you inform me how to make a well balanced ration of these feeds? Will say I also feed meat scraps. They are not on free range. Have bought some liquid disinfectant, and how often would you advise disinfecting the poultry house? When is the best time to pick out the layers?

S. G.

You will be entirely safe in keeping your chickens together to within six weeks of the time that you wish to use your eggs for hatching.

It is very difficult to tell just what a Plymouth Rock hen should eat, as it greatly depends upon the character of the food it is given. You can make a very good ration out of equal parts of oats, corn and wheat. I would crack the corn and then use the mixture for a scratch feed. The usual method is to use about a handful of the mixture for each hen at each feeding. It has been the experience of feeders that barley is not as well liked by hens as the three grains mentioned and, therefore, it would be of no special advantage to you to get this grain for poultry feeding. Besides the scratch feed, it would be advisable to make a dry mash of equal parts of bran, ground corn and oats, to which should be added about ten pounds of commercial beef scraps to every 100 pounds of the mash.

I would thoroughly disinfect the poultry house with a liquid disinfectant every two or three weeks; the length of time intervening between applications depends upon the disinfectant, as some disinfectants are more lasting than others. To insure success in using disinfectants, it would be advisable for you to follow instructions on the can.

The best time to cull out the flock is in the fall before the birds are put in their winter quarters. Usually the late molters and the young, most active birds, showing plenty of vigor, and having a great depth of chest and fluff, are the best layers. The methods of picking out layers have been explained in these columns several times. If you desire the same, we will be glad to furnish it upon application.

Win the War By Preparing the Land Sowing the Seed and Producing Bigger Crops

Work in Joint Effort the Soil of the U. S. and Canada—Co-operative Farming in Man Power Necessary to Win the Battle for Liberty

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Every Available Tillable Acre must Contribute; Every Available Farmer and Farm Hand must Assist.

Western Canada has an enormous acreage to be seeded but man power is short and an appeal to the United States allies is for more men for seeding operations.

Canada's Wheat Production last Year was 225,000,000 Bushels; the demand from Canada alone, for 1918, is 400,000,000 Bushels.

To secure this she must have assistance. She has the land but needs the men. The Government of the United States wants every man who can effectively help to do farm work this year. It wants the land in the United States developed first of course; but it also wants to help Canada. Whenever we find a man we can spare to Canada's fields after ours are supplied, we want to direct him there. Apply to our Employment Service, and we will tell where you can best serve the combined interests.

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

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

For particulars as to routes and places where employment may be had, apply to

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Requires 3 minutes a day. Saves work, time, money. Built round, like hen's nest. No cold corners. One gallon of oil, one filling of lamp to a hatch. Wonderful built-in moisture attachment and complete circuit radiators mean even heat, moist and mild always. Many other features that save work, time and money fully described in new FREE book—write postal for your copy NOW. Radio-Round Incubator Co., 675 Roger St., Wayne, Neb.

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WHITE Wyandottes. I have a fine lot of April and May hatching cockerels for \$3.00 and \$5.00 each. DAVID RAY, 709 Norris St., Ypsilanti, Michigan.

White Wyandottes 50 extra choice cockerels \$3 to \$5. I ship on approval and guarantee satisfaction. Milton E. Stewart, R. 3, Augusta, Mich.

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Flanders Farm, Orchard Lake, Mich.

CATTLE.

WOODCOTE ANGUS

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

WOODCOTE STOCK FARM, Ionia, Mich.

Cloverly Angus Good quality bulls of serviceable age and younger. Inspection invited.
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Guernseys For Sale, four young registered cows. Tuberculin tested. Geo. N. Crawford, Holton, Mich.

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1 choice Heifer calves, \$150 each. 1 choice 3 year old will freshen in March \$300.
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For Sale At my farm near Ludington, Mich. two choice registered Guernsey, bulls of serviceable age, grandsons of a cow with an A. R. record of 836.04 lbs. of butter fat for one year. Prices reasonable.
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Containing blood of world champions.
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For Sale Registered Guernsey bull calves May Rose breeding.
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100--REGISTERED HOLSTEINS--100
When you need a herd sire remember that we have one of the best herds in Michigan, kept under strict sanitary conditions. Every individual over 6 mos. old regularly tuberculin tested. We have size, quality, and production records backed by the best strains of breeding.

Write us your wants.
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Reference: Old State Bank, Fremont, Mich.

Flint Maplecrest Boy sire in service
His sire is Maplecrest Kornelyko Hengerveld, 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 120 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.

Grange.

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

SOME NEW GRANGE FEATURES.

Our State Lecturer, Mrs. Stockman, is planning a reading course for the Subordinate Granges of Michigan during the coming year. There are four books in this course: a book on feeding the family, another on soils, a standard work on dairying, and a book containing just the inspiration and help that every young person needs in these days of hustle and bustle, and chances of success and failure, so intermingled as to be hard to identify by the one who is obliged to choose for himself.

