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Maple Sugar and Syrup Industry

Is this Important Industry in Michigan Worth Saving?---By F. H. Sanford

ALMOST the first product from the soil of the new world came from the maple tree. The earliest settlers found the Indians boiling the sap of the maple by use of hot stones dropped into the sap, which was slowly reduced to a thin, dirty, but sweet syrup. Along with the potato, corn and tobacco, it was one of the essential crops of the early day. And up to comparatively recent times maple syrup and sugar were counted among the necessities of life as well as one of the cash crops of the farm.

In those days time and labor were both cheaper than they are now, while cane sugar (or beet) was not produced at home, but meant a cash outgo—therefore the sugar was made at home where possible. Recently several things have happened to change all this:

First. Specialized farming, with its tree pruning and spraying or other work that must be done at the same time that the maple sap is running, puts a stop to the maple orcharding work.

Second. The price of maple lumber has advanced to such a figure that many owners have decided to market the "capital investment" so to speak. To this cause more than to any other perhaps, may be attributed the cause of the drop in production of maple syrup and sugar.

It is the condition brought about by this second cause that needs correction if the industry is to live. Farmers must build up their maple groves rather than allow them to be cut down.

And third and lastly: Cane and sugar beet sugar may be produced at a fraction per pound of the cost of maple sugar. One acre of sugar beets will produce twelve tons of beets with an average yield of sugar of two hundred and twenty-three pounds, or a total of 2,676 pounds of sugar per acre. An acre of mature or semi-mature maple timber with an average stand of twenty trees per acre (and this is better than the average bush) will produce ten gallons of syrup, or seventy pounds of sugar.

At the retail prices of both of these sugars we may make the following comparisons in yield per acre:

Sugar beet sugar at fifteen cents per pound; maple sugar at fifty cents per pound. The sugar beet acre produces \$401.40; the sugar bush \$35.

No costs need be figured against these figures. It is easily seen that as a sweetener, beet or cane is over ten times as cheap as maple, therefore, the consuming public will never consider maple as valuable for its sweetening power. It then becomes evident at once that one of two things must happen. Either maple will go off the market or else it will be used for some other purpose.

Experience each year is teaching us that maple is growing in demand. Therefore we have only one conclusion



This looks like an up-to-date outfit. Notice the gathering tank with cover and screen cover. The covered storage tank on the north side of the sugar house is another good idea for sap will keep cooler in the shade. One more thing that works well is the keeping of ice in this tank.

left. Maple is in demand as a luxury and is wanted for use as a confection, or as flavor. But under present prevailing prices of maple some of the owners are cutting down their bushes. Others refuse to operate under the very expensive methods necessary to produce the quality demanded. The maple maker is facing the problem of production of a product in strong demand, at a price based on the value of that product as an essential, and not as a luxury. It would look like a simple proposition for adjustment, but it is not. Heretofore the makers of syrup have been in the habit of making and marketing their products according to their own methods, and usually they have followed the time-old custom of accepting the price which the local grocer would offer, never thinking that they should receive a fair return for their labor, materials, fuel and time, plus a fair profit.

The other fellow has always told the maker what the price should be. As a result that price has followed pretty closely the price of cane or beet sugar. With the information of the Michigan Maple Syrup Makers' Association about four years ago, came the closer inquiries into why the sugar bushes were being allowed to lie idle. Facts were not hard to get, as touched upon above, and the fallacy of trying to make maple stand as a sweetener with cane sugar was established.

The association has maintained that maple is not a necessary food, but a luxury when used in its pure form, and as such should pay to the man who makes it, the cost of production plus



Carelessness in this operation of sap gathering may bear bad results later. Gatherers should use all possible care by collecting only pure sap. Rain water causes discoloration of the syrup, so does bark, insects and other dirt.

a fair profit. For four years the association has operated on this basis. It has never yet set the price of maple syrup in the sense of a price-fixing scheme. Its members have asked that they be allowed to agree on selling prices that would allow them to operate, and these arrangements have been worked out with the result that many bushes have been operated that otherwise might have remained idle or been cut down.

An obstacle of no mean importance to the continued operation of sugar bushes has been the rapidly increasing price of maple stumpage. The writer has been called upon to estimate many sugar bushes whose owners had decided that the overhead investment was too large to pay to carry longer. In the cases of mature, even aged sugar bushes there is at present little help for this sad condition, except an appeal to sentiment, and sentiment does not lift mortgages. However, in the bushes of mixed ages of trees a careful system of thinning and selection, removal of old trees will result in continued production of the annual crop and steady improvement of the timber as well.

During the activity of the association there has been a slow but consistent progress toward better things. Quality production has been established among the membership. Uniformity in the use of the association label has been secured. And valuable assistance in marketing has been given. During all this work, however, there has been looming up before the makers the difficult problem of a standard product. Smith and Jones may use the same kind of cans and labels. They may place the same price upon their product, but that does not make their products alike.

Gradually the association has come to the realization that only through closest cooperation of its membership and makers over the state can it hope to place the maple production on a safe basis. The product must be handled, canned and marketed by a single plant instead of being left to the individual maker in every corner of the state. Some publicity was given this scheme when it first came from the association and aroused much comment.

At the annual meeting of the association held at East Lansing on February 4, the first definite action was taken toward this end. A committee of ten prominent men, all members of the association, were appointed to proceed with the working out of the plan for a central canning and marketing plan. This committee cannot hope to take action at once.

It will be impossible for the association to handle the 1920 crop through such a plan, but every hope is laid to the end that the association will be able to handle the 1921 crop through such a plan. (Continued on page 380).

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DETROIT, MARCH 6, 1920

CURRENT COMMENT

The New Railroad Law

CONGRESS has passed legislation providing for the return of the railroads to their owners on March 1, and the President has signed the bill against the protests of organized labor and of certain of the "farmer representation" at Washington.

The legislation enacted by congress was framed under obvious difficulties and put through that body, by common consent, with probably less debate than any bill of like importance ever enacted by that body. Because of the necessity of protecting the public interest by including provisions in the bill which would prevent the early collapse of our transportation facilities on one hand and provide for adequate future control on the other, the task incumbent on congress was a most difficult one, especially in view of the wide divergence of honest as well as interested opinion as to the proper disposition of the matter, hence the general acquiescence in final committee action in framing the law under which the railroads were returned.

It is probable that the law enacted under these conditions will prove far from perfect, although it is likely to prove more workable than would a law passed in any other manner, which would involve compromise of interest as well as of opinion.

When the bill was under consideration the Washington representative of the Farmers' National Council stated that the farmers of the country were opposed to the return of the roads for a period of two years, on the ground that living costs would be increased thereby, and that the farmers' share of this increased cost would be a heavy burden. This is in opposition to the position taken by the American Federation of Farm Bureaus, and other important farm organizations in recent months. The farmer's status in important legislative policies will be improved when the latter organization is so fully developed as to express the undoubted consensus of rural thought on important questions of public policy. A divided influence is valueless in such cases. As to the trend of agricultural sentiment in our own state, it has always consistently opposed subsidies for transportation, and government operation has in effect subsidized the railroads by paying the guaranteed return to owners and making up the deficit by taxation, and rural thought is slow to change in such matters.

The outcome of this legislation will

be watched with interest by all classes. The problems involved are difficult of solution, particularly under present industrial conditions, and conflicting interests are bound to continue their efforts to sway public opinion in the matter. Rural thought and judgment may ultimately play an important part in the maintenance of a stable government policy in the solution of the vexed transportation problem, hence the desirability of the maintenance of an open mind and studious thought on the part of the farmers of the country, to the end that their final judgment may be based on the welfare of the country, rather than the transient benefit of any class.

The Noxious Weed Seed Tax

THE taxes that farmers pay are heavy, and if those laid on by the government were the only ones they had to pay, they might more easily discharge them; but they have many others from which tax commissioners cannot ease or deliver them. Weed seeds exact a heavy tax from many crops. Year by year the farmer suffers this loss, and gets no benefits, no service of any kind in return. In paying taxes to the government at any rate we get some benefit from them. It does something for us, if it does take large pay for it. But the weed seeds sown in our fields take a heavy tax from the crops and render no service whatever in return. They take from the crop and soil and do nothing in the way of recompense. This is not a fanciful way of putting it, but it is strictly in accordance with facts. A man seeds a field with small grain and clover seeds that contain weed seeds of various kinds, and the weeds come in and choke the crops so that they are reduced ten, twenty, thirty or more per cent. We have all seen fields in which weeds so choked the grain that it was less than half a crop, and gained such a strong foothold that the clover seeding had to be plowed under. No government ever dared to take as heavy taxes as that, you may be sure. It would have been overthrown by indignant citizens. And yet farmers continue to buy farm seeds without insisting that they be free from weed seeds.

Seed oats containing wild mustard and wild oats have been sold as choice seed in many parts of the country. Alfalfa and clover, adulterated with dodder have also been widely distributed. The farmers of nearly every state have suffered from the activities of dishonest distributors, until we now have laws which are doing an immense amount of good, but unfortunately the majority of farmers are failing to co-operate with their state authorities by insisting that their seed should be cleaned and tested.

In many localities privately owned elevators are equipped to clean grain and deliver the screenings to the owner, but farmers cannot get the work done without paying for it, and there is no way in which it can be so conveniently and cheaply done as by having fanning mills on their own farms where they can clean and grade their seed on wet and stormy days. They save the price they would otherwise have to pay for the work, and have all the screenings at home for feed. All grain should be cleaned, not only the seed, but the grain that is fed to stock. It prevents the foul seed in it from going back to the ground with the manure, where it will cost more than the price of a fanning mill to get rid of it. A great many men believe it is a good idea to clean and grade their small grain seed and they promise themselves that before they sow any more seed they will take it to the elevator or some other place and have it cleaned and graded but the rush of spring work is on and the seed goes into the

ground without any cleaning and grading of any kind.

Farmers who purchase small grain seed should insist that it be free from foreign seeds of noxious character. This can usually be determined by careful examination. If one has any doubts about the grain being free from weed seed it should be run through a fanning mill before seeding. In the case of small seeds such as alfalfa, clover and the like, foreign seeds can usually be detected by microscopic examination, but unless one has a knowledge of the different species of weed seeds the better way is to send samples of the seed to the state laboratories which are prepared to make reliable examinations. Until these precautions are taken it must be assumed that the farmer is willing to take a chance of using unclean seeds and gamble on the outcome.

Yes, the farmers pay a heavy weed seed tax. These seeds exact it every year and the amount that is lost annually will reach many millions for the whole country—hundreds of thousands for the state—and tens of hundreds of dollars for most farms. It is a heavy tax for the farmers of the country to bear. It is one that should be reduced by every possible means—by the purchase of pure cleaned seed—by the use of a fanning mill, by the proper rotation of crops, by better culture, and by the enactment of laws requiring that only pure cleaned seed be sold. And then we must cooperate with the state authorities in the enforcement of such laws.

The White Paper Situation

THE shortage in white paper is a matter of such common knowledge as to require no explanation to our readers. We did not expect this shortage to in any way affect us or our readers, for the reason that our needs are provided for in a contract with one of the largest producers of white paper in the country. But circumstances over which we had no control and against which we could not provide have compelled us to conserve white paper during recent weeks, by running smaller papers than we would have liked to run. Improvement in production and transportation conditions have now relieved the situation and we hope a continuation of these bettered conditions will enable us to give our readers the service to which they are entitled, although reasonable conservation must be maintained by all publishers to make the available supply cover the demand.

The Michigan Farmer will practice conservation by not using its space to tell how valuable it is to the reader and how valueless other publications which they may take are to them, and give its readers the best reading matter it can get and as much of it as possible.

Interesting Index Figures

IN a statement recently released by the United States Department of Agriculture the total value of farm products of this country in 1919 is given as twenty-four billion, eighty-two million dollars. This total, of course, includes many duplications, as pointed out in the statement, and is of greater interest when considered as an index figure than as an abstract statement. It is pointed out in the statement that if the year 1909 is taken to represent a normal farm value of products as 100, the total for 1912 stood at 109, for 1913 at 115, for 1914 at 116, for 1915, at 126, for 1916 at 157, for 1917 at 226, for 1918 at 263, and for 1919 at 293, or nearly three times the amount of 1910.

Unfortunately the net profit from the operation of our farms has not increased in like degree, yet the increas-

ed income from increased production and increased prices has been a distinct gain for agriculture. Rapidly increasing production costs have to be reckoned with, but lessened cost of distribution is aiding in many lines, and with more efficient organization than ever before, the outlook for American agriculture is a matter for congratulation.

News of the Week

Tuesday, February 24.

THE council of premiers decides to ask a commission to study the Russian situation.—Both France and England are now seeking to take advantage of present political conditions to establish trade with new Russia.—The anti-saloon league is preparing to fight all candidates of the old "wet" order on both state and national tickets.—The United States Senate passes the Cummins-Esch railroad bill as it was adopted by the house last Saturday.—Beet growers meet in Owosso.

Wednesday, February 25.

RAILWAY unions ask President Wilson to defer action on railroad bill until the union chiefs can file a brief in opposition to the measure.—The council of premiers notify the border states of Russia that the latter will not be supported in military activities against the Soviets.—Representative Anderson, of Minnesota, appeals to congress for legislation to curb the influence of the packers.—Imports into the United States for the month of January reached \$474,000,000, a new record, while the exports amount to \$731,000,000.

Thursday, February 26.

PRESIDENT WILSON nominates Bainbridge Colby, corporation lawyer of New York and one time an ardent Progressive, as Secretary of State to succeed Robert Lansing.—Premier Lenine of Russia expresses the determination of the Bolsheviks to fight for the occupation of Constantinople if necessary.—The English House of Commons votes to increase pensions for local civil service men.—Numerous cases of partial blindness are discovered in Germany, resulting from the smoking of certain brands of tobacco.

Friday, February 27.

BY vote of sixty-eight to four, United States Senate readopts the reservation regarding mandates attached to the peace treaty last November.—Soviet Russia pledges the establishment of democratic principles in Russia, the calling of a constituent assembly and agrees to underwrite Russia's foreign debt.—President Wilson declares that the proposed plan of the allies to settle the Adriatic question breaks the compact made by the allies when the United States entered the war.—Organized labor again appeals to President Wilson to veto the railroad bill which provides for returning railroads to private owners on March 1.—The Illinois Live Stock Association dissolves and the members join the Illinois Agricultural Association.

Saturday, February 28.

THE advance of Bolshevik troops in the Murmansk region continues.—Probably no consideration will be given at Washington to the proposal of Soviet Russia for peace.—Detroit school teachers have organized a local union to become affiliated with the National Teachers' Union.—The allied premiers agree to attempt to settle the Adriatic question on a new basis.

Sunday, February 29.

THE government of Australia is anxious that the United States come to an early decision on peace matters in order to share in responsibilities of the League of Nations.—Franklin K. Lane, Secretary of the Interior, retires from the cabinet.—The Italian government imposes a food blockade on Fiume to starve out D'Annunzio's army.—French troops operating in northern Syria attempt to prevent Turkish and Arab bands from uniting.—Japan loans China 5,000,000 yen.

Monday, March 1.

RAILROAD brotherhood executives meet in Washington to consider plans of opposing private operation of railroads as the properties are returned to owners.—The complete evacuation of Batumi by Turkish troops is postponed owing to the unpreparedness of the Georgians immediately to occupy the city.—American soldiers cross the Mexican frontier to capture outlaws who had been operating on this side of the line.

Suiting the Fertilizer to the Soil

Some Practical Phases of the Fertilizer Question Answered by W. W. Weir

THE war did at least one thing in farming—it emphasized the importance of commercial or artificial fertilizers. It is a fact that thousands of farmers are now using fertilizers, when five years ago or less these same farmers could not be interested in any other fertilizer than the manure produced on their farms. Ask some of these farmers why they became interested so quickly in these commercial products; and a common answer is, "To increase the nation's production of food." Very true. But now, since the war is over, what about the fertilizer question?

As for me, I believe in commercial fertilizers; but not in any kind for any soil for any crop. I believe in the right kind of fertilizer to fit particular soil and crop conditions. At one time I must admit, I was very much prejudiced against most of the commercial fertilizers, largely because of the education I received, and because of a lack of experience. I believe in fertilizers now because of what I have seen them do.

Potash for Peat, But—

We cannot get away from the fact that peat soils usually need potash. In my own experience I have seen some well-drained peat soils so deficient in available potassium that without a potash fertilizer the land would be practically sterile. In most cases the application of muriate of potash was like the application of water to an arid soil—it gave to the land productive power.

Potash for peat. But we cannot lay that down as an ironclad rule without any exceptions or modifications. It has been clearly demonstrated that the acid peat soils of central and northern Wisconsin are in need of both potash and phosphate fertilizers. The non-acid and slightly acid marsh soils of southern Wisconsin, on the other hand, usually give the greatest response to potash alone. Occasionally in southern Wisconsin a marsh soil is found that is in need of phosphate more than potash, especially for corn. Other low-land soils require the one fertilizer as much as the other. On these a mixture of the two fertilizers should be used. When in doubt as to the proper kind of mineral fertilizer to use on any particular peat

soil, it seems best to use a mixture consisting of one part of muriate of potash to one part of acid phosphate. The exact amount to use should be determined by, (a) the degree of deficiency of available mineral elements in the soil; (b) the crop to be grown; and (c) the method of application.

The need of the soil can best be determined by field tests. On one particular peat soil, a portion of it required twice as much fertilizer to make it produce the same as the remaining portion of the marsh. A chemical analysis showed that the poorer peat contained less than one-half the amount of potassium than was con-

tained in the better soil. In this case there was a close relation between the amount of potassium in the soil and its producing power.

On some marsh soils I have found that acid phosphate was needed by corn more than potash; but for crops like cabbage and sugar beets, which require larger amounts of potassium, these same soils are more in need of potash fertilizer. Better results were secured when both fertilizers were used; and the best yields were secured when about eight or ten loads of manure were added to the acre in addition to the commercial fertilizer. In

one particular case the yields of cabbage were twelve tons for the potash alone, sixteen tons for potash and phosphate, and eighteen tons per acre when fertilized with manure, potash and acid phosphate.

For corn on peat, a three-hundred to four-hundred pound application to the acre, of a mixture of potash and acid phosphate applied broadcast gives very favorable results. When applied in the hills or drill rows, about one hundred and thirty-five pounds of the mixture to the acre gives exceptionally good returns.

Usually for crops like cabbage and sugar beets, a broadcast application of

cal. When manure is not plentiful, use the available supply on the upland soils.

Frost and Fertilizer.

One of the disadvantages in farming marsh land is the danger of frosts. In the same locality the growing season on the high land is longer than on the lowland. The frost injury to corn, especially, can be much reduced if the crop on the peat is properly fertilized. The fertilizer makes the corn more thrifty, gives it more vitality, and hence it has a greater resistance to low temperatures. Insufficiently fertilized corn, on the other hand, is weak, has low resisting power and hence is easily frosted. A positive demonstration of this is shown in figures two and three.

Those Hungry Sands.

Sandy soils are with us. Many of them are real problems. It is generally recognized that the whole program in sand farming should center on increasing and maintaining the organic matter and the nitrogen content of these soils. Manure and commercial fertilizers are indispensable. Manure alone cannot supply the full needs of sands. Mineral fertilizers are quite necessary in developing properly balanced soils. Clover and other legumes can, in a large measure, take care of the nitrogen and organic matter. The mineral elements must be supplied.

Some sands require phosphate fertilizers as second in importance to nitrogen and organic matter. On most sands both phosphate and potash fertilizers are quite necessary, especially during the years of improvement.

As regards mixed commercial fertilizers, many sand farmers have found it profitable to use from one hundred and twenty-five to two hundred pounds of such a fertilizer to the acre for corn in addition to the use of manure and special fertilizers. This fertilizer is applied in the hill or drill. In case of potatoes, five hundred pounds may be used.

Fertilizers to Reinforce Manure.

Once I was called upon to explain why manure which was produced when the cows were fed wheat bran made the corn grow better than the manure that was produced when no bran was



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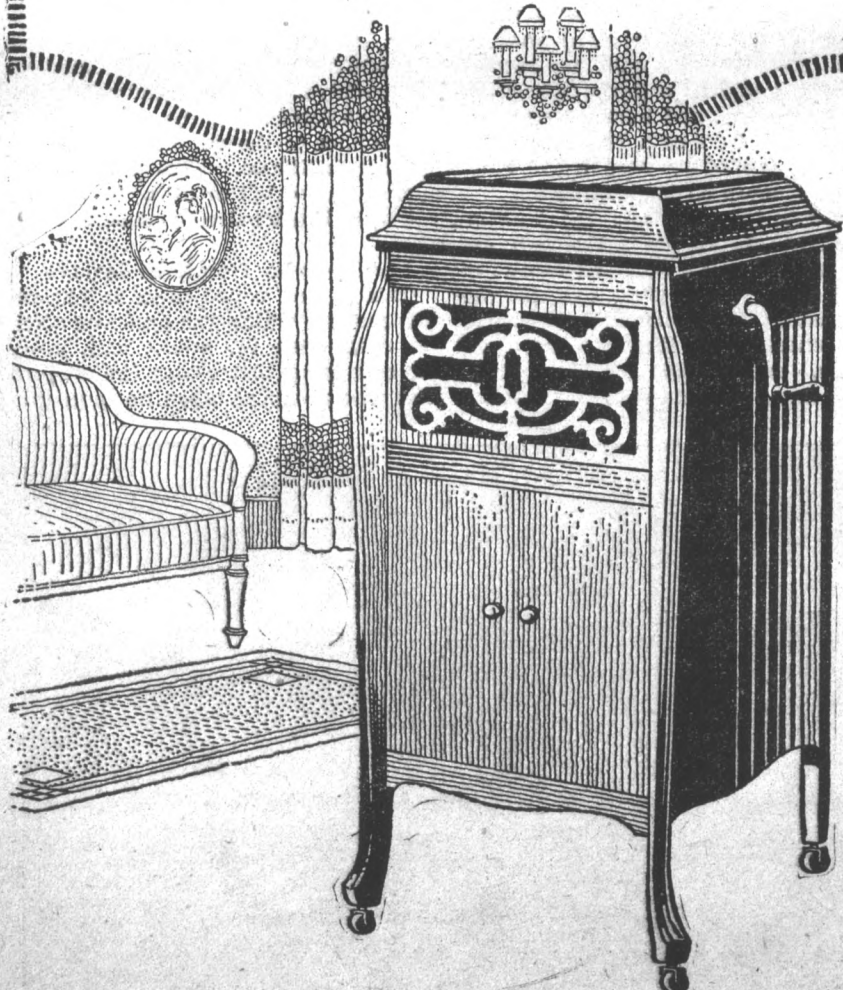
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fed. This occurred on a long-cropped silt loam. The explanation was not difficult. When bran was fed, the manure produced was reinforced with phosphorus, since wheat bran is rich in phosphorus.

At another time I was called upon to examine into a soil fertility problem on a certain farm. Hundreds of tons of manure were produced on this farm annually, but in spite of the fact that much manure was used, the yield of corn averaged low. This soil was not acid, but it had been in the hands of tenant farmers for years. A chemical analysis of this soil showed a total phosphorus content of only three-hundredths of one per cent—less than one-third the phosphorus content of a fertile silt loam. Here was a soil condition that manure alone did not seem to satisfy. Under such conditions we can profit much by studying some of the fertility experiments made by the Ohio Experiment Station. When acid phosphate was mixed with manure at the rate of forty pounds per ton, the net returns per ton of manure were increased more than forty-five per cent. when rock phosphate was mixed with the manure at the same rate as the acid phosphate, the net returns per ton of manure were increased more than thirty-five per cent.

Phosphate for Black Acid Soils.

It is common experience that black acid prairie soils are usually benefited by using soluble phosphate fertilizers, such as acid phosphate or ground steamed bone meal. Some of these acid soils are very well supplied with phosphorus; but because of the acidity, this phosphorus does not become easily available for crops. In one instance a two-hundred-pound application of acid phosphate to oats gave an increase of nearly fifty per cent. On another farm, for every dollar spent for acid phosphate a return of four and one-half bushels of oats were realized. (Oats were worth sixty-five cents). In another test the yield of corn was increased twenty per cent. Under such conditions a farmer cannot afford to farm without phosphates.

Acid Phosphate or Rock Phosphate.

This brings up the comparative values of acid phosphate and rock phosphate, and the question, "which of these two phosphates shall I use?" In general, it can be said that most available data seems to show that acid phosphate can be used the more profitably. On some of the soils of the middle west, which are well supplied with organic matter, certain results indicate that rock phosphate is to be favorably compared with acid phosphate.

The choice of phosphates depend largely upon conditions. When quick results are desired, especially on soils rather deficient in organic matter, the soluble phosphates should be considered—such as acid phosphate and bone meal.

Rock phosphate has given some excellent results on some peat and muck soils of southern Wisconsin.

In soil improvement, it seems wise to use acid phosphate during the first few years. When a fund of available phosphorus has been established in the soil as a result of the use of soluble phosphates, and when the soil becomes better supplied with organic matter, rock phosphate or basic slag may be used—to be mixed with the manure when applied.

Fertilizers in General.

Many wrong ideas still prevail regarding artificial fertilizers, especially in localities where fertilizers are little used or are still unknown. Many have tried commercial fertilizers, and because of the favorable results secured, have continued their use—not as a matter of guesswork, but after carefully considering the needs of the soil and crops. It is not to be expected that the productive power of land can be maintained by the use of commercial fertilizers alone. The use of ma-

nure and green manuring crops, and the growing of grass, clover and other legumes should not be neglected.

A study of crop production in one of the counties in New Jersey has shown that higher and more profitable yields of potatoes may be secured when they are grown on clover sod and fertilized with commercial fertilizers than on dairy farms where the potato land is fertilized with manure.

It is a wise plan to use the right kind of fertilizers in some definite plan for soil improvement and fertility maintenance.

When Fertilizers Fail.

It should not be expected that a fertilizer of any kind will give results under any condition. Furthermore, it should not be expected that crops fertilized with artificial fertilizers are, in every case, going to be increased one hundred and three hundred fold or more. In specific cases, as on marsh soils, the right kind of fertilizers used to supply deficient elements of plant food gives exceptional increases. Ordinarily, however, when special fertilizers increase crop yields from ten to forty per cent their use should be favorably considered. But if abnormal increases are expected, then artificial fertilizers will fail.

Fertilizers should be used intelligently to avoid failures in securing positive results. One year eight hundred pounds of rock phosphate were sent to a certain farmer for trial. It was to be mixed with manure and applied on one acre. Just before harvest he reported wonderful results. His farm was visited, but nobody could tell which corn received the phosphate and which didn't. In the corn planter he had mixed some of the phosphate with the seed corn which he planted on about fifteen acres. He gave his neighbor sufficient to fertilize about as many more acres of corn in a similar manner. He had left over about one-half of the original amount of the rock phosphate sent him. This he stored in the barn for the next season. Rock phosphate is far from being a mysteriously magic fertilizer.

Fertilizers applied and left on top of the ground very seldom give any results during dry weather. In general, best results are usually obtained when artificial fertilizers are mixed into the soil. Furthermore, a fairly good supply of moisture and organic matter in the soil are important factors in causing a soil to respond to fertilization.

Fertilizer attachments on corn planters are now common things. Do you understand them and the fertilizers? Don't make the mistake of thinking that if one hundred and twenty-five pounds of a mixed fertilizer to the acre applied with a fertilizer attachment is a good thing, more would be better. Some have tried increasing the amount recommended and found that their corn never came up. Fertilizer should never be dropped on the kernels in the hill, but rather to one side or under. Some soil should come in between the seed and the fertilizer. Certain tests seem to show that best results are secured when the fertilizer is dropped below the seed.

Field for Study.

The fertilizer question opens a field for interesting and profitable study. The theory and practice of fertilization is sound. Though profits determine in a large measure the use of fertilizers, yet we must not overlook the office of artificial fertilizers in maintaining productivity.

No general rule for fertilizing soils can be laid down, because conditions are so variable, and soils differ widely in character. The farmer should study carefully, through the aid of his county agent and experiment station, the needs of the different soils on his farm or the need of each field, in a similar manner as he studies the characteristics and needs of individual cows in his herd.

Late News From the Capital

THE annual conference of the National Board of Farm Organizations was held at the board's headquarters in Washington, during the three days ending Saturday, February 21. Members of twenty-five or thirty farm organizations were in attendance, some as accredited delegates, and others members of farm organizations who came to Washington upon their own initiative and at their own expense. Everyone present who desired to do so was permitted to vote and to participate in the proceedings. This led the representative of a Kansas organization to question whether it was a conference of accredited delegates from farm organizations or a mass meeting of farmers. The sessions were attended by about one hundred and fifty persons coming from many states.

In his opening remarks, Charles S. Barrett, chairman of the conference, said that knowing the obstacles that have been presented to every effective attempt at consideration of agricultural effort by those who feel themselves threatened by collective purchase and sale of agricultural requirements and farm products, and above all, familiar with the bickerings and petty jealousies of farm leaders themselves, he thought that the success attained by the National Board of Farm Organizations was truly astounding.

"Not long ago," said Mr. Barrett, "a prominent farm leader said that for every hundred dollars expended by the National Board of Farm Organizations in an effort to secure the proper position for agriculture during the period of readjustment and reconstruction, a million dollars could be saved for agriculture. Farmers' Union people in the northwest, through whose efforts in cooperation with the National Board of Farm Organizations wheat growers on the western slope secured millions of dollars through the adjustment of freight rates, will vouch for the truth of this sweeping statement.

"It is the purpose of the National Board to unite the energies of the farm leaders backed by the brawn and sinew of their membership. It is our purpose to get our force together and be ready at the right time and the right place to use our power.

"The organized farmers no longer are to be lulled by soothing phrases from professional politicians or by pronouncements from Wall street. From now on they will pool their efforts in exploring what in the past has been forbidden ground. They will employ trained research workers to investigate conditions affecting agriculture, even though this necessitates first-hand investigation in business centers throughout the world."

As the basis of successful agricul-

tural cooperation, Mr. Barrett favored the early passage of the Capper-Hersman bill, which would make it clearly lawful, without fear of prosecution or persecution, for farm organizations to collectively market their products.

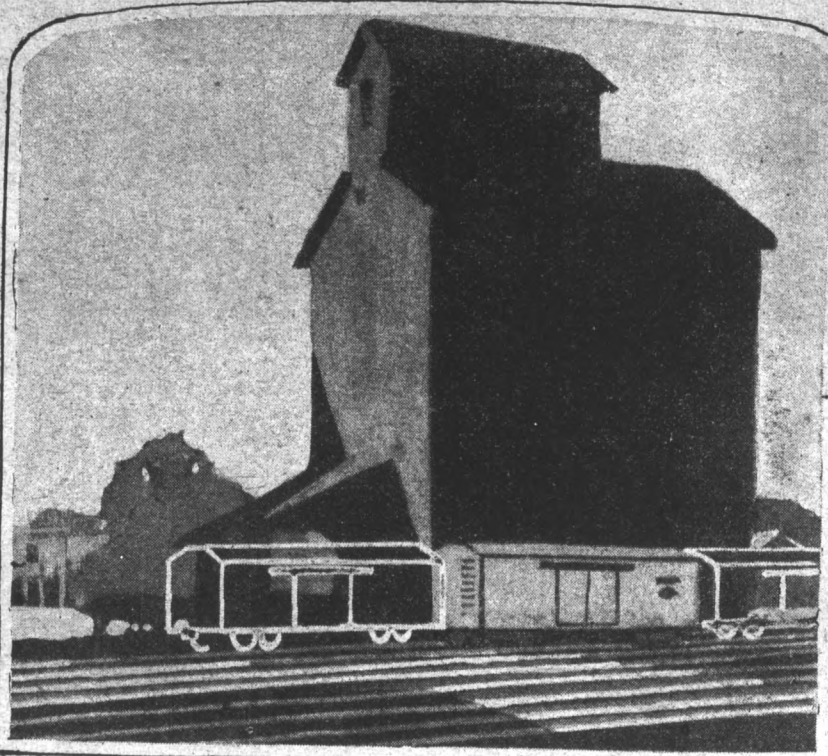
Senator Arthur Capper spoke on the Capper-Hersman bill, saying that he had done his best to convince the committee that it is not class legislation. The prospects are reasonably fair that the bill will be successful, but the committee needs the help of the farmers. He said the organized farmers could do no greater service to agriculture than by frankly expressing their views on the great agricultural questions before congress. The more resolutions from farm organizations and letters that are sent direct from the farmers to congress, the better will be the chances for farm legislation.

Senator Capper said that unquestionably the United States Grain Corporation has not had the interests of the farmers at heart, nevertheless he thought it was not probable that the Gronna bill which proposes to abolish the grain corporation will pass congress. In Kansas, he declared, the farmers were practically unanimously opposed to compulsory military training, and this seemed to be the sentiment of the delegates attending the conference. He said the sentiment in congress was strong for some sort of effective packer regulation legislation, and he was encouraged to believe that the peace treaty would be ratified, with reservations which will protect American institutions.

One of the activities of the Federal Trade Commission, according to Victor Murdock, chairman of the commission, is to find out the cost of production of basic commodities; that there had been a steady concentration of wealth, the units growing larger and larger, and the people should know the truth in regard to the processes by which this wealth accumulates from the handling of basic products. He said it was the work of the commission to take the sand bars and obstructions out of the channels of trade and commerce.

Congressman Sidney Anderson, of Minnesota, speaking on packer legislation, told the conference that the four or five big packers control the live stock markets and set the prices on all the cattle, sheep and hogs in the country. He urged government regulation of the stock yards, stock exchanges and packing plants. Regulation has not hurt the banks and it will not harm the packing industry. He explained as the reason for the heavy slump in pork prices, that the packers had large quantities of pork products in Germany expecting early

(Continued on page 382).



There is one freight car today
where three are needed

How the Railroad Situation Affects Your Farm

Every Spring brings an enormous demand for Solvay Products. Thousands of farmers call for Solvay Pulverized Limestone, Arcadian Sulphate of Ammonia, and "U-S" Potash during the months of March, April and May. Naturally, they want *immediate* deliveries.

While in the past, the railroads have handled their burden of the season's excess shipments more or less adequately, conditions this year are entirely different.

Railroad Congestion This Spring Will Be Serious

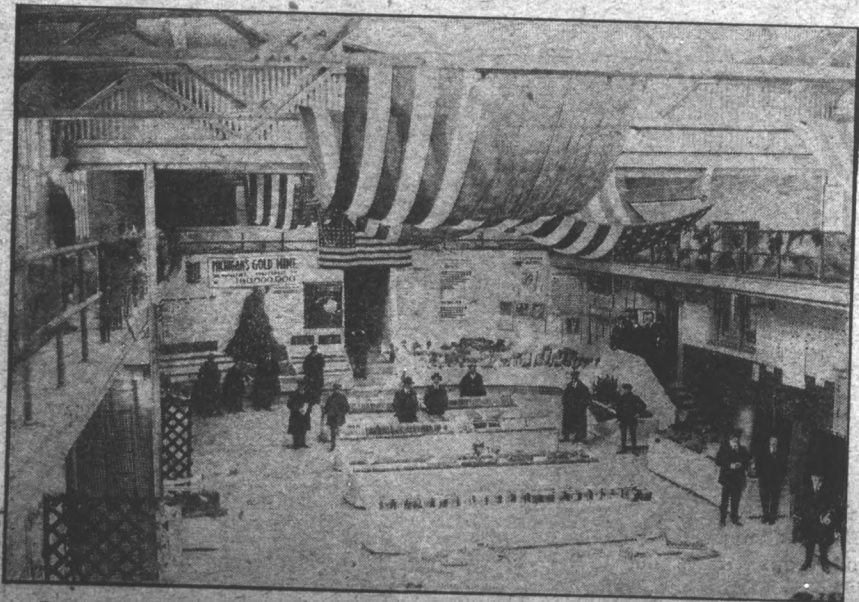
Few new box cars or locomotives have been supplied to the railroads for over two years. At the same time, depreciation of rolling stock has been enormous, and the percentage relegated to the scrap heap abnormally large because there has been no replacement to offset this increased depreciation. There are fewer operatives, fewer box cars, fewer locomotives. Yet in the face of these conditions the country's industries are planning to do more shipping in 1920 than ever before. This situation will have a serious effect on your plans, if you fail to provide against delayed shipments.

Ordering in Advance is Absolutely Essential

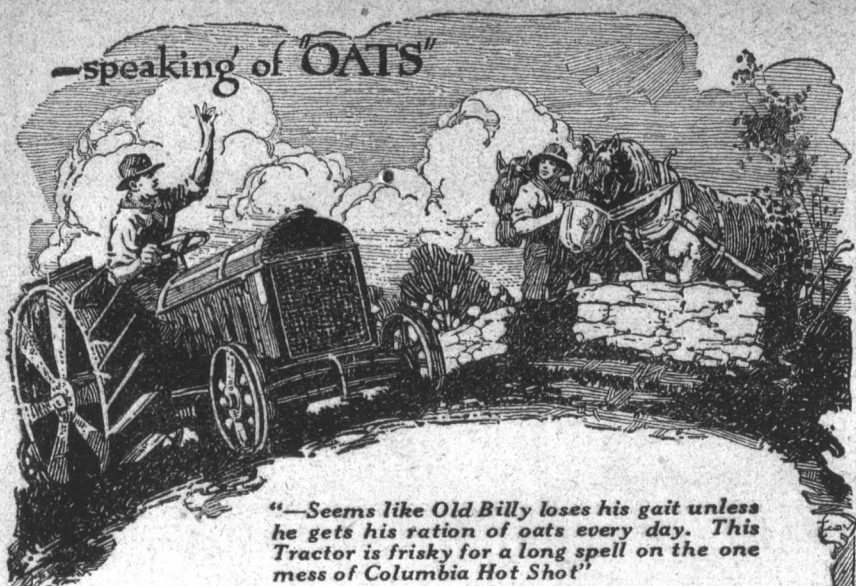
This year, as in the past, we are making effort to deliver our enormous amount of spring shipments into the consumer's hands as promptly as possible. But it will be absolutely impossible to satisfy all our customers on deliveries unless we can obtain their cooperation.

You may be one who will not be satisfied if you neglect this warning. We want you to appreciate the seriousness of the situation—to visualize the effect of delayed shipments upon your crops—so that you will not delay a moment your orders for Solvay Pulverized Limestone, Arcadian Sulphate of Ammonia and "U-S" Potash.

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A solid unit—no joints—no connections to keep tightened—no metal parts to protect from rust or to keep in running order—just the 2 binding posts. . . . At electrical, hardware, auto supply, and general stores—garages—hardware, auto, and electrical departments.



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International Fur Exchange
997 Funsten Building

FUNSTEN

Beet Growers Hold Round Up

Enthusiasm Runs High at the Owosso Meeting

A. MITCHELL PALMER Attorney-General of the United States promised to make an investigation of the cost of manufacturing sugar in this state, providing the figures submitted by representatives of the state and national beet growers' associations can be substantiated. These figures were placed before the Department of Justice by John C. Ketcham, President of the National Beet Growers' Association, and also of the Michigan Beet Growers' Association, and J. R. Howard, president of the American Farm Bureau Federation.

These representatives had just returned from their conference with the Department of Justice in Washington in time to make a report at the round-up meeting of beet growers, held at Owosso, February 24. The producers were pleased with the prospects of an investigation of this character, and also with the present outlook for a strong state association. The growers present were practically of one accord in their decision not to produce beets under the terms of the contracts now being offered by sugar manufacturers.

Manager Ackerman Shows the Need of an Organization.

The progress of the membership campaign was given by Mr. C. E. Ackerman, the enthusiastic manager of the membership campaign committee. He stated that the number of members who have signed up and paid their dues now reaches nearly the eight thousand mark. Saginaw has over three thousand members in good standing, and Tuscola over one thousand more. Seven locals have been organized in Shiawassee county and officers of the present organization in Bay county informs the state society that they will stand firm with the latter organization.