Sister Stockman will plan her Grange programs in part with reference to this new reading course, though no Grange will be obliged to purchase it unless the members of that Grange shall wish to do so. There will be plenty of work mapped out for the lecturers without the lessons in the several books, but it is hoped that many Granges will avail themselves of the privilege of the new plan, and get out of it as much as the Worthy Lecturer now sees in it, of real genuine educational help.

Doubtless one trouble with Grange lecture work is, that it is too fragmentary. That is, it does not lead up to definite ends. We discuss one subject tonight, another one at our next meeting, and perhaps miss the lecturer's hour entirely at the following meeting, and so we never quite know where we are bound to and we always lack a well defined ideal of what we ought to accomplish in the field of Grange lecture work.

In the adoption of this reading course we have an opportunity to study in an orderly manner, some very important subjects, and the result should be to our general advantage.

The book on soils is by Mr. Hopkins, one of the best soil men in America. It is a work of fiction, but it abounds in important facts about soil handling, and these facts being put into such readable form, will insure their being gotten by many who would not read them were it not for the little story into which they have been woven by this truly wonderful soil man.

As a part of "The Great School Out of School," every live subordinate Grange should get the books that make up this course and begin in earnest their study. The success and progress of our subordinate Granges depends in a large way upon wise leadership loyally followed. Sister Stockman is a wise leader in educational matters, and the Granges of our state will take some important advance steps if they follow her in their work as heartily and as generously as they applaud her when she speaks to them.

Another new feature is our Grange Farmers' Institutes. There is to be one of these meetings in nearly, or quite every county in the state. Several of them are already scheduled and more will be in the very near future.

At these meetings will be presented subjects of live interest to every progressive farmer. The speakers will be furnished by the Extension Department of the M. A. C., by the Dairy & Food Department, and by the Department of Markets. The University of Michigan will also furnish speakers for many of the meetings.

Worthy Master Ketcham and his assistants are sparing no pains in the effort to make these meetings events of unusual interest to all who live in the open country, and it is hoped that the programs will also interest those residing in town.

(To be continued.)

Farmers' Clubs

Associational Motto:

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

CLUB DISCUSSIONS.

The Young People Are Interested.—The January meeting of the Jolly Farmers' Club was held at the home of Mr. and Mrs. William Jacobs in Brockway township. While the roads were badly drifted and severe weather prevailed, there were about sixty people present, representing the townships of Greenwood, Brockway, Emmett and Kenockee. In the absence of President Wallace Adams, John Patterson called the meeting to order and presided during the afternoon. The singing of America by the Club constituted a very appropriate opening number, and an excellent program was carried out which was fully up to the standard of former meetings, and excelled the most of them in respect to the young people and children who took part. The music and recitations rendered by them were of a high order, and afforded a good illustration of what the Farmers' Club can do for the boys and girls, as well as meeting the needs of the older people of the community. The members of this Club consider the development of their young people to be one of the important objects of the organization, and the fact that it is contributing to the pleasure and profit of every individual in the farmer's family is largely responsible for its splendid progress and success. The paper by Mrs. Hugh Hodgins dealt with conditions arising out of the war, and among other things, emphasized the progress that was being made in medicine and surgery, and the beneficial effects of conservation and sacrifice to the people of the nation. Mr. Rapley's address explained the value of greater cooperation among the farmers, and mentioned the results that were being obtained in other states, especially in North Dakota. The reading by Mrs. Bert Barr was of a patriotic nature, and while asking that the farmer be given a square deal by the middleman, indicate that the man on the land would do his utmost to meet the needs of his country during the present crisis. County Agent Brody discussed a number of things of immediate interest to the farmer, including the income tax, seed corn, and the distribution by the government of sodium nitrate fertilizer the coming spring. A number of business matters came up for consideration and among them were the arrangements for the two-day agricultural school, January 29-30. On account of fuel conditions and lack of stable room for the horses, it was decided to change the place of meeting from the Brockway Town Hall to the M. E. Church at Old Brockway. After the secretary's report by Miss Elsie Zinzo, the Club adjourned until February 28, when it will meet at the home of Mr. and Mrs. Hugh Hodgins.

Elect New Officers.—The meeting of the Starville Farmers' Club at the home of Mr. and Mrs. Merlin Butler in Cottrellville township, St. Clair county, was well attended in spite of the severe weather. After the dinner had been served, the business meeting was taken up, and the following officers were elected for the ensuing year: President, W. D. Richardson; vice-president, Mrs. Percy Worden; secretary, Mrs. E. B. Hill; treasurer, Merlin Butler; organist, Mrs. W. D. Richardson; menu committee, Mrs. L. C. Hill, Mrs. John and Mrs. John Kleihower, Mr. and Mrs. H. A. Shaw; program committee, Mr. Kleihower, Mrs. Horace Basney, Mrs. Charles Folkerts, Mr. and Mrs. Horace Basney, and Mr. and Mrs. E. B. Hill. The singing of America constituted a very appropriate opening number for the program. This was followed by an instrumental duet by Mrs. W. D. Richardson and Mrs. Stanley Chartier, which was well rendered and much appreciated. A recitation entitled, "We're in the Army Now," by Miss Mattie Kleihower was also one of the most pleasing numbers. County Agent Brody discussed agricultural schools, marketing, and other questions of particular interest at the present time. Miss Waldron, Home Demonstration Agent for St. Clair county, was next introduced, and pleased the audience with a talk on "Food Conservation," the "Making of War Breads," and gave a general outline of county agent work for women. The women of the Starville Club were especially interested in this line of work, and are looking forward to their two-day school in home economic subjects February 14-15 with much interest.

Markets.

GRAINS AND SEEDS

February 12, 1918.

WHEAT.—The unusual demand for flour, and the large amount of wheat already consumed by the mills, leads buyers to believe that farmers are not delivering wheat in as liberal quantities as in normal years. The statistics at hand, however, would indicate that this is not the case. A year ago No. 2 red wheat was quoted on the local market at \$1.85 per bushel. Present prices are: No. 2 red \$2.17; No. 2 mixed \$2.15; No. 2 white \$2.15.

CORN.—Higher temperatures and an increased supply of cars has made it possible to ship much corn from producing districts. This has had a somewhat bearish influence upon prices, although no large decline has been recorded. One year ago the local trade was paying \$1.05 per bushel for No. 3 corn. At the opening this week quotations were: Cash No. 3 \$1.80; No. 3 yellow \$1.85; No. 4 yellow \$1.80; No. 5 yellow \$1.75.

OATS.—The broad demand for oats continues and while supplies have been added to materially by better service on the railroads, prices are holding firm to higher. Local prices are as follows: Standard 89½c; No. 3 white 89c; No. 4 white 88c. One year ago standard oats were quoted at 61c.

RYE.—Market active. Cash No. 2 \$2.18 per bushel.

BEANS.—No change in quotations, although demand is becoming somewhat animated. Cash beans are quoted locally at \$12.50 per cwt. In Chicago trade is moderately active, with Michigan hand-picked pea beans in sound dry condition quoted at \$13@13.50; red kidneys, fancy \$15.50@16; do fair to choice \$13@14 per cwt.

SEEDS.—Firm and higher. Prime red clover \$20.30; March \$19.80; alsike \$17; timothy \$4.10.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Standard patent \$11.10@11.15; straight winter \$10.80; spring patent \$11.20; rye flour \$10.50@10.70 per bbl.

FEED.—In 100-lb. sacks jobbing lots: Bran \$34.50; standard middlings \$36.50; fine middlings \$43.50; cracked corn \$79; coarse corn meal \$77; corn and oat chop \$66 per ton.

HAY.—In carlots at Detroit: No. 1 timothy \$25.50@26; standard timothy \$24.50@25; light mixed \$24.50@25; No. 2 timothy \$23.50@24; No. 1 clover, \$21.50@22 per ton.

Pittsburgh.—No. 1 timothy \$31@31.50; No. 2 timothy \$29@29.50; No. 1 light mixed \$29.50@30; No. 1 clover mixed \$30.50@31.50; No. 1 clover \$30.50@31.50.

STRAW.—In carlots on track at Detroit: Wheat and oat straw \$10.50@11; rye straw \$11.50@12.

DAIRY PRODUCTS

BUTTER.—Market is steady with unchanged prices. Fresh creamery firsts are quoted at 48c per pound; fresh creamery extras 49c.

Chicago.—Market is easy, with a slight decline. Creamery extras 49c; extra firsts 48½c; packing stock 37½@38c per pound.

CHEESE.—Michigan flats 26¼@26½c per lb; New York flats 27c; brick 28¼@28½c; long horns 28¾c; Michigan daisies 27c; Wisconsin daisies 27½c; domestic Swiss 35@42c for the prime to fancy; limburger 30¼@31¼c.

DRESSED CALVES.—Fancy 18@20c; choice 17c; common 16c.

POULTRY PRODUCTS

POULTRY.—(Live).—Poultry market is dull and steady. Best spring chickens 27@28c; No. 1 hens 28@30c; ducks 27@28c; geese 26@27c; turkeys 26@27c.

Chicago.—(Live).—Offerings small and trading slow. Fowls 29c; ducks 26@27c; geese 23@24c; turkeys, good 24c. (Dressed).—Fowls 27@28c per lb; ducks, fancy 28c; geese 24c; turkeys 33@34c.

EGGS.—Market firm, with increased receipts. Fresh firsts are 52@53c per dozen.

Chicago.—Market is steady and supplies increasing. For fresh Michigan firsts 51c; ordinary firsts 48@49c; miscellaneous lots, cases included 48@50c.