The radical movement which showed itself in the preliminary meeting at Saginaw last December has, according to Mr. Ackerman, faded away and the growers are now looking forward to the performance of a real constructive program. Naturally their first big problem is to make satisfactory arrangements with the manufacturers to enable the production of beets on a profitable basis.

The world is in need of sugar. A conservative estimate of the shortage for 1920 is four million tons. This shortage will be due largely to the lack of production in central and western Europe. Heretofore these countries have been heavy exporters; now they are demanding sugar from other lands, and the conditions will probably not return to a pre-war basis within a decade. There being millions of acres in this country adapted to the growing of sugar beets, Mr. Ackerman feels that some move should be made to encourage the use of this land for producing raw material with which to make sugar.

The completion of the organization which the growers are now pushing will ultimately become a great asset to the manufacturers, said the speaker. It will put the business upon a firm basis and do away with the uncertainties that are now confronting grower, manufacturer and consumer. It is a most short-sighted program for the big operators to keep the farmers in the dark and "bunco" them into making contracts that are not just to both parties. He charged that it seemed the plan of the factory field men to sign up twice the acreage that the factories require and out of this amount they hoped to retain sufficient to run the plants.

He further contended that many of the contracts which the farmers have

signed were secured through misrepresentation. The field men often stated that contracts were identical with those of last year. But later the farmers discover that the labor charge for this year will run from four to perhaps six dollars above last year's prices. Many field men represented to the farmers that they should sign at once for there would be no opportunity later. When contracts are secured under conditions like this the speaker took the position that the minds of the contracting parties have never met and that there is little or no obligation on the part of the growers who signed.

Growers' Claims Are Defended by Ketcham.

The second address of the day was made by John C. Ketcham president of the State Beet Growers' Association, and also president of the National Association. After emphasizing the fact that the present campaign by beet growers was, in effect, an effort to aid not only the farmer but also the manufacturer and the consumer, he continued as follows: "Our fight for a better price for sugar beets under existing price conditions on sugar cannot be construed as an attempt to raise the price to the sugar consumers. Proof of this lies in the fact that the total beet sugar production for the country is but sixteen per cent of our total consumption, and Michigan produces less than sixteen per cent of the nation's total of beet sugar, or approximately two and a half per cent of the total amount consumed."

Our fight for a fairer division of the profits to the growers should claim the interest and support of all consumers. Proof of this lies in the fact that production is curtailed by the unfair terms now imposed by the contracts offered by the factories. Consumers are now paying from fifteen cents up per pound for beet sugar at retail. Of this the farmer gets .057 cents per pound (219.5 pounds of sugar per ton of raw beets, and \$12.50 per ton paid to farmer gives us 219.5 divided by 12.50, or .057 cents). The Federal Trade Commission's report 1917, page 80, shows that two-thirds of the total cost of manufacturing beet sugar is in the cost of the beets. This same proportion is shown by the report of the tariff commission in 1918. The Federal Trade Commission reports from 1909-10 to 1913-14 show the average beet cost to be \$50.49 per ton of sugar and the total factory cost \$75.06, and for 1918 the tariff commission report shows the beet cost to be \$90.86 per ton of sugar and the total factory cost \$132.86. The percentage of beet cost to total cost is sixty-seven in the first report and sixty-eight in the second, so it is more than fair to the factories to say that two-thirds of the cost of beet sugar is in the beets. If two-thirds of the total cost of making a pound of beet sugar is .057 cents, the total cost is .086 cents. Where does the difference between .086 cents and fifteen cents on one pound of sugar go? It is the small sum of .064 cents for one pound, but when the 219,719,500 pounds, the estimated production for Michigan in 1919 are considered, the tidy sum of \$14,062,048 is involved. Ought not every sugar consumer be interested in helping to find out where this money goes?

"Let us now make a study of the units of production. According to the 1919 contracts, the farmer receives \$12.50 per ton for his beets. The average cost of production reported at the Saginaw state convention of beet growers was \$106 per acre, exclusive of pay for managerial ability and de-

(Continued on page 354).



Michigan's Traffic Problems

By Frank E. Coombs, State Traffic Director

PART II

A railroad rate is on the face of it line on an equitable basis, so, there a case of price. That is to say, a particular sum paid for a particular commodity or service as arranged between the buyer and the seller.

In manufacturing it is a well-known law that the greater the number of articles produced, the less will be the proportionate cost of producing each one of them. Railroads are alike to manufacturing industries. They are selling their transportation service. For example: Suppose it costs \$99.00 to carry one passenger alone on a train for a certain distance. Fifty probably be carried for \$100 or an average of \$2.00 each, while five hundred will add so little to the expense that the average cost will be reduced to a matter of cents. This relation between expense and service continues to exist after the point is reached at which the railroad is being worked to its full capacity. That is, when all of the rolling stock is employed, all of the buildings utilized, the track is carrying as many trains as may safely be operated on it.

An increased amount of rolling stock will involve proportionate expense. A double track, however, can be built for far less than the original cost of the one track, because there will be no expense for land nor surveying and very little for cutting, filling and grading. The same is true for building, as they already have the land, the foundation, etc. Distance, of course, has a great bearing on rates. As you know, there are terminal charges at both ends of a route regardless of the distance. That is, whether a shipment goes fifty miles or one hundred and so on.

We will now turn our line of talk to the number of rate cases that we have participated in Michigan and try to show where we have been discriminated against. On traffic going to or coming from points east of Buffalo and Pittsburgh, we take a certain per cent of the Chicago to New York rate. That is, if the rate from Chicago to New York or from New York to Chicago is \$1.00 per one hundred pounds, first-class, Michigan would take a certain percentage of it. For example, our section around Benton Harbor took ninety-six per cent, Detroit seventy-eight per cent, and so on over the state.

A man by the name of MacGraham, working for the Pennsylvania Company, devised a scheme which was the best that had been found up to the present time. The way he arrived at it was by taking a certain distance from Chicago to New York and using a twenty-five-cent rate as the fifth class rate, deducting six cents for terminal charges, leaving nineteen cents, and so rating it down until he got the cost per mile. Then it would be easy enough to see what the percentage would be for various distances to New York.

Finally when we got around to it, the traffic men in Michigan had the Interstate Commerce Commission open up the Michigan case, and in 1917 in Grand Rapids we presented our case before the commission with the result that a general revision of four per cent was had in the Michigan scale, so that now Benton Harbor and St. Joseph and that neck of Michigan are given a ninety-two per cent basis.

Several years ago what is generally known as the five per cent case came up. When the carriers in official territory asked for a five per cent raise, the commission decided or informed the carriers that the rates were out of

fore, the carriers got up what is known as the C. F. A., or Central Freight Association Rate Case. That case was held in Chicago. Here the carriers brought up a revision of the rate scale in Illinois, Indiana, Ohio and Michigan on interstate shipments, while on the stand they introduced, into Michigan, a zone system.

This was about the first time in the history of rate making that a state was ever divided up into zones. They took the line of the Michigan Central from Detroit to Kalamazoo, through Niles down into Three Oaks, and the territory south of that was called Zone A. An imaginary line ran from Bay City to Muskegon, and the territory between it and Zone A was called Zone B, and territory north called Zone C. A different scale of rates was given to and from each one of those territories. For example: If you were going to ship from Grand Rapids two hundred miles down into Indiana, you would pay a much higher rate than from a point in Zone A, say Jackson or Kalamazoo, because you were located in Zone B. Michigan was not organized at that time. Therefore no vigorous stand was taken, and that is the reason we have this zone system in Michigan.

The next case to come up was the Michigan Rate Case. Again the carriers within the states got before our own Michigan Railroad Commission a zone system, but instead of having three zones, they cut up Zone C into another zone, making Zones C & D. At that time we were better organized, and upon going before the Michigan Railroad Commission, they decided that the states should not be cut up into four zones, but that we should have two zones, namely, incorporating the zones A and B, as described before, into one zone called Zone A, and incorporating Zone C & D, as explained, into what is known as Zone B, making two separate scales of rates for state business instead of three, as on interstate.

Now, to show you a discrimination, we will take our own position there. As you know, there is a line of the Michigan Central running from Detroit to Kalamazoo and a branch running from Kalamazoo to South Haven. There is no logic as to why carriers should have dropped from Kalamazoo down to Niles into Three Oaks instead of running right straight across the state, allowing that triangular portion to come into Zone A. There is a great amount of fruit shipped out of this triangle all taking a very high rate. In fact, more tonnage than in any of the southern tier of counties in Zone A.

Then, I would call your attention to the fact that via the Benton Transit Line, or any of the boat lines, articles coming from Chicago or any other point into Benton Harbor would be carried at one rate, while they would be unloaded there, put on the interurban and carried to Dowagiac, twenty-six miles farther, for about a five per cent less rate than there would have been if it had stopped right in Benton Harbor. For example: We will say the first-class rate from Chicago to Benton Harbor would be thirty-seven cents. Benton Transit Line would receive all of this. They would haul the same shipment to Dowagiac, Michigan, for thirty-two cents, out of which rate they only receive sixteen cents. I will show you another case that is in our own towns of Benton Harbor and St.

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3. "Simplicity" is the rule in building all Louden Equipment. The simpler, the stronger and easier to operate. Your unskilled helpers can do a full day's work with Louden Hay Tools—all through the season—no rope trouble, no binding on track, no hitch or failure to register, no delay because of breaks.

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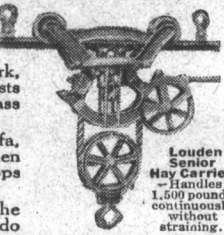
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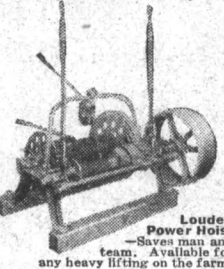
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HOLDEN

Joseph. They are practically together with merely the river separating them. The boundary lines of both cities are right down to the river's edge. A car of boxes, for example, coming from Battle Creek to Benton Harbor over the Michigan Central to St. Joseph and there turned over to the Pere Marquette for delivery in Benton Harbor, would come in at one rate. If we wish to reship that same car back to Battle Creek, or any other point, we would first have to pay a local rate from Benton Harbor to St. Joseph and then the rate from St. Joseph to destination.

Again, if a car of apples, or any other commodity, came from an exclusive Pere Marquette point up north consigned to anyone in Benton Harbor located on the Michigan Central, when the car reached Benton Harbor the railroad rate would be ended. The rate to St. Joe would be assessed and then the rate from St. Joe back to Benton Harbor. And should they wish to return this car, the railroad would assess the high rate to St. Joseph, on the Michigan Central plus the high rate from St. Joseph to point of origin up north, making three rates on the inbound, and only two on outbound. This, as you know, stifles trade and hinders production and also the marketing of same. We recently went before the Detroit District Freight Traffic Committee and had this remedied.

The next case up was the coal case. For a considerable length of time a few of the cities in Michigan had been fighting a coal case, or what is known as I. & S. Docket 774. The commission in its decision based all of the rates from the Ohio, West Virginia, Kentucky, and Pennsylvania fields on Toledo and stated that in Michigan they would pay a certain amount over the Toledo rate for the various distances. That was observed until the Administration took over the roads and issued General Order No. 28, which contained the twenty-five per cent advance. Some of the roads did not observe this advance, and where they were only allowed to raise twenty cents, raised thirty cents, and where they were allowed to raise forty cents raised fifty and fifty-five cents. You can plainly see that you ought to have a great amount of reparation claims coming to you.

At present our Michigan Traffic League is doing their best to get this under way, and we have appointed a coal committee to take this up to get our map exhibit and statistics together then ask the Interstate Commerce Commission to reopen this case and allow us to be heard. We want to not only get these rates reduced, but also to be allowed to file reparation claims for the amount of which we have been overcharged. Again on the stand in this case the carriers said that they could not use the New York Central Line from Jackson to Toledo, stating that the road was in such poor condition that it would have to be practically rebuilt in order to haul this coal tonnage. Under federal control, however, the majority of their business had been routed via Jackson and Toledo over this line so that you can see there is absolutely no foundation to that statement.

The same thing is true of the sand rate from Ohio to Michigan. They are in about as chaotic a condition as the coal rates.

The latest that we have had is the perishable freight case, Docket 10664. This case, as you know, was a general advance of the refrigeration rates on fruit, vegetables, live stock, heater car service, etc. The rates were advanced from 100 per cent to 1800 per cent. In our portion of Michigan the different associations combined in order to protect their interests. The rate, for example, between Benton Harbor and Chicago was \$22.50 for a full tank and \$17.50 for a half tank.

Under the new tariff it would be \$45

for a full tank and they eliminated the half tanks entirely. Without any warning and only one day's notice the Armour car line and the Pere Marquette issued a new tariff carrying these advances in rates. Mind you, now, we were in Chicago attending this perishable freight case and without any notice they put these rates into effect in Michigan before we had any chance to protest against them. Was that treating the public fair? Was it giving us a fair chance to protest to the Interstate Commerce Commission which we are entitled to?

We finally made an appeal to the Interstate Commerce Commission and the Railway Administration for the use of half tanks, and on September 15 they allowed us the use of half tanks on fruit and vegetables from Michigan, but not at the same percentage that we had before. By percentage I mean a certain relationship to the full tank. For example, in certain portions we used to have a half tank rate of sixty-eight per cent of the full tank charge on grapes and fruits, and about eighty-two per cent on apples.

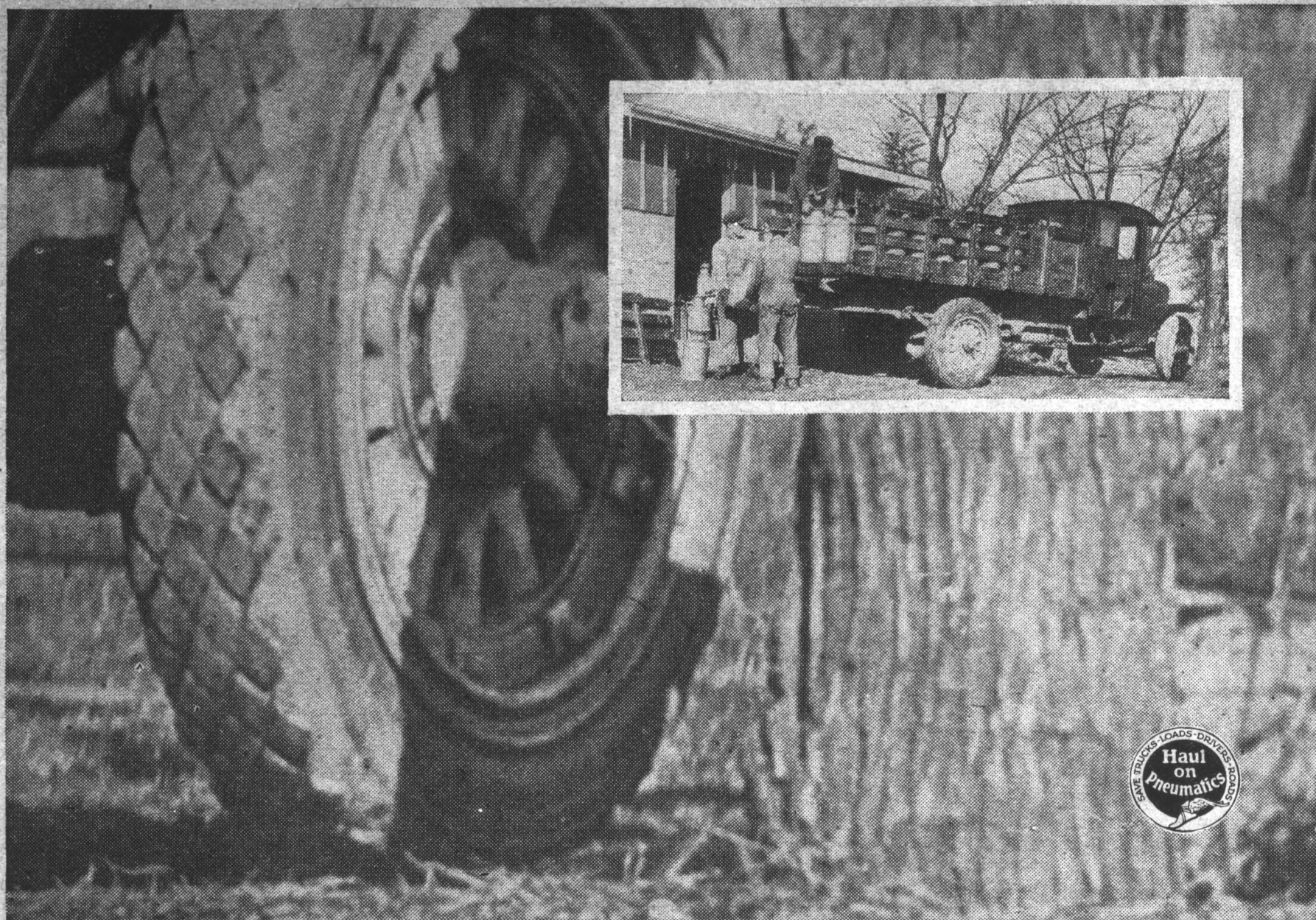
On shipments of peaches or grapes moving from Michigan to Mexico City, Missouri, for example, we would have to pay the first-class rate on peaches and second-class rate on grapes to destination. If that same receiver of this commodity was to ship into Michigan, he would pay the first and second-class rates to the river, and third-class rate from the river to Michigan. The same is true of potatoes shipping from the south. The minimum carload weights on potatoes are less on the north movement than they are on the southern movement, and the rates also less. Minnesota has a minimum weight on potatoes which is far less than that which Michigan has. Grapes may be shipped from California to Michigan cheaper than they can be shipped from Michigan to California.

The organization of the railroads is certainly amazing when you go up against it in a rate case. Each different item is specialized by one man, where we, in turn, must have a slight knowledge of every line. They are on the job at all times and have the money, power and organization back of them where heretofore the Michigan farming communities have been dependent upon one or two organizations assuming the burden. A further example of discrimination is between an interurban line and the Big Four Railway at Eau Claire. For a number of years the Big Four would not interchange cars nor allow cars to be placed for loading or unloading. Recently, however, they came together and now the Big Four will place loaded cars on the interurban line for unloading but not empty cars to be loaded.

RATION WITHOUT GRAIN.

I have noticed at times in The Farmer where readers have reported feeding no grain to dairy cows giving less than ten pounds at a milking. Does Mr. Lillie sanction this? I am milking five two and three-year-old Jerseys, none of them giving over eight pounds. Yet I give them one pound of grain for each three pounds of milk. For roughage I have soy bean hay and corn silage. H. W.

I think it is good business to feed cows a grain ration, although they may give at the time a small flow of milk. Liberal feeding has a cumulative effect. If one owns a well-bred dairy cow, he never need fear of losing money by liberal feeding. And, again, if you feed some grain, the cow does not eat as much of the roughage part of the ration. At the present time roughage is about as valuable and about as scarce as grain. Consequently, nothing is made by depriving the animal of all grain and making her eat more liberally of roughage. Personally, I am of the opinion that it will pay to feed a cow a grain ration the year around, even while she is dry prior to freshening. C. C. L.



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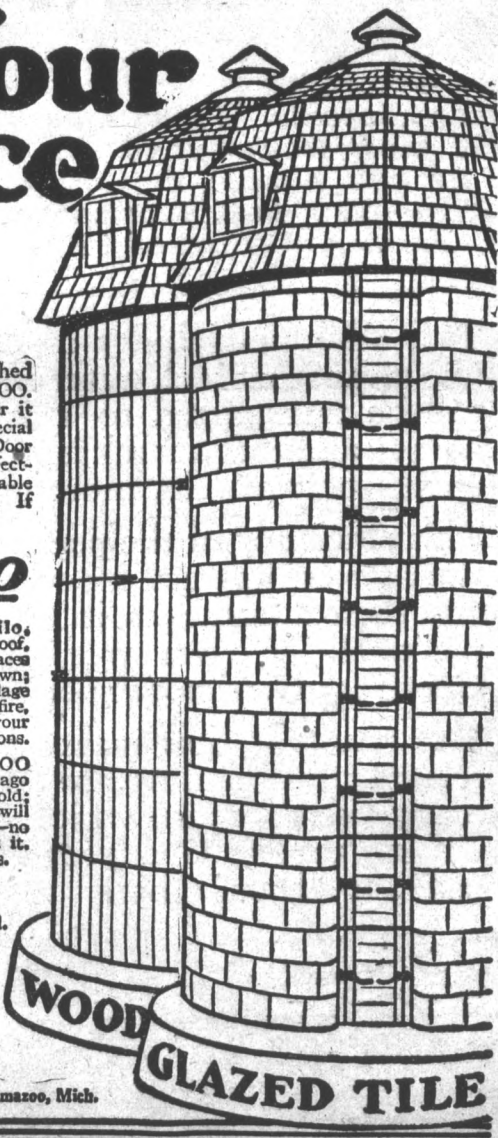
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BET GROWERS HOLD ROUND-UP.

(Continued from page 350).

preciation of soil fertility. The average yield reported by federal and state crop reporters for 1919 is 9.063 tons per acre. Dividing the cost per acre by the average number of tons grown we have \$11.69 as the cost of producing a single ton of beets. Deducting this from \$12.50 we have remaining eighty-one cents as the farmer's profit for growing a ton of beets.

"Now for the factory's side. They produce 219.5 pounds from each ton of beets, for which they receive eleven and a half cents per pound, making the total receipts for sugar from each ton of \$25.24. To this must be added the receipts from one thousand pounds of dried pulp at \$2.50 per hundred pounds, and ninety pounds of syrup at \$1.00 per hundred, or ninety cents, making the gross receipts \$28.64. Now if the beet cost of \$12.50 per ton is two-thirds the cost of producing beet sugar, the cost to the manufacturers is \$18.75, which deducted from the \$28.64 leaves a net profit of \$9.89 to the manufacturers for each ton of beets handled, as compared with eighty-one cents, the net profit of the farmer.

"If studied from the standpoint of an acre of beets, we have the following: The farmer receives \$113.29 for the 9.063 tons grown on an acre when sold at \$12.50 per ton. This amount, less \$106 the cost of production, leaves the farmer a net profit of \$7.29 per acre.

"On the basis of 9.063 tons per acre the manufacturer would receive \$228.73 for the sugar, \$22.75 for the pulp and \$8.19 for the syrup, or a total of \$259.67 from an acre of beets. Again, if two-thirds of the cost of beet sugar is in the cost of the beets, then the cost of manufacturing the sugar from an acre of beets would be \$169.93. To this is added \$4.97 for selling the 1,989 pounds of sugar produced from the acre, making the factory's total cost \$174.90 which, deducted from the \$259.67, leaves the net profit to the factory of \$84.77 per acre.

"Taking Michigan as a whole, the net profit to the farmers, on the basis of 110,448 acres, as estimated by the state and federal crop reporters, would be \$805,012, while that of the factories as calculated above would be \$9,353,093.

"In these figures the sugar extraction of 219.5 pounds per ton of raw beets is the average of three Michigan factories for 1919. This gives 1,989 pounds of sugar per acre as contrasted with 2,193 pounds per acre as reported by the United States Department of Agriculture as the average for the country for 1919. The price of eleven and a half cents is taken as the price of sugar since settlements for beets are being made on a \$12.50 basis and according to the contracts for 1919, this means eleven and a half cent sugar as the average New York price for the months of October, November, December and January.

"Substantiating the fairness of \$169.93 as a charge per acre for total factory cost of beet sugar, attention is again called to the report of the tariff commission referred to in a preceding paragraph. The average cost estimated by this commission for 1918-19 was \$132.86 per ton, the total factory cost of beet sugar, hence \$169.93 cents per acre, or \$170.86 per ton of sugar would allow an increase of twenty-five per cent in beet cost and an increase of thirty-six per cent in other factory costs for the season of 1919-20.

"Summing up the Michigan sugar beet situation, it appears to the beet growers that, having more money in the sugar beet business than the factories, having a labor account several times larger, and undergoing hazards much greater, their share of the gross returns from the sugar industry should

be larger. Expressed in terms of interest to the ultimate consumer at fifteen cents a pound, he will pay \$32,957,925 for Michigan's 1919 sugar crop, and users of dried pulp and refuse syrup will pay \$3,403,400 wholesale for these two important by-products, or a grand total of \$36,361,325. The farmer's share of this is \$12,512,500, or practically one-third of the gross returns from the sugar beet crop."

Mr. Ketcham closed his very convincing argument with the statement that the attorney-general of the United States Department of Justice has promised to investigate the cost of manufacturing sugar in this state as mentioned in the first paragraph of this report.

Alfred Dakan Speaks.

The beet growers were fortunate in having Alfred Dakan, chairman of the Research Committee of the National Beet Growers' organization, with them to show the need for a national organization of growers. This need was proven by the presentation of confidential letters and records secured by federal officials who raided the offices of the Sugar Trust in Wall street, in Denver, and in other cities. These letters purported to show how the community managers of the sugar trust secured "prominent farmers" in every factory community to discourage farmers' organized efforts and keep the officials in Wall street posted. The sugar factory managers seemed to be really community managers who dominate commercial clubs, school boards and local politics, designedly in the interest of those who employed them.

Why the beet growers of the country should organize a national association was answered in part by letters from the above correspondents. For instance: The following was sent out from Wall street by the president of the American Sugar Refining Company to a Denver business man: "It occurred to me today that you might probably be willing to assume a confidential relation between me and my associates in reference to a possible purchase of the stocks of the different sugar beet corporations in your state."

To which the Denver merchant replied: "I state frankly that I have placed myself in your boat and am going to act with you in every way." A little later the Denver correspondent sends this letter to Wall street: "We have thought best to let the farmers cool off a little and are not taking any hand in the matter of their meetings aside from having some of our good farmer friends present to keep us posted and also to counsel the farmers to be sensible and moderate in their demands. If we get in too tight a place, we shall consult with you before we make any change whatever in our contracts."

When the manufacturers found it necessary to advance the price they would make it appear that it was entirely voluntary, as is suggested in the following letter to the home office: "We must take the initiative in this matter and before the farmers make their demands we must publicly announce that we voluntarily raise our price. After having seen Mr. H. in New York, wire me at an early date what course you advise us to pursue, so that I may take advantage of the situation and disarm our farmers by making the first announcement."

The Colorado beet growers' committee is in possession of documentary evidence, according to Mr. Dakin, which shows a very great profit made in one of their factories. Notwithstanding this profit, the officials of the factory, in order to checkmate the farmers' committee, took prominent business men and the publisher of the local paper through the factory, opened the books and showed that the factory was making only about three per cent on its investment. For many years com-

(Continued on page 387).

Embargo Against European Corn Borer

WHEREAS, the European corn borer (*Pyrausta nubilalis*), an insect not known to be present in the state of Michigan, has been found in the states of New York, Massachusetts, New Hampshire and Pennsylvania, and is likely to be in the neighboring states; since it has been shown that this insect is a serious pest and causes great damage to corn, broom-corn, and other farm and garden crops, and because this insect spreads rapidly and will be extremely difficult to eradicate if it is brought into the state of Michigan upon any of the plants upon which it feeds:

Now, therefore, the undersigned, State Inspector of Nurseries and Orchards of the State of Michigan, by virtue of the authority vested in me by the provisions of an act entitled: "An act to prevent the importation from other states and the spread within this state of dangerous insects and dangerously contagious diseases affecting trees, shrubs, vines, plants and fruits," (Compiled Laws, Section 7422), hereby prohibits and declares unlawful, from and after the first day of March, 1920, until otherwise by him proclaimed, the importation into the state of Michigan and the shipment within said state, of any corn or broomcorn, including all parts of the ear or stalk, the shelled grain only excepted; and also celery, beans in the pod, beets with tops, spinach, rhubarb, rye, oat, wheat, of other straw, sedges or rushes, whether used as such or as packing materials; cut flowers or entire plants or chrysanthemum, aster, cosmos, zinnia or hollyhock; also cut flowers, or entire plants of gladiolus, canna, peony and dahlia, except the bulbs thereof without stems, and such other herbaceous plants and shrubs, as have hollow stems, or a large pith likely to shelter the European corn borer, and which have been grown or propagated in the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York and Pennsylvania.

Notice is hereby given to all persons, firms and corporations, and especially to all common carriers, that anyone who brings into the state of Michigan any of the plants enumerated above, which have been grown or propagated in the states named, will be guilty of a misdemeanor, and if any plants are brought into the state of Michigan, contrary to the provisions of this quarantine, such plants will be destroyed. The penalty for such misdemeanor is a fine not exceeding one hundred dollars or imprisonment for not more than ninety days, or both, such fine and imprisonment at the discretion of the court.

Given under my hand and seal, this fourteenth day of February, one thousand nine hundred and twenty.

L. R. TAFT,

State Inspector of Orchards and Nurseries.

GRAIN RATION WITH CORN ENSILAGE AND CORN FODDER FOR ROUGHAGE.

What kind of a balanced ration can I feed my cows, with corn silage morning and night and corn fodder at noon, and how much salt? C. J. G.

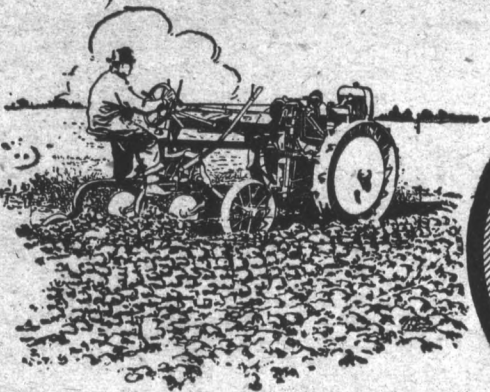
This roughage is very deficient in protein and you will have to add feeds that are rich in protein to get good results. I would recommend that you feed two pounds of oil meal and two pounds of cottonseed meal per day to your cows and then a sufficient amount of ground oats and wheat bran with this to give each cow a pound of grain for every four pounds of milk produced in a day.

A cow should have about two ounces of salt each day. C. C. L.

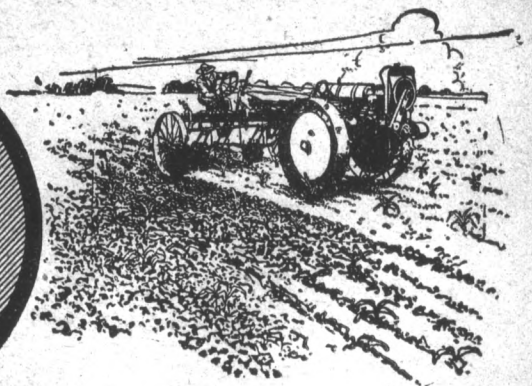
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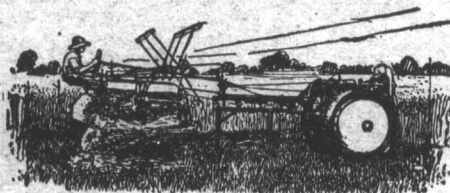
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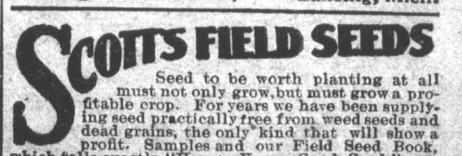
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Feed for the Dairy Cow

By Colon C. Lillie

THE most important factor contributing with many others to successful dairying is the feed given the cow. Many cows do not produce profitably solely because they do not have a proper and a liberal ration. Some farmers seem to be afraid to feed a dairy cow all she wants to eat, fearing that they will never get their money back. This sort of policy cannot win. No cow can do her best unless she is fed a proper and a liberal ration three hundred and sixty-five days in the year. Many feed liberally when the cow freshens and continue a liberal ration until she naturally begins to fall off in milk flow and finally becomes dry in preparation for the next period of lactation. When the cow begins to slacken in her flow of milk, she is scrimped on her ration and while dry she is compelled to practically hustle for herself until she again freshens. This is a mistake and the owner pays for his folly sooner or later. As the period of lactation approaches its close it is proper to change the ration somewhat. The proportion of concentrates to the roughage may be slightly changed, increasing the proportion of bulky food and hence lessening the concentrates. Also the proportion of the food nutrients may be changed, some, lessening the amount of protein and increasing the amount of carbohydrates but at no time should the cow be scrimped in her food. Always she should be liberally fed.

Before science enabled us to master completely that dread disease, milk-fever, there was some excuse for not feeding liberally until after the cow freshened. The careful observer, however, knew full well that his cow could not produce as well when she did freshen. But many times it was a case of saving the cow's life. Now, however, no good reason can be given for not keeping the cow in splendid condition. A cow should become heavily fleshed during the period when she is dry, this accumulating energy and vitality to be called upon during her period of lactation.

What to Feed.

In Michigan, I mean in this climate, there are no better or cheaper roughage foods than clover or alfalfa hay and corn silage. The man who has these two foods in plenty has the foundation for the most profitable ration. Clover is a protein food, corn silage is a carbohydrate. They supplement each other and help balance the ration. Besides these bulky foods it is necessary to have a grain or concentrate. Animals cannot do their best on a ration composed entirely of bulky foods. The grain part of the ration, the concentrates, should be selected so that when combined with the roughage the ration will furnish as near as practicable two and a half pounds of protein, thirteen pounds of carbohydrates and half a pound of ether extract per thousand pounds of live weight, thus forming a balanced ration. For practical purposes it is not necessary to figure this exactly. What is essential is to furnish the required amount of protein and have as little excess of carbohydrates as possible. The ordinary grains produced on the farm, corn, oats, barley, etc., do not contain a sufficient proportion of protein to balance a ration of clover hay and corn silage to produce an economical ration. If fed in sufficient quantities to get the required amount of protein there would be a great waste of carbohydrates. Fortunately, in manufacturing these and other grains into human foods and commercial products, the by-products resulting are much richer in protein than the original grains. For instance, when corn sy-

rup is obtained from corn, the by-product, glutine feed, contains better than twenty per cent protein while the original grain only contained about nine per cent. Wheat bran, too, is richer in protein than the original wheat. Cottonseed meal is much richer in protein than the original cottonseed, etc. Therefore, by knowing the analysis of the different feeds, the farmer can so combine them with his home-grown grains and hay and corn silage so as to form an economical and well-balanced ration. He can thus furnish a ration which, if fed liberally will enable his cows to do their best.

Where dairying is the leading purpose on the farm, that is where a large number of cows are kept in proportion to the number of acres farmed, it is hardly possible to arrange a rotation of crops so sufficient grain could be grown to furnish a sufficient amount to combine with the necessary roughage, even though this grain did contain a large enough proportion of protein to economically combine with his clover hay and corn silage. His first duty is to produce a sufficient supply of roughage because ordinarily this cannot be purchased from the outside. Consequently it becomes necessary for him to purchase concentrates. He should know the kind to buy. Ordinarily he is out to purchase protein and he will scarcely make a mistake if he purchases that feed in which he can get a pound of protein for the least money. If, however, he does not practice intensive dairying, he can arrange his rotation of crops so he can produce on his own farm a sufficient amount of grain and if he will grow the right kind of grain he can produce all his own protein so it will be unnecessary to purchase outside feed at all to compound his own balanced ration. He can accomplish this by growing common field peas. Peas contain more than twenty per cent of digestible protein and by feeding pea meal with clover hay and corn silage, in the right proportion, he can have a splendid balanced ration all of his own growing. This, I think, is advisable if the herd is not too large in proportion to the acres farmed.

By this plan the farmer is quite independent. He does not have to pay out his milk check for feed. He produces the feed on his own farm. And he can buy no better ration from any source. I do not believe he can get one as good anywhere. Money cannot buy it. It is not to be had. If a cow will not make a profit on clover hay and corn silage for roughage, and pea meal for a concentrate, she is not a dairy cow. She better be converted into canned beef or sausage as soon as possible.

It is not practical to grow peas alone. Any practical farmer knows this. On account of their weak, reclining stems, this plant lodges badly and it is almost impossible to harvest it with modern machinery. The old-fashioned way, however, has been overcome by mixing oats with the peas. The oat plants prevent the peas from lodging flat on the ground and this, combined crop then can be harvested with the modern self-binders. In growing a grain crop, it is advisable to mix the peas and oats equal parts by measure, and sow two and a half bushels per acre. The crop should be allowed to ripen and harvested the same as any grain crop. Care should be taken not to allow the crop, however, to get too ripe or the peas will shell badly. Besides, if not allowed to get too ripe, this pea and oat straw, if properly cared for, makes a valuable forage feed. If one did not care to feed it to the richer in protein than the original roughage for young, growing heifers

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or for colts or horses, and also sheep.

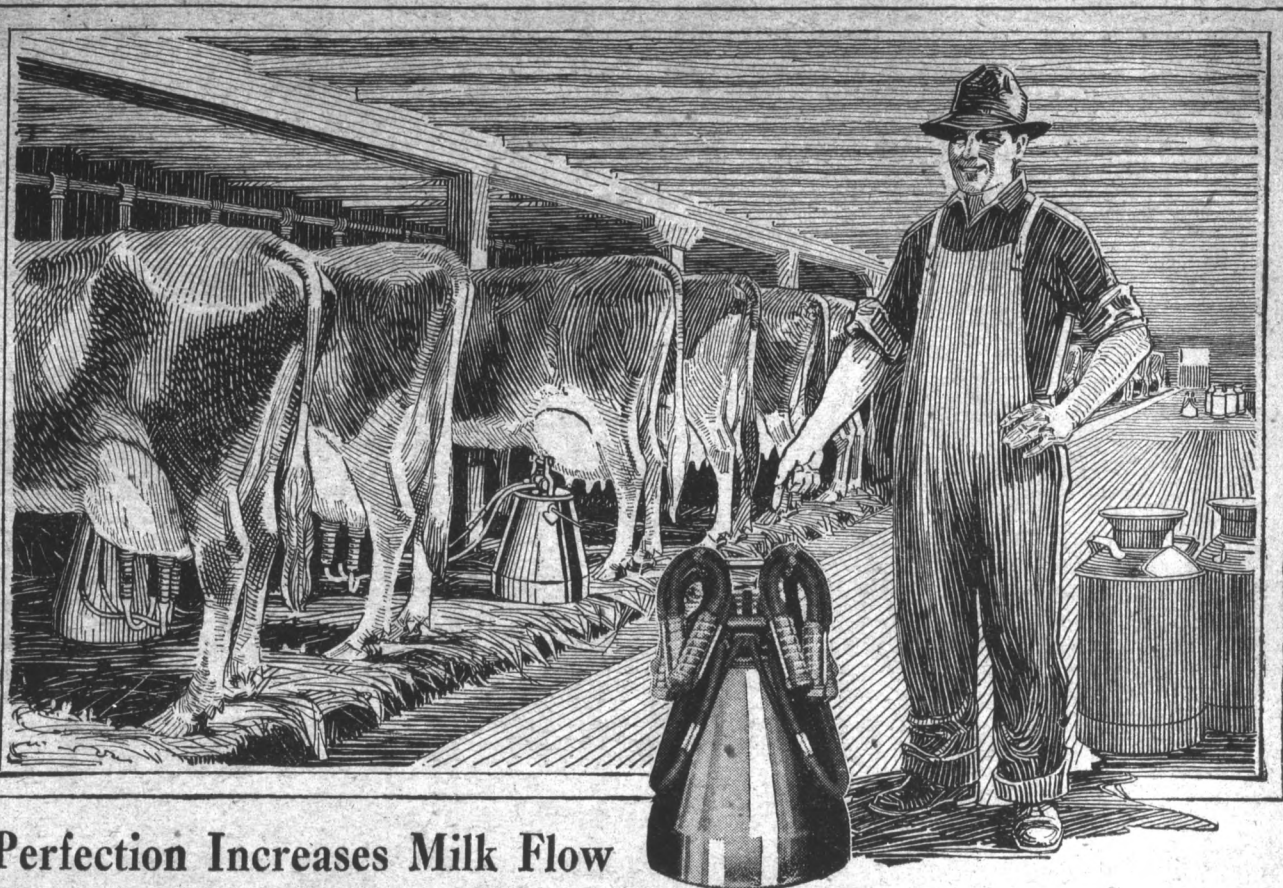
When peas and oats are grown in this proportion they should be ground and fed at the rate of about one-third peas and oats to two-thirds clover hay and corn silage, that is, a ration should be balanced in two ways to give the best results. First: There should be a proper proportion of the protein and carbohydrates, and second, a proper proportion of the concentrates and bulky foods. Where we use corn silage as one of the bulky foods, its moisture contents should be taken into consideration. We might feed, for instance, thirty pounds of corn silage per day and ten pounds of clover hay, but for the most economical ration we want to consider the moisture in the corn silage as superfluous. On the average, there is about sixty per cent excess moisture in corn silage over and above dry foods. In other words, instead of figuring thirty pounds for corn silage we would only figure about twelve, making the two bulk foods of the ration weigh twenty-two pounds then our grain ration would be six or seven pounds. If we have a ration balanced in this way, both with regard to food nutrients and the nature of the food, we can feed a cow all she will eat up clean every day in the year and have no fear of injuring her. Cows are injured by over-feeding because people force them with excessive amounts of grain and when a cow eats an excess amount of grain she cannot eat the right proportion of bulky foods and consequently injury is liable to result. We all know that many good cows have been absolutely ruined by this forcing process to make them produce abnormal yields.