FRUITS—VEGETABLES

POTATOES.—Delivery of potatoes from producing centers following improved weather conditions, has had a depressing effect upon the large markets. At Detroit round whites sold on Monday morning at \$2.35@2.40 to jobbers. On Saturday round whites, sacked, United States grade No. 1 sold in Cleveland at \$2.50; Buffalo \$2.40@2.50; Pittsburgh \$2.50; Cincinnati \$2.60@2.65; Washington, D. C., \$3@3.25 per cwt.

APPLES.—Baldwins sold in Detroit last Saturday at \$5.75 per bbl. to jobbers. All the large markets throughout the north central states report trade in a steady position, with movement moderate. Prices have not changed materially from former weeks.

LIVE STOCK

BUFFALO.

February 11, 1918.

Cattle.—Receipts 100 cars, market 15@25c lower; best shipping steers \$13@13.50; fair to good \$11.50@12.50; plain and coarse \$10.50@11; Canadian steers, heavy \$12@12.50; Canadian steers fat, coarse 1100 to 1200 pounds, \$11@11.50; Canadian steers and heifers \$9.50@10.50; native yearlings \$12@12.50; best handy steers \$10.50@11; fair to good kinds \$9.50@10.50; handy steers and heifers mixed \$9@10; light butcher steers \$9.50@10.50; western heifers \$9@10; state heifers \$7.50@8; Canadian heavy cows \$9@9.50; best fat cows \$9.50@10.50; butcher cows \$7.25@8.50; cutters \$6.25@6.75; canners \$4.50@5.75; fancy bulls \$10.50@11; butcher bulls \$8.50@9.50; common bulls \$6.50@7.50; best feeders 900 to 1000 lbs \$8.50@9; medium feeders at \$7.50@8; light common \$6.50@7; stockers \$6.50@7; best milkers and springers \$7.50@12.50; mediums \$6@7.50; common \$4@5.

Hogs.—Receipts 70 cars; market 15c lower; heavy and yorkers \$17@17.50; pigs \$16.

Sheep and Lambs.—Receipts 20 cars; market 15c lower; top lambs at \$18.50; yearlings \$15@16.50; wethers \$13.50@14; ewes \$13@13.50.

Calves.—Receipts 1500; market 50c lower; top \$16.50; fair to good \$14@15.50; fed calves \$7@7.50.

CHICAGO.

February 11, 1918.

Cattle. Hogs. Sheep.
Receipts today..15,000 60,000 25,000
Same day 1917..19,991 71,886 17,743
Last week.....68,658 225,117 69,779
Same wk 1917...41,979 186,125 69,909

One of the most striking changes in the hog trade is the great falling off in the shipping demand, only 8634 hogs having been shipped from here last week, comparing with 21,960 for the previous week, 48,463 for the corresponding week last year, and 67,978 two years ago. Hogs arriving here are still gaining in weight, last week's receipts averaging 229 lbs., comparing with 223 lbs. a week earlier.

Hogs declined 25@35c today under heavy receipts and a slow demand, early prices ruling highest, with the best selling at \$16.45. Cattle developed more firmness early, with the packers good buyers and the best offerings taken at \$13.85, but the later trade was slow and prices were easy. Up to a late hour no prime lambs had been sold, buyers holding back because the receipts were larger than usual. The best bid for prime lots was \$17, with sellers asking \$17.50.

Cattle were marketed so much more liberally last week than during the previous week that prices were on the down grade most of the time, the general decline averaging about 25@50c per cwt. The shrinkage in values was quite general, affecting the best and the commonest lots, although there was no especial weakness in the middling class of steers. The greater part of the steers crossed the scales at a range of \$10.50@12.50, with sales of the choicer class of heavy steers at \$13@14.15, while sales were made of the poorer kinds of little steers on the feeder order as low as \$8@9.50. Plain to fair grades of light weight steers brought \$9.60@12, while medium lots sold at \$12.10@12.70, with a good class selling at \$12.75 and over, cattle selling at \$13.50 and upward being classed as choice. Good to choice yearling steers were salable at \$12.35@13.75, with sales all the way down to \$9.75@10.75, for the commoner kinds of these youngsters. Butcher stock had a good outlet, with cows taken at \$7.50@10.75 and heifers at \$7.25@11.75, while cutters sold at \$6.90@7.45, canners at \$6@6.85 and bulls at \$7.50@10.75. There was a good traffic in light veal calves at \$14@16 per 100 lbs. with sales down to \$7@12 for common to good heavy calves. Little interest was manifested in the stocker and feeder trade, killers securing most of the desirable offerings by outbidding country buyers.

Sales were made mainly at a range of \$7@10.50. Advices from feeding districts speak of plenty of cattle being prepared for early marketing, with considerable numbers being wintered. The average stockman is not keeping his cattle much more than two months his object being to finish them off quickly and produce a medium grade of beef, this being the kind most favored by the packers and smaller butchers. More feeders would be shipped from here if the supply were larger.