Substitute for Clover Hay.

It very often happens, as we all know, that many times the farmer has not a sufficient amount of clover hay or alfalfa hay to make this ideal ration. A dry season has killed his young clover or a severe winter has destroyed his alfalfa and he must find a satisfactory substitute. Of course, timothy hay can be fed as a substitute but this food lacks protein and the grain ration must be changed to correspond. A man can get along, if it is absolutely necessary, by feeding shredded cornstalks or even straw to furnish bulk, if he will add a sufficient amount of protein in his concentrates to balance the ration. There are other foods, however, that can be grown on a farm that will practically take the place of clover or alfalfa. For instance, a man can grow this crop of oats and peas and instead of allowing them to ripen for grain he can get them at the right stage of development and make the crop into hay. This pea vine hay is even richer in protein than clover hay and makes a fine substitute. Again, we can grow soy beans and harvest this crop for hay, which is richer, even yet, in protein, to feed with the corn silage. There is little danger of being short in corn silage if a man plans in advance for this crop. Many years, the season is not long enough so that we can get sound, mature corn, but I think it is safe to say that we can always depend upon the corn crop growing to sufficient maturity so that it will make splendid silage, hence we can always have this wonderful food, Indian corn, in our dairy ration.

We all know that many times it is advisable and perfectly practical to feed various foods that we grow upon the farm to the dairy cow and convert them into money. In fact, it is necessary that we do this. The thing to remember is that when we change the roughage we must also change the concentrates so as to give the cow the two and a half pounds of digestible protein per thousand pounds of live weight when she is giving a liberal flow of milk.

I maintain, however, that the Mich-



Perfection Increases Milk Flow

WHEN asked what feature in the Perfection Milker he considered most valuable, Mr. Charles M. Yarter, who is a well known dairyman in his State, said recently: "With the use of the Perfection we milk and strip fifty-four cows in eighty minutes, and yet I consider the greatest profit derived from using the Perfection is not so much in the time it saves as in the increased milk flow. We surely get much more milk with the machine than we could if we depended on hired help to do all the milking by hand, and we are getting a much better quality of milk too."

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"I have gotten more benefit for each dollar put into my Perfection than from any other machine on my farm. We use

the machine twice daily, Summer and Winter, while we only use any of our other machines a few weeks during the year. The milker helps to make all our other machinery more valuable by giving us longer days to use it.

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Mr. Yarter is only one of thousands of satisfied Perfection owners. What the Perfection has done on his farm, it will do on yours. Write us and we'll gladly send you names and addresses of owners to whom you can write yourself. We'll also send a free copy of "What a Dairyman Wants to Know" the great book which answers every question about milking machines. Write today.

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2126 E. Hennepin Avenue

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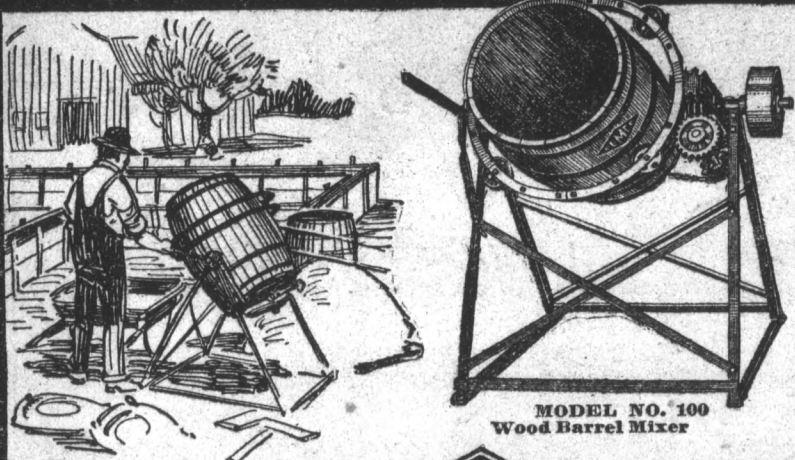
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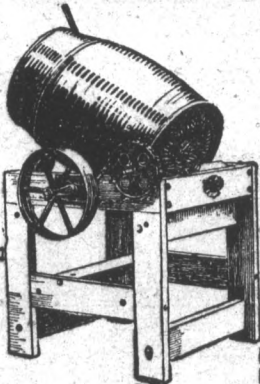
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igan dairyman will make the most profit on planning upon having a sufficient amount of clover hay and corn silage to feed his cows all they will eat up clean of these two foods every day in the year. Some will argue that the cheaper dairy food is pasture and, of course, the question of labor enters into this proposition and must be carefully considered by every dairyman, but a man can maintain so many more cows on a farm if he will provide these two bulky foods so that he can feed them the entire year, that I do not believe there is any question as to the ultimate profit. As I have stated, in intensive dairying one cannot grow the grain if he grows a sufficient amount of roughage. In this case, he can purchase grain but if he follows mixed husbandry and has the right proportion of cows to the acre he can have the best and the most economical ration by pinning his faith to these three foods—clover or alfalfa hay, and corn silage for roughage, and oats and peas for grain.

NECESSITY OF GRAIN WITH CORN SILAGE.

Why should grain be fed with silage that contains 100 baskets to the acre? I hear many say they ought to feed grass with the silage, and I can't see where there would be any profit in putting seventeen or eighteen acres of corn, 100 bushels to the acre, in a silo to feed about thirty-five head of cattle through and then add grain. What has been your experience?

Wayne Co.

C. B.

No one who has studied the feeding proposition would ever feed the corn plant alone because it is not a balanced food for animals. Scientific experiment has shown, time and again, that a horse doing work, or a cow giving milk cannot prosper on the corn plant alone. There isn't a sufficient amount of protein. Corn is rich in carbohydrates and we must, to get an economical ration, introduce some other food in the ration that contains a large percentage of protein. The animal might live on the corn plant alone but they would have to eat so much of it in order to get a sufficient amount of protein that there would be a great waste of food in the form of carbohydrates. Again, the conditions under which animals are kept would have a bearing upon this question. Animals that live out doors entirely in cold weather require mere carbohydrates because this acts as fuel to keep up the temperature of the body. It is actually burned (oxidized) in the body in order to produce heat.

Our modern way of keeping animals in warm stables does away with the necessity of so much heat-producing food, consequently it would be the height of folly from the scientific standpoint to feed corn alone.

Clover hay contains vastly more protein in proportion than does corn. Consequently we ought not to feed so much corn and feed some clover hay to prevent waste. Likewise, the grain to be fed as a supplement to corn silage ought not to be corn meal, but wheat bran or oil or cottonseed meal, etc., foodstuffs that are rich in protein. Again, an animal won't do well for a considerable length of time on an entirely succulent food, like silage. There should be some dry roughage to keep the digestive apparatus in good condition. Again, you cannot feed all bulky foods and get the best results. About two-thirds of a ration should be bulk foods and one-third of the ration concentrates. Therefore, you must feed grain with silage and that grain must be richer in protein than the silage.

C. C. L.

A good nozzle is one of the most important parts of the spray outfit.

The common cabbage worm is a native of the Old World and was first introduced into America about 1860 at Quebec. In twenty-five years it had spread until it reached all of this country east of the Rocky Mountains.



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No dairy barn should be without its package of Bag Balm. It has no equal for the prompt and successful treatment of Caked Bag, Cow Pox, Bunches or any of the congested conditions of the udder and teats that frequently occur at the calving period. An occasional application will prevent soreness and make the cow an easy milker.

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Quit the draining expense and cure your suffering, lame and idle horse. Don't hold back—we take all risk to permanently cure mule, work horse or \$10,000 trotter of Ringbone, Thoropia—SPAVIN or Shoulder, Kneec, Ankle, Hoof or Tendon Disease.

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Druggists Everywhere sell Save-The-Horse with GUARANTEE, or we send by Parcel Post or Express Paid.

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HEAVES, COUGHS, COLIC, DISTEMPERS, INDIGESTION Cures Heaves by correcting the cause—Indigestion. Prevents Colic, Staggers, etc. Best Conditioner and Worm Expeller. Three large cans guaranteed to cure Heaves or money refunded. \$3.50 and \$1.15 per can. (This includes War Tax.) At dealers or prepaid by parcel post. Booklet free.

THE NEWTON REMEDY COMPANY, Toledo, Ohio

SHEEP DIPPING IMPORTANT.

ONE of the most important factors in the successful management of sheep is a clean skin and fleece, kept in a healthy condition and free from parasites. Dipping is held as the proper method of keeping the flock in the desired condition.

The external parasites that often cause serious losses are the tick, the louse, and the scab mite. The flock should be dipped immediately upon discovery of infestation with scab and the dipping repeated in ten days. Every flock should be dipped twice each year to keep the skin and fleece in a healthy condition as well as to destroy ticks and lice. Any one of the standard dips on the market will prove satisfactory. At the college we have found the coal tar dips especially satisfactory. The water used in mixing the dip should be warmed to a temperature of ninety degrees Fahrenheit and each sheep held in the solution for two minutes, the head being immersed just before the sheep leaves the vat.

M. A. C. PROF. G. A. BROWN.

ACTIVITIES OF MICHIGAN DUROC BREEDERS.

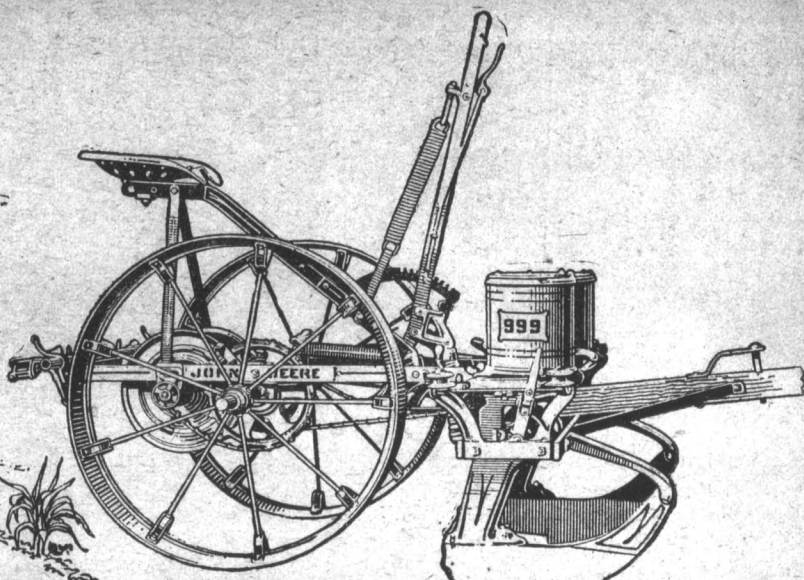
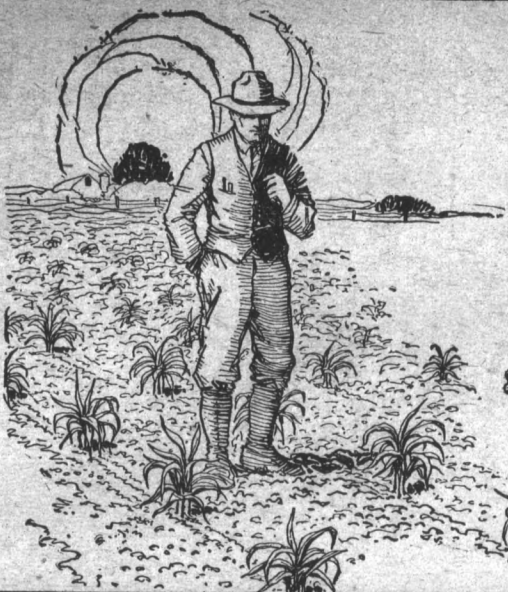
DUROCS have been bred in Michigan for more than twenty-five years. Two of the men who were among the first exponents of this breed in the state are still in the business, namely, J. C. Barney, of Coldwater, and H. W. Mumford, of Ann Arbor. Both have been men of national importance in the breed. The former was in his height a number of years ago at which time he was a consistent winner at the best shows in the country. The latter breeder did not come into the national lime-light as a Duroc man until more recent years.

In spite of the leadership of a number of good breeders, Durocs have not been as popular in Michigan as the merits of the breed warrant, or as popular as the breed has been in a number of other middle western states. Of course, Michigan has not the natural resources to make it a hog state as some of the strictly corn belt states have, but this alone should not keep Michigan from being in the foreground of Duroc-Jersey endeavor. The realization that something was wrong and that one of the things lacking was team-work among the different breeders has caused the Michigan Duroc Jersey Breeders' Association to grow in the last year from a small group of half a dozen men to a strong organization of some sixty members, paying a \$5.00 membership fee and unanimously granting the executive committee power to levy a similar fee for funds to promote the Duroc interests in the state of Michigan.

Some of the plans adopted to promote the breed are: A state-wide advertising campaign; the publishing of a breeders' directory; the fostering of pig clubs; the giving at each county fair a Duroc gilt to the new breeder who has started in the last calendar year and who shows the best litter of four pigs raised by a sow purchased from a member of the association; and the holding of an annual sale.

The first sale was held at East Lansing on February 6, and was a decided success. There were no high prices paid, but there was a buyer for every hog and there was general satisfaction on the part of all purchasers and consigners. Every hog was sold in Michigan and nearly every one went to a new breeder. The bred sows made an average of \$102.60.

The sale committee consisted of Newton Barnhart, Eugene Inwood and Henry Phillips. Colonel Avery Adams cried the sale.



Where Good Farm Management Counts

HAVING exactly the right number of stalks in every hill means many dollars annually to every corn grower. The extra bushels that cut the cost of production and bring greater profits come from fields planted accurately to suit the soil's producing ability. Get the proper stand in your fields this year with the accurate planter—

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999 CORN PLANTERSend Today for
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of "More and Better Corn"—the popular booklet—describing practical methods for quality and quantity corn production. Every corn grower needs a copy. You can get your copy by addressing John Deere, Moline, Illinois. Ask for Booklet P-526

Its "Counting Out" Method of planting is the result of more than 50 years of specialization by the John Deere planter factory to devise the most accurate drop known. It assures for every hill the exact number of kernels that you wish to plant.

The Variable Drop Device—a great feature—enables you instantly to change the drop to meet the various conditions of soil in the same field. By merely shifting a foot lever, without stopping the team or leaving the seat, you can vary the drop to two, three or four

kernels per hill—always exactly the number desired.

Change from hilling to drilling or vice-versa made instantly by means of foot lever. Nine drilling distances can be secured without changing plate.

Plants great variety of seed without changing cut-off.

Automatic Marker requires no attention after starting in the field.

Fertilizer and Pea Attachments can be furnished—either one or both can be used when planting corn.

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from these wonderful Strawberry plants alone—the 'sure to grow' kind, and free from disease. Our plants are unusually large and sturdy this year. We have spared nothing to produce plants excelled by none. Whether you grow berries for home garden or for market, you must be sure to send for our

BIG FREE ILLUSTRATED BERRY BOOK and get posted about all the varieties of Small Fruit Plants we are offering for 1920. A valuable book which tells how to make big profits growing berries successfully and scientifically. Send for your FREE COPY TODAY. A postal will do.

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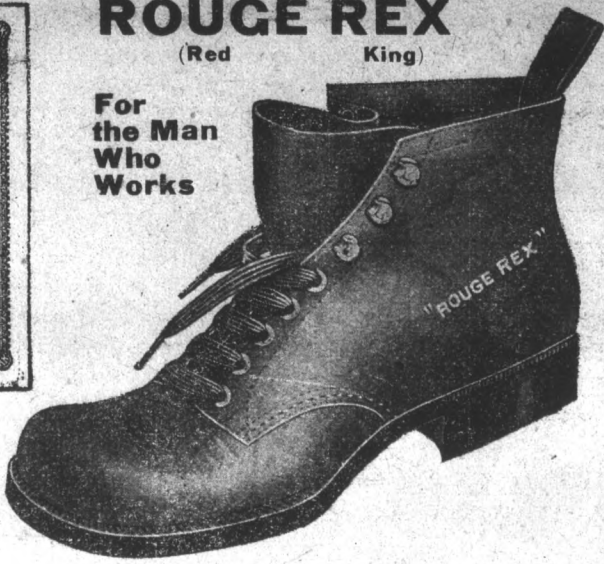
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Works



Put On a Pair of These Perfectly Made Shoes and Keep Going "On High."

There's no speed limit for wearers of Hirth-Krause "Rouge Rex" shoes. This wonderful shoe "for the man who works" is the result of many years experience in making the nation's best service shoes.

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This shoe never feels stiff or hard. Made over the famous Hirth-Krause Anatomical last it conforms to the natural foot and arch lines.

Combining a brute's strength and an aristocrat's appearance, this shoe, like the man who works, makes good always. Farm, field or factory, for the hard grind, day in and day out, they give wear, miles of wear, and comfort.

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Shoes

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Having decided to quit farming, I will sell at public auction on Willis Hardy's farm, 2 miles north of Oakville, 1 mile east and 1 1/2 miles south of Whittaker, 1 mile west end 3 1/2 miles south of Willis at ten o'clock sharp the following: 17 head of Registered Holstein Cattle, including the three year old bull, Huron Hill Pontiac Johanna King No. 192683. A. R. O. record of dam at 4 years. 29 days—25.32 lbs. butter in 7 days and sixteen cows and heifers.

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COMBINATION SALE on April 7, 1920 At 1 o'clock

at my farm located 11 miles N. W. Jackson on Jackson Springport Road. Closing out my entire herd of grade Holsteins, 12 head Registered Holsteins, Registered Angus, grade Angus, farm horses and Poland China Hogs.

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SEED BARLEY

Wisconsin Pedigree cleaned. \$2.25 bu. bags a cost or mail them. Also mammoth Cloverseed \$35.00 bu. Samples. F.A. FOLLETT, Fremont, Ind.

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to last a lifetime. This book tells you how. Shows more than a score of illustrations, giving exact details of construction. How to make a silo air-tight; avoid frozen or spoiled ensilage, construction that overcomes pressure of contents, avoiding strain and springing of joints, easily operated doors, that close flush, how to save repair expense—and all about how to build a perfect silo.

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These seven cobs kept for one year on the product of one acre of Eureka Corn. Yield was 70 tons 800 lbs. of best quality ensilage. Every bag of Ross' Eureka Corn bears our trademark—man holding stalk of corn. We have complete line of supplies for farm, garden, dairy, orchard or poultry. Seeds our specialty. Send for 120-page free catalog. Supply limited; write today.

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37 Front Street Worcester, Mass.



TRUCKING ON LIGHT SOIL.

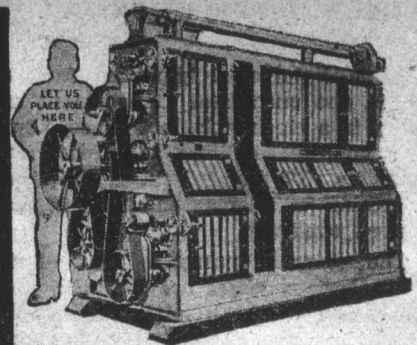
I have ten acres of land about one-half sand loam, balance light sand, which is pretty badly run down. Have a good market for berries and truck and would like to know how to treat this soil for best results for the following crops, which I have the best market for: Asparagus, rhubarb, onions, (bunch and mature), potatoes, cabbage, tomatoes, cucumbers, sweet corn, strawberries, blackberries, red raspberries and cherries. Which of these will do best on this kind of soil? Mecosta Co. C. K.

Truck gardening on light sand and sandy loam soil which has been badly run will not be profitable until the fertility of the land has been built up by some means. There is no one best way of accomplishing such a change, and your method will be governed by local conditions and circumstances. No doubt this light, mis-used soil is sour, possibly very sour. If the litmus paper test shows this to be true, apply from two to four tons per acre of finely ground limestone and work it into the surface soil. As your own county agricultural agent has shown in a recent publication, this work should be done when the soil and the lime are dry so the mixing will be thorough. Do not plow the lime under but apply after plowing.

The next reasonable assumption is that your soil has become practically devoid of humus and the essential elements of plant food. If this is true, these conditions will indicate themselves to you by the tendency of the soil to dry out quickly, by the dwarfed growth of crops, and by the general barrenness of the ground with respect to natural grasses and other vegetation. The remedy for this condition consists of heavy applications of stable manure reinforced with acid phosphate, or the use of green manures and complete commercial fertilizers.

I feel safe in assuming that stable manure will not be available in large quantities, therefore you will have to depend on green manures. In such a case the best green manure crops for your soil at first will be soy beans, cow peas, and rye and hairy vetch. Soy beans and cow peas are sown in the spring after frost danger is past. They should be inoculated with the proper bacteria. This crop ought to be plowed under early enough to fit the ground for a seeding of hairy vetch and rye. The vetch, too, should be inoculated unless it has been grown on this land before. The vetch and rye can probably be plowed down in time the following season so the land may be fitted for some cash crop like potatoes, cucumbers, or beans. For most of the crops mentioned in your question the soil should be rich, full of humus and plant food. Truck gardeners use large quantities of manure and commercial fertilizers.

Cultural directions for the vegetables named are given in Farmers' Bulletin No. 937, which may be obtained free from the United States Department of Agriculture, Washington. Berries and cherries may be set out as soon as the soil is in condition to support them, probably after the second green manure crop has been plowed under. They must be kept growing by the judicious use of more fertilizer later. All of the crops you mention are adapted to a fertile sandy soil. The degree of productivity, however, in your case, will depend entirely on your success in putting this soil in a productive condition. H. L. B.



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Married Man

Would like to work as a farm hand by the year where a tenant house is available. in Southern Michigan 361 Chalmers Ave. Detroit, Mich.

Strawberry Plants! Everbearing. \$2.20 per 100. Dunlaps \$1.10 per 100. Post Paid. GEO. B. OWENS, Leslie, Mich.

GROWING EARLY CABBAGE.

I want to grow some cabbage. I have a piece of clam loam soil that I have a piece of clay loam soil that I have two seasons. Could I expect a crop of cabbage on this, and what amount of fertilizer should I use?

Ingham Co.

J. S.

Early cabbage will do best on warm sandy, or sandy loam soil, preferably with a southern or southeastern exposure. Late cabbage may be grown on a wider range of soils. One of the needs of a good cabbage soil is that it be capable of retaining a large amount of moisture. It is also important to have a good supply of plant food for the largest, most satisfactory yield.

If the land to which you refer has been kept in good state of cultivation and is fairly rich you should be able to get a satisfactory crop of late cabbage. I doubt if early cabbage would be satisfactory under your conditions.

If you decide to use this field for cabbage would advise you to apply manure liberally to the field as soon as possible. It should be applied at the rate of fifteen or twenty tons to the acre on a soil which has been used for general farm crops. In addition to the manure you will probably find it preferable to use commercial fertilizer in considerable quantity. A fertilizer containing two to four per cent nitrogen, eight to twelve per cent phosphoric acid, and four or five per cent of potash, used at the rate of one thousand to fifteen hundred pounds to the acre, should enable you to secure a fair yield. If you do not have manure in sufficient quantity, be sure to use commercial fertilizer liberally. Cabbage will also be benefited by heavy applications of lime. This is especially true if there is any tendency to develop club root.

The application of the fertilizer should be made in a manner that will incorporate the fertilizer in the moist soil. A grain drill with a fertilizer attachment is a satisfactory tool with which to apply the fertilizer. This should be done before the plants are to be set. After the plants have started to grow it may be advisable to use a small handful of the same kind of fertilizer around the plant. However, if this is done it should be hoed or cultivated into the soil so that it will not remain on the surface of the ground.

Men who make a practice of growing cabbage build up the soil for this crop at least two or three years before the cabbage is to be set. For this reason you can hardly expect to get as good results from the land which has been in sod and from which hay has been cut for two seasons, as you would from soil which has been in garden crops and heavily manured for a series of years. If the soil is quite deficient in humus and plant food I doubt if you can put enough fertilizer into it this one season to produce a very satisfactory crop.

C. W. W.

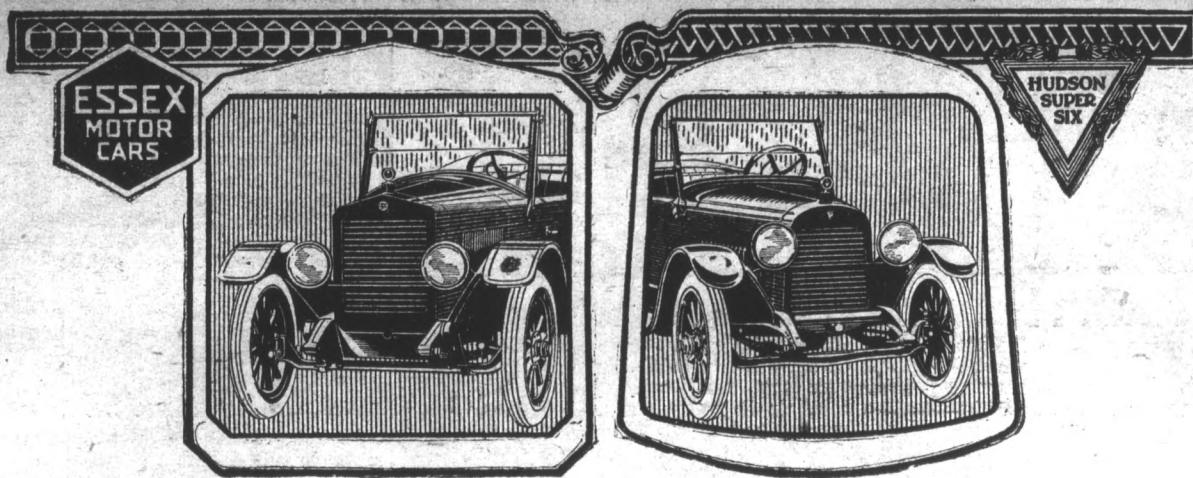
CONTROLLING THE MOULT.

Is it possible to control the moulting period? Most authorities favor an early moult, say July and August. My pullets are May hatched Rhode Island Reds.

Macomb Co.

R. M. M.

Most practical poultrymen in the egg business do not favor an early moult and the early moulters are usually sold for meat and not held over for breeding purposes. The early moulters seem to take much longer than the late moulters. Their egg records are greatly reduced and practically all experiments now are proving that the early moulting hens should be culled from the flocks and the late moulters retained as profitable layers and desirable breeders. Some breeders have forced the moult by a period of fasting, followed by heavy feeding. But this is not considered practical.



Only Essex Shares Hudson's Qualities

They Show Why Essex Went 3037 Miles in 50 Hours

A critical public has judged the Essex. In the year past it set a world's sales record.

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No wonder some of my neighbors have long faces when they think of their last year's corn crop. Jim Burns had a bumper crop, but fire wiped out his old wooden crib and all its precious contents in one night. Bob Wilson had a good crop too, but he stored it in rail cribs and the mould spoiled about half of it. Bill Rice over south of me lost a big part of his corn the same way. And old Pete Carlson claims that rats and mice stole his corn and on top of that he blames those dirty rodents for bringing hog cholera that killed off about 25 head of his best hogs.



Rat-proof
Fireproof
Mould-
proof

I didn't lose a single ear last year. That's why I've got a smile on my face that won't come off. I made up my mind last year that it didn't pay to spend 5 or 6 months of hard labor and horse flesh to produce a good crop of corn and then dump it into a wooden crib or rail pens where it could be wasted and destroyed by rats, mice, fire mould and thieves.

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MARTIN "CORN SAVER" CRIBS are just what their name implies—the biggest corn savers ever invented. They are built of galvanized steel and are rat-proof, fireproof, birdproof and thief-proof. With their patented ventilating system they will cure corn perfectly. Cheaper than wood in the long run; easy to erect; never needs repairs—lasts a life-time.

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Martin STEEL CORN SAVER Cribs

DRAINAGE AND FISHERY RIGHTS.

A lake covering land of mine and two neighbors contains a marl deposit, and has been planted with fish by the state. It could be drained so as to uncover several acres of the lime by deepening the outlet, which goes under the road bridge. Could we ditch under the road, and would we have to pay the expense of a new bridge if needed, and could the public take the uncovered marl?

The right of fishery does not include the right to take any of the bed of the stream or lake; and the bed of the inland lakes belongs to the adjoining proprietors subject to the water burden, and no one would have any more right to enter and dig and carry away earth from the bed of the lake than from any field. Unless the highway commissioner would join in putting a deeper outlet through under the road by agreement, it could be done only by petition for a public drain signed and put into the hands of the drain commissioner. In this case the expense could be apportioned according to the supposed benefits of the public drain, and the town might bear a share.

J. R. R.

WHERE TO BUY LIME.

I would like to know the best company from which to buy lime products for liming the soil. Also, could you give me some information on inoculation for alfalfa and sweet clover, and the best place to get this inoculation culture?

E. B. W.

There are several reliable companies selling lime in Michigan. The quality of the product handled by each is good. The delivered price, degree of fineness you want the product, etc., will determine the company you buy from. Would suggest you get in touch with your county agent, he can likely give you the desired information.

You can buy the pure culture for inoculating your alfalfa and sweet clover from the Bacteriological Department, Michigan Agricultural College, East Lansing. Each culture costs twenty-five cents and is sufficient to inoculate sixty pounds of seed or any portion thereof. Complete directions as to its use come with the culture.

D. W.

STANDARD VEHICLE LAW.

Can you find room in your columns to put us right on the standard vehicle law of this state?

R. W.

At the last session of the legislature a law was passed, known as Public Acts 1919, No. 72, which provides: "On and after January 1, 1921, the standard gauge for all vehicles to be used on the highways of this state shall be fifty-six inches from center to center of tread, and it shall thereafter be unlawful to use on any of the public highways of this state any vehicle of other than standard gauge, except such vehicles as are used for extraordinary purposes." The act then goes on to declare that moving vans, motor trucks, logging sleighs, cutters, and light delivery sleighs shall be deemed extraordinary, and that the law shall not be held to apply to any vehicles owned in the state at the time the law goes into effect.

J. R. R.

SEEDING ALFALFA WITH WHEAT.

I have eight acres of wheat that I would like to seed this spring. It was sod plowed for corn, then to oats, and now wheat. Most of it was manured last fall. I put on two tons of lime per acre. Do you think it advisable to seed to alfalfa in the wheat?

St. Joseph Co.

A. J. K.

If the lime used was finely pulverized so you will get fairly quick action and your field is in pretty good state of fertility, you will be reasonably safe in seeding alfalfa in the wheat in the spring. Would not sow the alfalfa until the ground is settled and the severe freezing is over, which would be around April 10. Be sure to inoculate your seed. Would also use a regular disc seeder if I could get it. You can

use a shoe drill if your land is not too heavy. It is necessary to have the seed well covered to save your inoculation. If this field has previously grown alfalfa, it will not be necessary to treat the seed.

D. W.

LAND CONTRACT.

A few years ago I bought forty acres of land on contract, calling for a deed free and unencumbered. Five years ago I asked for a deed and put the balance due in the bank. They kept putting me off for two years with no deed and I used the money. They have notified me if I don't pay the full amount with six per cent interest all this time they will take the land for breach of contract. Can they compel me to pay interest for five years? Can I compel them to give me an abstract of title?

M. W.

Unless the contract provides that an abstract shall be furnished there is no obligation to furnish one. It is customary for the seller to furnish an abstract but his obligation depends upon his agreement. Unless a legal tender of the money was made amounting to an offer to pay upon receiving the deed, the buyer is liable for interest to date. In this case probably the facts will be disputed.

J. R. R.

SETTLEMENT WITH TENANT.

A tenant on shares has failed in many respects to perform his contract. He leaves in February, but has some rye left to cut in the summer. Do we have to settle or get our pay before he leaves, or can we claim it out of the rye crop?

J. F.

The only effect of failure to get settlement before surrender of possession by the tenant would be to raise some possible question as to whether it was not an afterthought, and the claim had been waived. If there has been no settlement it may be claimed at any time before it is outlawed. The only way to claim it out of the rye crop would be by suit; and for this purpose it would be better to get settlement or judgment before harvest, so as to have something definite to claim the rye on.

J. R. R.

DRAIN.

Water from three or four farms crosses mine. Can I build my part of the ditch and compel them to pay theirs or pay damage to my crops?

F. D.

The subscriber has no right to stop a regular water course and must bear the burden of the surface water flowing in its natural way unless he is willing to build the ditch himself (which he has a right to do only on his own land, and even there has no right to cause a flood upon his neighbor, or can agree with his neighbor or can get a petition signed by one-third of the free-holders through whose land the ditch would run, which being done, the county drain commissioner will locate a public drain and apportion the expense according to the benefits received from it.

J. R. R.

FORMS OF LIME.

Is caustic lime the same as hydrated lime, and will they answer the same purpose?

Tuscola Co.

R. W.

Caustic lime is limestone with the carbonic acid driven out by heat. It is a calcium oxide and is commonly known as "burned lime," "quick-lime," "stone-lime," or "lump-lime." Now, burned lime absorbs water freely and when water is added the resulting product is called hydrated lime. The actual amount of calcium (lime) in the different forms as found in practice are about 1,800 pounds in a ton of burned lump lime or ground burned lime, about 1,400 pounds in ton of hydrated lime and about 1,000 pounds in a ton of ground limestone. Generally speaking, the various forms have about the same effect upon agricultural land except that it is necessary to add proportionately more of the weaker forms.



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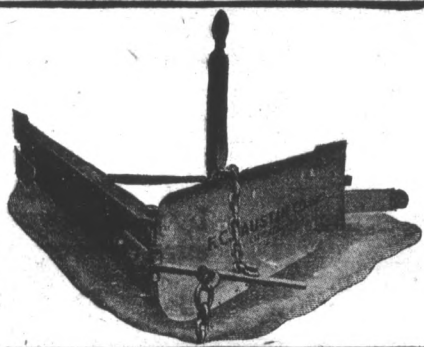
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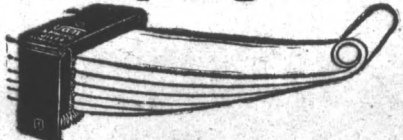
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At Cornell they found by careful investigation that it did not pay to force the moult. They believe that it pays to encourage egg laying in late summer and fall and then allow the birds to moult as the individuals are ready for the change. And nothing is done to influence any change in the natural moulting time of any birds. We believe that a great improvement can be made in the average egg production of many farm flocks simply by removing early moulters and using only late moulters for breeding purposes.

R. G. K.

LEG WEAKNESS IN PULLETS.

I would like to know what ails my Brown Leghorn pullets. (They are laying, and apparently in the best of health. About a week ago I found one of the pullets lying on her side, with legs stretched out behind, and helpless. This was in the evening, and the next morning she was all right again. Since then I have noticed two others in the same condition, but it only lasts a short time, then they are all able to walk again. I feed them scratch feed from the mill, also dry mash. They have a dirt floor and dry. I change litter about every two weeks. They also have oyster shell, grit and charcoal. Can you tell me what the trouble is?

H. W.

The leg weakness in old birds is usually caused by heavy feeding which has caused them to grow more rapidly in weight than they have increased in strength. This seems to be a form of paralysis and the mild cases rapidly recover, while the others show an increase of weakness and emaciation until the bird dies. The sick birds should be isolated where they can be fed away from the flock. This is not because it seems to be contagious, but the bird will not be able to eat when crowded by the healthy fowls. Rheumatism might cause similar symptoms but in such cases the joints will be swelled and hot. In leg weakness there seems to be no other symptoms but the weakness and inability of the bird to stand. As far as we can learn, no germ that causes this disease has ever been isolated. But usually it causes little trouble in flocks that have plenty of range and green food and have been grown from vigorous breeding stock.

R. G. K.

SHEEP PASTURE,

I would like a little information in regard to Soudan grass for sheep pasture, and the effect it has on ground for following crops, as I intend to put the above into wheat this fall. That is pasture with sheep until time to turn under for wheat, twenty-five acres to thirty-five sheep.

Van Buren Co.

D. C.

Soudan grass is a member of the sorghum family of plants. It is a rank grower and will make a fairly good pasture and, of course, it could be plowed down and the land sown to wheat this fall. I believe, however, that if you would sow oats and peas and Dwarf Essex rape early in the spring it would give you better results, for sheep pasture and the land would be in better condition to put in wheat.

C. C. L.

SEX OF GEES.

I am a farmer boy thirteen years old. I am going to raise geese. I have the large dark ones. I would like to know how to tell the male from the female.

Kent Co.

C. J. M.

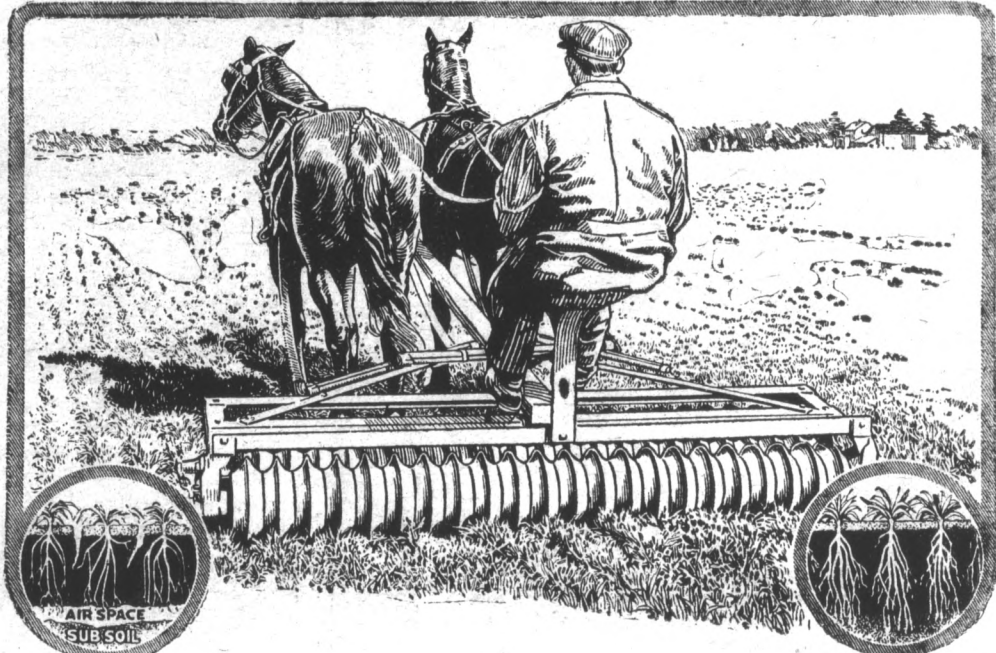
It is difficult to determine the sex of geese by the plumage and it is necessary to study their actions in the flock. When there are two males in a small flock it is often possible to determine that fact by the amount of fighting that will result. Some believe that the call of the gander sounds a little more harsh and shrill. At mating time we believe you can distinguish the geese from the ganders by their action towards each other.