Hogs sold at the wildest prices seen in a long period, speculators figuring prominently and rushing up prices in a highly sensational way, while values declines later about as rapidly as they had moved up previously. Much curtailed receipts during the preceding week made the packers and smaller butchers more eager buyers at first, and prices boomed upward as much as 40@50c per 100 lbs. in a day, only to be followed by startling declines. The best hogs sold up to \$17.40 at the high time, with prime light hogs selling usually about 20c below the best heavy shipping barrows, which topped the market. Eastern shippers were not particularly large purchasers, and outside competition was apt to be lacking. Late sales of hogs were made at \$16@16.75, with pig sales at \$12@15.25. Late receipts were much larger than early supplies of the week. On the closing day of the previous week hogs of prime quality brought \$16.60.

Lambs, yearlings, wethers and ewes sold extremely high last week, with quite moderate offerings and a good general demand for anything choice, but heavy lambs sold at a large discount from prices paid readily for the choice lambs of lighter weight. With live muttons commanding unprecedentedly high February prices, there is a general disposition to retain all good breeders. Sheep sold higher last week, late sales being as follows: Wethers \$12.25@14; ewes \$7@13.50; breeding ewes \$11@14; yearlings at \$12.50@15.50; lambs \$14@17.75; feeding lambs \$15.50@16.75; lambs weighing 95 to 105 pounds \$15.50@17.25.

Horses were marketed so sparingly last week that maintaining prices was easy, the general demand being large enough to take all the offerings readily. Army horses were purchased by the United States and British inspectors, and there was a fair local and eastern shipping demand, good commercial drafters being especially salable. Drafters were quotable at \$185@265, inferior to good farm chunks at \$60@150, expressers at \$75@210 and loggers at \$150@225.

The federal government has taken steps to stop the hoarding of feed stuffs, and dealers must now be licensed. Every manufacturer, importer, dealer, handler, or storer of about fifty of the principal ingredients used extensively in making commercial mixed feeds is included in the license requirements. This covers baled hay, shelled and ear corn, and many other important commodities which are intended for use as feed or as ingredients in mixed feeds. The only exceptions are for millers manufacturing bran, and dealers in coarse grains who have already been placed under food administration license.

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Pr. horses, dozen calves and yearlings, wagons, bugies, sleds, sleighs, mower, rake, grain drill, plow, harrow, harnesses, crops, etc., etc., all included by retiring owner of this productive 176 acre farm in America's greatest dairy county; 10-room house, big barn, silo, hog and poultry houses, \$7200 takes all with \$2200 down. For details see page 18 **STROUT FARM CATALOGUE**, copy mailed free. **E. A. STROUT FARM AGENCY**, Dept. 101, 150 Nassau St., New York, N. Y.

HOMES AND FARMS

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20 A. Fruit and Poultry Farm
on Dixie Highway overlooking Lake Michigan. Free from frost. 400 bearing apple, pear, cherry and plum trees. Raspberries, blackberries, currants, etc. New buildings—bungalow, 3 large hen houses, large brooder house, barn, shop, root house. Pure water. Rolling clay loam soil, very fertile. Grows alfalfa. Unimproved resort market for poultry and fruit at door. Reasonably priced, terms. **J. H. Forell, Harbor Springs, Mich.**



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Dairy Farm For Sale. 115 acres; 25 mi. from Detroit; very good location. Produced \$5000 worth milk per yr. last 5 yrs. from 20 cows. Land gently rolling. New barn \$275, comfortable house, good fences, loam soil and splendid neighborhood. Two good wells and spring, 5 acres fine oak grove. Also 150 A. adjoining similar soil; slightly rolling, fair buildings, 20 A. saw timber. Address **DAIRY FARMER,** Rochester, Mich.

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Illustrated booklet, published by authority of state, telling of resources and opportunities for farmers and investors. Send four cents by post to **Chas. D. Greenfield, Helena, Commissioner Agriculture.**

FARMS WANTED
All sizes; have prospective buyers; give full particulars as to soil, timber, water, buildings, near-by towns, railroads, etc., with lowest prices and terms. **J. A. NAGEL,** 3228 East Jefferson, Detroit, Mich.

Wanted to Trade for a Farm
Country store, and fine residence, (No Stock). Low expenses, \$28,000 yearly business, railroad town. **COOPER & GOVER,** Mt. Pleasant, Mich.

Good 100 A. farm, 30 miles from Detroit, Superior township, Washtenaw Co., 5 miles Ypsilanti, best soil, all cultivated, necessary bldgs. Dr. C. S. Layton, Ypsilanti, Mich.

For Sale. One of the best 100 A. farms in Southern Mich. Close to town and school. Enquire of owner. **J. BEERTON,** Mason, Mich.

Wanted To hear from owner of farm or unimproved land for sale. **O. K. HAWLEY,** Baldwin, Wisconsin

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.
February 13, 1918.
Cattle.

Receipts 1220. Market dull and 50c lower than last week on everything but canners, which held steady.

Best heavy steers \$11@11.25; best handy weight butcher steers \$10@10.50; mixed steers and heifers \$9@9.50; handy light butchers \$8@9; light butchers \$7@8.50; best cows \$8@8.50; butcher cows \$7@7.50; cutters \$6.25@6.50; canners \$5.50@6.25; best heavy bulls \$8.50@9; bologna bulls \$7.75@8; stock bulls \$6.50@7.25; milkers and springers \$5@9.50.

Bishop, B. & H. sold Bresnahan 15 canners av 900 at \$6.25, 4 do av 790 at \$6.25, 4 do av 912 at \$6.25, 4 cows av 817 at \$8; to Parker, W. & Co. 13 butchers av 742 at \$7.50, 1 steer wgh 800 at \$8.50, 3 butchers av 723 at \$6.25, 3 do av 817 at \$7.25, 1 bull wgh 1070 at \$8.50; to Nagle P. Co. 2 do av 1070 at \$8.50, 13 steers av 1052 at \$10, 17 do av 985 at \$9; to Mich. B. Co. 13 butchers av 577 at \$7.50, 1 cow wgh 1200 at \$7.50, 2 do av 1210 at \$7.75, 1 bull wgh 1210 at \$8.50, 1 do wgh 970 at \$7, 1 do wgh 990 at \$7.25, 3 butchers av 770 at \$7.75, 2 do av 920 at \$7, 1 steer wgh 1160 at \$9.50, 2 do av 910 at \$9.50, 4 do av 1015 at \$10.25, 25 butchers av 800 at \$8.25; to Kamman B. Co. 10 steers av 812 at \$8.75, 12 do av 1050 at \$10.35; to Shipiro 8 butchers av 910 at \$8.50; to Newton P. Co. 5 do av 812 at \$7.35; to Rattkowsky 11 do av 1010 at \$9, 3 cows av 610 at \$7.25; to Hammond, S. & Co. 23 steers av 1032 at \$10.50, 7 do av 993 at \$10.35; to Parker, W. & Co. 19 do av 1015 at \$10.10; to Nagle P. Co. 2 bull and steer av 1300 at \$9.50; to Newton P. Co. 6 butchers av 670 at \$7.75, 4 cows av 942 at \$7.25, 1 bull wgh 1720 at \$8.75, 1 steer wgh 780 at \$8, 12 do av 796 at \$9, 6 do av 695 at \$8.

Erwin, S. & J. sold Newton P. Co. 3 steers av 927 at \$9, 15 do av 1108 at \$10.35; to Golden 4 butchers av 837 at \$7.50; to Bresnahan 3 canners av 1007 at \$6.25, 3 do av 1053 at \$6; to Rattkowsky 3 cows av 970 at \$8.10, 2 bulls av 1210 at \$8.85; to Shipiro 2 cows av 1030 at \$8.50, 3 do av 1217 at \$7.40; to Walk 2 steers av 785 at \$9; to Shipiro 1 do wgh 780 at \$8, 1 cow wgh 1140 at \$7.35; to Newton P. Co. 1 canner wgh 980 at \$5.50, 1 cow wgh 1120 at \$6.75; to Bray 9 canners av 795 at \$6.10; to Nagle P. Co. 25 steers av 1017 at \$10.60; to Reed 6 stockers av 480 at \$7.25; to Bray 6 cows av 1045 at \$6.75; to Parker, W. & Co. 11 butchers av 880 at \$8.85, 17 do av 800 at \$8.75, 7 do av 906 at \$8.75, 3 cows and bull av 880 at \$7.50.

McMullen, K. & J. sold Nagle P. Co. 23 butchers av 885 at \$8.85; to Mich. B. Co. 3 cows av 1050 at \$7.75, 1 bull wgh 1550 at \$8.50; to Bray 1 cow wgh 1100 at \$7, 1 do wgh 930 at \$6; to Newton B. Co. 8 steers av 950 at \$10.10, 5 do av 800 at \$8, 2 do av 610 at \$7; to Hammond, S. & Co. 3 canners av 850 at \$6.25, 1 cow wgh 780 at \$7.50, 22 do av 940 at \$6.25, 1 do wgh 970 at \$7; to Thompson 1 bull wgh 1740 at \$8.50, 1 do wgh 1070 at \$8.25, 1 do wgh 1190 at \$8.25.

Veal Calves.

Receipts 688. Market very dull and \$1@1.50 lower than last week; heavy grades almost unsalable. Best \$13.50@14; others \$7@12.

Erwin, S. & J. sold Thompson 3 av 145 at \$15; to Barlage 4 av 140 at \$9, 12 av 130 at \$14; to Sullivan P. Co. 13 av 135 at \$14, 3 av 112 at \$10, 10 av 129 at \$14, 2 av 140 at \$9; to Hammond, S. & Co. 1 wgh 140 at \$14, 2 av 165 at \$8; to Shipiro 4 av 150 at \$14.