H. G. K.

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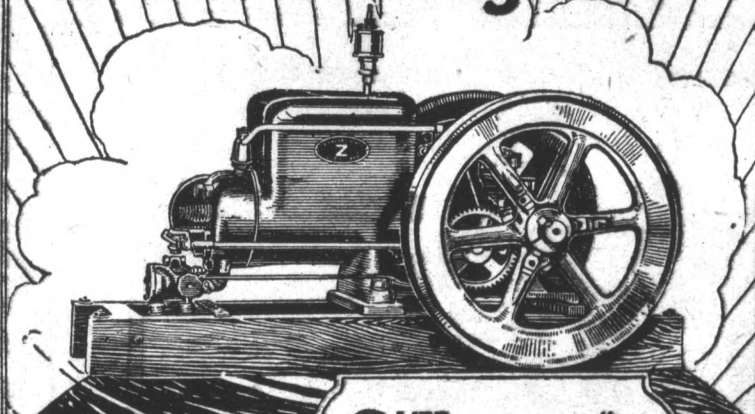
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Growing Maple and Walnut

By F. H. Sanford

I was planting maple trees of one inch to one and a half inches in diameter for three years, but nine out of ten died each year. This year I discovered the cause—a flat-headed white grub one inch long bores around the bark, thus girdling the tree. Some trees have as many as five grubs. I think this is the cause of so many failures that people have in starting shade trees. What can I do to destroy these grubs? I want to raise walnuts from the nuts. My neighbor has a few trees in bearing and there I got my walnuts. When is the best time to plant, fall or spring?

IN reply to the first question quoted above, I wish to say that there are several insects that frequently damage living shade trees. Probably the two most common, one of which is referred to in the question, are briefly described in the following:

Leopard Moth (*Zeuzera pyrina*, Fabr.) This moth is very destructive since it does not confine its attentions to any single species but works on many different shade trees. The larval form does the damage by boring through the bark soon after hatching. The egg masses are deposited in the cracks and fissures of the bark and hatch into larvae or white grubs. The young larvae begins feeding on the cambial tissues or inner bark at once and soon eats away a large patch of the inner bark tissue.

Areas three to four inches in diameter are commonly the work of a single individual, so that the results of a large number of these larvae would result in serious injury in a short time. This insect attacks healthy, vigorous trees. It has two feeding periods. The first summer, or while more or less an infant, the larva bores into the wood, causing channels in the smaller branches. In a dormant state it lies over the first winter and reappears with the spring growing season when it begins its damaging work on the inner bark.

At the close of this second season it is an adult larva and may be two inches in length. It enters its second winter under the bark and in spring pupates and later emerges as an adult Leopard Moth. The effects of this and of the Maple Borer (*Plagionotus speciosus* Say.) are similar and in both cases results in a girdling of the branch, or even the tree itself, in which case the portion above the girdling dies quickly. The pests are both very hard to fight. There is no method of spraying for them as they lie under the bark. Their presence may be detected by the presence of sawdust-like borings. The fresh bright-colored borings that are forced from the openings in the bark by the larvae give warning to careful observers.

Treatment.

A method of smothering the insect while in his hole by injecting carbon bisulphid into the channel and there closing the opening with clay, grafting wax or putty, seems to accomplish results in places where used. Another method that is quite successful and rather more rapid, is the spearing of the pest by using flexible wire inserted into the channel, though this lacks the certainty of results of the first method. Wherever the damage occurs in the tops of the large trees or on single branches, it is much better to remove the infected branch and burn it. Since two years are required for the life cycle of both these insects, it becomes apparent that the killing of the larva during its second feeding season and just before it becomes an egg-laying moth, goes far toward control of the pest.

Dark Beetles.

This pest works under the bark of many trees and produces various designs or engravings on the sapwood surface. The larva does the damage and is a small grub one-quarter to one-half inch in length. The harm to shade trees is not as great as from the borers above mentioned, and the control is largely through pruning.

Walnuts From Nuts.

In answer to the second inquiry, the question regarding the reproduction of walnut and hickory trees from the nuts is one of considerable importance to the average tree planter who is not concerned with the commercial phase. The Michigan nut trees all throw down heavy tap roots from the first year. When such trees are nursery grown, this tap root must either be cut or else the transplanting becomes an expensive operation that requires the digging of deep setting holes. If the tap root of the seedling is cut off during the transplanting, the young tree receives a distinct shock from which recovery is usually slow.

Nurserymen have tried, by resort to various devices, to change the direction of the tap root to that of lateral or oblique with indifferent success. Success in this necessarily means an increased cost of the planting stock, so that from any angle looked at the objections to the use of transplanted nursery-grown nut tree stock are serious. A much simpler, easier and far cheaper way to propagate nut trees is by use of the seeds, or nuts. Nuts carried over one season lose their viability to a marked degree, due probably to the decomposition of the fat or oil of the kernel. It is therefore necessary to collect seed as soon as it falls from the tree and store it in a special but not complicated manner, which is called stratification. This consists in layering the nuts in sand in such a way that the nuts may be kept constantly in a moist condition and also be exposed to frost sufficient to crack the shells. Over-freezing is not possible, though it often happens that nuts prepared for this freezing never freeze and when they are not frozen until cracked, they do not germinate when placed in the ground.

A convenient way to stratify nuts is to use a box for stratifying alternate layers of nuts and sand. Place the box thus filled in an exposed position where it will not become buried deeply with snow, and cover with a mound of about six inches of soil. If squirrels are a danger to this hoard, it may be protected by covering with wire screen before burying with the earth. As soon as the soil is workable in the spring and before general farm work starts, the pit should be opened and the nuts planted where the trees are desired. A very good rule for depth of planting is the old one of two and a half times the greatest diameter of the seed. A rapid method of planting is by use of a planting stick which is steel shod in the form of a cone. This shoe attached to a stick the size and length of a fork handle gives weight and balance and becomes a very efficient tool.

Preparing for the Planting.

Where plantations are to be put out there is a decided advantage in plowing the land and planting the seed in rows as for any other crop. The best spacing is four by four feet since this makes possible the cultivation of the area by horse tools. Three thorough cultivations each year for three years from planting is usually sufficient, to hold grass and weeds in check until the trees are able to partially shade the ground. The close spacing of four by four feet insures even development and rapid height growth while preventing formation of heavy side branches, which always result from wider spacing. If, however, instead of a timber

plantation, it is desired to establish a nut orchard it is necessary to keep the trees far apart in order to encourage side branch development. A spacing of 25x25 feet will insure the orchard form of tree, but admits the undesirable factor of continuous cultivation or cropping as a necessity to best growth of the orchard.

Walnuts and butternuts do fairly well on good soils, even when the nuts are planted in sod in the out of the way corners of the barn or house yard. The hickories are slower growers than the walnuts, but are not hard to start on good moist farm soils, and when once well established are very vigorous and sturdy growers.

As desirable trees for both utility and beauty about the farm or along the highway the native nut trees of Michigan deserve very earnest consideration, and owing to the extreme ease with which they may be started and grown without transplanting, they warrant the widest possible use throughout the southern portion of our state.

CANNERY-CROP GROWERS ORGANIZE.

THE New York state cannery-crop growers have organized a state association for the promotion and protection of their interests. The packing business is becoming a very extensive industry in the state, requiring a vast acreage to supply the raw materials. There are now eight county associations affiliated with the state organization, and associations are being formed in several other counties in which cannery crops are extensively grown. It is the purpose of the state organization to confer with the canners collectively, and reach an agreement on prices which will be fair to all parties concerned, and hold good for all the cannery crops grown by its members. In this way it is hoped that both prices and production may be stabilized, and the growers will have assurance that they will be able to market their crops at prices which will cover cost of production and leave them a reasonable profit.

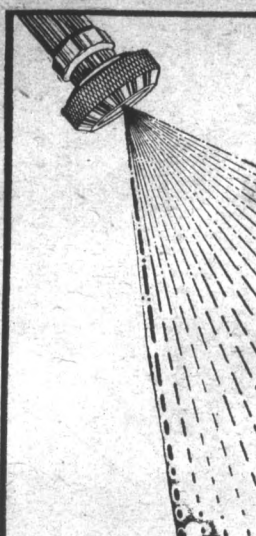
At a recent meeting of the state association, held in Rochester for the purpose of discussing the situation in regard to cannery crops and price prospects for the coming season, the growers decided to increase the acreage of their crops wherever local conditions made it advisable for them to do so. It was agreed by the members present that they should have \$25 per ton for tomatoes, \$32 for peas, and \$27.50 for husked corn, season plants to be furnished on the same basis as last year.

E. E. R.

BETTER PRICES FOR CANNING FACTORY CROPS.

CANNERS of the country are to cooperate with growers of foods in price adjustments for the 1920 crops. The growers will be met in a spirit of golden rule in determining new contract prices, which growers are demanding shall be raised. These problems will be approved by the canning industry, as indicated by expressions of leaders, with the idea of cooperating so as to increase the food output the coming season to meet the increased demands now being made through record-breaking orders. Contract problems such as existed last year in the tomato growing and canning districts of New Jersey, Delaware and Maryland will be solved, it is said without detriment to the district.

White grubs require three years to complete their life cycle and usually but one brood is destructively in a given locality. An abundance of May beetles, or June bugs, one spring indicates that there will be an abundance of grubs the following year.



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YOU have been looking for a *better summer spray*—one that does not cause russetting or undue dropping of the fruit. We have it. For eight years we have conducted in our orchards, on a commercial basis, tests of all of the best-known summer sprays. These tests proved that higher color, smoother skin, and greater freedom from scab, codling moth, etc. resulted from the exclusive use of

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Mr. George T. Powell, noted horticulturist and lecturer, wrote in the Feb. 22nd, 1919, issue of American Agriculturist: "I have used SULFOCID and Cal-Arsenate combined for two years. Never produced a crop of apples of so fine a quality."

SULFOCID is *not* a bordeaux or lime-sulfur mixture, but it has to a large extent the effectiveness of both without the

drawbacks of either. It does not combine with arsenate of lead or paris green, but does combine with Cal-Arsenate without forming a sludge like lime-sulfur and arsenate of lead. SULFOCID does not dwarf fruit or potatoes, and is almost insoluble when once dry. Therefore, it does not wash off; neither does it show much on the fruit.

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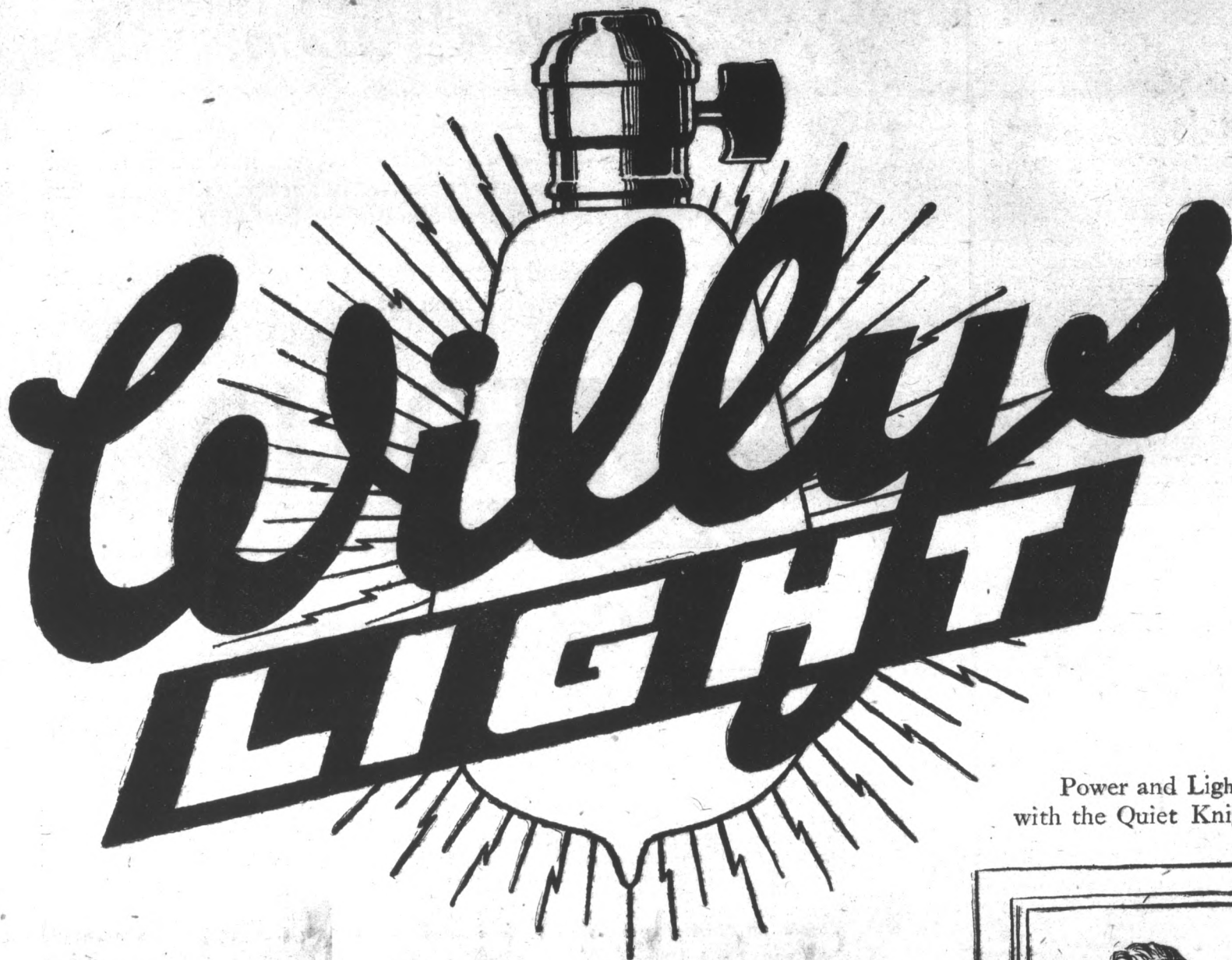
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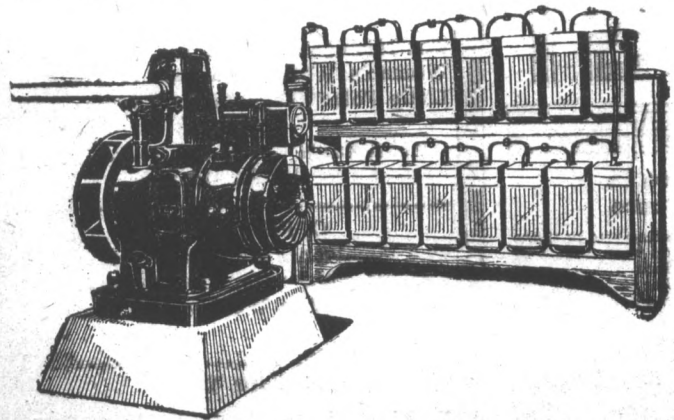
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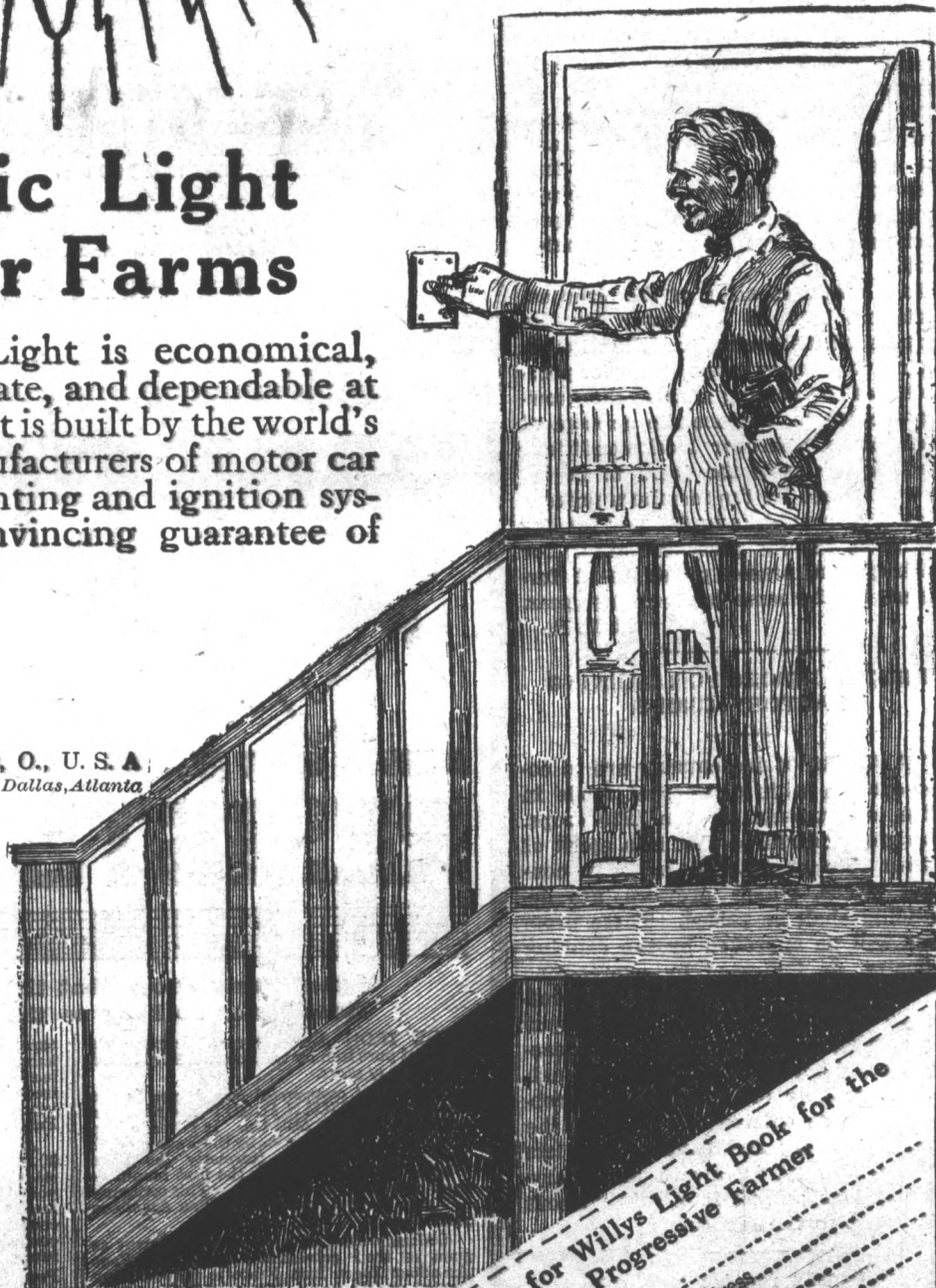
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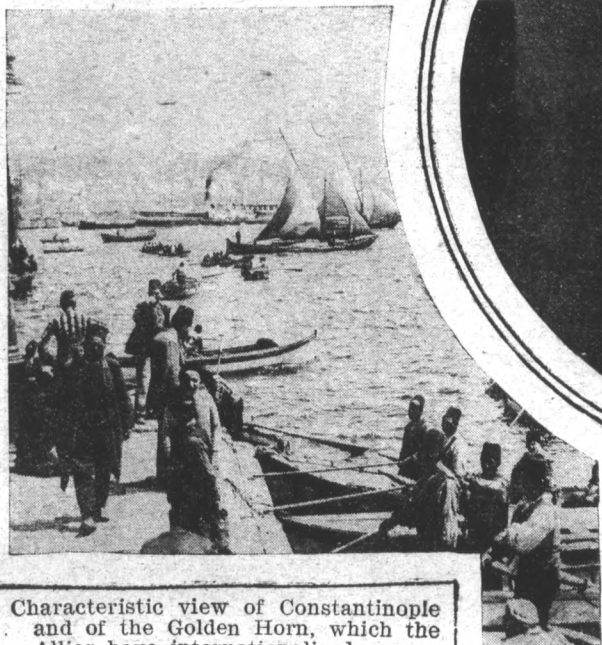
WORLD EVENTS IN PICTURES



Representatives of the Railroad Brotherhood of Firemen and Engineers leaving White House after their conference with President Wilson in an endeavor to reach a settlement of the railroad labor question. As a result strike orders previously issued were postponed indefinitely.



Thousands of Japanese women are being interested in the suffrage question by these enthusiastic leaders of the movement in that country.



Characteristic view of Constantinople and of the Golden Horn, which the Allies have internationalized.



Amelita Galli-Curci, famous opera singer, to become an American citizen.



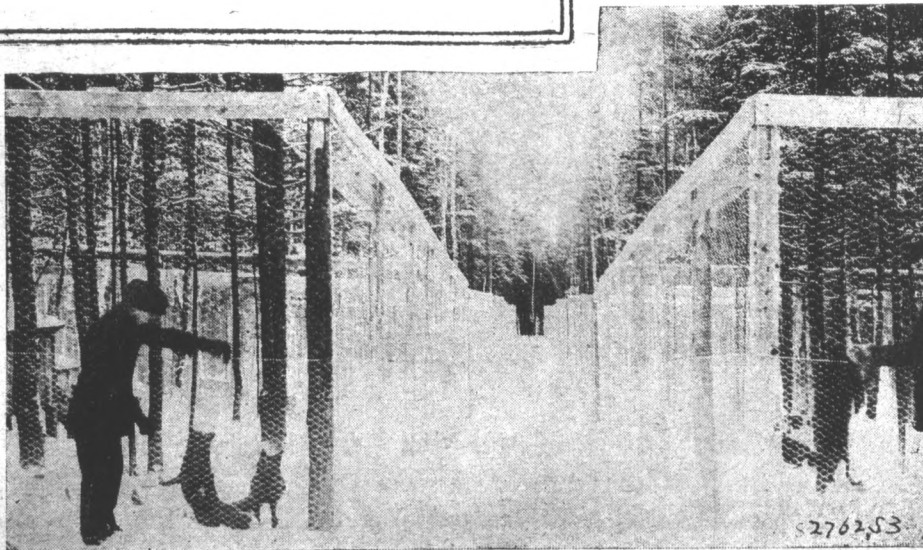
Eddie Foster, the "Billy Sunday" of present-day base ball, is strong for clean living.



Baron Avezzano, the new Italian Ambassador to the United States, with his wife, formerly an American girl, and daughter.



Thomas A. Edison, inventive genius, greets callers on his seventy-third birthday anniversary.



Silver fox breeding received its first impetus from the success of the Prince Edward Island fox farms.

After he had done what he could for it Luck spoke bluffly. "This dashed feud is off, Cass. You've wiped the slate clean. When you killed Blackwell you put me out of a hostile camp."

"I'm glad—so glad. Now we'll all be friends, won't we?" Kate cried.

Cass looked at her and at Curly, both of them radiant with happiness, and his heart ached for what he had missed. But he smiled none the less. "Suits me if it does you."

He gave one hand to Luck and the other to his daughter.

Curly laughed gaily. "Everybody satisfied, I reckon."

CHAPTER XX.

Loose Threads.

CURLY was right when he said that those who knew about Sam's share in the planning of the Tin Cup hold-up would keep their mouths close. All of the men implicated in the robbery were dead except Dutch. Cullison used his influence to get the man a light sentence, for he knew that he was not a criminal at heart. In return Dutch went down the line without so much as breathing Sam's name.

Luck saw to it that Curly got all the credit of frustrating the outlaws in their attempt on the Flyer and of capturing them afterward. In the story of the rescue of Kate he played up Flandrau's part in the pursuit at the expense of the other riders. For September was at hand and the young man needed all the prestige he could get. The district attorney had no choice but to go on with the case of the State versus Flandrau on a charge of rustling horses from the Bar Double M. But public sentiment was almost a unit in favor of the defendant.

The evidence of the prosecution was not so strong as it had been. All of his accomplices were dead and one of the men implicated had given it out in his last moments that the young man was not a party to the crime. The man who had owned the feed corral had sold out and gone to Colorado. The hotel clerk would not swear positively that the prisoner was the man he had seen with the other rustlers.

Curly had one important asset no jury could forget. It counted for a good deal that Alec Flandrau, Billy Mackenzie, and Luck Cullison were known to be backing him, but it was worth much more that his wife of a week sat beside him in the courtroom. Every time they looked at the prisoner the jurymen saw too her dusky gallant little head and slender figure. They remembered the terrible experience through which she had so recently passed. She had come through it to happiness. Every look and motion of the girl wife radiated love for the young scamp who had won her. And since they were tender-hearted old frontiersmen they did not intend to spoil her joy. Moreover, society could afford to take chances with this young fellow Flandrau. He had been wild no doubt, but he had shown since the real stuff that was in him. Long before they left the box each member of the jury knew that he was going to vote for acquittal.

It took the jury only one ballot to find a verdict of not guilty. The judge did not attempt to stop the uproar of glad cheers that shook the building when the decision was read. He knew it was not the prisoner so much they were cheering as the brave girl who had sat so pluckily for three days beside the husband she had made a man.

From the courtroom Curly walked out under the blue sky of Arizona a free man. But he knew that the best of his good fortune was that he did not go alone. For all the rest of their lives her firm little steps would move beside him to keep him true and steady. He could not go wrong now, for he was anchored to a responsibility that was a continual joy and wonder to him.

THE END.



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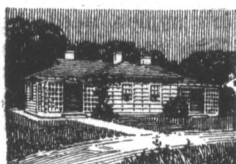


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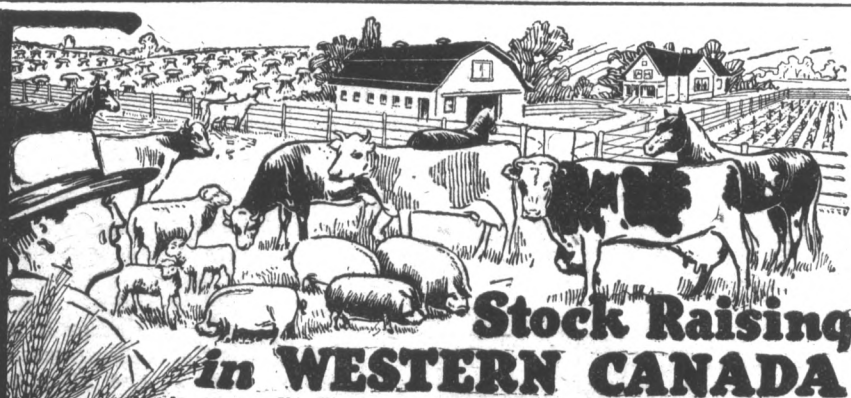
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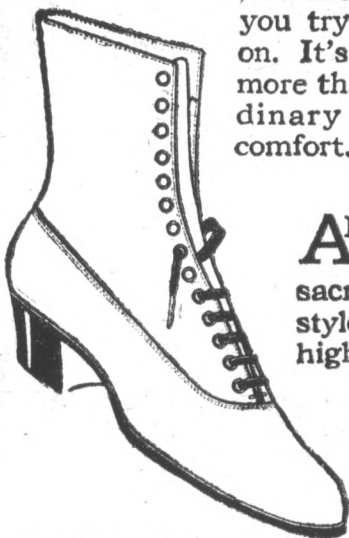
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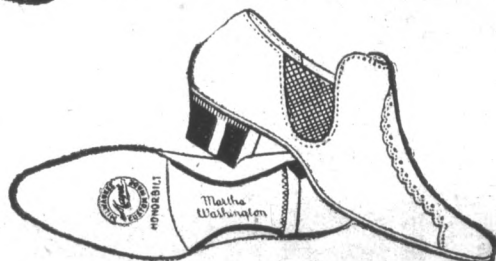
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This shoe has been widely imitated. Look for the name and trade-mark on the sole label in the top.

When Country Met City

By Catherine Moule Paddock

HERE'S a deserted orchard! I'll lady led them, and look beyond at the beat you to it!" said Roger Still-blue sky and the fields of yellow grain, man, and with a whirl he sent across which the wind was moving the car into the weeds at the side of like a shoal of fish, and to smell the the road.

A moment later six scrambling ter still, to munch the apples and young people topped the bank, to the drink well water, and then after the fright of a flock of crows cawing in the tinkle of bells on the home-coming cat- the sunshine. tle had reminded "Grandma," to eat

"Catch," shouted pretty Cad Conklin doughnuts and drink milk that she ad- from under a tree. ded to the feast.

She threw an apple at Roger. He Roger ate his doughnut, his eyes caught it and reached for another. narrowing, and Cad saw "it" coming.

"Stop!" said a voice.

Roger's hand dropped.

"I beg your pardon," he said to a lady. "Why are you different—from the girl who had sprung from somewhere. other one?" he said abruptly.

"May we have some apples?"

"You may not!" she snapped.

"May we buy some then?" he asked said, not knowing at all what he meant. hotly.

"You may not!"

"Can you tell us where we may buy Explain! That was what Roger was bursting to do. And in his direct way, some?" he asked. not sparing himself, he told her of the experience they had just had in the

"I can! At the grocery store, where orchard. you usually buy apples."

Her sneer, plus the giggles of his "It's like this," he said, thrusting his hands into his pockets. "I'm a city friends, loosened something mean in boy, and I'm never out of town only Roger. Insolently he stood on tiptoe when I'm at college, or touring, or some such thing, so I can't know the and snatching off half a dozen apples, skipped them under the trees. real country of farms and people. But

"And we don't buy apples in the country!" he said, smashing the last with free air and free light, and flow- ers, and fruit, loads of it, to be had

"Come on, kids—let her keep her for the taking, like these," he said, waving his hand toward the apples on

old apples," he laughed. the porch table. "But according to that girl, it's not free! Who's right? I don't understand."

And before the astonished girl could There was silence, and the wind blew the little silver curls about the sweet old face.

collect her wits, the party was pell- "I can explain, laddie—but draw melling after Roger down the bank. closer," she said.

"City pigs!" she said. "How I hate And awed by the turn of things they brought their chairs closer, all but Rog- —hate them!" Suddenly she leaned er, who humped himself against a pil- against a tree and wept. "And he was lar with his arms around his knees.

so handsome," she sobbed. "How The girl of whom you spoke is Mona Lambraith," she said, starting at

could he be so mean." the heart of the subject. I shall have to tell you a little of my life and some-

"You were brutal to that girl," said thing of hers to make myself plain.

one of the boys to Roger as the car "When I was awee girlie, I came with my parents, and my brothers and

drove on. sisters from Scotland. My grandfather had preceded us by many years. By

"Needn't have been so cattish about the time we got here he had settled on this very spot, and had built the house.

a few apples, need she?" And, too, he had set out the orchards, so by the time I was a grown girl we

"She wasn't! You were!" answered had thousands of fruit bearing trees. Those days the prices were good, it

his friend, who was country born. was not uncommon to get four dollars for peaches, for the commission men

"She was and I'll prove it!" were reasonably honest. And there was no tree blight then and no trouble

"She wasn't—you didn't understand! getting people to work.

City boys don't!" "I was sent away to New York to a school for young ladies and when I

"Well, before I quit this neck of ap- with my parents, and my brothers and sisters from Scotland. My grandfather

ple trees, I'll prove she was—take a had preceded us by many years. By the time we got here he had settled on

bet?" this very spot, and had built the house. And, too, he had set out the orchards,

"Sure!—and prove as far as you so by the time I was a grown girl we had thousands of fruit bearing trees.

like, old top," answered his friend. Those days the prices were good, it was not uncommon to get four dollars

The level of the next hill brought And, too, he had set out the orchards, so by the time I was a grown girl we

the load of young people to another had thousands of fruit bearing trees. Those days the prices were good, it

farm; Roger slowed down. was not uncommon to get four dollars for peaches, for the commission men

Before them was an old white farm- were reasonably honest. And there was no tree blight then and no trouble

house. Along one side of the lawn ran getting people to work.

a service road, and along that an or- "I was sent away to New York to a school for young ladies and when I

chard, and half way down the road was brought up with; he was brother of Mona's grandmother." She paused and

stood a little old lady. Roger's face was red.

"You're not going to tackle her?" "And then," she went on, "at the height of our prosperity, came the

questioned Cad, looking at Roger. freeze of 1906. The small fruits, and the fruit trees, all but the apple, were

"None other," he answered shortly, hopelessly frozen.

and jumping out of the car he walked "It was heart rending to see the farmers and their wives and children

across the lawn. crying among the trees, looking at the apples, that hung in solid cakes of ice.

"But "speaking up" to the old lady And when the sun came out it thawed

when he got to her, was another thing. the ice until the apples steamed and

In her presence Roger found it hard the water dripped. Such a picture it

to say what he had intended to. He was! Those crystal orchards! And

He was embarrassed; he had never seen the apples wept like human hearts, red

anybody like this woman, only in pic- in the trees. For it all meant ruin to

tures. Her blue eyes smiled at him the old, and beginning for the young."

and when she spoke it was as if the A faint pink had crept into the old

gold of the present and the fragrance face and there was a slight tremble

of the past mingled. And all about in the voice. But she went bravely on.

her and Roger was the copper light of "The next ten years were hard, men

sunset on the lawn. wearied of cutting down and stumping

And then he heard her say, "Would orchards and went off in search of oth-

the laddie like some apples, and would er work. Soon our country was more

he and his friends come in to rest?"

"Apples"—"friends"—"come in to

rest!" These were things Roger could

understand, and to prove his eagerness

to accept her courtesy he was off to

the car in leaps.

And this was the way the boys and

girls met Grandma Ross, for so she

called herself.

It was sure fun to stretch in the big

chairs on the porch where the little

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shadow than sunlight, farms were deserted and the houses boarded up. With shadows came a change, in the temper of the people who stayed, a growing discontent, a bitterness, a lack of spirit. However, through those weary years, there was an undertow of purpose in the few—and it was that spirit that saved us," she finished proudly.

No one spoke; and Roger sat staring into the west at the sun.

"Mona's father lost everything," the voice went on, "even Mona's mother. Some say she died of work. Since then it's been a hard, sad row for the child. Into her seventeen summers she has put forty.

"Now we're up to you, laddie, and your question." She smiled at Roger. "The orchard you went into today has its first full crop and little Mona is guarding it against thieves; it's handy to the road, you know. Mona is determined to protect that orchard; for if the crop is lost she cannot go to college this fall. She's young and she's fierce, and she has to fight against odds as I never did. Now do you understand? But there is a worse thing threatening than thieves, laddie. The fruit is ready to be picked. It is fall fruit, and cannot wait; it must be gotten to the Fruit Exchange, or the crop is lost. And there isn't an extra hand to help—not an apple picker to be had."

Every boy with flashing eyes was on his feet—but it was Roger who spoke.

"Can't I, can't we pick her apples?"

"To be sure you can," said the little lady.

"And can't we!" said Cad with something like tears in her voice.

"You may help me feed the boys. I'm doing that for Mona."

The girls shouted with delight.

"But what about Mona?" asked Roger. "Will she stand for us?"

"The chances are she won't know anything about you. Her father and I shall see to that, and besides, with the men in the orchard she'll be at the house catching up with the back work. That orchard is half a mile from her home."

"Then it's settled!" said Roger.

And with hurried "good-byes" they were off.

Grandma Ross stood watching them. Scotch pioneer craft showed in the depths of her blue eyes even in the paling light.

"Eight o'clock!" she called to the heads bobbing out of the car for a last look. And to herself she murmured, "City and country! It's all the same—human when you reach it."

A week had passed and the holiday of the boys and girls with it.

It had been a week of hard work, too. However, at the end of it there was the satisfaction of knowing that Mona Lambraith's apples were cooling at the Fruit Exchange. But whether city had squared itself with country was yet to be discovered.

Today Roger's car faced cityward. Roger himself was scudding up the path to Grandma Ross's door. In those few minutes from road to steps he saw many pictures of the happy week, pictures of the sunny orchard, of a rainy day in the house, of the fireplace where they popped the corn, and of—oh, such good things to eat! And best of all, of Grandma Ross! But she was crossing the porch to him.

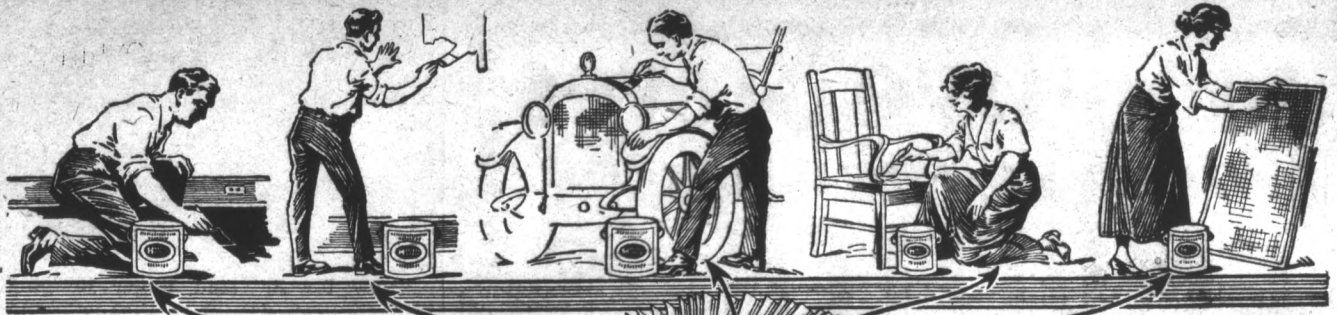
"Will you give hers to her?" he burst out, fishing in his pocket for a package.

"One's for you and the other's for Mona," he said, handing her the packages. "We bought them with the money we made."

"Do you think she'll accept it?" he added, shifting onto his other leg, while Grandma opened one package.

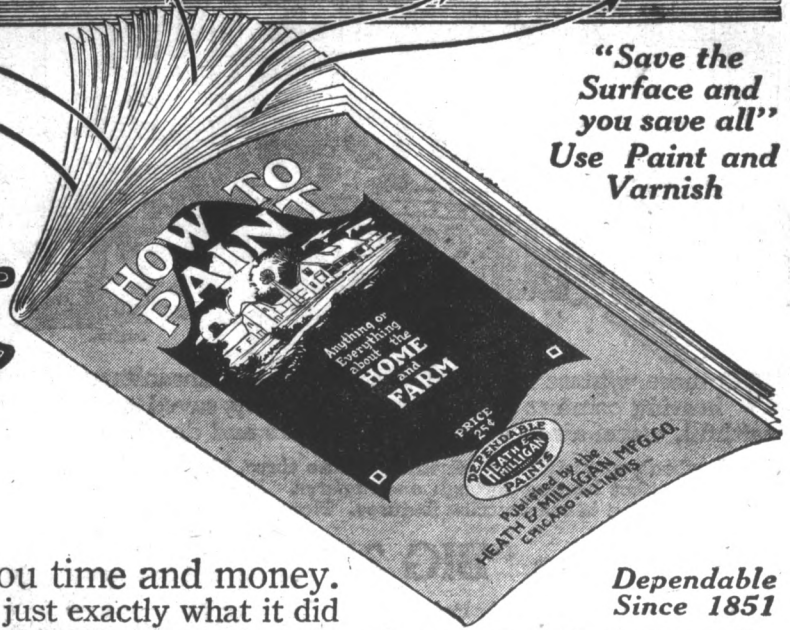
"Mona will cherish it," she said. It was a pearl brooch that she held in the light.