McMullen, K. & J. sold Hammond, S. & Co. 2 av 150 at \$10, 18 av 135 at \$14, 2 av 145 at \$12; to Shipiro 13 av 125 at \$12.50.

Sheep and Lambs

Receipts 3189. Market very dull and 50@75c lower than last week. No one seemed to want them at any price and the bulk of the receipts shipped out.

Bishop, B. & H. sold Thompson 90 lambs av 73 at \$17; to Chapman 61 do av 70 at \$17.25, 24 do av 75 at \$17.25; to Mich. B. Co. 14 do av 70 at \$16, 29 do av 60 at \$17, 20 do av 85 at \$16.50, 76 do av 75 at \$16.50, 9 do av 85 at \$16.50; to Parker, W. & Co. 99 do av 75 at \$16.75; to Chapman 159 do av 77 at \$16.25, 110 do av 80 at \$16.25.

Sandel, S. B. & G. sold Chapman 6 yearlings av 130 at \$13; to Mich. B. Co. 45 lambs av 70 at \$16.15, 8 do av 65 at \$15.50; to Chapman 27 do av 70 at \$16.50.

Hogs.

Receipts 3455. Market active on Wednesday; mixed grades \$16@16.25; pigs very dull at \$15@15.25.

This Sign has helped \$10,000,000 worth of "Z" Engines to sell over 150,000 farmers of America who demand the best for their money



LOOK FOR THE DEALER WHO DISPLAYS THIS SIGN

SEE this sign at your local dealer's where this \$10,000,000 "Z" Engine is in action. Get acquainted with the famous "Z" Engine for which 150,000 farmers of America have paid over \$10,000,000 in backing their judgment.

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—These 150,000 practical Farmers saw the advantages of the "Z" Built-in Magneto, everything complete, no batteries to fuss with or buy.
—They figured out the savings using Kerosene, at half the cost of gasoline, getting more than rated power in the "Z."

—They wanted the strength, simplicity and staunch durability of the "Z" Engine with its gun-barrel cylinder bore—its leak-proof compression—quick starting—low first cost—low upkeep—Fairbanks-Morse Quality.
—They bought on demonstrated performance in action—regardless of price to get the biggest dollar-for-dollar value per H. P. ever built into an engine. They acted wisely.

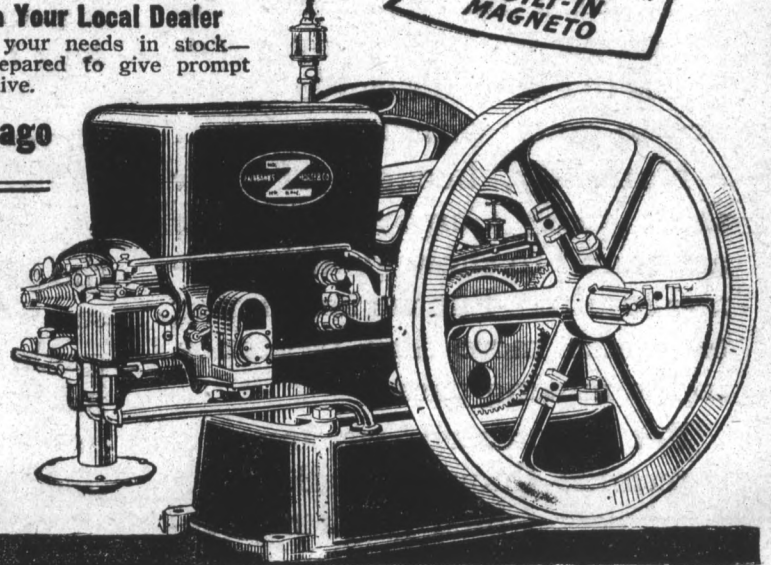
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G. W. HOLTON, R. 11, Kalamazoo, Mich.

P. C. Bred sows, big type, big bone, big litters big fall pigs. In pairs, or trios.
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Big Type P. C. bred for March & April farrow sired by Peter's Jumbo & Grand Superior and 2 or 3 yearling sows at bargain prices. C. E. Garnant, Eaton Rapids, Mich.

Leonards' Big boned Poland China sows and gilts bred for April farrow. Fall pigs. Shipped C. O. D. Call or write. E. R. Leonard, R. 3, St. Louis, Mich.

P. C. Sows For Sale. Bred for April farrow. Prices reasonable.
A. A. WOOD & SON, Saline, Mich.

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Hampshire boars at a bargain, bred gilts now ready to ship.
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Shropshire Ram, Lambs and one three year old flock header for sale.
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Hampshires & Shropshires.
It's a wise man who orders his ram for August delivery now.

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Public Sale of Percherons

Thursday, March 7, I will offer for sale imported seven year old stallion, also two registered colts coming 3 years old, three registered brood mares and two colts. If interested write
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Mares and Stallions priced to sell. Inspection invited.
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Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. **Shorthorn Cattle**, we offer a choice lot of bulls and females. Write us.