"One for me, too!" she said, taking



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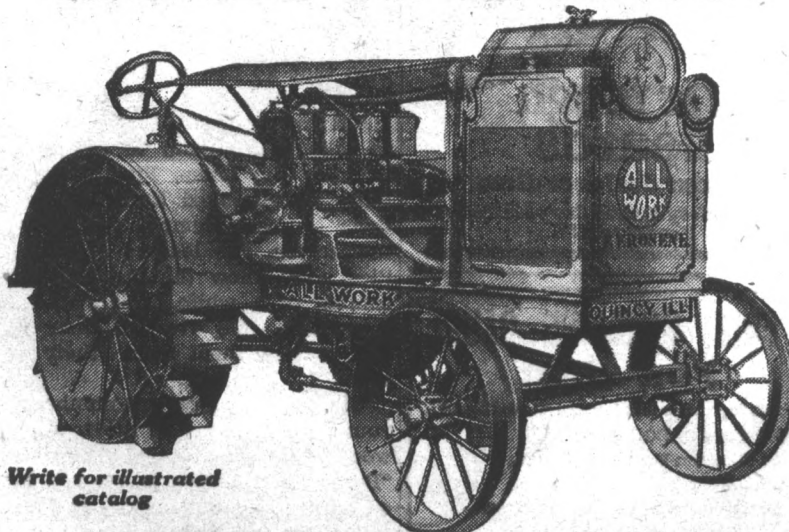
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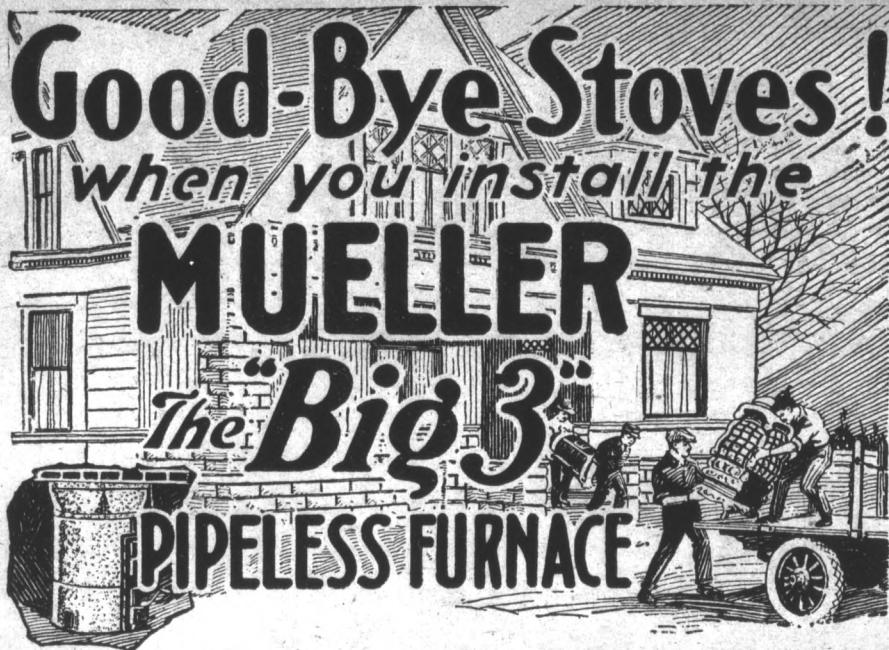
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the pin of gold and onyx from its box. "Mine, also, shall be cherished, but you'll come again, won't you? The house shall endure, and the fields, and the sky and the birds! And I, for a time, perhaps. But don't wait too long, laddie!" To hide his emotion Roger wrung the little hand, and rushed down the path. And by waving "Good-byes" Grandma Ross steadied her trembling lip.

"Now for it," said Roger jumping into the car—"to face that stinging girl and make a getaway."

Everybody gaped until the car stopped at the Lambraith door.

"I'll send out an S O S maybe," Roger shouted back from the hedge he had disappeared around.

Cad saw his yellow head coming back through the green.

A moment more and he was wringing into his place at the wheel.

The car made a swinging turn. "Wait," said Cad. A flying figure was coming down the drive. "It's Mona," she added. And before anybody could think, Mona was spilling apples from her apron into the car, and then like a shy deer she was fleeing back again.

As the car shot into a long road that ran through fall colors by the pearling lake, Cad cuddled up to Roger.

"My, isn't she pretty?" she whispered.

But for the first time Roger forgot Cad. He was thinking of Mona's eyes when he had made his apology, and he knew that as long as he lived he'd be seeing them. And that's the way Country met City. Yes, and subdued it!



Bumper the White Rabbit Plays King

By George Eschborn Walsh

STORY X.

Rusty Warns Bumper.

OF course, Bumper knew nothing about the revolt that Spotted Tail had stirred up in the woods against him. After all, he felt a little sympathy for Spotted Tail when all the others began to ignore him and give him the cold shoulder. But really there was nothing he could do, for Spotted Tail had brought the trouble all on himself because of his envy and spite.

"Being a king isn't all lettuce and carrots," sighed Bumper. "I'm not sure but I'd rather be just Fuzzy Wuzz, who smiles and laughs all day, or even Goggle Eyes, who eats altogether too much for himself, but seems to enjoy it."

"Then there's so much a king has to know," he added a moment later. "I'm learning all the time new things, but what I don't know yet frightens me. I wish sometimes I could take a vacation, and just go off and forget everything. I wonder why kings don't have vacations."

Such a thing as a vacation for a king was unheard of, although all of the rest could take any day they chose. Bumper couldn't even steal out of the burrow alone for a little run without somebody going with him. The king had to be watched and accompanied all the time.

Now Old Blind Rabbit, in proclaiming Bumper the White Rabbit king, had thought first of only his own family, for he had no control over the other burrows; but he was so well known for his wisdom and age that the leaders of other burrows would listen to his words. He had wanted to keep Bumper's coming a secret until he was sure that he had made no mistake in choosing him.

But now he thought was a good time to take him around to his friends—Brindley the Lamb, Pink Nose, Rolly Polly and Crooked Ears. He wanted them to meet Bumper and judge for themselves. As leaders of their families, they knew the prophecy of the coming of a white rabbit, who some day would rule over all their people and redeem them from their weak ways.

"Bumper, my days are numbered, but yours are as many as the trees in the woods," he said to the White Rabbit. "Before I go I want to see you accepted as king by Pink Nose, Rolly Polly, Crooked Ears, Brindley the Lamb and White Tail. Then I can die in peace."

Bumper nodded his head, and asked who all these important people were.

"They are leaders of big families here in the woods, and very influential."

If they accept you all the other rabbits will follow."

"And if they don't?"

"Then I fear there will be trouble. You cannot rule over a divided people and make them happy."

This bit of wisdom could not be disputed, and Bumper added sadly: "And neither can the ruler be happy."

"Well said, Bumper. But the time has come now when we must call on them. I shall take you in person, and explain to White Tail and the others the meaning of our call."

This idea rather frightened Bumper. To meet so many important leaders, and carry himself as a king should, made him feel like quitting. Just for an instant he thought of the red-headed girl and her wonderful garden, and wished he was back with her. How delightful it would be to do nothing all day long but eat and receive her petting! He even thought he might be happier with the old woman back in the city.

But only for an instant did his thoughts thus play truant. He was a king now, with duties to perform, and he wasn't going to prove unequal to them. Bumper had very fine qualities, which, after all, fitted him for a ruler more than his pink eyes and white fur. Goodness and wisdom were better than fine clothes.

Bumper had been learning rapidly the ways of his people in the woods, and he was quite familiar with many things that had before startled him. He had learned to know the difference between the good and bad plants, so there was no longer any danger of his poisoning himself. He had met Washer the Raccoon, and had made the acquaintance of Sleepy the Opossum. He was on good speaking terms with Mr. Beaver, and Billy the Mink had put himself out to compare his fur with his own beautiful coat.

He knew every trail in the woods, and could scent Mr. Fox from afar. He had even learned to swim, which he considered necessary for his health. The birds were his friends, and he had learned much from them. Frequently they brought him news which guided him in his work.

A few days after the Old Blind Rabbit had announced his intention of introducing Bumper to White Tail and the others, Rusty the Black Bird appeared near the burrow, and perched himself on the top of the rock until the white rabbit appeared.

"Hello, Bumper!" he called.

"Good morning, Rusty!" replied Bumper. "It's a long time since I've seen you."

"If you'd arrange to see me oftener,"

was the retort, "you wouldn't be in so much trouble."

"Thank you, Rusty, but I didn't know I was in trouble."

"Huh!" whistled Rusty. "Some people don't know when they are in trouble."

"Then it shouldn't bother them," laughed Bumper. "If you don't know you have any trouble, why worry?"

"That may be good enough for a king, but it would never do for common people. We must be hunting for trouble all the time to avoid it."

"If you hunt for it you'll generally find it. No, I don't believe in looking for what you don't want."

Rusty was a little provoked at what he took as a personal rebuke, and was half inclined to fly away; but Bumper's smile changed his mind.

"Just to show you that trouble comes whether you hunt for it or not, I'm going to tell you something," he added. "You're going to be in a peck of trouble soon, Bumper."

"That's much better than being in a bushel, isn't it?" he laughed.

"Oh, stop your joking, and be serious. This is a serious matter for you."

"All right, I'm listening."

"Well, then, Spotted Tail has been spreading false rumors about you. He asked me to carry the message, but I refused, and he asked Mr. Woodpecker and Towhee the Chewink. They told me so. But they wouldn't listen to him."

"I'm very grateful for that, and you can tell Towhee and Mr. Woodpecker so. But if nobody carried the news how did it get abroad?"

"Mr. Shrike the Butcher Bird carried it just because we wouldn't. And after telling all the rabbits he told the news to Mr. Fox and Buster the Bear."

"What is the news he told?" asked Bumper, gravely.

In a few words Rusty told him, and when he was through Bumper was graver than before. It pained him to think that Spotted Tail would betray him, and it made him sad to believe that his words could stir up discord among the rabbits.

"Thank you, Rusty," he said in conclusion. "I'm glad to know it. Forewarned is forearmed."

"Oh! Ho!" laughed Rusty. "Now you begin to change your mind about trouble. But you don't have to hunt for it. It's coming soon. It's here now!"

ATTORNEY FEES.

Some time ago I had \$47.50 stolen from me, stated the case to the prosecuting attorney, and he has recovered the full amount, but remits me only \$40.38. Now, after the excessive taxes I have to pay, am I entitled to the full amount? What do we have officers for if not to look after such cases? H. W.

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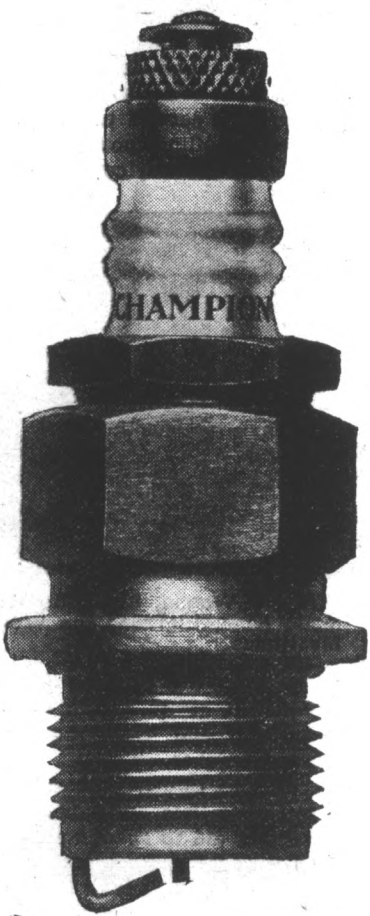
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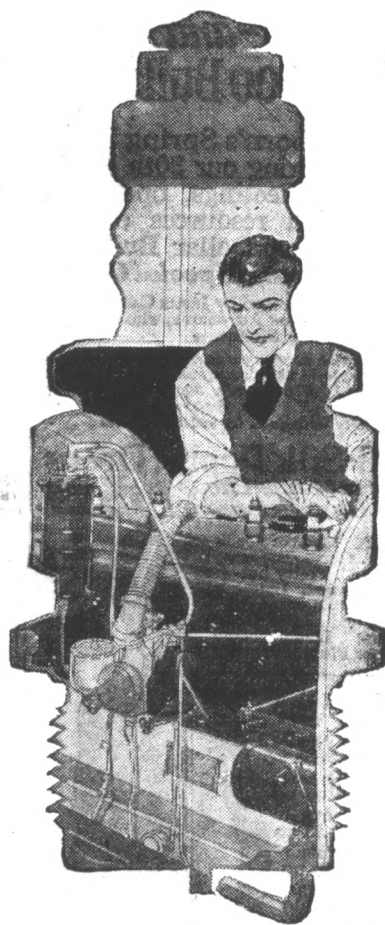


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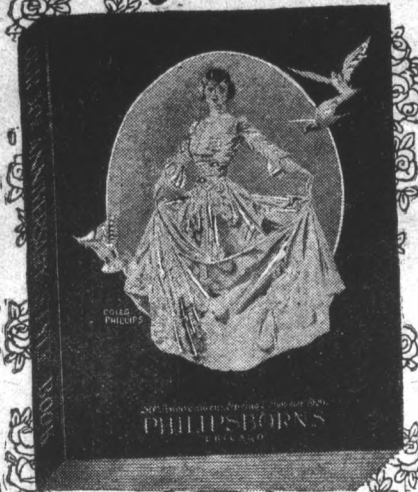
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Woman's Interests

To Lighten Dishwashing

By Deborah

DOES any housekeeper with children, especially the keeper of a farm house, ever get up of a morning and not see ahead of her for the day more work than she really could do in two days? In these days when help in the house can not be obtained for love or money, the only solution of the problem is to economize on time and work in every way possible. It is for the home-makers of the country to study ways and means to make work lighter and leave a few hours of each day for rest and mental upbuilding.

When an efficiency expert goes into the shop to see why work isn't being pushed through faster, one of the first things he observes is movements. A man makes five moves to do a certain thing. Could he do it with three? If he could, the other two are wasted and the time taken to do them is time lost. Let's apply the same idea to house-keeping. Are you making any wasted motions? We will begin with dishwashing, because it is one of the most important parts of housekeeping, and one which takes up the most time in proportion to other daily tasks.

When I was a child at home, we scraped and stacked the dishes on the dining-table and then carried them out to be washed. This method took little time, as our table was small enough so the worker could stand in one spot and reach all the dishes. Indeed, sometimes when mother wasn't looking, we sat down and did this part of the work. Then a big tray accommodated all the food that need be carried away, and two trips to the kitchen cleared the table. Sugar, salt and pepper, napkins, etc., remained on the table and were covered with a cheesecloth spread.

Then came grown-up days and a few months in cooking school. Here I learned that mother's very simple way was decidedly bad form. You must carry out each person's service individually and do all cleaning of dishes and stacking in the kitchen. By no means must you pile up a tray. "It wasn't done," to quote our old friend Ruggles.

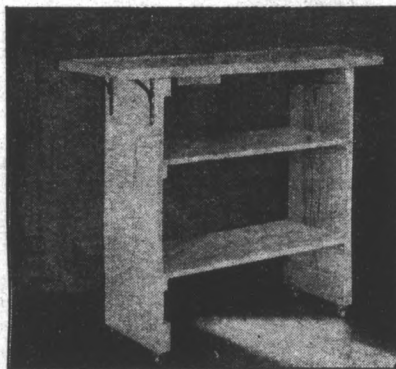
This way may have been the correct thing when royalty was in fashion and domestic help not an unknown quantity. But today it has lost its appeal. Dishwashing must be simplified and made easier, and the time given to it cut down considerably in order to get time for the many other things which crowd the day. Any method which will help should be seized upon, even to the big tray crowded with dishes.

Better than the tray, however, is the kitchen wagon, which can be made at home by the boy in the manual training class, if father is too busy, or not "handy." This little wagon may be utilized in many ways, and is an invaluable assistant to every woman. You can bring in your dishes and food for setting the table, use it on baking days to convey the freshly baked things to the pantry, make it serve as maid when you have your neighborhood club in of an afternoon and serve a lunch, and you'll even find it handy on canning and jelly-making days.

Just how much time does it take to wash the breakfast dishes, when milk things must be cared for? Miss Edna V. Smith, specialist in Household Management at the Michigan Agricultural

College, allows the farm woman one hour for this task. Mrs. Christine Frederick allows the maid in a city home with five in the family, a half hour to wash the dishes, pick up rooms and get a fireless cooker lunch ready. The mother had already cleared table and stacked dishes. Miss Smith says she learned more from her experience in her own farm home than she did in her course at Columbia University about managing. You may take stock of your own experience and judge which time is more nearly correct.

As one time-saver, if you have running water, which fortunately many farm homes now have, fill every cooking utensil as soon as it is emptied and leave them soaking while you eat. If you must be careful of water, have the teakettle boiling, pour a little water into each utensil, cover it tightly



A Kitchen Wagon, Even the Home-made Kind, Lightens the Work at Mealtimes.

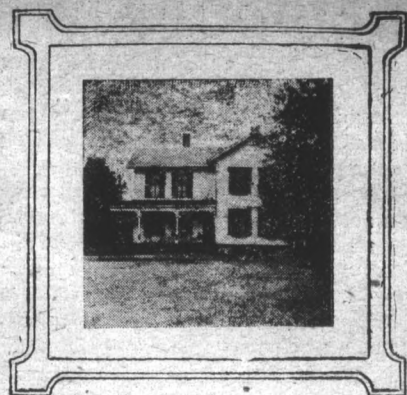
and set it on the back of the stove where it will steam. This will keep the food soft and make the washing easier and quicker.

Buy all the things that will really help you save time and labor. There is no greater aid to speed and efficiency in dishwashing than good hot water. In order to use it as hot as possible buy a dishmop and soap shaker in the ten-cent store. You can then use it while still too hot to bear your hands in it, the soap shaker lends itself to still further saving. With it you can use up the little pieces of soap you might otherwise waste.

Don't waste time waiting for dishes to soak when you once get to work. You can buy a little rubber scraper and a good stiff brush in the same store. A brush is as useful a thing in dishwashing as in cleaning floors and preparing vegetables. It will remove particles of food without scratching, as the old-time wire "dish-cloth" used to do. This same wire helper is useful on the iron pots and skillets, but do not use it on enamel or aluminum ware.

If you have a bottle baby, by all means buy a bottle brush. Or if you use much catsup and similar relishes and there are always bottles to wash, get a bottle washer. By-the-way, fill all bottles, as soon as emptied, with warm water and a bit of soap powder. The task of washing is nothing then.

If you are really in earnest in your campaign to eliminate work and save time, do not dry your dishes. If you take time to do this, never complain again about being overworked. Silver, of course, kitchen knives and forks, and cooking utensils require drying, but the tableware, even glasses, need not be dried if you work with hot enough water. For sixty-nine cents

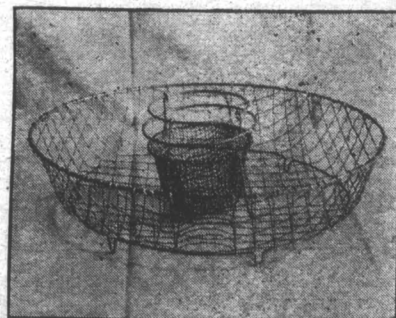


you may buy a wire dish drainer. The cylinder in the center is for the silver. Glasses, cups and saucers may be rinsed as soon as washed and will be dry enough to take out of the drainer and put away when the rest of the dishes are ready to be rinsed, if the water used is really hot.

If you cannot buy the drainer, rinse the dishes as usual in a pan, lay a clean towel on the table, and turn the dishes up on this to dry. This is fully as satisfactory as the wire drainer, and eliminates not only the time taken to dry the dishes, but that used to keep extra towels clean. Dishes set away fresh from scalding water are certainly more sanitary than those dried with the soiled towels all too frequently used in some households.

Keep always on hand a stock of scouring powder, whose true value you know, soap powder, nickel polish and aluminum polish. Scour utensils every time you see a stain. Don't wait until they are in bad condition and then take a day off to clean them up. Soap powder is a great aid to cleaning dishes on which food has burned. Two tablespoons of powder and enough water to cover the bottom of the vessel well, boiled up and allowed to stand a few hours, will usually soften the burned food enough so it will wash off easily, or at least come clean with the aid of a little scouring powder.

If you have aluminum ware, remember you can not clean it as you do enamel ware. The best way to remove brown discolorations, which appear on aluminum so readily, is to fill the dish with water to cover the stains, add an acid, and boil ten or fifteen minutes. One tablespoonful of oxalic acid to one quart of water will accomplish wonders, but the Department of Agriculture has recently warned against using this. Water and vinegar make a good substitute. The quantity of vinegar to a quart of water must be determined by the strength of the vinegar. A half cup of good, strong vin-



Wire Dish-drainer. The Center compartment Holds the Silver.

egar should be sufficient. Cooking an acid fruit, as plums or tomatoes, will also remove stains if not of long standing. If you want to scour aluminum, steel wool is the best thing to use.

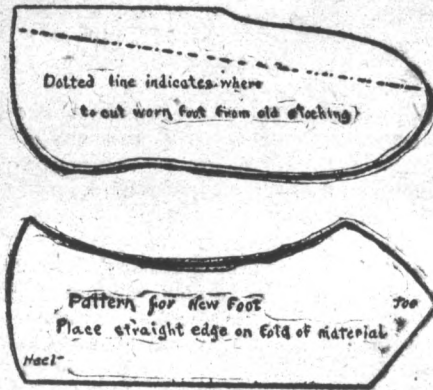
The care of the stove is usually regarded as a part of dishwashing. If you really want to save time, eliminate polishing it. Keep a cloth especially for washing, and one soaked in sweet oil to rub over afterwards to remove rust and help to prevent future rusting. A syrup pail with a tight-fitting cover is a good thing to keep the oiled cloth in. There are many stove oils on the market at fancy prices, but sweet oil answers every purpose.

Refooting Worn Stockings

By Grace E. Swanger

A MOTHER with a family of children to mend stockings for is often confronted by such yawning holes in heels and toes that patching and darning seem out of the question. Having four growing boys to repair hose for and a real need to be economical in the outlay for footwear. I have often been taxed to the utmost to keep the hosiery whole.

It is economy to buy the best grades of hosiery that one can afford. The cheaper grades are cheap, both as to price and wearing qualities. They are so flimsy and have so many loose



stitches that they are not worth mending, while the best quality can be darned, patched and refooted many times.

Years ago I tried the new feet one can buy at ten cents a pair. These would last scarcely a week for a country boy who walks to school in all kinds of weather is hard on hose. I found these boughten feet expensive for the short time they lasted, also that it is cheaper to buy new stockings than to buy feet to repair the old ones.

"Necessity being the mother of invention," I evolved a pattern of my own, which I have used for many years. I find the feet made with it very comfortable, and as I adjust the pattern to fit the different members of the family, our hosiery bill is cut in half. Good tops outwear several new feet, so as long as the tops are good I keep refooting. I use the good parts of discarded tops or the best of old soft-ribbed underwear to make the new feet. For the boys I use only the tops of father's black socks, as the white underwear might show above the shoe tops.

The illustration shows a pattern of the new foot and how to cut the hose with wornout heels and toes. Cut out the foot and take as small a seam as possible in sewing up the heels and toes, then overcast the seam, tack at heels and toes and whip it on. It takes no longer for the refooting than it does to patch, and a refooted pair is as good as new.

Home Queries Answered

The request of the Belleville Subscriber for a recipe for carrot and orange marmalade brought forth so many answers it is impossible to print all. Those sent by the Extension Department of the Michigan Agricultural College, and one sent by Mrs. E. N. P. Leetsville, are given. Thanks are due to the many other readers who contributed:

Carrot and Orange Marmalade.

Seven large carrots cooked until tender, in slightly salted water. Put through grinder when done. Remove seeds from two oranges and one lemon. Put these, rind and all, through grinder, add to carrot pulp and for every two cups of mixture add one cup of sugar. Cook until thick.—E. N. P.

Carrot Marmalade

Two cups ground carrot, one and a half cups sugar, two lemons, two teaspoons ground ginger root. Cook carrot until tender. Add the sugar and lemons, quartered and cut in thin slices. Cook slowly until thick. Do not stir. Pack in hot jars and sterilize. The ginger root may be omitted if desired.

Mock Orange.

Two cups ground carrot, two lemons (juice), one orange (juice and grated rind), one cup sugar. Cook carrot until tender. Add the lemon and orange and cook slowly until thick. Do not stir. Pack in hot jars and sterilize.

Carrot, Pineapple and Rhubarb.

Three-fourths cup of ground carrot, three-fourths cup shredded pineapple, ginger root to taste, one and a half cups unpeeled rhubarb, one and one-fourth cups sugar, one lemon. Cook carrot and pineapple until tender. Add ginger root, rhubarb, cut in slices one-fourth of an inch thick, and lemon

quartered lengthwise and cut in thin slices. Cook all ingredients slowly without stirring, until thick.

Carrot and Pineapple.

One cup of ground carrot, one cup of pineapple, one cup sugar, one lemon. Shred the pineapple and cook with carrot until tender. Add lemon, quartered and sliced very thin. Boil ingredients slowly until thick. Do not stir. Pack in hot jars and sterilize.

Squash, Pineapple and Carrot.

Three-fourths cup summer squash, three-fourths cup pineapple shredded, three-fourths cup carrot ground, three-fourths cup sugar, one lemon. Cut the squash into cubes. Cook the squash, pineapple, and carrot until tender. Add sugar and lemon, cut in thin slices. Cook slowly without stirring, until thick. Pack in hot jars and sterilize.

Ripe Tomato and Carrot.

One cup ground carrot, two cups of ripe tomatoes, one and a half cups of sugar, one teaspoon of ground horseradish, one teaspoon of ginger, one teaspoon of vinegar, one lemon. Cook carrot until tender. Add tomato peeled and sliced; sugar, horseradish, ginger in cheesecloth bag, vinegar, lemon, sliced thin. Cook slowly until mixture is thick. Pack in hot jars and sterilize.

Mrs. F. C. M., Sturgis, thinks her way of removing iodine stains easier than the one given in the Michigan Farmer for January 31. She soaked the stains, one on white linen and one on ecru marquisette, in a sal soda solution, made by dissolving three handfuls of soda in a gallon of warm rain water, then, when the stain had disappeared, washed in the usual way. Iodine spilled on a baby's white canvas shoe she removed by cleaning with regular liquid shoe cleanser.



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WITH your brush and Colgate's Ribbon Dental Cream, sweep up and down—not across. Get between the teeth. Then, with a brushing of the tongue, gums and inside of the cheeks, your mouth will be clean and wholesome. Use Colgate's twice a day (especially at night) and see your dentist twice a year—the safest safeguard against tooth troubles.

Colgate's is sold everywhere—or send 2c for generous trial tube.

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Instant Postum

a snappy, invigorating table beverage made from wheat, with a bit of wholesome molasses. Postum has a delightful flavor, much like a high grade coffee, but there are no coffee troubles in Postum.

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Never anything but the very best—light, flaky and wholesome—because this 30-year favorite of leaveners is absolutely pure in the can—pure in the baking. Contains only such ingredients as have been officially approved by United States Food Authorities.

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You save when you buy it—moderate in price. You save when you use it—has more than the ordinary leavening strength—therefore you use less. You save materials it is used with—never fails. Order today. Improve the quality of your bakings. Reduce baking costs.

Calumet Doughnuts
1/2 Cup sugar, 1 Egg, 3 Level teaspoons shortening, 1 Level teaspoon salt, 1 Cup milk or water, 2 1/2 Level teaspoons Calumet Baking Powder, 2 1/2 Level cups flour. Lemon and mace flavor.

How to make them—Cream sugar and shortening together, add well beaten egg, then add milk. Next mix in flour and baking powder well sifted together. Work dough as little as possible. Turn out on well floured board and roll out quarter inch thick; cut with doughnut cutter and fry in boiling hot fat.

Valuable 72-Page Cook Book
Handsomely illustrated in colors. Most complete and dependable recipe book ever issued. Hundreds of helps in reducing household expense. Scores of selected recipes. Better ways of making better foods. Send slip found in can of Calumet and three 2-cent stamps to help cover cost of packing and mailing. Calumet Baking Powder Co., 4100-4124 Ellmore Street, Chicago, Ill.

BEST BY TEST



A Little Carelessness

SOMETIMES people permit themselves to do careless, stupid things just because it is easier than to take a few extra moments and perform the task whatever it may be, in a workmanlike manner. Sometimes it might seem to be thoughtlessness, with perhaps a tinge of laziness, and that is reprehensible enough. But when one permits herself to do things in such a way that others are endangered, then it becomes more than thoughtlessness and borders on criminal selfishness. Let me give you a few examples.

Only a short time ago a mother wished to use some gasoline. She looked about for a bottle in which to put it, and finally found a good-sized one which had been purchased full of a sweetened summer drink. She rinsed the bottle out, had it filled with gasoline, used part of it, and set the remainder back on the shelf. Now, it would only have been a few minutes' work to soak off the label which declared the contents to be Pineapple Punch, and to have pasted a plain white label on marked "Gasoline." Or if her haste had not been too great she could have pasted the new label over the old one, or at least have set the bottle away where it would not be mistaken by anyone not knowing the contents.

Her small daughter came along soon and, remembering the flavor of the beverage took down the bottle, and being very thirsty, drank freely before

she was warned by her taste to stop. At last reports the attending physicians said she would probably die.

The driver of an automobile who found it necessary to leave his car standing a moment, thought it unnecessary to put on the brake. He was delayed a few moments longer than he had expected. The car rolled slowly down a curved driveway, gathered momentum, and struck a baby carriage left for a few moments by the hedge. The child was spilled out and received a hip injury. The prospects are that it will be a cripple for life.

A bottle of strong acid was set on the very end of a narrow shelf in the bath room. Directly over the bottle was the chain which pulled on the light of the electric fixture just above. A small boy going into the bath room after dark reached up for the chain. His groping fingers touched the bottle, which was loosely stoppered. It toppled off into his face, burning him and injuring his eyesight.

Now none of these acts of carelessness, which might be multiplied indefinitely, were in themselves of the slightest malicious nature. They were simply thoughtless, stupid acts which any intelligent person could have avoided with a little thought. The old plea, "I didn't know it was loaded," is right

ly met with impatience, and there is small reason to excuse any carelessness which either inconveniences, or exposes others to unsuspected danger.

Why Magazines Are Delayed

READERS who have subscribed for magazines through this office would confer a great favor by withholding complaints about not receiving their papers. In all cases these subscriptions have been promptly forwarded by this office to the publishers, but upon investigation we find that industrial conditions have prevented these companies from starting the subscriptions on the date ordered.

The strike among New York printers forced many publishers who have large circulations to omit the January numbers. Other publishers have and are attempting to get out all the current issues, all of them being delayed; the large increase in business received by many publishers has forced some of them to hold up thousands of subscriptions ordered to begin with January or February, until they could get out their March and April issues.

The Crowell Publishing Company, owners and publishers of both the American magazine and the Woman's Home Companion, have just advised us that on all subscription orders received by them on and after December 15, 1919, they have been obliged to enter such subscriptions to begin with the March issue, because of an enormous increase in business amounting to one hundred and twenty-four per cent in December.

The Pictorial Review Company have advised us as follows: We are sorry to have to report to you that it will be impossible to begin subscriptions to Pictorial Review until the April issue (out late in March). Our printing plant simply cannot catch up with our orders until then. We are working night

and day to keep pace, but in spite of printing over two million copies per month, we can't keep up with the demand. The copies you see on the news stands here and there have been contracted for months and months in advance, and in many cities we have had to refuse to accept advance orders. We will, of course, extend your orders so that you will receive the magazine for the full period subscribed for."

McCall's Magazine omitted the January issue and started all subscriptions with February.

People's Home Journal omitted the January issue and started all subscriptions with the February number.

Illustrated World ran out of both January and February numbers and were obliged to hold orders and begin with the March issue.

Boy's Life has not issued their January, 1920, number. The December number was mailed out during the week of February 10. January and February numbers will follow shortly.

January numbers of Cosmopolitan Magazine and Hearst's Magazine were started out in the mails beginning the week of February 10.

Good Housekeeping omitted the January number and began subscriptions with February, now being mailed.

These conditions, as you can appreciate, are matters entirely beyond our control, and we trust that under the circumstances, you will cooperate with us and withhold complaints. In every case where a publisher has omitted any issue or issues, all subscriptions will be extended for the full term ordered by you.

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The responsibility of your seedsman is as important as the stability of your bank. No seed house in any part of the world has higher standards than Salzer.

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For 52 years we have kept faith with thousands of successful farmers. Every resource known to the science of seed improvement is used at our great trial and propagating grounds—Cliffwood and Fairview. Quality seeds—and quality seeds only—bear the seal of this house. Delivery of your order is guaranteed.

Send TODAY for a copy of our 1920 catalog—168 pages, profusely illustrated—98 pages showing 275 Salzer varieties in actual color. A postcard will bring it to you—FREE.

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100 Everbearing Plants \$2.00 Post Paid
200 for \$3.85, 300 for \$5.50. American, Progressive, Superb, Francis, Peerless—some of each while in supply. When sold out of one or more we will send the others. Catalog Free.

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Add a rich "June shade" to the splendid taste of your butter and get top prices. Try it! It pays!

Dandelion
BRAND
Butter Color

gives that even, golden shade everybody wants. Purely vegetable. Harmless. Meets all laws. Small bottle costs few cents at any store. Enough to color 500 lbs.

Strawberry plants, 100 early to late, \$1.00, postpaid. Catalog of plants and trees free. L. L. G. TINGLE, Box 7, PITTSVILLE, MD.

SWEATER FROM KNITTED SCARF SHAWL.

MY shawl was just the right width for a sweater.

Sew the ends together, leaving an opening large enough to admit the head. Then cut the shawl off at the waist line, or longer if the shawl will permit, and you so desire it. Sew up the sides, leaving space to sew in the sleeves.

If a "slip-on" sweater is desired, finish neck with a row of single crochet. If a coat sweater is preferred, stitch up and down the center of front four times on sewing machine, not more than one-eighth of an inch apart, then cut down middle. The stitching will prevent raveling. Now crochet a row of single crotchet over both front edges, then pick up the crotched stitches on knitting needles, and knit plain back and forth until you have a band one and a half inches wide. Bind off.

Now pick up stitches on bottom of sweater and knit three inches ribbed knitting (two plain, two purl). Bind off.

Cut remainder of shawl in two; for sleeves, sew edges together until about to elbow, then take in a larger seam, as sleeve would be too wide. If sleeve is proper length knit a ribbed cuff the desired length. Use fine needles for cuffs and bottom of sweater if cut off at waist line.

Finish neck with a sailor collar of plain knitting, making it just the width the neck measures, and knit back and forth plain until about square. Bind off, and sew to neck of sweater.

I colored mine a light blue when finished, then crotched a little scalloped edge around collar and down fronts with white wool.

(Writer please send name and address).

CHOOSE FOOD FOR MINERALS.

IF you have growing children, or if the doctor tells you that you need more iron, paste this over the table and include some of these foods in your daily meals:

Foods Rich in Iron.

Dried lima beans.	Oatmeal.
Dried navy beans.	Egg yolk.
Dried peas.	Prunes.
Whole wheat.	String beans.
Lean beefsteak.	Wheat flour.
Spinach.	Corn meal.
Raisins.	

Foods Rich in Calcium.

Almonds.	Peanuts.
Dried navy beans.	Turnips.
Egg yolk.	Parsnips.
Milk.	Carrots.
Dried peas.	Oranges.
Oatmeal.	Prunes.
Walnuts.	

Foods Rich in Phosphorus.

Dried peas.	Oatmeal.
Dried navy beans.	Walnuts.
Egg yolk.	Lean beefsteak.
Whole wheat.	Low-grade flour.
Peanuts.	Prunes.
Almonds.	Patent flour.

THINGS TO KEEP IN THE EMERGENCY DRAWER.

Every household should have an emergency drawer of linen and underwear to be used in the event some member of the family is hurt or suddenly taken ill. A home demonstration worker in a western agricultural college gives the following suggestions for stocking such a drawer:

Four plain, substantial sheets, four plain, untrimmed pillow cases, one pair of clean blankets, one white counterpane, two women's night gowns, two men's night-shirts or pajamas, six soft towels, six wash cloths, bathrobe.

Above to be clean and within easy reach in case of emergency.

Household Editor.—Will some of the readers of the Michigan Farmer help me in this dilemma? I was making hard soap a few days ago and stirred it too much, so that the lye and grease separated and I can't get them to unite to form soap. I will be very grateful for any help.—Mrs. B.

Lily White

"The Flour the Best Cooks Use"

makes the kind of bread you can serve three times a day and always have it eaten.

And good bread is an excellent body-builder. It is a splendid food for children.

In fact there is nothing better for the kiddies than good bread and butter or bread and milk.

It makes them grow sturdy and healthy.

But you *must* have good bread for old or young. It should be light, tender, flavory and wholesome—just the kind LILY WHITE, "The flour the best cooks use," bakes.

Better baking satisfaction or your money back is guaranteed.

VALLEY CITY MILLING COMPANY

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The Perfect Salt for All Purposes on the Farm.

For use in salting meats—salting butter, stock feeding, cooking for the table and for all other purposes where salt is used on the farm.

COLONIAL SPECIAL FARMER'S SALT

is the quickest dissolving and highest grade salt produced. If it should happen that your dealer is not handling our salt, write us.

THE COLONIAL SALT COMPANY

AKRON, OHIO
Chicago, Ill. Buffalo, N. Y. Boston, Mass. Atlanta, Ga.

MICHIGAN FARMER PATTERNS.

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



No. 2882—Girl's Dress. Cut in five sizes, 4, 6, 8, 10 and 12 years. Size eight requires $1\frac{3}{4}$ yards of 27-inch material for guimpe, and $2\frac{3}{4}$ yards for the dress. Price 10c.

No. 3141—A Simple Dress. Cut in four sizes, 2, 4, 6 and 8 years, and will require $2\frac{3}{4}$ yards of 27-inch material for a four-year-size. Price 10c.



No. 3138—Girl's Dress. Cut in four sizes, 6, 8, 10 and 12 years. Size 10 will require $1\frac{3}{4}$ yards of 27-inch material for the guimpe, and $3\frac{3}{4}$ yards for the dress. Price 10c.

No. 2883—Boys' Suit. Cut in five sizes, 2, 3, 4, 5 and 6 years. Size four requires $2\frac{3}{4}$ yards of 44-inch material. Price 10c.

When You Write to Advertisers Please Mention This Paper.

Mother Needs a HUMPHRYES WATER SYSTEM

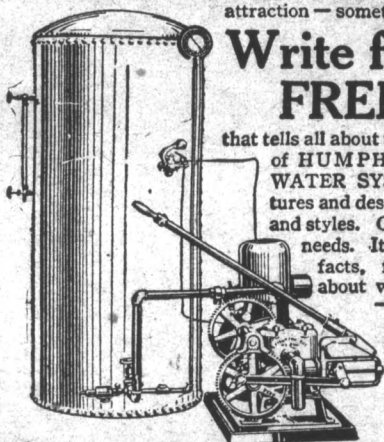


Water for the dishes. Water for the washing. Water for the kiddies. Water for the bath. Water for the garden. Mother has a hundred and one uses for it, and she uses it every minute of the day.

Install a HUMPHRYES PERFECTED WATER SUPPLY SYSTEM for her. Banish one-half the drudgery of her work by enabling her to have all the water she wants right on tap. You too, like thousands of other farmers, will find a water system

The Greatest Time and Labor Saver In the Home and On the Farm

And you too, will find the HUMPHRYES PERFECTED WATER SYSTEMS the best suited to your all around needs. HUMPHRYES PERFECTED SYSTEMS are all that the name implies. They are improved and have a number of new and exclusive features. Every feature is an added attraction—something that everybody wants.



Write for Our Big FREE BOOK

that tells all about the many superior features of HUMPHRYES PERFECTED WATER SYSTEMS. This book pictures and describes a number of sizes and styles. One of them will fit your needs. It is also chock full of facts, figures and information about water supply—how to get it—how to use it—how to keep it.

Go to our dealer in your town and get a copy of this valuable book. He will demonstrate a complete line of HUMPHRYES PUMPS AND WATER SYSTEMS. If you don't know the name of our dealer, write to us.



THE HUMPHRYES MFG. CO. MANSFIELD OHIO

Poultry Raisers

You Can Make

Big Money with a Belle City

Because it's a time and labor saver—low in cost—economical—convenient—with a record for fifteen years of unflinching service as a wonderful hatching and brooding outfit.

Get into this profit-paying business now. It's money for you right from the start. Write today for Free catalog "Hatching Facts." It tells how easy it is to make big profits with my

\$12⁹⁵ 140-Egg Champion Belle City Incubator

The Prize-Winning Hatcher with Fibre Board Double Walled construction—Self-regulator, Thermometer and Holder, Copper Tank, Safety Lamp, Deep Nursery, Egg Tester, etc. When ordered with my \$7.55 Hot Water, Double-Walled 140-Chick Brooder—guaranteed to raise the chicks—making a complete hatching outfit—both only **\$18.50**

Freight Prepaid East of Rockies Towards Express

and allowed to points beyond. Used by over \$15,000 successful poultry raisers. With this Guaranteed Hatching Outfit your success is assured. Save time—Order now—Share in my \$1,000 in prizes—or write today for my big, Free catalog—"Hatching Facts," and get all the particulars. Jim Rohan, Pres.

Belle City Incubator Co.
Box 14, Racine, Wis.



POULTRY

ANCONAS Eggs ANCONAS
Now is the time to place your order for HATCHING EGGS. Write for prices C. & M. WHITTIER Hand Station, Michigan

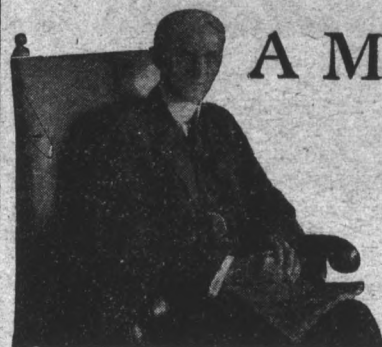
BABY CHICKS S. C. W. Leghorns, White, Buff Barred Rocks, S. C. R. I. Red, Anconas, White Wyandottes, Buff and Brown Leghorns, 25 for \$6.25, 50 for \$11.00 for \$20. Fenton Chicken Hatchery, Fenton, Mich. Box 244.

Baby Chicks S. C. W. and Brown Leghorns, and S. C. Anconas. Healthy, vigorous, and from a good laying strain. We guarantee safe delivery. Order now. Seventh season. Send for price list. City Limits Hatchery and Poultry Yard, R. 5, Holland, Mich.

Barred Plymouth Rock Cockerels, large, from prize-winning laying strain, \$5.00 each. J. A. BARNUM, Union City, Mich.

Barred Rock Baby chicks a specialty. We are booking orders now for 1920. Apply for terms. H. H. PIERCE, Jerome, Mich.

Our Boys' and Girls' Page



A Message to Farm Boys' and Girls'

By Henry Ford

THE editor of the Michigan Farmer asked me whether I would write a short message to the boys and girls of Michigan farms and I have been more than glad to accept the opportunity he offered, because of the real pleasure it brings.

My own boyhood was spent on a Michigan farm. I did all the chores which the average farm boy does today—with the exception of washing up the automobile—and I knew all or the most all of the pleasures he enjoys. My terms in the district school left remembrances which are still fresh in my mind, just as your school days will always be a green spot in your memory. I well remember spending a rainy Saturday in the barn making a waterwheel which I took to school with me the following Monday. There was a brook near the school and the boys built a rude dam across it and fastened the wheel so it got the full effect of the water. The experiment was a complete success we thought, and we went home well satisfied. That night, however, a farmer who lived near the brook opened the door of his cellar and saw his potatoes bobbing around the top steps. His cellar was full of water. He investigated and found that the brook had overflowed its usual banks and had poured through his cellar windows. Tracing the trouble to its source he discovered our dam. Needless to say he demolished the dam and waterwheel in far less time than we spent building it.

Happily, all projects for the development of water power do not meet with the same sad experience that befell our dam and wheel. Men today are more and more coming to a realization of how much they can make the little streams through and around their land do for them if they put them to work. And so, while life on the farm today is far easier for your parents than it was for your grandparents it will be still easier for you because the adoption of water power and modern labor-saving devices will not only increase productivity on the farm, but at the same time decrease the amount of hard work.

Agriculture is the greatest of the three arts—farming, manufacturing,

transportation. The world is just beginning to appreciate that fact, and there was never a greater or better opportunity for the boys and girls of the farm than there is today. The world is demanding more and more food and there is just one place that this food can come from. They can't manufacture food in factories and they can't grow it in railroad trains. The factories can dress the food up a bit and the railways can transport it, but they can't produce it. Only from the farms can we get the food that feeds the world.

Modern farmers have grasped the fact that the demand is greater than the supply and they are meeting the situation with new methods. You have tractors for plowing, gasoline engines for churning, "bucking" wood, turning the grindstone or running the generator which supplies your home with lights. It is going to be but a short time before the old cook stove will be banished from the farm kitchen and the electric range will take its place, for with the gasoline engine and electric generator every convenience that a city home enjoys will be possible in the country.

You will live to see the day when the fences between your fields and those of your neighbor will be taken down and the fields all thrown together. You will enter into partnership with other farmers of your neighborhood and you will buy trucks, tractors, electric light and power outfits with which to do your work and to make possible the things which will add to your comfort. In this way every farmer in the group will have the advantage of modern labor-saving devices which otherwise might be out of reach of the men with small holdings. You will share in the profit according to the amount of land you have and the amount of work you do, just as the stockholders of a manufacturing concern will share on the basis of the amount of work they will produce.

The farm home of the future, with its green lawns, its fresh air and its many comforts, is going to be a far more attractive place than anything you can find in the city. Connected with the city by good roads, by telephone and rural mail deliveries, the farm dweller has all the advantages and none of the disadvantages of city life. The fact is being more widely realized today than at any time during the past two generations. More



Mr. Ford Takes Great Delight in His Garden.

Safety First

Why let your chicks and Turkeys die, when you can secure a life saver. Just try one package and prove.



F. P. C. CHICK MANNA

Fed During Most Critical Period—First 10 Days. Saves Baby Chicks and Turkeys. Prevents Losses—Produces Quick Healthy Growth. They Thrive Wonderfully on it. Used 35 Years. SATISFACTION OR MONEY BACK. Ask your dealer to supply you. Send to us for Booklet and Prices. Standard Baby Chick Food Since 1884. F. P. Cassel & Son, MF Lansdale, Pa.



103-DEGREE INCUBATOR

With the Tilting Chimney. Regulates the heat before it enters boiler. Not afterwards. Automatic, one regulation, even temperature, thorough ventilation, not just claims, but all guaranteed. No night watch. No roasted eggs. No blankets. More chicks with less attention. Patented two-circuit hot water heating plant. No incubator cellar needed. Room temperature may vary 65 degrees 4 sizes. Backed by the strongest incubator guarantee ever written. Write today.

ONE HATCH 103-Degree Incubator Co. FREE Box 105 Crown Point, Ind.

Ring Neck Pheasants

THOROUGHBREDS PAY

Lay 40 to 50 eggs each per year—Raised as easily as chickens—Only eat half as much—Very profitable—Bring \$2.00 per pound alive.

Genuine Wild Mallard Ducks

Lay 50 to 60 eggs per year—Guaranteed to be only from Wild Trapped Mallards.

Giant Bronze Turkeys

Prize Flock, headed by 55 pound tom.

S. C. R. I. Red Chickens

Fine laying strain of prize birds.

Send for Free Booklet of Instructions and Price List of Eggs.

Bloomfield Farms
America's Largest Game Farm
1778 Penobscot Bldg.
Detroit, Mich.

Hubers Reliable Chicks

500,000 FOR 1920



By Parcel Post Prepaid. Delivered to you. Guaranteed Live Delivery. Eggs for Hatching by the Setting or 100.

We have installed the most modern features of the Hatching Industry which will insure chicks as strong as Hen Hatched Chicks and Full of Pep.

This is our 11th season. With the great increased demand for our chicks and the fine reports and praise from our customers, we are from Stock of Good Quality. Bred for Heavy Egg Production and that they are Properly Hatched. Stop your loss by buying our Reliable Chicks.

We hatch all our chicks from pure bred, free range farm stock. S. S. White and Brown Leghorns, S. C. Anconas, Barred Rocks, S. O. and R. C. Reds, S. C. Black Minorcas, and S. C. Buff Orpingtons. Special combination offer on chicks, hoppers and brooder stoves. Before buying elsewhere send for free illustrated catalog and prices. Place your order at once and avoid disappointment in the rush of the season.

Hubers Reliable Hatchery
East High St. FOSTORIA, OHIO

DAY OLD CHICKS

New Spring Catalog

The Day Old Chick business is on. The most complete Catalog we have yet published. It will help you. Thirteen Heavy Breeds. Three Especial Egg Breeds.

You will be particularly interested in the extra heavy laying breeds: White Leghorns inspected and certified as heavy producers by the Poultry Extension Specialist of the Agricultural College.

Cockerels—Still on hand fine Barred Rocks, White Wyandottes, R. C. Brown Leghorns, Turkey—One White Holland Tom.

We solicit your interest in the Homestead Farm plan of Pure Breed Poultry raising.

STATE FARMS ASSOCIATION
Kalamazoo, Mich.

Desk F. Additional Poultry Ads. on Page 385

and more men in the cities are turning their thoughts to the land, with its prospects of a good income and its assurance of independence. The cities have grown too large for their own good and the people who make up the population of the cities are beginning to pay the penalty.

HOLSTEIN-FRIESIAN SCHOLARSHIP.

THE Holstein-Friesian Association of America again announces the offer of a \$400 scholarship to the student making the highest score in judging Holstein cattle at the Students' National Contest in Judging Dairy Cattle, held in connection with the National Dairy Show at Chicago.

Every year since 1910, with the exception of 1915, this scholarship has been offered. In 1915 no Students' Judging Contest was held as there was no National Dairy Show that year.

Last year Miss Elizabeth R. Cook, a senior at Cornell University, won a place on the judging team and proved herself a real cattle judge when in competition with ten men she was first in placing the Holsteins. Miss Cook is the only woman who has ever competed as a student judge in the ring at Chicago. She will use this scholarship for taking postgraduate work in dairy husbandry at the University of Iowa at Ames, this fall.

The value which each contestant receives from his actual experience in the judging ring does not measure the value derived from this scholarship. In



Miss Elizabeth R. Cook.

the preliminary training of these student judges intensive work is given to perhaps twenty-five to fifty students in order to select three men or women, best fitted to represent the college at the contest. Twenty colleges having teams represented would have the effect of giving intensive training to approximately five hundred students each year, who will leave college with a relatively strong impression as to the importance of dairy cattle and dairying as a whole in the agricultural work. This assumption has been borne out by the fact that out of three hundred and fifty-nine contestants in the Students' Judging Contest since 1903, ninety-nine per cent are engaged in some form of dairy work.

It may be interesting to note the work engaged in by the winners of the Holstein-Friesian scholarships:

Mr. T. B. McNatt, of the University of Missouri, won the scholarship in 1910. He took his postgraduate work at Cornell University and is at present engaged in the successful operation of a dairy farm near Memphis, Tenn.

Mr. Karl B. Musser, a member of the Kansas team, won the 1911 contest. He took his post-graduate work at the University of Missouri and since the completion of his course has been at work in Connecticut, and has for the past twelve months been engaged in dairy extension work in the state of Washington, where he has supervision of about eleven cow-testing associations, one bull association, and is (Continued on page 385).



Built into every Foot of

Raybestos
BRAKE LINING

We could put a low grade of asbestos in Raybestos. We could cheapen its manufacture in many ways, but then it would be merely "brake lining" and not Raybestos. But we create brake lining service, long life and reliability, by building WEAR into every foot of Raybestos. It is this sturdy, dependable quality that enables us to guarantee Raybestos to WEAR one year.

To get this satisfactory WEAR, plus our guarantee, buy real Raybestos when you need new lining for your car and be sure to look for the Silver Edge.

For FORD Cars

Use Raybestos (without wire) for the transmission. \$2.25 per box. Raybestos Rolled Steel Cam Brakes \$2.50. Raybestos External Emergency Brakes fit drums now on your car. \$10 at your dealer's.

If your car needs new clutch facing, be sure to ask for Raybestos Molded Disc Clutch Facing, patented and guaranteed.

THE RAYBESTOS COMPANY,
Bridgeport, Connecticut

Why not pay a few cents more for wear?



The Markers Change Place Automatically

IF YOU have never operated a new International or C B & Q Corn Planter, you have a treat in store for you. These planters have every convenience for efficient, labor-saving operation. For instance, when you reach the end of a row it is not necessary to pull the marker over—there is a folding marker on each side and the pressure of the soil automatically swings one out and folds the other in, lifting it out the way, as you turn the planter. This is an exclusive feature on International and C B & Q planters.

You will appreciate also such features as the foot drop lever for planting head rows or dropping hills without wire; the tongue adjustable to the height of the team, insuring accurate checking; variable drop clutch that will drop 2, 3, or 4 kernels to the hill as desired; check spring that makes action of shaft quick and dropping of valves accurate; foot lever and balancing spring that help raise runners.

The next time you happen to be in town, ask your International dealer about these planters. Meanwhile, let us send you a descriptive catalog.

INTERNATIONAL HARVESTER COMPANY
CHICAGO OF AMERICA U S A



FREE

To Every Farmer in MICHIGAN

We want to send every farmer in this state a big sample of RYDE'S CREAM CALF MEAL, the complete food for calves—the most successful substitute for milk.

Just fill out the coupon below (use either pen or pencil) tear it out and mail it to us today. Then we will send you this generous sample by return mail—absolutely free of charge and postpaid.

We are making this free sample offer so that every farmer in the state can thoroughly examine

Ryde's Cream Calf Meal

We want every farmer who raises calves to have the chance of feeling it and seeing how much finer it is milled—just like flour. We want you to taste it and smell it and see how appetizing and easily digestible it is, and how much better it is than others.

We'll also send you FREE our valuable new book on calf feeding that tells how you can raise bigger, better calves, without milk, and for less money. Also how 100 pounds of RYDE'S CREAM CALF MEAL will equal 800 pounds of milk in feeding value.

Send the Coupon Now



Fill out the coupon and mail it today. And then after you have examined it for yourself, we will make you this liberal offer. Go to our dealer in your locality and try one sack at our risk. If it isn't the best and cheapest calf food you have ever used, take the empty sack back and get your money. We stand back of all our dealers on this offer. So send the coupon now and get your FREE sample of RYDE'S CREAM CALF MEAL.

RYDE & COMPANY

5430 W. 12th Street, Chicago, Ill.

Please send me Free Sample of your Cream Calf Meal as advertised in my farm paper.

Name

Town

State..... R. F. D.....

Maple Sugar and Syrup Industry

(Continued from first page).

the syrup of every maker in Michigan who desires to receive a price that will pay him a return for his "cost of production plus a fair profit."

Such a plan if put into effect will eliminate a possible five middle charges that are now borne by the consumer. It is certain that the consumer will not be compelled to pay more than the present prices (as high as six dollars per gallon for some brands) asked by some retail dealers, and it is reasonable to hope that with the proper cooperation with the Farm Bureau organization and Consumers' Leagues, that the prices might be lowered to consumers as well.

The plan under consideration by the association contemplates a central sterilization and canning plant with storage facilities for quantities of syrup. This plant will be owned and operated by the association. In many respects similar to the modern up-to-date cooperative creamery. The syrup as soon as boiled down on the farm will be shipped in large cans or steel barrels to the association plant where

ance as comes to all members from time to time.

Financing the Plant.—This matter is to be worked out by the committee of ten men appointed to perfect the plan. That it must be cooperative is self-evident. There should be a board of control or executive committee, and every safeguard placed around the officers and members to insure exact and perfect management.

Secretary.—A well paid secretary-manager should be employed to conduct the business. He should be a broad-gauge man of training in the various phases of maple production, from the proper management of the vast acreage of sugar bushes of the state to the details of production and marketing. He should have a wide range of vision and an enthusiasm for the work. He should be able to go into the field and assist the makers with their problems as well as to conduct the canning plant or the marketing work. Such a man would cost money, and the money for such a man would be well spent.

This plan presents to you the important items of most vital moment in the successful growth of the maple industry. In fact, at the present rate of removal of sugar bushes in Michigan, we may safely predict a steady decline in the importance of maple syrup and sugar making. Coupled with this appalling destruction of a profitable resource is the present haphazard method of marketing the product.

In order to offer a temporary service to producers and with a view to bringing about a unity of action by them in the matter of the plan above outlined, the association has found it possible this year to extend to its members a price in excess of the price being paid for Vermont and New York syrups. Our members, who have private markets will not generally care to sell through the association this year. Those members who have the sugar bushes and who should produce syrup will be able to go ahead, knowing that a market awaits for every gallon.

By finding this market for syrup this year, the association is able to remove those objections based on poor markets, or over-production, which have heretofore been so serious an obstacle to the maker who does not have his own trade list, and has thus performed a most valuable service to him.

This very simple looking piece of equipment may, and frequently does, cause trouble. Sap may sour in the buckets or in the spouts. In either case the quality of syrup will be lowered. Also keep your buckets covered. A scheme that will save you many steps while collecting is a signal riveted on this type of cover, while on the flat cover one side may be painted white and the other side red. Change signal or cover when you empty the bucket.

It will be tested, weighed in and credited to the proper maker. The product will here be assembled in storage tanks or held in the barrels until ready for sterilizing and canning, or blending for uniformity of color.

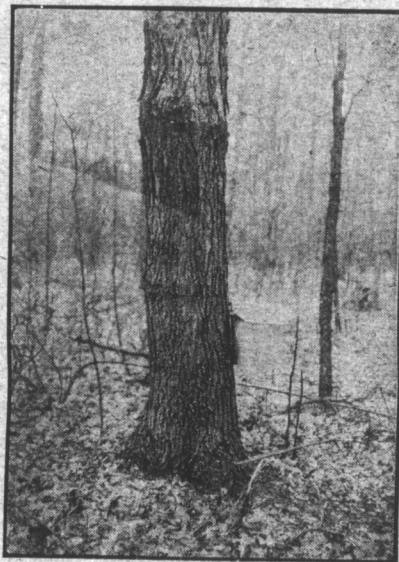
Canning.—This feature is a very important one in the handling of the product by this system, and whether tin or glass is used, the attractive form in which a luxury is presented to the buying public very largely determines the demand for the product.

Marketing.—Under this plan the association will be able to guarantee its product absolutely and the fancy trade solicited and handled without the fear of failure to supply a uniform product, as was found to happen under the "each maker for himself" method. Private trade now supplied by the individual maker should not be disturbed. There is often a matter of sentiment on the part of the well-to-do city man who feels that he wishes his maple syrup to come from the farm direct. He believes it tastes "purer" or has a "stronger maple flavor," or a "darker color." These customers need not be given up by the member when he joins the association.

The association cannot materially benefit such a maker except to help him to raise the price of his product and to give him such aid and assist

Beyond the minimum price of \$1.75 per gallon, with steel barrels furnished free, which the Michigan Maple Syrup Makers' Association offers this season, to its members, there is no limit to the price which a maker may receive from his private trade. It must be fully understood that each member is free to sell where he chooses. In other words, becoming a member of the association in no way obligates him to sell at this price and through the association market. On the other hand, every member can produce maple syrup at a profit if he sells through the association and he has no excuse for refusal to operate his bush. The association thus simply assures a market to every sugar bush owner. As this help thus offered and still refuses to join in the big move to unite syrup makers of Michigan, A dollar paid in dues not only brings back to you, if you are a syrup maker, better prices and easier marketing conditions now, but it helps to prepare the way for a bigger industry that will be founded on the unity and strength of an organized membership. It will thus control its market as well as its production and so guarantee the continuance of the business.

Without this cooperation of growers the production of maple products must fall rapidly into decline in Michigan.



VALUABLE DATA GATHERED IN THESE RURAL SURVEYS.

COLUMBIA and Price counties are the first of the Wisconsin counties to complete the surveys made under the direction of the Interchurch World Surveys. In these counties the data is complete and local groups are developing plans along the lines suggested by the reports.

"We are collecting statistics in each county about farm tenancy, the condition of the roads, the trade areas about each town, and the various community and social activities," say F. E. Wagg and E. W. Blakeman, who are directing the survey. Mr. Blakeman is pastor of one of the student congregations at the University of Wisconsin, while Mr. Wagg is a lecturer in agricultural economics. The returns in each county are available for distribution to anyone in the county. The churches and various farmers' clubs and other social organizations, are using the material in the survey as guides for understanding their local rural problem.

An example of the valuable data brought to light by the surveys is shown in the condition of the churches in one of the counties. The survey found thirty-eight churches with a total of twenty ministers in the county. Only three of the ministers were able to give full time to their church. Six of them served two churches, six served three churches, and five served four or more churches. Salaries ranged from \$500 to \$2,000, and the majority of the ministers received a salary ranging from \$500 to \$1,200.

Seven of the ministers in this county travel twelve miles or more to hold preaching services, three travel twelve miles, one goes thirteen miles, another twenty miles, another twenty-nine miles, and one pastor travels one hundred and fifty miles from another state to hold a service once a month. Under these conditions it is readily seen why only seven churches in the county hold two services or more on a Sunday, and eleven hold but two Sunday services a month.

BEST BROILER-BREED.

WHICH breed will produce meat the most profitably? We believe that the American breeds are best, such as the Plymouth Rocks, Wyandottes and Rhode Island Reds. The Barred Rocks are vigorous and mature early. White Wyandottes are possibly the premier broiler chicken because of the plump carcass free from all dark pin feathers.

White Leghorns are good for squab broilers and they mature rapidly but for the trade demanding a two and a half to three-pound bird, the American breeds seem to meet with more favor. The heavy Asiatic breeds, like the Brahmas and Cochins, grow to a large size, but their growth is not rapid and broilers must be developed quickly and have a frame containing meat as well as feathers and bone. The feed bills determine the profit on the broilers and this makes the factor of early maturity of prime importance.

Select the breeding stock with regard for early maturity and vigor. The birds that are slow in feathering are apt to be lacking in vigor and, of course, they are not easily developed into good broilers. It stands to reason that their progeny is apt to be endowed with the same characteristic. By selecting the best birds for breeders we can develop a strain in most any breed that will show a vast improvement in the quality of the broiler stock.

Do not try to make quality broilers out of black feathered breeds. Undoubtedly the quality of the meat will be first-class but the customer will not know that. Broilers are difficult enough to pick clean without having black pin feathers to complicate the work.



GEHL

An Ensilage Cutter that is remarkable for its fine clean cutting, capacity, durability, safety, and light power requirements.

Any 8-16 Tractor Runs a Gehl 17

Due to its separate control of cutter head and blower speeds the Gehl Cutter never wastes power on any silo — has six fan low speed blower, heavy all steel frame, positive safety device, and a self feeder that

Requires No Man at the Feed Table

Here is an example of economy—a machine that not only fills your silo, but can also grind alfalfa hay — dry corn stalks, soy beans, sweet clover or any other form of dry roughage. This means a saving of from 20 per cent to 50 per cent.

Our new catalog gives complete information about Gehl Cutters and some useful ideas about conserving and getting more profits out of dry feeds. Write today.

GEHL BROS. MFG. CO.
111 South Water Street
WEST BEND, WIS.

Give us the height of your silo, size of engine and size and speed of pulley and we'll forward complete information about the right size of Gehl Cutter



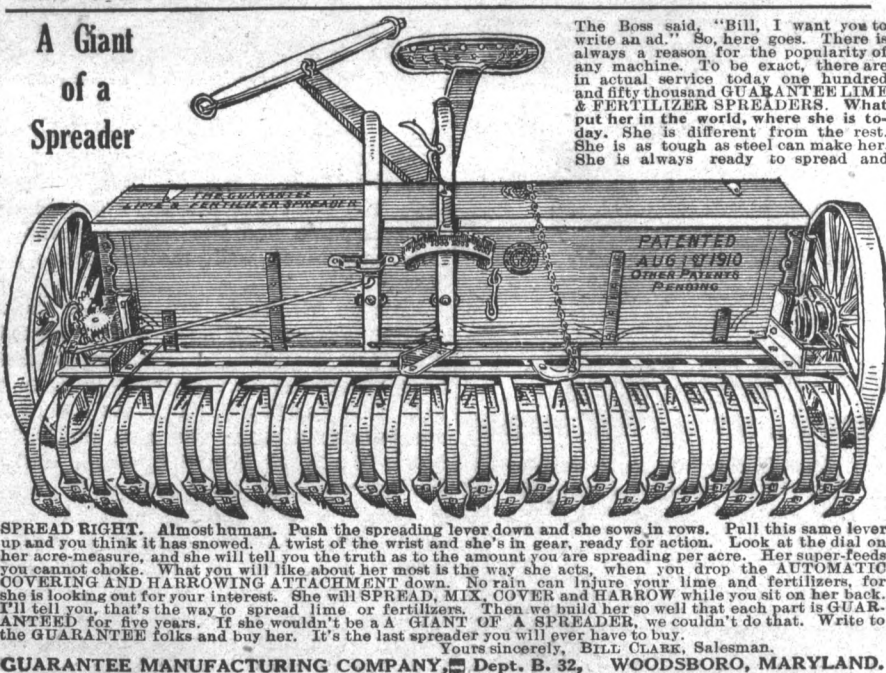
One Man and Three Double Units

In this dairy one man and three double unit Empire Milking Machines milk 45 cows in an hour. Pretty good work, but it shows what can be done.

The Empire was adopted in this dairy because of its reliability — because they wanted to get away from the drudgery of hand milking — and because the dairyman was convinced that its action was so gentle and soothing that it could not hurt his cows. Visit our nearest dealer or write for catalog 23-M

The Empire Cream Separator Co.
150 Nassau St., New York
Chicago, Denver, Atlanta, Toledo, Syracuse, Minneapolis, San Francisco, Montreal and Toronto
Also manufacturers of Empire Cream Separators, and Empire Gasoline Engines

EMPIRE MILKING MACHINES



A Giant of a Spreader

The Boss said, "Bill, I want you to write an ad." So, here goes. There is always a reason for the popularity of any machine. To be exact, there are in actual service today one hundred and fifty thousand GUARANTEE LIME & FERTILIZER SPREADERS. What put her in the world, where she is today. She is different from the rest. She is as tough as steel can make her. She is always ready to spread and

SPREAD RIGHT. Almost human. Push the spreading lever down and she sows in rows. Pull this same lever up and you think it has snowed. A twist of the wrist and she's in gear, ready for action. Look at the dial on her side, and she will tell you the truth as to the amount you are spreading per acre. Her super-feeds you cannot choke. What you will like about her most is the way she acts, when you drop the AUTOMATIC COVERING AND HARROWING ATTACHMENT down. No rain can injure your lime and fertilizers, for she is looking out for your interest. She will SPREAD, MIX, COVER and HARROW while you sit on her back. I'll tell you, that's the way to spread lime or fertilizers. Then we build her so well that each part is GUARANTEED for five years. If she wouldn't be a GIANT OF A SPREADER, we couldn't do that. Write to the GUARANTEE folks and buy her. It's the last spreader you will ever have to buy.

Yours sincerely, BILL CLARK, Salesman.

GUARANTEE MANUFACTURING COMPANY, Dept. B. 32, WOODSBORO, MARYLAND.

Faster, Cleaner Shearing With Machine

Old methods of sheep shearing are slow and waste 15% of the wool. When you shear with machine you not only get more wool the first cut, but the wool crop grows with each successive season. The wool is longer and better, and brings highest prices.

The Stewart No. 9 Ball Bearing Machine is profitable if you have only a dozen head. It's a time and money saver on flocks up to 300. Easy to operate — strongly built. Price, \$19.25. If your dealer doesn't have it, you can buy from us by sending \$2 and paying balance on arrival.

For flocks up to 3,000 the Stewart Little Wonder is a marvel in power-operated equipment.

For larger flocks you can operate as many power shearing units on line shaft as needed.

Write for our 1920 catalog and price list.

CHICAGO FLEXIBLE SHAFT COMPANY
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FARM FOR SALE AT AUCTION

MARCH 11, 1920

LOCATION: Five Miles from Center of Grand Rapids, Michigan

THE ANNADALE FARM consists of 130 acres on the Grandville, cement paved road, five miles from the center of Grand Rapids. Five minutes' walk from Interurban Station. The buildings consist of a ten-room house, 60-stall cow barns, 12-stall horse barns, 2 silos, 2 calf barns, large and airy henhouse, two toolsheds, pigsty, milkhouse, icehouse, employees' rest room, cornerib (capacity 1,000 baskets), grainery, workshop and hay storage (capacity 100 tons). Also about 50 tons of ensilage in silo, 100 loads of manure in barnyard, and 25 tons of alfalfa hay.

There is an ample supply of water furnished by a deep well and tank in the barnyard and a stream flows through the pasture. The land is sand loam, well fertilized, with 30 acres planted in wheat, about 26 in alfalfa, 30 in pasture, and the balance under cultivation.

The above property together with ample farm equipment and household goods will be sold by public auction on March 11th, 1920, at 10 a. m. Easy terms of payment can be arranged. For additional information, address Henry T. Heald, 531 Michigan Trust Bldg., Grand Rapids, Michigan.

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182-Acre Michigan Farm, \$12,250; Fully Equipped,

High-grade bargain, exceptional location near humming RR town; 175 acres can be tilled for bumper crops; wire-fenced pasture for large herd, home use wood, large orchards, 10-acre grapes bringing around \$320 per acre; splendid 11 room house, new basement barn, cement floor, other buildings fine condition; water house and barns from windmill. Aged owner to retire before Spring work includes for quick sale three horses, 7 cattle, hogs, complete list farming implements; \$12,250 gets all, easy terms. Detail a page 74 Strout's Spring Catalog Bargains 33 States; copy free. STROUT'S FARM AGENCY, 814 B. C. Ford Bldg., Detroit, Michigan.

FARMS FARMS

The best Farm buys in Michigan can be found just east from Grand Rapids at Lowell. Send for our complete list of places from 5 to 750 acres. All highly developed farms. Fred A. Godfrey, Lowell, Mich.

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THE CODDING-BAGLEY-CASE COMPANY
Akron, Ohio. Medina, Ohio.

WE HAVE FOR SALE

Four fine Stock Ranches. Well fenced, watered and grassed over. Several improved and part improved farms. 300 acre Sheep Ranch, with good buildings, orchard and 200 fine breeding ewes. 12,000 acres of unimproved lands, on easy terms.

McClure Stevens Land Co., Gladwin, Mich.

Buy farms in New York State through the Farm Brokers' Association, Inc., an old established organization which will give you thoroughly reliable information and service. Offices throughout the State. Write the Central Office at Oneida, N.Y., for brief list and state your requirements.

200 acre farm for sale, 2 acres of orchard, 25 acres of young timber, balance under plow, situated 6 miles west and north of Battle Creek on trunk line road. Land runs up to Bedford village. An ideal dairy farm. J. W. Crawford, R. 7, Battle Creek, Mich.

FORD GOVERNMENT BONDS OR \$300. balance easy, buys 80-acre farm, 60 plowing, best soil, Central Michigan, fair buildings, main road, near railroad. Owner 208 N. Cedar, Lansing, Mich. Other bargains!

130 Acre Farm \$4500.00 a money maker if you want to buy a farm or list one. Write ROBT. SISCO, Dealer. R. 2, Lake, Mich.

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—with his strength of a thousand men is ready to clear your land of stumps and boulders, to dig your drainage ditch, and to plant your trees. His name is



Red Cross Dynamite

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In this golden year for the farmer, every idle foot of ground you own and do not cultivate is costing you money, and every stump in your fields is not only making it harder for you to plow and cultivate, but is occupying valuable land that might be growing crops. Get them out! Progressive farmers are using millions of pounds of Red Cross Dynamite every year to do this and similar work.

Put the Giant Farm Hand to work for you. If your project warrants, we will send a demonstrator to show you the easiest and cheapest way to do your work.

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In any case, find out what the Giant Farm Hand can do for you—and how. Write for "Handbook of Explosives" today.



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With the Famous Ladder-Hinge Door

Door forms a perfect ladder—steps 15 inches apart. Safe, easy—any boy can operate. Door always in place—no lost doors.

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Does not sag, bind or stick.

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You can also secure the Ladder-Hinge Door with our stave silos.

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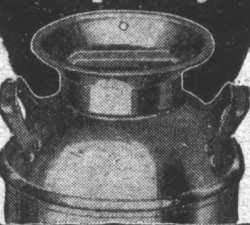


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Write for Catalog 46

Sturges & Burn Mfg. Co.

Makers of Sturges Guaranteed Capacity Milk Cans

Chicago Illinois

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"The Fruit Jar of the Field"

Save 8% on March orders. Pay later when silo arrives. Send for catalog No. 9.

W. S. DICKEY CLAY MFG. CO.

MACOMB, ILL.

Kansas City, Mo. Chattanooga, Tenn.

POTATO BAGS Sound and free from holes. Sold direct to growers at wholesale prices. WRITE LINCOLN BAG CO., Dept. D, Springfield, Ill.

LATE NEWS FROM THE CAPITAL.

(Continued from page 349).

action on the peace treaty. Much of this pork spoiled in storage, and the packers are making up their losses by cutting the prices on hogs.

"There is too much cooperation of the few for the exploitation of the many," said C. O. Drayton, president of the American Farmers' Equity Union. His organization aims to protect the men, women and children on the farms from those who take what the farm folks produce. The Equity Union runs exchanges. The shares are \$100 apiece and no member can own more than two shares. It buys old elevators and builds new ones. One exchange in western Kansas was started on farmers' notes because they did not have the money. After paying the members the market price for their products and selling them supplies at the retail price, it has prorated to the members in dividends over \$100,000 in five years. The Equity Unions are now buying supplies through their central purchasing agency cheaper than the dealer can buy the same goods from the wholesaler. Competent local managers are paid a salary, which takes away any incentive for them to gouge the farmers. The Farmers' Equity Union is organized in fourteen states and is saving for its members five million dollars a year.

C. G. Patterson, of Utah, gave some interesting information in regard to the sugar beet situation. He said that farmers sell beets to the sugar refiners for \$12 a ton and that 300 pounds of sugar are made out of a ton of beets, therefore making the cost of sugar four cents a pound for the raw material. The sugar is then sold at eighteen to twenty cents a pound. "The farmers," said Mr. Patterson, "are robbed on one end and the consumers on the other. The farmers are prepared to produce large quantities of beets, but they do not want to produce them and then be robbed by profiteers. If some agreement could be reached the price of sugar could be reduced to more than half of what it now is."

Some of the achievements of the American Society of Equity were described by J. B. Houston, of Wisconsin. "Five years ago," he said, "a cheese trust controlled the market and five men set the price on cheese in the state. The Society of Equity organized a movement to establish a cheese warehouse; a large number of cooperative cheese factories were banded together and concentrated their shipments under one sales agency. Since then they have received higher prices than the trust quotations." Tobacco growers have had the same satisfactory experience with market cooperation.

Maurice McAuliffe, president of the Kansas Farmers' Union, said there were 540 chartered cooperative business associations of farmers in Kansas. The Farmers' Union does a commission business at the Kansas City Stock Yards, selling live stock, and has been able to prorate back to the producers twenty-five per cent of the commission. The organized Kansas farmers hold their annual conference at the capital at the opening of the legislative session, and prepare a platform of demands so that the legislature knows exactly what they want, and they usually get the legislation they demand.

State Grange Master Ketcham, of Michigan, emphasized one problem that is confronting the cooperating farmers of his state, the apparent increase of unfriendliness on the part of wholesalers toward cooperative buying. He said there seemed to be a well organized movement on the part of dealers to discredit cooperative buying by farmers. He said the Grange Live Stock Shipping Associations had saved the farmers of his state large sums of money, and that the Grange

insurance associations carry \$40,000,000 in fire insurance on Michigan farm buildings.

The vice-president of the National Farmers' Union, A. D. Swift, of Oregon, said the three states of Oregon, Washington and Idaho, were organized for cooperation with headquarters at Seattle. Last year the union did a business of \$600,000,000 and in ten years it has prorated back to the members in dividends more than they have put into it. The organization has a wholesale supply house in Portland and has saved the members twenty per cent on their supplies.

A. P. Snader, secretary of the Mt. Olivet Fruit Company, of New Windsor, Md., urged the cooperation of the horticultural societies of the eastern states, in buying and selling to their members spray implements and materials.

Senator Miles Poindexter, of Washington state, said that an experienced practical farmer should be selected to head the Department of Agriculture, and that "farmers should be given that freedom of action necessary to obtain the greatest possible legitimate results." He opposed government ownership and paternalism, saying that when you break down the principle of individual ownership and reward, you destroy the conditions which have made the country the leader among nations.

An outstanding feature of the conference was a brief address by J. R. Howard, president of the American Federation of Farm Bureaus. The congestion of the people in the cities, he said, was due to unsatisfactory conditions on the farm. While there are not enough houses to go around in the cities there are many empty farm houses in the country. The sugar beet men foretell a great shortage of sugar beets. The same condition exists in the corn belt with hogs and other stock. He would not be surprised if the wheat crop does not exceed 650,000,000 bushels. This means higher prices for farm products. It means that in the next twelve months we are going to face more agitation on the subject of price fixing. There is going to be a demand for embargoes on food-stuffs. Farmers must organize to meet these demands.

The American Federation of Farm Bureaus, said Mr. Howard, is willing to cooperate with every other farm organization in the real interests of agriculture. "We propose to come before congress with referendum votes of members in such a way that there will be no mistake in regard to the opinions of farmers. Men have claimed that they represent all the farmers in the United States. One man recently asserted before a senate committee that he represented 40,000,000 American farmers; yet there are only 6,000,000 farms in the nation. We have got to have truth and sincerity back of our demands. We must be careful that the representatives of farmers be real bonafide farmers." "We must not stop until every farm boy and girl has just as good school facilities as the city children," continued Mr. Howard. "Fertility of the land and good citizens go together. The fertility question is one of the big problems confronting the nation. The slogan, 'stay on the farm' is a thousand times better than 'back to the farm.'"

The conference appointed a committee of seven farm organization leaders to draw up a platform of questions designed to bring out the attitude of each candidate for the presidency upon matters which relate to the interests of agriculture and farm organizations. C. S. Barrett, of Georgia, president of the National Farmers' Union, was named chairman of the committee, the other members being T. C. Atkeson, of West Virginia, representing the National Grange; Gifford Pinchot, Pennsylvania, of the Pennsylvania Rural Progress Association; J. B.

Houston, Wisconsin, secretary Wisconsin Society of Equity; W. I. Drummond, Oklahoma International Farm Congress; R. D. Cooper, New York Dairymen's League, and J. R. Howard, Iowa, American Farm Bureau Federation.

Resolutions were adopted urging congress to pass the Capper-Hersman bill restoring to the farmers the right of collective buying and selling; favoring the necessary appropriation for the Bureau of Crop Estimates; asking for the appointment of an American delegate to the International Institute of Agriculture at Rome, to succeed the late David Lubin; petitioning congress to amend the farm loan act to increase the maximum loan from \$10,000 to \$25,000; disapproval of the policy of compulsory military training and a large standing army; that all restrictions in importations of fertilizers be moved at once, and in favor of government operation of the Muscle Shoals nitrate fixation plant to manufacture nitrogen for farm uses.