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DORR D. BULL, Elmira, Michigan.

For Sale Three Percheron Stallions and three Percheron mares at farmers' prices.
E. J. ALDRICH, Tekonsha, Mich. Bell Phone.

Two Large young Jennets cheap; and some **Shetland Ponies** and several good fox hounds, W. E. LECKY, Holmesville, Ohio



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Now and then we meet a man who says with some enthusiasm, "I am using Gargoyle Mobiloil and it works fine."

To our great disappointment we sometimes find that this friend is using the wrong grade for his engine.

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The man who fails to use the *grade* of Gargoyle Mobiloils specified for his car stands to lose some of

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For example: Gas consumption depends a great deal on the piston-ring seal. The piston-ring seal depends solely on the "body" and character of the oil used.

In a given engine, oil of the very highest *quality* may be of wrong *body* for proper piston-ring seal. The result then is waste of gas and power with each piston stroke.

To assure your securing best results will you please look at the partial Chart at the right and see if you are using the correct grade for your car. If not, in justice to your own engine, will you, please, insist on being supplied with the correct grade.

Write for new 56-page booklet containing complete discussion of your lubrication problems, list of troubles

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- Gargoyle Mobiloil "A"
- Gargoyle Mobiloil "B"
- Gargoyle Mobiloil "E"
- Gargoyle Mobiloil "Arctic"

In the Chart below, the letter opposite the car indicates the grade of Gargoyle Mobiloil that should be used. For example, "A" means Gargoyle Mobiloil "A." "Arc" means Gargoyle Mobiloil "Arctic," etc. The recommendations cover all models of both pleasure and commercial vehicles unless otherwise noted.

This Chart is compiled by the Vacuum Oil Co.'s Board of Engineers and represents our professional advice on Correct Automobile Lubrication.

Model of CARS	1917		1916		1915		1914		1913	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Abbott-Detroit.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	A	Arc
Allan.....	A	A	A	A	A	A	A	A	A	A
Apperson.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Auturn.....	A	A	A	A	A	A	A	A	A	A
Autocar.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Briscoe.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Buick.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Cadillac.....	A	A	A	A	A	A	A	A	A	A
Case.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Chalmers.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Chandler Six.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Chevrolet.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Cole.....	A	A	A	A	A	A	A	A	A	A
Cunningham.....	A	A	A	A	A	A	A	A	A	A
Dart.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Detroit.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Dodge.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Dort.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Empire.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Federal.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Fiat.....	B	B	B	B	B	B	B	B	B	B
Franklin.....	A	A	A	A	A	A	A	A	A	A
Grand.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Hat-Twelve.....	A	A	A	A	A	A	A	A	A	A
Haynes.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Hudson.....	A	A	A	A	A	A	A	A	A	A
Hudson (Super Six).....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Hupmobile.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Jeffery.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Kearns.....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Kelly Springfield.....	A	A	A	A	A	A	A	A	A	A
Kline.....	A	A	A	A	A	A	A	A	A	A
Knight.....	A	A	A	A	A	A	A	A	A	A
Knight (12 cyl).....	A	A	A	A	A	A	A	A	A	A
Leominster.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Lippard Stewart.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Leocomobile.....	E	E	E	E	E	E	E	E	E	E
McPherson.....	A	A	A	A	A	A	A	A	A	A
Marmoon.....	A	A	A	A	A	A	A	A	A	A
Maxwell.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Merced.....	A	A	A	A	A	A	A	A	A	A
Mitchell.....	A	A	A	A	A	A	A	A	A	A
Molins.....	A	A	A	A	A	A	A	A	A	A
Moon.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
National.....	A	A	A	A	A	A	A	A	A	A
Oakland.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Oldsmobile.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Overland.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Packard.....	A	A	A	A	A	A	A	A	A	A
Paige.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Pathfinder.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Peerless.....	A	A	A	A	A	A	A	A	A	A
Pierce Arrow.....	A	A	A	A	A	A	A	A	A	A
Premier.....	A	A	A	A	A	A	A	A	A	A
Regal.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Renault (French).....	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Reo.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Richmond.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Riker.....	E	E	E	E	E	E	E	E	E	E
Saxon.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Simplex.....	A	A	A	A	A	A	A	A	A	A
Stearns-Knight.....	A	A	A	A	A	A	A	A	A	A
Stutz.....	A	A	A	A	A	A	A	A	A	A
Veie.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Westcott.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
White.....	A	A	A	A	A	A	A	A	A	A
Willye-Knight.....	A	B	A	B	A	B	A	B	A	B
Winton.....	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc

Electric Vehicles: For motor bearings and enclosed chains use Gargoyle Mobiloil "A" the year 'round. For open chains and differential, use Gargoyle Mobiloil "C" the year 'round.

Exception: For winter lubrication of pleasure cars use Gargoyle Mobiloil "Arctic" for worm drive and Gargoyle Mobiloil "A" for bevel gear drive.