On Thursday afternoon a large delegation of farmers attending the conference visited the Department of Agriculture, and paid their respects to Secretary of Agriculture Edwin T. Meredith. The secretary made a few remarks in which he asked the cooperation of the farmers in carrying out his determination to make the department of the most effective service to agriculture. At a reception to friends and delegates at the farmers' headquarters in the evening Secretary Meredith outlined some of the plans he was making for the improvement of the department.

The National Board of Farm Organizations is a loose-jointed confederation of farm bodies, with little regard for system in its organization or deliberations, yet it is growing in influence and becoming yearly more effective in its efforts to promote a better agricultural condition.

E. E. REYNOLDS.

GREAT FALL IN CATTLE VALUES.

WHILE cattle are still bringing much better prices than in normal times, there has been an enormous shrinkage in values compared with those of 1919, great reductions having taken place in recent weeks. A year ago the best steers were up to \$19.75, but two years ago the top stood at \$13.80; three years ago at \$12, and four years ago at \$9.65. Week before last the top steers sold at \$16.90, but sharp declines in prices took place last week, and early in the week there was a sale of a drove of more than two hundred head of South Dakota cattle, averaging closely to 1,500 pounds at \$15, which was considered \$1 lower than prices current at the close of the previous week. This was in the face of greatly reduced receipts of cattle, the principal demand running on a cheap class of cattle. Recent steer sales have been made largely at \$11 to \$13.75, with killers wanting cattle to convert into a cheap grade of beef of light cuts. Plenty of such cattle are being marketed, and the meager offerings of choice to prime beef steers of heavy weight are fully equal to all trade requirements. In fact scarcely any demand exists for heavy steers, and buyers are in search of light steers of 1,000 to 1,200 pounds weight. Several days ago a Canadian outfit was buying export steers for export to Belgium at \$12 to \$13, taking a class which would otherwise sell poorly. There is a great scarcity of the better class of yearling steers, with quotations not much more than nominal at \$14.75 to \$15. Most of the time fat butcher stock has had a good sale at steady prices, but the market for canner cows and cutters has suffered sharp declines at times.

READ AND PROFIT BY THIS ADVICE MR. DAIRYMAN



Mr. J. M. Hackney, owner and developer of several World's Champion cows, three of which are shown on this page, has proven the importance of feeding a ration which will furnish cows adequate maintenance, without which no cow can produce maximum flow.

Mr. Hackney has found out by experience that too much protein is injurious—that to secure maximum milk production cows must be kept at top-notch physical condition—the ration must be a health builder, strength and vitality giver. That's why Mr. Hackney likes his cows to have

SCHUMACHER FEED AND BIG "Q" DAIRY RATION

Owners of cows holding world's records, as well as owners of grade cows, alike endorse the merits of SCHUMACHER FEED, the great maintenance ration. 36 World's Champion Cows have been helped to make their world's records with SCHUMACHER as a part of their maintenance ration.

BIG "Q" DAIRY RATION is a Quality protein ration—when fed in conjunction with SCHUMACHER it supplies just the right amount of protein to stimulate milk production without "burning out" or tearing down the cows' physical condition.

The ideal SCHUMACHER BIG "Q" combination will keep your cows "going strong" month after month, and it's the cow that maintains maximum production over long milking periods that is the profit-producer. Feed dealers everywhere can supply you with these big result-producing feeds. Give them a trial. The best time to start is NOW.

The Quaker Oats Company

Address: Chicago, U. S. A.

ARDEN FARMS J. M. Hackney, Owner

St. Paul, Minnesota
January Third, 1920

The Quaker Oats Co.

Gentlemen—I must say to you frankly that in my letter to you concerning feeding of Holstein Friesian Cows on my Arden Farms, I overlooked the most important factor, which I wished to bring out. I do not believe in a high protein ration. After the experience I have had, it is my judgment that breeders do not place enough importance upon the maintenance part of the ration of a cow. To secure a maximum yearly production means that a cow must be kept in good physical condition, nothing must be done to tear down the structure. It is my judgment that too much protein is injurious. There is good chance for argument as to just how much protein a cow should have, but I do not wish to engage in a discussion of the fine points, but I believe that a small amount of protein is better than too much, if one expects to have cows go on year after year and maintain their good health and produce their maximum of butter and milk. We mix most of our feed ourselves with the exception of SCHUMACHER FEED and BIG "Q" DAIRY RATION, with which we have been very successful.

Yours very sincerely,
(Signed) J. M. HACKNEY.



BOTH for \$17.25 Freight Paid East of Rockies

You Take No Risk with an Ironclad

Why pay more? For \$17.25 you can get these 2 unbeatable machines, set up complete, ready for use, delivered, freight paid east of Rockies. Money Back if Not Satisfied

—let you use them 30 days—and if you don't find them satisfactory, send them back—we'll pay the freight charges and return your money. You are absolutely safe.

150-Egg Incubator—150-Chick Brooder Don't class these big galvanized iron covered, dependable hatcher with cheaply constructed machines. Ironclads are not covered with cheap, thin metal and painted, like some, to cover up poor quality of material. Ironclads are shipped in the natural color—you can see exactly what you are getting. Made of genuine California Redwood, triple walls, asbestos lining, galvanized iron covering. Large egg tray, extra deep chick nursery, hot water heater, COPPER tanks and boiler, self-regulator, 1700s thermometer, glass in door, and many other special advantages fully explained in free catalog. Write for it TODAY or order direct from this advertisement.

IRONCLAD INCUBATOR CO., Box 97, Racine, Wis.

Get big hatches with this new HOME HATCHER INCUBATOR

Dependable up-to-date hot-water heating system; accurate temperature regulation; positive ventilation and moisture control. Constructed of cypress the wood everlasting, and built for long use. Nothing fussy, but an honest, scientific, modern incubator, sold at a price you can easily pay. Raise your baby chicks in the Home Hatcher; safe, simple, inexpensive. Ideal for colony coop or poultry house use. Send for the plain-facts catalog of the Home Hatcher and Home Hatcher and order early. Write today.

Homer Mfg. Co., Box 19 Homer City, Pa.

BUFF LEGHORNS

25 choice cockerels \$3.00 each. Eggs \$2.50 per 15, \$12.00 per 100. Baby Chicks 20 cents each. Catalogue free. Lake Side Stock & Fruit Farm, Pinckney, Mich.

Baby chicks: Standard Bred S. C. White and Brown. Also English White Leghorns. Bred to lay large white eggs. Safe arrival guaranteed, shipped up to your door by parcel post. Free catalogue with list. **WOLVERINE HATCHERY, R. 2, Zeeland, Mich.**

Baby Chicks: Importer and breeder of Barron White Leghorns, White and Barred Rocks and S. C. Rhode Island Reds. Book orders early. I have taken over the Polly Cove Farms and stock business. **Brummer's Poultry Farm, Holland, Mich., R. R. No. 8**

Big White Leghorns 5 lb. Hens, 7 lb. Cocks. Real winter layers. All eggs from 40 pullets last Nov. and Dec. Send for catalog. **A. Wauchek, Gobleville, Mich.**

BABY CHICKS S. C. White Leghorns \$20.00 per 100, eggs \$2.00 for 15. Order early. **Hillside Poultry Farm, Hillsdale, Mich.**

BARRED ROCKS, Eggs from vigorous early maturing stock from heavy laying strain. \$2 per 15, \$5 per 45. Prepaid by parcel post. **R. G. Kirby, Route 1, East Lansing, Mich.**

Chicks Better Produced Day Old Chicks are the kind you want—17 leading breeds at reasonable prices. Our free cat. tells all about them. Send for it today. **Springfield Hatcheries & Poultry Farms, Box K, Springfield, O.**

CHICKS We have shipped thousands each season since 1904. Are booking orders now for Spring delivery, booklet and testimonials. **FREEPORT HATCHERY, Box 12, Freeport, Mich.**

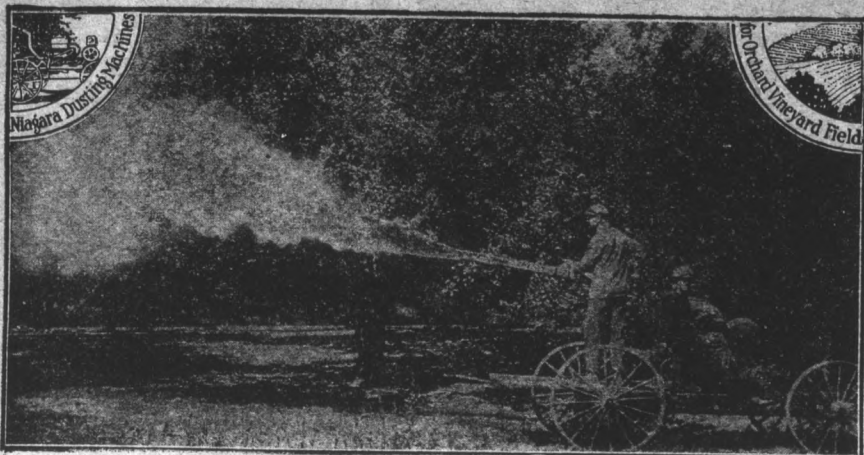
DAY OLD CHICKS Guaranteed to 1,500 miles. Eggs for Hatching. Bar. Rocks, S. C. W. Leg., S. C. & R. C. Redd, W. Wyand., Buff & W. Orp. Catalog free.

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DANGER If chick and eggs are Chix 15c Up not shipped right. Best Blooded stock ever produced at low prices quoted. Selected Utility, Exhibition trapnested stock. 15 varieties. Hatching eggs, Hens, Ducks, Turkeys, Geese. Book your orders early. Avoid disappointment. Stamps appreciated. **Beckman Hatchery, 26 E. Lyon, Grand Rapids, Mich.**

Fowler's Buff Rocks. We are now booking orders for eggs. A few choice cockerels left. **B. B. FOWLER, Hartford, Mich.**

Additional Poultry Ads. on Page 385



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have proved of such value in practical commercial use for the control of insect pests and fungus diseases that every year many more successful fruit growers are finding the Dusting method indispensable in making summer application, not alone on account of the results accomplished but because dusting is so much faster and cleaner it has proven itself about $\frac{1}{3}$ less expensive than spraying when both labor and materials are taken into consideration.

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All Kinds of Spray Materials and Sulphur.

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Then why replace a broken porcelain plug with another porcelain plug?

The Splitdorf Spark Plug—break-proof and leak-proof—"The Plug with the Green Jacket"—has no porcelain to break to put it out of commission and make a new plug necessary.

East India Ruby Mica, exclusively is used for insulation, and unlike porcelain it never chips, cracks or breaks.

There is a special type Splitdorf Green Jacket Spark Plug best suited for your engine—with the right Splitdorf Plug, once installed, you simply forget spark plug trouble.

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SPLITDORF ELECTRICAL CO.

93 Warren Street, Newark, N. J.



TRADE
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MARK

Established 1858

Pruning Orchards

By I. J. Matthews

THOSE who have large orchards usually say when asked as to the proper time of year when pruning should be done, "The best time of year to prune an apple tree is when your pruning knife is sharp and your pruning saw has been fitted." The facts of the case are that the man spends a good share of his time in taking care of this orchard, prunes it when he has a chance and no other work is pressing. The pruning, however, in most farm orchards is done in the latter part of February and March because of the fact that other work presses at other times in the year.

There is much discussion as to whether the small farm orchard should be retained. Some economists claim the small farm orchard cannot be given sufficient care to make it pay. Moreover, it requires a spraying outfit and if the trees are of a number of different varieties, it means that the entire orchard cannot be sprayed at the same time, but that it must be done piecemeal. They reason that it would be better business all the way round for the general farmer to buy what fruit he needs and to cut down the lousy old trees and make them up into axe and hammer handles or wood.

It is our opinion however, that small farm orchards contribute a good bit to the pleasure of living on the farm and lend variety to the bill of fare, yet one of two things must be done. Either the orchard must be cut down or the owner must prune it, spray it, and take care of it. I have heard people say: "If I have to go to putting any spray on my trees in order to get apples, I will cut the trees down." Yet the fact of the matter is, that apple trees require both spraying and pruning in order to produce a crop that will warrant their being retained in a production role.

A few common principles of pruning are: First, do not cut the backbone entirely out of the tree. The old idea of pruning was to cut the middle out of the tree, retaining the lower limbs with their laterals as bearing surfaces. This let the sunlight in but it made a tree that developed weakness, especially in its ability to withstand storms. These lateral limbs would grow and when they were weighted down with fruit it would not take very much of a wind to break down a limb. In the later day pruning, the central part of the tree is retained. Second, limbs that cross should be cut away, since it is necessary to get as much sunlight into the tree as possible. Some tree pruners think that the measure of their pruning is the size of the brush pile they leave at the foot of the tree. It may be suggested, however, in passing that there is a great deal of difference between a tree butcher and a tree pruner. A good rule to follow is not to cut off a limb without a good reason for it. Third, tall trees should be headed back some. It costs some more to pick the apples from an excessively tall tree as compared to one that is low down. Some make the mistake of cutting off lower branches, thinking thereby to make it possible for the horses to work closer to the tree. This is a very serious mistake since the soil in the orchard is of little use as a crop producer and it does not take very much barking of limbs or trunks with hames and whiffletrees to spoil a tree. It is much better to keep too far from a tree than too close to it. Fourth, the most important principle of all in pruning is to make the cuts on the limbs as close to the trunk as possible. A long protruding stub is an eyesore to man, and a body sore to the tree. It dries out, water enters the cracks, decay sets in and in a few

Stokes Seeds—1920

For 1920 we have prepared a general AGRICULTURAL CATALOG

which expresses the ideals and traditions as they are now known at Windermoor House. From an agricultural standpoint it is comprehensive and all-embracing.

STOKES SEEDS are gathered in from the world's most expert growers. But our services are not limited to seeds alone. Flowers, plants, trees, garden furniture, tools and equipment, pure bred animals, bee and dairy supplies and a great many other things are included.

Write TODAY for a copy. The edition is necessarily limited.

STOKES SEED FARMS CO., Growers

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Do you know that over 80% of the Ammonia in Manure is Nitrogen? A large part is lost by evaporation, which can be prevented and the full fertilizing value of the manure retained by applying

Agricultural Gypsum

which absorbs and which retains the Ammonia until it is ready to be used by the plants as a food. Every dollar's worth of

Agricultural Gypsum USED ON THE MANURE PILE WILL RETURN THREE DOLLAR'S WORTH OF NITROGEN TO THE SOIL.

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Gypsum also promotes growth and increases production by supplying neutral sulphur as sulphate and also calcium. It is especially valuable on alfalfa, clover and other legume crops. Our FREE booklet tells how AGRICULTURAL GYPSUM will help your land—write for it NOW.

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Special Book of
Plants that Grow

WRITE NOW!

Order your 1920 ornamental fruits and trees and plants now. Your order reserved at present prices, and shipped in time for spring planting. For 75 years we have been known for "Plants that Grow," and fair dealing. Express or freight paid anywhere east of Miss. River on order of \$3 or more.

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STOVER SAMSON Windmills

NOISELESS—OIL-LESS
LIGHT-RUNNING

Can be attached to wood or steel tower, or new wheel head and plunger can be had to use with old sections, vases and arms.
STOVER MFG. & ENG. CO.
1520 Samson Av. Freeport, Ill.
Mfrs. Stover Good Engines, Feed Mills, etc. FREE Catalog. Established 1862.

Get
FREE
Booklet



CARFF'S SEED CORN

5000 bushels. Tested and sure to grow. Finest quality. 20 leading varieties. Also seed oats, barley, grass seed, etc. Samples on application. 1200 acres. Be sure to get our new catalog. Write today. W. N. Carff & Sons, New Carlisle, Ohio.

Mention The Michigan Farmer When Writing to Advertisers

years a good wind comes along and over goes the tree.

Pruning even a few trees is uphill work unless one has one or two special tools. After I attended my first orchard pruning demonstration, I went home and commenced to prune some trees with the old hand saw. After I had pulled out a lung or two and a teaspoonful of sawdust, I made up my mind that if this was the proper way to prune trees I would rather use the axe close to the surface of the soil. I found out, however, that the handsaw is not a very desirable tool for tree pruning. Its set is too narrow and the saw always binds in green wood. A pruning saw that can be set to any angle desired is a tool that will pay for itself in one day in the added work it will enable the operator to accomplish. A pair of pruning shears is also desirable for use on small limbs, but one should not allow himself to be tempted to use it on a limb that is too large, because while it may cut the limb, the shears may be eliminated in the act.

Some pruners, especially amateurs, practice putting some kind of material on the cut, such as paint, creosote and so forth, but if the cuts have been properly made, the healing-over process is not hastened to any extent by the addition of the preservative.

Since many people associate the treatment of the trunks with pruning the trees, it may be well to call attention to the fact that whitewashing does but little good, except as it guides the eye of some nocturnal visitor searching for an apple tree in the autumn twilight. When you whitewash the trunks of the trees—don't. Put on lime-sulphur instead. It will benefit the trees more, although it does not make quite such a good guide.

If the farm orchard is worth anything at all, it must be given some care to justify its retention. Wise pruning is one of the factors that makes for a good yield. Cut out dead limbs first, and then live ones that are out of place. Above all, be sure that the cuts are made as close to the trunk as possible so that healing may be rapid. A tree well pruned is also injured much less by insects than one whose limbs are dense, damp and dark.

HOLSTEIN-FRIESIAN SCHOLARSHIP.

(Continued from page 379).

in charge of general dairy extension work in the state.

Mr. C. L. Burlingham, winner in 1912, was from the Iowa State College of Agriculture and took his post-graduate work at the University of Missouri. Mr. Burlingham, since completing his course, has been in charge of the state work in Nebraska and for two years was in charge of dairy extension work in eleven central states, representing the Dairy Division of the United States Department of Agriculture. He is at present associate editor of Hoard's Dairyman.

L. W. Wing, Jr., winner of the scholarship in 1913, was from the University of Missouri. Mr. Wing completed one-half of his post-graduate work at Cornell University and surrendered the scholarship when it was half completed, to accept a position as instructor in dairying at the University of Missouri. He has more recently been instructor in dairying at the Oregon State Agricultural College, at Corvallis.

Mr. C. L. Blackman, winner of the scholarship in 1914, was from Maine. He took his post-graduate work at the Iowa State College, Ames, Iowa. Mr. Blackman entered county agent work and has recently been given charge of cow-testing association work and general dairy extension work in the state of Iowa.



How Many Miles From a Tire?

Do you know what mileage you get from a tire?

Do you know what mileage modern tires should give?

If not, get a Miller Tire. Watch the mileage. Compare it with the tires you use. It may change your whole idea on tires.

Twice Better

Miller experts, in the past few years, have almost doubled our tire mileage.

In our factory tests, which are extreme, we average 15,000 miles on Miller Cords, and 8,000 to 9,000 miles on Miller Fabric Tires.

Countless users, even on trucks, report 20,000 to 25,000 miles.

Many large users are making million-mile comparisons between all leading makes and Millers. And Miller Tires are winning.

Make One Test

A Miller Tire will show the maximum mileage under your conditions.

The mileage will depend on size, on load, on road and care. But you will learn what you should get on your car, and it may surprise you.

50% More Miles

Green & Swett Co. of Boston made hundreds of comparisons on big cars. They found that tire users, by adopting Millers, increased their tire mileage from 50% to 75%. And they eliminated blowouts.

Miller Tires

Now Everywhere Discussed

Geared-to-the-Road

Registered U. S. Patent Office

Cords or Fabrics

You will find that the tread outlasts the tire.

You will find Miller Tires uniform. Every tire is signed by maker and inspector. Both are penalized if a tire falls down.

New-Day Tires

Millers are the new-day tires. We have spent ten years perfecting them.

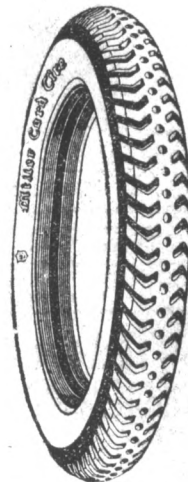
In six years the demand has multiplied ten-fold. Last year alone it increased \$11,000,000. Just because of the extra mileage Miller users get.

You should know these tires. They are saving millions of dollars to tire users. They are showing that defects can be avoided, and that tires can be dependable.

Test a Miller Tire.

If you buy a new car, insist on Miller Tires. Twenty makers now supply them without extra cost.

THE MILLER RUBBER CO.
Akron, Ohio



Tread Patented

Center tread smooth with suction cup, for firm hold on wet asphalt. Geared-to-the-Road side treads mesh like cogs in dirt.

Why Take Chances? Find Out What An Incubator Is Made of Before You Buy

Why Pay More

For only \$16.25 you can get these two unbeatable machines, delivered, freight paid east of the Rockies. You take no risk—money back if not satisfied. You can order direct from this ad. Ask the publisher about us.

Both Machines
Freight Paid For Only



Send for our Free Catalog and we will send you a sample of the material used in Wisconsin Incubators and Brooders. Then you will know which machines are built best, which will last longest and which will give you the most value for your money. One good hatch will pay for a Wisconsin outfit and more. Why take chances? We give you **30 Days' Trial**

MONEY BACK IF NOT SATISFIED

130 Egg Incubator and 130 Chick Brooder both for only \$20.00

Wisconsins have hot water

heat, double walls, air space between double

glass doors, copper tanks and boilers, self regulating. Nursery under egg tray. Made of finest, select, clear CALIFORNIA REDWOOD, not pine, paper or other flimsy material. Incubator finished in natural color—not painted to cover up cheap, shoddy material. Incubator and Brooder shipped complete with thermometers, egg tester, lamps, everything but the oil. This is the best outfit you can buy. If you don't find it satisfactory after 30 days' trial, send it back. Don't buy until you get our new 1920 catalog, fully describing this prize winning outfit. **WRITE FOR IT TODAY.** You can't make a mistake in buying a Wisconsin. On the market 16 years.

WISCONSIN INCUBATOR COMPANY, Box 82 Racine, Wis.

KENDAL'S SUPERIOR STRAINS
Famous for High Standard, Utility, Quality. 35 varieties. Leghorns, Rocks, Reds, Wyandottes, Anconas, Minorcas, Brahmas, Langshans, Orpingtons, Ducks. Circular free. A. C. Kendal, 210 Prospect Ave., Cleveland, Ohio.

Buff Leghorn and White Leghorn Cockerels, from 200 egg strains. Booking orders for eggs, and chicks. **DR. WILLIAM SMITH, Petersburg, Mich.**

Baby Chicks Barred Rocks only. Order now for April and later. Apply for terms **H. H. PIERCE, Jerome, Mich.**

B-A-B-Y C-H-I-C-K-S
Crescent White Leghorns; also Brown Leghorns, Black Minorcas, Reds, Rocks, and Wyandottes. Send for circular and Price List. **CRESCENT EGG COMPANY, Allegan, Mich.**

Baby Chicks The fluffy lively kind, the kind that live and grow. Hatched in the most modern incubators built, all eggs are from pure blood farm stock. Catalogue and price list mailed upon request. **NORWALK CHICK HATCHERY, Norwalk, O.**

Barred Rocks 15 eggs for \$1.75. 100 hens laid 10,421 eggs from Jan. 1 to Nov. 1, 1919. **LEWIS B. AVERY, Baling, Mich.**

OVIE'S BABY CHICKS

Big, Strong, Vigorous Chicks that will live and grow and be a pleasure and satisfaction to you.

Make Poultry Profitable with a thoroughbred flock of Ovie's Day Old Chicks. Hatched in a Mammoth Hatchery under care of expert operators.

14 Leading Varieties
Safe delivery guaranteed by P. P. prepaid. Send for free catalogue today.

OVIE'S HATCHERY CO.
24 State Street MARION, IND.

Barred Wy. Rocks Chicago winners. Great winter layers. 100 choice Cockerels. Eggs for hatching. Prices reasonable. Satisfaction guaranteed. 25th year. **G. EARL HOOVER, R. 3, MATTHEWS, IND.**

CHICKS AND EGGS

Rose and Single Comb R. I. Reds. Barred Plymouth Rocks. Superior Color. Prolific Layers. Prepaid by parcel post and safe delivery guaranteed. Illustrated catalog free. **INTERLAKES FARM, Box 39, Lawrence, Mich.**

CHICKS CHICKS

12,000 chicks a week after Mar. 20. Grand laying strains utility S. C. White Leghorns and Mottled Anconas. Strong, sturdy chicks shipped everywhere parcel post guaranteed safe arrival in lots 25; 50; 100 or more. 12th season, order now. Fine free catalogue. **W. VAN APPELDORN, R. 7, Holland, Mich.**

Chicks Bred-to-Lay and Exhibition S. C. W. Leghorns, stock that produced the winners in the state demonstration farm work. Winners at Detroit, Toledo and Oil City, Pa. Shows. \$10.50 per 50, \$20 per 100, \$35 per 200. Safe delivery postage paid. **Sunnybrook Poultry Farm, Hillsdale, Mich.**

Chicks that Live \$15 per 100 S. C. W. Leghorns MY SPECIALTY **SNOWLAKE POULTRY FARM, R. 1, Grand Rapids, Mich.**

Eggs From prize winning Barred Rocks, 1, 2, 3, on cockerels and 1 pullet and 1 pen at Ypsilanti and 2 cockerel and 2 pullet at Albion in a class of 63. Cockerels and pullets for sale from \$3 to \$5. Eggs \$2 per setting. **George H. Campbell, R. 5, Ypsilanti, Mich.**

Additional Poultry Ads. on Page 391



4

SAGINAW SILOS

Were you to spend a lifetime designing and building a silo we believe that your silo would be very much like one of these 4 Saginaws.

For the experience of our organization which includes over a thousand men located in all parts of the country is summed up in the 4 different types of Saginaw silos that we are offering this year.

Because of our knowledge of silo conditions, our resources and manufacturing facilities we are able to build these 4 different types and you are assured of the best silo service in any one of these 4 Saginaw silos.

Write us today for Saginaw silo booklets describing the complete Saginaw line. Address Dept. 10

The McClure Company
Cairo, Ill. Saginaw, Mich.

BREEDERS' DIRECTORY

Change of Copy or Cancellations must reach us
Ten Days before date of publication

Wildwood Farms Angus

Home of Edgar of Dalmeny one of the world's greatest sires.
He produced Erodemas, the grand champion bull at show in Perth, Scotland in Jan. 1919, and he produced Blue Bell a cross-bred heifer which was awarded the championship at the Smithfield, (Eng.) fat stock show in Dec. 1919. (The latter is England's equivalent of our Chicago International.)

Edgar is now an American Citizen, and is here for the purpose of bettering the breed in this country.

Edgar's calves are as yet too young to offer for sale but they are a promising lot and are being spoken for fast.

We have a few choice young bulls by **Black Monarch III** who won the Mich. State Fair Grand Championship in 1914-1915-1916, still for sale.

Our herd is under State and Federal supervision. A visit will interest you. write for particulars.

WILDWOOD FARMS

ORION, MICHIGAN

W. E. SCRIPPS, Prop., Sidney Smith, Supt.

WOODCOTE ANGUS

BREEDERS OF MANY
INTERNATIONAL WINNERS
INCLUDING THE
UNDEFEATED CALF HERD OF 1919
Write for 1920 Bull sale list.
WOODCOTE STOCK FARM IONIA, MICH.

Registered Aberdeen Angus. Seven bulls from four to twelve months old. Plenty of size, best of breeding. Prices reasonable. Come and see them. Inquire F. J. WILBER, Ohio, Mich.

GUERNSEY BULLS FOR SALE

Atta Boy of Maple Crest born April 1919. Sire Imp. Spotswood Sequel A. R. 19 A. R. daughters Dam imp. Albina price \$175.00. Pride's May King of Avondale born June 1919 Sire Nora's May King of Bailey Falls dam Queens Pride of Harriton A. R. price \$150.00.

Avondale Farms, Wayne, Mich.

GUERNSEY bull calves whose sire's dam made 19,460.20 milk.
809.06 fat. Their mother's sire's dam made 15,109.10 milk, 78.80 fat.
T. V. HICKS, Battle Creek, Mich.

Registered Guernseys

A nicely marked four months old bull calf. F. E. ROBSON, Room 307, M. C. R. R. Depot Building, Detroit, Michigan.

REG. GUERNSEY'S

The best of breeding—at prices you will pay—for good bulls—and bull calves—we can't beat the best.
J. W. WILLIAMS, No. Adams, Mich.

Guernseys Federal inspected herd. Bull 2 yrs. old g. son of Imp. Spotswood Sequel dam's A. R. record 419.34 b. f. class G. Bull calf 8 mo's. old, 4 bull calves 2 to 5 mos. old. Satisfaction guaranteed G. W. & H. G. Ray Albion, Mich.

GUERNSEYS—REGISTERED
Containing blood of world champions.
HICKS' GUERNSEY FARM, Saginaw, W. S. Mich.

Guernsey Bull Calf. Lined of Walter Phipps Farm. Born May 2-1919. \$100.00 f.o.b. Novi or Birmingham. Walter Phipps Farm, 80 Alfred St. Detroit, Mich.

For Sale Registered Guernsey bull calves, also 2 young cows May Rose breeding cheap if taken soon John Ebels R 2, Holland, Michigan.

Facts in BLACK & WHITE

Holsteins Blaze the trail to Success and Profit

Read what a successful 60-year-old dairyman said: "I have made the greater part of my money since I was 45. Up to that time I was busy making mistakes about cows. The difficulty is that some dairymen neglect the 'Black-and-White' facts. Any farmer who will study the supremacy of Holstein-Friesian cattle as profitable milk producers, and as dual purpose cattle, will soon steer his course by the star that leads to profitable dairy operations."

Our free booklets fully and convincingly supply the study material. Send for them today.

THE HOLSTEIN-FRIESIAN ASSOCIATION
164 Hudson Street
Brattleboro, Vermont

GRADE UP YOUR HERD

with a young son of Spring Farm Pontiac Cornucopia 18th, whose five nearest dams have an average record of 36.22 pounds of butter in seven days. Have several priced to sell.
JOSEPH H. BREWER, Grand Rapids, Michigan

CARE OF EWES.

NEAR the time of lambing the ewes should have the kind of attention that will result in strong lambs, plenty of milk for the newly-dropped lamb, and a thrifty condition of the ewes. I have seen ewes that were slightly droopy and tending toward lifelessness completely changed in just a few days by a little different care.

One essential thing is to give the ewes sufficient exercise. We never kept the ewes closely confined more than a day or so before the lambs were dropped. They always had the run of a large lot, or access to a pasture field if the weather was anything but rainy. If necessary force them to go outdoors. In pleasant weather they can be fed outdoors. I have taken ewes out and driven them about the lot in the morning for exercise, and occasionally down into the woodlot. Sheep seem to like the cover of a woodlot in both winter and summer.

Water and salt are both essential to ewes. They ought to have salt before them nearly all the time. The best arrangement I have ever found was a sheltered box in one corner of the lot and another in the sheep barn; these need filling about every two or three weeks. Sheep can go without water longer than most of our domestic animals, but it is neither beneficial or desirable for them to be cut off from their water supply for more than a few hours. Ewes without water accessible when they desire it, are likely to be troubled with constipation and this should be religiously avoided near lambing. They need and will drink fresh water twice a day, and if the water is colder than fresh well water and cannot conveniently be warmed it will be well to have the water accessible all during the day so they can take it in small amounts.

Constipation may be caused by feeding too much dry feed. Bran is excellent to feed if one has nothing but dry feeds to give, oilmeal is good also. If corn is the only grain being fed it will be essential to roughage, at least until constipation is overcome. Succulent feeds are excellent and relished by the ewes; roots, such as the mangels, are highly beneficial in the winter, as is also good silage. This is a critical time in the ewe's life and proper care is essential.

A large flock of ewes is inclined to crowd through a narrow door or passageway. At this stage, they are likely to be seriously injured by crowding. Handling them quietly and forcing them to pass through in single file will tend to avoid injuries. In fact, ewes near lambing should be handled as quietly as possible. They are often of very excitable nature, and anything tending toward excitement ought to be avoided. Dogs are especially obnoxious at this time, so that in case there are any in the neighborhood that are likely to be bothersome it may be advisable to keep the ewes shut in at night. We lost some six or seven head one year which were merely chased by dogs less than five minutes. None were injured to any extent, but the intense excitement just at that time proved to be enough to cause their death within two days. I tell you it is a sickening sight to go out in the sheep lot and witness the ravages of a worthless cur or two, whether it is at lambing or any other time.

J. L. J.

A single female potato beetle is capable of producing between 1,800 and 1,900 eggs during its life. During mid-summer it takes a little over a month for these to develop into adult beetles. Hence if they are unmolested they increase in numbers enormously.

It has been estimated that the potato crop of the country is reduced each year many millions of bushels as a result of insects and disease. Proper spraying will greatly reduce this amount.

Devil Worm Capsules For Hogs and Sheep

70 percent of live stock losses are caused by worms. My Devil Worm Capsules will kill and carry off within 24 hours, all stomach and intestinal worms, put your hogs in perfect condition. Positively no bad after effects for

U. S. Government Experts

say Worm powder mixed in feed is not effective and that the principal ingredient used in my Red Devil Worm Capsules is the best for removing worms. County Agents, Agricultural Colleges and leading live stock Raisers use and recommend Worm capsules.

Red Devil Capsules for Hogs

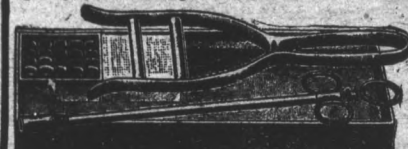


100 Red Devil capsules, complete set of best instruments (as illustrated) and instructions, prepaid—only **\$5.75**

Extra Capsules Sent Prepaid
25—\$ 1.50
50—\$ 2.75
100—\$ 4.75
200—\$ 9.25
500—\$20.00
1000—\$39.00

Money-Back Trial Offer

If my Devil Worm Capsules fail to rid your hogs or sheep of worms, or if they fail to satisfy you in every way (you to be the judge) I will promptly refund the purchase price.



Same instruments used for both hogs and sheep—will fit all worm capsules—

Blue Devil Capsules for Sheep



100 Blue Devil Capsules, complete set of best instruments (as illustrated) and instructions, prepaid—only **\$6.00**

Extra Capsules Sent Prepaid
25—\$ 1.75
50—\$ 3.00
100—\$ 5.00
200—\$10.00
500—\$21.00
1000—\$40.00

In ordering be sure and state whether Red Devil for hogs or Blue Devil for sheep. If you order both, state exact number of each wanted. Order filled same day received.

Charles M. Hick & Company
Dept. 114 177 N. State St., Chicago, Ill.

Holstein-Friesian Cattle

Herd Headed by Segis Pontiac De Nijlander

A 32-lb. grandson of Michigan's great 35-lb. champion. His dam, Oak Valley Kornykke Beets Segis Fan, 32.06, is also a Michigan prize winner. Write for calf list. Wah-be-me-me Farms, White Pigeon, Mich.

The Traverse Herd

We have what you want in BULL CALVES, the large fine growthy type, guaranteed right in every way. They are from high producing A.R. O. ancestors, Dam's records up to 30 lbs. Write for pedigrees and quotations, stating about age desired.

TRAVERSE CITY STATE HOSPITAL
Traverse City, Mich.

For Sale Seven cows and three heifers, registered.
L. F. STAUF, Manchester, Michigan.

GET A BETTER BULL WINNWOOD HERD

BREEDERS OF

Registered Holstein-Friesian Cattle

We have bull calves ready for service and a new crop of baby bulls coming all of Maplecrest breeding. We have one of the largest pure bred herds in Michigan and this will be the last chance to buy sons of Flint Maplecrest Boy, cheap. For his daughters start to freshen this winter and they will all go on yearly tests. We own them all and will develop them. Don't wait, a bankable note is the same as cash to us and our price will be right. Tell us your wants.

JOHN H. WINN, (Inc.)

Lock Box 248, Roscommon, Mich.

HOLSTEINS OF QUALITY

A few richly bred bull calves for sale from dams with records from 20 to 25 lbs. in 7 da. and from 33 lbs. sire. Shipped to any reliable party on approval. Write me price you wish to pay, and I will describe the best bull that I have for the money.
E. A. HARDY, Rochester, Mich.

LONG DISTANCE

Holstein calves of either sex. Can spare a nicely marked heifer backed by seven dams that average above 1200 lbs. butter and 24000 lbs. milk in one year. Choice Duroc Sows. A. FLEMING, Lake, Mich.

A BULLY GOOD BULL CALF.

Born July 1919. His six nearest dams have good yearly records. Amongst them are three world's records. Good individual, nicely marked, and worth in any good herd all he will cost. You can't pay too much for this kind. I have a fine four months bull, not quite so well bred but a nice one.
E. E. CONNELL, Fayette, Ohio.

BEET GROWERS HOLD ROUND-UP.

Continued from page 354). Many officials have systematically given half-truths to business men in confidence and have vaguely threatened to remove a factory to some other locality "unless the business men joined in helping squelch the farmers' movement for a better price."

The methods employed by the sugar men were designed to hide the profits they were making. According to confidential letters, two statements on financial conditions were made; one for the home office and the other for the general public, and the farmers in particular.

The above statements show the testimony presented by Mr. Dakan to prove that the growers should organize strongly in every producing section and that these sections should be federated into an efficient national organization since the same sugar trust extends its interests throughout the country. He pointed out how that in Colorado before the farmers were organized, the same sugar company was paying the farmers in one valley \$3.00 per ton less for their beets than the farmers in an adjacent valley. Since organizing farmers have secured better conditions for unloading, disputes over weight and tare have in almost every case been settled to the satisfaction of the grower, and better prices, have been secured. Mr. Dakan added that the testimony of seventy-two growers from his state, when presented to Mr. Hoover, so convinced the former food administrator of the justness of the farmers' claim that a larger allowance was authorized to be paid for beets.

All indications point to high sugar prices for four or five years hence. This is the consensus of opinion of men who are in close touch with sugar market conditions. In order that the farmers may get a just share of the profits resulting from the satisfying of the market it is essential that they organize. It is also of importance to have active organizations when the price of sugar begins to fall, in order to prevent the price of beets from tumbling to unwarrantably low levels.

Hon. A. B. Cook, of Shiawassee county, was called upon and in his response declared that while he perhaps had grown beets for a longer period of time than any other man present, he has decided not to grow any more until he can sign an agreement, in which it states that the terms have been agreed upon by a joint committee of growers and manufacturers.

WHO PAYS TAX?

In a recent number in answer to an inquiry to this department, it was stated that taxes assessed would be an incumbrance within the meaning of a covenant against incumbrances from the time of the meeting of the board of review. In this we were in error. The taxes are a liability of the person against whom they are assessed from the time the tax is assessed but do not become a lien upon the property until the tax roll is deliverable to the treasurer for collection, which in the case of city taxes is usually the first of July, and in the case of township, county, school, and state taxes, is the first of December. In case of a sale of the property before payment could be made to the treasurer, the fact that such tax is a debt of the party against whom it is assessed does not make it a breach of the covenant against incumbrances, and the seller is not liable for the tax to the buyer. While the city or township could compel the seller to pay, the buyer could not.

J. R. R.



The Braender Dealer Is A Good Man to Know

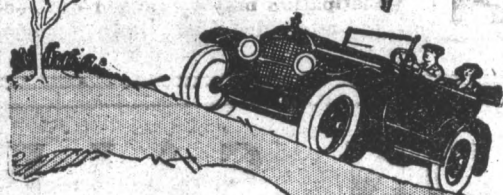
The dealer who offers you BRAENDER TIRES is basing his recommendation upon something more than the desire to make a sale. There are 227 makes of tires for him to choose from and he could probably make sales for any one of them.

BUT—he offers you BRAENDER TIRES because he knows that the conscientious supervision and inspection of the BRAENDER product will put extra miles under your car.

He knows that not every tire maker can give his product this personal attention and he knows that some makers are not willing to give it. He positively knows that it is this personal supervision which counts most in giving you service.

The BRAENDER dealer is a good man to know, for he must measure up to the same high standards which we insist on for BRAENDER TIRES.

BRAENDER CORD & TIRES



Michigan Hardware Company, Grand Rapids, Mich.

Braender Rubber & Tire Co.

Factory: Rutherford, New Jersey



CATTLE

GUERNSEYS



\$546 was the average price paid for all Guernseys sold at public auction in 1919. This figure indicates the buyers' high estimation of the value of the breed.

Let us tell you why Guernseys lead in popular favor.

The American Guernsey Cattle Club, Box 144, Peterboro, N. H.



4 Nearest Dams 32.46 lbs.

Bull Born November 14, 1919

Color—nearly half and half.

Sire's Dam:—Butter 7 Days 32.32; Milk 7 Days 552.40; Average per cent Fat 4.68.

Sire's Sire's Dam:—Butter 7 Days 40.32; Milk 7 Days 610.20; Butter 30 Days 165.22; Milk 30 Days 2695.8.

Dam:—Butter 7 Days 26.61; Milk 7 Days 532.9.

Dam's Dam:—Butter 7 Days 30.59; Milk 7 Days 565.00; Butter 30 Days 124.19 Milk 30 Days 2436.6

She heads a combination of three direct generations of thirty pound cows.

Price \$750.00 f. o. b. Howell.

McPherson Farms Co., Howell, Mich.

Herd under U. S. Supervision.

A Real Bull

Young bull nearly ready for service from a 19 lb. jr. 3 yr. old daughter of Alcartra Pontiac Butter Boy (136933). The heifer has a 31 lb. dam she also has a 31 lb. sister who has a 33 lb. daughter that gave over 100 lbs. of milk a day.

Write for pedigree.

SINDLINGER BROS.

Lake Odessa,

Mich.

King of the Pontiacs and King Segis

Bull calf born Dec. 10th. 1919. Sire: from son of King of the Pontiac whose dam is 33 lb. daughter of King Segis. Sire's dam Bucca Lassie Jean Butter 33.05 Milk 721.

Dam, Fine large cow now on test making 23 lbs.

Price \$150.00 if sold at once.

A. W. COPLAND, Birmingham, Mich.

Herd under state and federal supervision.

GENRIDA FARM

OFFERS

BULL CALF, BORN DEC. 31, 1919

Sire: King Flint, who combines the blood lines of 2 families of 3 generations of 30 lbs. cows and 2 generations of 1200 lb. yearly record cows.

Dam: Is a 20.6 lb. daughter of Johan Hengerveld Lad.

Walter Hill,

Davison, Mich.

\$50 gets 99% white gdson Flint H. S. 27 lb. butter 561 lb. milk in 7 days. Maple C. K. H. his dam gave 1232 lb. butter 25106 lb. milk 1 yr. Terms M. L. McLAULIN, Redford, Michigan.

REGISTERED Holstein bulls sired by King Zerma Alcartra Pontiac, son of the \$50,000 bull; some from good A. R. O. cows. O. H. Giddings, Gobleville, Mich.

CLUNY STOCK FARM

A Semi-Official Bred Bull to Head

Your Herd

Maplecrest Application Pontiac No. 132652, heads

Our Herd

His dam's record is 1344.3 lbs. butter, 23,421.2

lbs. milk in 365 days, and 35,103 lbs. butter and

515.6 lbs. milk in 7 days.

One of his sons from our good record dams will

carry these great blood lines into Your Herd.

For Pedigrees and Prices write to

R. BRUCE McPHERSON, Howell, Mich.

19 Reg. Holsteins

8 cows, 4 two yr. olds, 3 yearlings, 3 fall calves and two yr. old sire Moonlight Cornucopia Colantha.

Mrs. W. K. SEXTON, Howell, Mich.

For Sale Reg. Holstein Bull, 3 yr. old kind and gentle. A grandson of Mich. Champion 35 lb. cow Pontiac De Nijlander and 1/4 brother to state champion jr. 2 yr. old Pauline De Nijlander 26 lbs. butter, 437 lbs. milk. Two dams ave. 31.7 lb. butter and 64 lbs. milk and 120 lbs. of butter in 30 days. Also six choice bred cows in calf to above bull. J. TAYLOR GAGE, Manchester, Mich.

Reg. Holstein cows and heifers priced reasonable. High class breeding. All bred to a 33 lb. and a 22 lb. Bull. Some fresh soon. B. B. Reavey, Akron, Mich.

Reg. Holstein Bull Calf born Feb. 1, 1920. Sires 13 R dams ave. 31 lbs. Price \$100 Reg. and Del. would take Liberty bond. J. R. Hicks, R. 3 St. Johns, Mich.

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

Bull calf born Apr. 27, '19. Six's six nearest dams average 33.34 lbs. butter for 7 days. Dam is a 16.32 lb. 3 year old. Oscar Wallin, Unionville, Mich.

HARWOOD HEREFORDS

Young stock both sexes for sale. "Keep On 509019" heads the herd. Write us your wants. Visitors welcome.

JAY HARWOOD, Ionia, Mich.
Farm six miles south of Ionia.

Herefords Special low price on the following for a short time. One four year old cow due in spring. Two 2 year olds with calves by side. One yearling heifer. Three bull calves, about 9 months old, one polled, two horned, all well marked and good dark color. COLE & GARDNER, Hudson, Mich.

HEREFORDS

3 Prince Donald, 3 Farmer and one Polled bulls from 7 to 13 months old, for sale.

ALLEN BROS.
PAW PAW, MICHIGAN

Herefords. Just purchased 3 new herds, now have 150 head; we offer you anything desired either sex, horned or polled, any age. Priced reasonable. THE McCARTYS, Bad Axe, Mich.

Hereford Herd Headers only the upper crust retained, undesirables unsexed, not the largest herd, but few as good. Come and see. Farm adjoins town. E. J. Taylor, Fremont, Mich.

MICHIGAN JERSEYS

Michigan is an ideal place for the raising of Jersey Cattle and there are no better cattle for dairying than Jerseys.

Jerseys mature early, live long, produce persistently, give the greatest amount of butter-fat obtainable from every pound of feed. They are hardy and vigorous, always on the job and the greatest mortgage-lifters that ever entered a barn.

Michigan should have more Jerseys and the Jersey breeders of the state are anxious to cooperate with anyone who is interested in successful dairy farming.

MICHIGAN JERSEY CATTLE CLUB

The Wildwood Farm

Jersey Cattle, Majesty strain. Herd on State accredited list. R. of M. testing constantly done. Bulls for sale. ALVIN BALDEN, Phone 143-5, Capac, Mich.

Maple Lane Register of Merit Jersey Herd. Bulls ready for service out of R. of M. dams and sired by one of the best grandsons of Poggi 99th of Hood Farm. IRVIN FOX, Allegan, Mich.

BUTTER BRED JERSEY BULLS FOR SALE
CRYSTAL SPRING STOCK FARM,
Silver Creek, Allegan County, Michigan.

FOR SALE Jersey Bulls ready for service R. of M. ancestors. Raleigh-St. Lambert breeding. Jerseys stand for economy. Waterman & Waterman, Packard Rd. Ann Arbor, Mich.

LILLIE Farmstead Jerseys—A few heifers bred to freshen soon, heifers bred to freshen next fall, 3 cows, R. of M. bull calves. C. C. Lillie, Coopersville, Mich.

Bulls ready for service from our herd bull Marguerites Premier, gdson, of Poggi 99th of Hood Farm, and cows now on test for R. of M. Smith & Parker, Howell, Mich.

FOR SALE, half interest in beautiful herd bull Sire, Raleigh Dam R. of M. made 324 lb. butter, also young bulls. Geo. E. Walker, Grand Rapids, Mich.

For Sale Registered Jersey cows and heifers, 40 head to choose from. H. C. WHIPPLE, Augusta, Michigan.

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

For Sale Shorthorns of Quality Scotch and Scotch Topped descendants of Archers Hope, Ayondae, Maxwellton Sulton and White Hall Sulton. Model Type, by the Ocoila Co. Shorthorn Breeders Ass. John Schmidt, Sec. Reed City, Mich.

Branch County Farm breeders of American Polled Shorthorns. Herd headed by Grand Champion bull, Sultan's Standard, son of Sultan Creed. For sale choice young bulls & heifers priced to sell. Address G. E. Burdick, Mgr., Coldwater, Mich.

SHORTHORN SALE

35 - HEAD - 35

Of Good High Class Shorthorn
26 Cows and Heifers, 9 Bulls

The heft of the females are safe in calf to good scotch bulls some with calves by side. This sale will be held under the auspices of the Southern Michigan Shorthorn Breeders Association.

Hillsdale, Mich. Fair Grounds
Tuesday, March 16, 1920.

For particulars and catalogues address
John Southworth, Sec., Allen, Mich.

Andy Adams and Scotty Milne,
Auctioneers.

AUCTION SALE

Monday and Tuesday, March 8 and 9

at farm 6 miles east of Ithaca, commencing at 10 o'clock.

15 Head Registered Jersey Cattle
26 Head Trade Cattle
29 Head 2 year old Aberdeen Angus Steers
35 Head Registered Oxford Down Sheep
6 Head Horses, good heavy teams
38 Head Hogs

and all implements and tools for farming 200 acres.

Hot Lunch Served at Noon. Registered Stock will be offered directly after lunch second day of sale.

For itemized list address

James P. Gibbs & Son, Proprietors
ITHACA, MICHIGAN



37% FAT

What does it mean?

SIMPLY this: It costs less to feed Jerseys than any other breed and they produce the richest quality of milk (butter fat average of 5.37%). Jersey Milk churned into butter and cheese bring the highest prices on the market.

Jerseys are the real "cow investment"! They start producing at an earlier age than any other breed and are still great milkers long after other cows have gone dry.

Let us give you some surprising information about Jerseys in our free booklet "Profitable Facts About Jerseys". Write today for it.

The American Jersey Cattle Club, 322 M. West 23rd St., New York, N. Y.
An Institution for the Benefit of Every Jersey Owner

JERSEYS

23 Head Dispersal Sale of Shorthorns 23
March 13th 1920

19 females, 4 bulls at my farm 1 mi. N. 1/2 m. E. of Vickeryville, Montcalm Co., Mich., on Muskegon Div. of G. T. R. R., Sale at 2 p.m.
Andy Adams, Auctioneer, Fred Carter, Prop.

BIDWELL SHORTHORNS

For Beef and Milk

Registered bulls, cows and heifers. Good Scotch and Scotch Topped for sale. In prime condition. Modern sanitary equipment. Herd under state and federal supervision. Farm 10 minutes from N. Y. C. depot, 1 hour from Toledo, Ohio. Automobile meets all trains. Write

BIDWELL STOCK FARM
Box B, Tecumseh, Mich.

Richland Stock Farms

Home of the Michigan Champions.
Shorthorn Sires in Service:

IMP. Lorne, IMP. Newton Champion, Sterling Supreme. Why not buy a young bull to head your herd that carries the blood that is making Shorthorn History. Only a few real headers left. Write your wants.

C. H. PRESCOTT & SONS, Tawas City, Mich.

Scotch Shorthorns Imp. Royal Bruce heads a select herd of females consisting of the Rosewood, Lovely Orangeblossom and Rom Lady and several other good females. Two bulls ready for service for sale also a few females. CARR BROS. & CO., Bad Axe, Mich., Address Norman Carr, Secretary.

Meadow Hills Shorthorns. Herd headed by Silver King, full brother of Lavender Sultan Purdue University's great sire. For sale females of all ages, a few young bulls. Geo. D. Doster, Doster, Mich.

Shorthorns Good Scotch bred bulls, cows and heifers priced right. W. B. McQUILLAN, R. 7, Howell, Mich.

Milking Shorthorns of best Bates breeding. Nothing for sale at present. E. H. KURTZ, Mason, Mich.

Central Mich. Shorthorn Breeders Assn. offer 40 bulls, 38 females, write for new list. OSCAR SKINNER, Sec. Gowen, Mich.

The Kent Co. Shorthorn Assn. have males and females of quality for sale. L. H. LEONARD, Sec., Caledonia, Mich.

FOR SALE Registered Shorthorns of good milking strain. Bull Roan three years old, bull calves 2 to 6 months. Chas. Warner Jr., R. 4, Imlay City, Mich.

Shorthorn three young Bulls. Gray Percheron Stud. Young Spanish Jack. Duroc Hogs either sex. E. J. ALDRICH, Pekin, Mich.

Reg. Brown Swiss cow 5 yrs. old with heifer calf by side. Yearling bull calf. Priced reasonable. C. H. TUCKER, Osseo, Mich.

HOGS

Registered Berkshire Boars ready for service. A few gilts and sows bred for May and June farrow. Also spring pigs. CHASE STOCK FARM, Marlette, Mich.

BERKSHIRES both sex and Aberdeen-Angus bulls B 8 to 12 mo. old a very fine lot priced reasonable. RUSSELL BROS. R. 3, Merrill, Mich.

Registered Berkshires, two yearling sows each have 1 litter. Bred to our herd boar Duchesne Successor 5th 264285. Robt. P. Rea & Son R. 1 Caro, Mich.

Walnut Hill Durocs June farrowed boars ready for service from Ira Jackson and Brookwater stock, also bred gilts and sows of all ages for Mar. and Apr. farrow, priced right and registered in buyer's name. Write JOHN C. DEAN, R. 1, Mason, Mich.

DUROC-JERSEYS

A few extra good bred sows and gilts for sale. CAREY U. EDMONDS, Hastings, Mich.

DUROC JERSEYS

Bred Gilts for March and April farrow. Write at once for description or come and see them. Satisfaction guaranteed with every order. RUSH BROS. OAKWOOD FARM, Romeo, Mich.

Michigana Farm offers some exceptional values in bred gilts. Also in tried sows. These are guaranteed to give satisfaction and they will ship on approval to responsible parties. They breed and sell good Durocs. O. F. Porter Mgr. Pavilion, Mich.

ROYAL BRED GILTS

Dams sired by Michigan Cherry Col. Bred to Jacks Cherry Orion King No. 109250. Son of the \$10,000 champion, Jacks Orion King 2nd. all high class stock, write for prices. The Jennings Farms, R. 1, Bailey, Mich.

DUROC JERSEYS

Gilts bred for March and April farrow. A Guarantee back of every Sow Sold. F. J. DRODT, Monroe, Mich. R. 1.

DUROC JERSEYS

E. D. HEYDENBERG, Wayland, Mich.

\$12.50 for a Duroc spring pig, 6 weeks old, either sex, M. A. C. Brookwater breeding reg. papers free. Express charges paid. Booking orders now. D. W. SUTHERLAND, Gd. Ledge, Mich.

Duroc bred sows and gilts sired by Orion Cherry King Col. 2nd., bred to All Col. of Saginaw 2nd. First class lot, reasonable. W. C. Taylor, Milan, Mich.

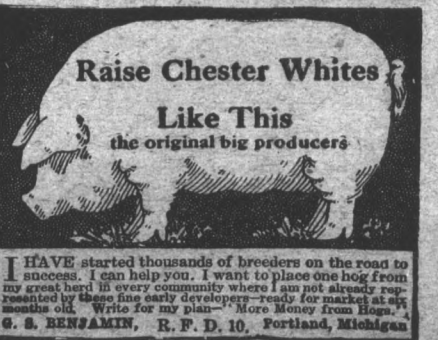
DUROC GILTS. Bred and open. Real BOARDMAN FARMS, Jackson, Michigan.

DUROCS for Sale Bred sows and fall pigs of both sex and a car of grade draft colts. CHAS BRAY, Okemos, Michigan.

Chester Whites, spring and fall stock for sale sex and either sex. At Saginaw fair we won highest honors against strong competition. F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites

Like This
the original big producers



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at 4 months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, R. F. D. 10, Portland, Michigan

O. I. C. and Chester White Swine

Strictly Big Type with quality. Spring pigs of March and April farrow. A choice lot of hogs. Will only spare a few more gilts at present. Will ship C. O. D. and record them free. Newman's Stock Farm, Marlette, Mich. R. No. 1.

Veterinary.

CONDUCTED BY DR. W. C. FAIR.

Wounded Shin.—Horse cut gash on shin six inches in length, and three and a half inches wide. The remedies I have applied fail to do any good. H. S. Rogers, Mich.—Dissolve one ounce of permanganate of potash in half a pint of water and with a brush paint the raw surface of sore twice a day. It is always slow and difficult work to heal such a wound.

Vertigo.—My ten-year-old horse occasionally has sick spell, which comes on suddenly, lasts for about twenty minutes, then he will remain well for some time. He is inclined to sprawl out, keep hind legs well apart, but if not stopped he would fall. G. E. R., Clio, Mich.—If he is fleshy, cut down his grain ration, especially when he is not working. Give him one dram of potassium bromide at a dose three times a day. His bowels should be kept open and don't forget the importance of exercising him daily.

Roarer.—Our five-year-old mare makes a noise breathing, her head seems to be stopped up and she has trouble breathing. When she takes cold it makes her sick. She is thrifty and in good condition. H. D., Berrien Springs, Mich.—Give her tablespoonful of powdered licorice in each feed and rub throat with camphorated oil daily. A surgical operation might relieve your horse.

Moldy Corn.—I have some shelled corn that is moldy. Shall I have it ground and feed it to horses, or feed it to hogs? C. J. S., Saranac, Mich.—The hogs are less likely to become infected than your horses. If you feed this corn to horses, mix it with other feed.

Light Milker.—I have a valuable cow five years old that recently dropped her fourth calf. She seemed to be in perfect health. Before she came fresh her udder seemed to fill, but soon after she came fresh both hind quarters began to shrivel and now I get very little milk from either teats. Will it pay me to breed her again? H. L. Z., Farmington, Mich.—She will prove unprofitable for dairy purposes, therefore she should be dried, fattened, and sold for beef.

Too Much Salt.—Damp Basement.—Forage Poisoning.—I would like to know why all my young pigs died. On December 6, 1919, the nine pigs were born, at the end of five weeks they were all dead. The pigs were farrowed under the strawstack, remained there a few days, were then removed to basement where they had rye straw bedding, sow fed separator milk, bran, oats and corn. Sow had equal parts of salt and coal before her all the time. I opened the pigs, but found their organs healthy. Last July another sow had eleven pigs, her first litter. All died but one. Before farrowing she had free range of a quarter-acre lot. She ran in pasture after her pigs were born. B. McW., Caledonia, Mich.—Doubtless the cold cement, their eating too much salt, and possibly their food supply, had to do with causing them to die. I am inclined to believe the food killed the ten pigs, not disease.

Spasm of Larynx.—I have a litter of seven pigs that are about eight weeks old. They have been doing fine, and seemed perfectly healthy. I weaned them ten days ago, fed them warm skim-milk, with fine ground corn, rye and oats mixed. They have warm dry quarters and I keep them well bedded. Two days ago one of them, when he commenced to eat, squealed, rolled over and kicked as though he was dying, but in a few minutes he was up and seemingly all right, but did not care to eat and has not eaten well since. This morning another acted the same way. This is the first experience of the kind I have had. J. E., Copemish, Mich.—Doubtless your pig suffered from a spasm of larynx or choked, or perhaps some of the liquid food passed down windpipe into lungs. Feeding warm food, feeding often and spreading it out thin will generally prevent this choking.

Loss of Appetite.—I have a cow that seems to have lost her appetite for food. Have tempted her with different kinds of feed, but none of them seems to be what she craves. She stands in barn, making noise with her teeth. C. S., Belleville, Mich.—Give her a desertspoonful of fluid extract of cinchona, one dram of fluid extract of nux vomica, and a half ounce of Fowler's solution at a dose three times a day. Try feeding her some roots.



Is that good old battery of yours getting balky?

It may require only a skillful repair to bring back its snappy motor-spinning power. No matter what make of battery you have in your car, drive to your nearest USL Station for Golden Rule Service.

USL Service Stations don't have to sell a fixed number of batteries each month, that's not the USL Policy. Often when a man thinks his battery is done for and wants to buy a new USL, our Service Stations show him how they can save money for him by repairing his battery and giving him an adjustment guarantee for eight months. That is "Golden Rule" service.

USL Service Stations are expert at keeping electrical systems in tune so they will treat

the batteries right. It is important to remember this.

USL Service Stations sell only the USL Battery which has long life Machine-Pasted Plates. USL Batteries are shipped "Dry-Charged." This avoids all before-sale deterioration and the customer is assured a perfect battery with every bit of its life intact.

If you are having trouble with your automobile battery or your farm lighting battery, be sure to see the USL Service Station Man and have the trouble corrected at once.



The USL Farm Lighting Storage Battery

U.S. Light & Heat Corporation, Niagara Falls, N. Y.

Likely there's one of our fifteen hundred service stations in your town. If there isn't, for the address of the handiest, just drop a post card to the nearest of the following distributors:

United Electric Service Co., Detroit, Mich.
U. S. Auto Supply Co., Chicago, Ill.



Brookwater Duroc Jersey Bred Sows Attractive Prices During February

Our show herd has met successfully the strongest competition east and west. The grand champion boar and the grand champion sow at the Michigan State Fair for five consecutive years was shown by us. We breed a type that proves profitable in the feed lot and wins favor at the big shows.

The bred sows we are offering are sired by, out of, and bred to high class individuals of these prize winning strains. Our prices are more reasonable than those of any other herd of equal prominence. By buying in Michigan you can see what you buy and save express. We invite you to come to the farm and make your own selections. If this is impossible, write and tell us what you want. We will not have enough to supply the demand. Act promptly and save disappointment.

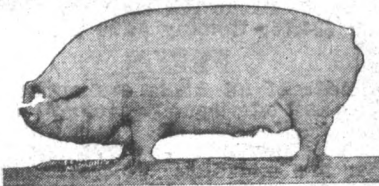
BROOKWATER FARM, R. 7, ANN ARBOR, MICH.

Herbert W. Mumford, Owner,

J. B. Andrews, Manager

P. S. Some ready for service Jersey bulls by a double grand son of Royal Majesty out of Majesty's Iris. The Register of Merit Kind. You cannot afford to be without one.

THE FAMOUS O.I.C. SWINE



We have the undefeated Herd of the World. Winning premier breeder and exhibitor at every fair shown in 1919-1918-1917, including the following state fairs—Ohio, Michigan, Indiana, Illinois, Missouri, Kentucky, Tennessee, Oklahoma, New York, Alabama, Tri-state fair Memphis, and the National O.I.C. twice. Stock of all ages for sale. Registered free in the O.I.C. association. Order now. We will ship any of our stock on approval allow you to keep three days before you have to pay for it. You will be your own judge on your own farm.

CRANDELL'S PRIZE HOGS,

Cass City, Mich.

O. I. C. SOWS FOR SALE

One of the Best Herds in Michigan
Spring gilts and fall yearlings bred for March, April and May litters. I ship C. O. D., pay express and register in buyer's name. If you want a BIG TYPE sow, guaranteed right in every way, write me.
J. CARL JEWETT, R. 5, Mason, Michigan.

O. I. C's. Last spring boars all sold. Have an extra good lot of last spring gilts, good fall pigs not akin. Good stock, registered free 1/2 mile west of Depot.
OTTO B. SCHULZE, Nashville, Mich.

O. I. C. and Chester White Swine booking orders for spring pigs from big type blood lines. Fall pigs with size and quality. I ship C. O. D. and register in buyer's name. John C. Wilk, Alma, Mich.

O. I. C's. Am offering a few September pigs that combine size and quality.
O. J. THOMPSON, Rockford, Mich.

O. I. C's. Big type gilts, fall yrs., tried sows, Mar. Apr. farrow. Summer and fall pigs. A few exp. reg. free, satisfaction guaranteed. G. P. Andrews, Danville, Mich.

O. I. C. Gilts bred for March and April farrow. I pay express and register in buyers name.
H. W. MANN, Danville, Mich.

O. I. C's. Have some Choice Spring Gilts, bred for spring farrow.
THAYER BROS., R. 1, Mason, Mich.

O. I. C. Gilts bred for March and April farrow, guaranteed safe with pigs. Fall pigs and a few service boars. Herd insured by D. T. F. C. Burgess, R. 2, Mason, Mich.

O. I. C. choice gilts bred for March, April and May farrow and fall boars. Am booking orders for spring pigs. A. J. Barker & Son, Belmont, Mich.

O. I. C's. Choice bred gilts, 2 extra fine service boars, choice Sept. pigs either sex or pairs.
CLOVERLEAF STOCK FARM, R. 1, Monroe, Mich.

L. T. P. C. 1 spring boar, (by Long Jones) the best pig you ever saw; price \$100.00; send check with first letter or the other fellow will beat you, if you don't like description will return check. A few good spring boars left at farmer's prices. Gilts will be bred to a grandson of Giant Buster and a Grand Son of Dishes Giant, no better pair of young boars in the state, and Wiley's King Bob.
H. O. SWARTZ, Schoolcraft, Mich.

FOR Sale—Large Type Poland China Gilts, bred for April farrow. Inspection invited. Free livery from Manchester. A. A. Feldkamp, R. 2, Manchester, Mich.

Poland Chinas sows bred for March and Apr. farrow. Large type with best of breeding.
R. W. MILLS, Saline, Mich.

MILLER Meadows L. T. P. C. boars all sold. Gilts sired by General Jones and bred to our young boar Alaska, address **CLYDE WEAYER, Ceresco, Mich.**

Boars also sows and pigs. Real Big Type Poland B Chinas. Bred big for 25 years. Sired by Mich. Buster by Giant Buster, litter 14 out of Mow's Miss Queen 2nd, some breeding, also by Butler's Big Joe by Rust's Big Joe, out of a Wonder Queen, not said. Write us your wants, we will treat you right, our prices are low.
J. C. BUTLER, Portland, Mich.

BIG Type Poland Chinas. Sired by Smooth Mastodon litter mate to the Ill. Grand Champion. The big boned, deep, long bodied kind at farmer's prices. Wah-be-me-me Farms, White Pigeon, Michigan

Additional Stock Ads. on Page 342

For Cows
Only



Stop Losing Calves

Abortion is unnatural, and denotes a run-down condition of the genital organs. Strengthen these organs and they will resist the ravages of the Abortion germ.

KOW-KURE is a medicine that acts directly on the genital and digestive organs, giving them the vigor of perfect health. Cows treated with KOW-KURE before calving do not abort. You save both the calf and the cow's health by using the KOW-KURE preventive treatment.

KOW-KURE is also invaluable in the prevention and treatment of Retained Afterbirth, Bacteraemia, Bunches, Scours and Milk Fever. Sold by feed dealers and druggists; 60c and \$1.20. Write for free book, "The Home Cow Doctor."

Dairy Association Co., Lyndonville, Vt.

To Prevent or Treat ABORTION



ABSORBINE

TRADE MARK REG. U.S. PAT. OFF.

Reduces Bursal Enlargements, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from Bruises or Strains; stops Spavin Lameness, allays pain. Does not blister, remove the hair or lay up the horse. \$2.50 a bottle at druggists or delivered. Book 1 R free.

ABSORBINE, JR., for mankind—an antiseptic liniment for bruises, cuts, wounds, strains, painful, swollen veins or glands. It heals and soothes. \$1.25 a bottle at druggists or postpaid. Will tell you more if you write. Made in the U. S. A. by W. F. YOUNG, INC., 268 Temple St., Springfield, Mass.

\$420 Extra Profit



W. H. Graham of Middleton, Mo., says in an actual test that \$30 worth of Milkoline made him an extra profit of \$420. Hundreds of others from coast to coast say the same thing.

Hustles Heavy Hogs to Market
Is the title of a little booklet that tells all about Milkoline (buttermilk made better for feeding) and how when fed according to directions it costs but 2¢ a gallon. Makes hogs and poultry digest their food—saves time and money. Ask for free copy of booklet and our thirty day trial offer.

360 Creamery Bldg.
MILKOLINE MFG. CO., Kansas City, Missouri.

Fertilizer Salesman Wanted

Reliable Company wants to develop capable salesman for Ohio, Indiana and Michigan territory. Prefer up-to-date farmers, experienced selling fertilizers locally. Permanent salary, commission and expense paid position if you can "make good." Address at once, giving full particulars and references, Box 1-26 care Michigan Farmer, Detroit, Mich.

For Best Net Results

Ship to

CULOTTA & JULL

Detroit, Mich.

"Enough Said!"

Mr. POULTRY FARMER:

We make a specialty of White Henery Eggs and have created a profitable market for your eggs the year around. We pay the highest premium for your Henery Whites—We remit same day shipments arrive. Ship Often—Ship by Express

GEO. R. ELDRIDGE CO.

494-18th Street, Detroit, Mich.

Remember! We guarantee you satisfaction with every shipment.

Holmes, Stowe Co., 445 Riopelle St.

Commission Merchants. Dressed Beef, Hogs, calves, Poultry, Live & Dressed, Provisions, etc. Correspondence Solicited. Ref. Wayne County & Home Savings Bank, Bradstreet, Detroit, Mich. Cad. 2878

HAY Ship to The Old Reliable House Daniel McCaffey's Sons, 621-625 Wabash Bldg., Pittsburg, Pa.

Latest Market Reports

SECOND EDITION.

The markets in this edition were revised and corrected on Wednesday afternoon, March 3.

WHEAT

The wheat situation is rather slow and prices remain unchanged. Millers are buying in small amounts and report the flour deal slow. Present quotations at Detroit are as follows:

No. 1 red	\$2.50
No. 1 mixed	2.48
No. 1 white	2.48
No. 2 red	2.45
No. 3 red	2.41

CORN

The bears are making good use of the fact that there was a heavy increase in the visible supply after this time two years ago, and with the railroads back in private hands and handled more efficiently, this is likely to be repeated, but at that time farmers were not so confident as now, and there was not the same indication that the next crop would be short. The present grain is of good quality and there is not much danger of loss in holding it. The past week has been very quiet and the changes in price have not affected the general situation. There is confidence on both sides and the market appears on fighting ground. Bulls figure that the time for heavy receipts is past, while the bears believe that farmers will sell rather than carry over the surplus to be added to the new crop. Present prices at Detroit are as follows:

No. 3	\$1.54
No. 3 yellow	1.56
No. 4 yellow	1.54
No. 5 yellow	1.49
No. 6 yellow	1.46

OATS

The trading in oats is slow, but the market is firm. Oats are scarce and in good demand and there is some revival of export buying. Present prices are:

No. 2 white	.95
No. 3 white	.94
No. 4 white	.93

RYE

Export buying is strengthening the demand for rye. At Detroit Cash No. 2 rye is quoted at \$1.64 per bushel.

BARLEY

There is no particular activity in the demand for barley. Present prices at Detroit are \$2.90@3 per cwt, for cash No. 3 barley.

BEANS

At Detroit there is not much activity in the bean situation, although the prices are firm and are not working toward a lower level. Choice hand-picked Michigan pea beans are quoted at \$6.75 per cwt. At Chicago the market is easy and the demand of a light character. Choice pea beans are quoted at \$7@7.50; red kidneys \$13.50@14 per cwt. At New York the market shows little change and the movement is slow. Present prices are: Choice pea beans \$7.75@8; red kidneys \$14.75.

SEEDS

The market is active and steady. Present quotations at Detroit are as follows: Prime red clover \$34.50; alsike \$34.75; timothy \$6.70 per bushel.

FEEDS

Feeds of all kinds are active and firm. All offerings are promptly taken at the following prices on the Detroit market: Bran \$51; standard middlings \$54; fine middlings \$58@59; coarse corn meal \$65; cracked corn \$66.50; chop \$56@57 per ton in 100-pound sacks.

HAY

The immediate supply is small and prices firm. Country offerings are increasing and dealers look for an increase in receipts during the next few days. Present prices on the Detroit market are as follows: No. 1 timothy \$33.50@34; standard \$32.50@33; light mixed \$32.50@33; No. 2 timothy at \$31.50@32; No. 3 timothy at \$27@29; No. 1 mixed \$31.50@32; No. 1 clover \$31.50@32; rye straw \$13.50@14 wheat and oat straw \$13.50@14 per ton in carlots.

At Pittsburgh receipts have shown a slight increase. The demand is fairly active, which readily disposes of arrivals at the present prices: No. 1 timothy \$38@38.50; standard timothy \$37@37.50; No. 2 timothy \$32.50@33.50; No. 1 clover mixed at \$38@39; No. 2 clover mixed \$34@36; No. 1 clover \$39@39.50; No. 2 clover \$34@36; oat straw \$14.50@15.50; wheat straw \$14@15; rye straw \$14.50@15.50.

POULTRY

Saturday's receipts of poultry were all cleaned up before noon and many buyers could not get enough to meet their needs. The market is firm and is expected to remain so for several days as there is no promise of an increase in offerings. Country buyers report that farmers are not selling their hens. Present values of live poultry at Detroit are as follows: Spring chickens, large 36@38c; Leghorns 35@36c; hens 38@40c; small hens 36@37c; roosters 23@24c; ducks 40@45c; geese 30@35c; turkeys 44@45c per pound.

EGGS

Eggs are coming in freely from the south and west, but the demand is equal to the supply and the market is firm. Present prices at Detroit are: Fresh eggs 50@50½c per dozen.

BUTTER

Butter has been coming in slowly for several days and receipts are not increasing. The market is firm and the demand active. At Detroit quotations are as follows: Fresh creamery 61@61½c; fresh creamery in one-pound prints 63@64½c.

CHEESE

The cheese market is easier, prices lower. Present quotations at Detroit are: Michigan flats, June make 27½@28c; New York flats, June make at 31½@32c; Michigan single daisies, 29c; Wisconsin double daisies 31½c; Wisconsin twins 28c; domestic block Swiss 39@40c per pound.

POTATOES

Potatoes are scarce and firm at an advance of 25c per sack. Receipts have been light for several days. Present quotations at Detroit are around \$7.00 per 150-pound sack for Michigan round white stock. At New York good stock is firm and prices advancing. Present prices are \$4.75@5.25 per 100-pound sack for Maine round white stock.

WOOL

The situation in the regular wool market is rather unsatisfactory. Trading is on a low ebb, the difficulties of shipment being a leading factor in holding down sales. No wool is being shipped to the mills except occasional sample lots sent by express. Some mills are in danger of closing for lack of raw material upon which to operate. One Rhode Island mill, it is stated by wool men, has been unable to get shipments of raw material or make shipments of manufactured products. Beyond the shipping situation, dealers find the lack of fine wools and the

government competition in the low sorts conspicuous factors in deterring business. Very few of the merinos sold at the recent British auction sales at Ford Hall have come on the market for redistribution; hence the supply of fine sorts finds no increase. The poor wools offered cannot be sold except at concessions, for buyers are not eager to operate when they can turn to the auction sales of the United States government as an alternative.

HIDES

Present quotations on hides on the Detroit market are as follows: No. 1 cured calf 55c; No. 1 green calf 55c; No. 1 cured kip 32c; No. 1 green kip 28c; No. 1 cured hides, 25 to 45 lbs 30c; 45 lbs and up 20c; No. 1 green hides 25 to 45 lbs 27c; 45 lbs and up 17c; No. 1 green hides 20c; No. 1 cured bulls 16c; No. 1 horsehides \$9.50; No. 2 horsehides \$8.50. Tallow, No. 1 13c; No. 2 11c. Sheep pelts 50c@3.50; No. 2 hides 1c, and No. 2 kip and calf 1½c off.

GRAND RAPIDS

There was a decline today in the paying price of eggs to 50c per dozen in case lots to producers. Receipts are still light but southern laid is responsible for the decline. The price of medium clover and alsike seed declined \$1.50 per bushel this week to \$38.50 retail. Mammoth clover is still \$40; timothy seed is 50c lower at \$7.50. Farmers have figured out how much hay they will need to carry their stock through the rest of the winter, and began marketing. This week 28 loads were drawn to the city market, selling from \$28@30 per ton. Some farmers marketed potatoes this week selling from \$2.75@2.85 per bushel. The Grand Rapids Growers' Association placed an order this week for six cars of fertilizers of different kinds for hothouse and truck farming. On account of shortage of seed peas, one wholesale firm has imported from Europe a large quantity to fill orders. Hides continue to decline; both cattle and calf are 5c per pound lower on green and cured than last week.

NEW YORK PRODUCE MARKET.

Butter.—Large quantities of butter arrived the first part of the week and materially alleviated the partial famine. During the first part of last week and in fact, whenever there was any butter to be secured jobbers and retailers had added to their stocks which had been sadly depleted following the severe snow storm that paralyzed all street traffic in New York. With the influx of so much butter this week

Live Stock Market Service

BUFFALO

On this market today pigs brought \$15.50@16; yorkers and mixed \$16.25@16.65; others \$15.25@15.75. Calves were up to \$23 and the best lambs \$20.50@20.75.

DETROIT

Cattle.

Good grades strong; others steady. Best heavy steers \$11.00@12.00. Best handy wt bu steers 9.00@10.00. Mixed steers and heifers 8.75@9.00. Handy light butchers 8.00@8.50. Light butchers 6.50@7.50. Best cows 8.00@8.50. Butcher cows 6.00@7.00. Cutters 5.00@5.50. Canners 4.50@5.00. Best heavy bulls 8.00@9.00. Bologna bulls 7.00@7.50. Stock bulls 7.00@7.25. Milkers and springers 65@125.

Veal Calves.

Market steady. Best \$20.00@21.00. Others 8.00@15.00. Sheep and Lambs. Market steady. Best lambs 19.50@20.00. Fair lambs 17.00@18.50. Light to common 12.00@15.50. Yearlings 16.00@17.00. Fair to good sheep 12.00@13.50. Culls 6.00@8.00.

Hogs.

Mixed hogs steady to 25c higher. Mixed hogs \$15.25@15.50. Pigs 15.25@15.50.

CHICAGO

Hogs.

Estimated receipts today are 17,000; holdover 10,369. Market slow, mostly steady to strong. Bulk of sales \$14.50@15.25; tops \$15.50; heavy 250 lbs up medium, good and choice at \$14.15@

14.85; medium 200 to 250 lbs, medium, good and choice \$14.75@15.25; light 150 to 200 lbs, common, medium, good and choice \$15@15.40; light lights 130 to 150 lbs, common, medium, good and choice \$14.50@15.25; heavy packing sows 250 lbs up smooth \$13@13.50; packing sows 200 lbs up, rough \$12.25@12.75; pigs 130 lbs down, medium, good and choice \$13.25@14.50.

Cattle.

Estimated receipts today 5,500. Market steady to strong. Beef steers, medium and heavy weight 1100 lbs up, choice and prime \$14.25@16; do medium and good \$11.50@14.25; do common \$9.50@11.50; light weight 1100 lbs down, good and choice at \$12.25; do common and medium \$9@12.25; butcher cattle, heifers, common, medium, good and choice \$7@13.25; cows, common, medium, good and choice \$6.75@12; bulls, bologna and beef \$7@10.50; canners and cutters, cows and heifers \$4.50@6.75; do canner steers \$6@7.25; veal calves, light and handyweight, medium, good and choice \$15@16.50; feeder steers, common, medium, good and choice \$8.25@11.65; stocker steers common, medium, good and choice \$7@10.50; do cows and heifers, common, medium, good and choice \$7@9.25; do calves, common, medium, good and choice \$7.75@11.

Sheep and Lambs.

Estimated receipts today are 15,000. Market steady for sheep; lambs slow, opening 25c lower. Lambs 85 pounds down, medium, good, choice and prime \$17.25@20; do culls and common \$14@17; spng lambs, medium, good, choice and prime at \$15@18; ewes, medium, good and choice \$11.25@14.50; ewes, cull and common \$6@10.75; yearling wethers, medium, good and choice at \$15.75@17.

dealers, having large quantities to pick from, were very conservative with their buying and, in consequence the price of all grades of butter declined. However, during the week the accumulations of butter have been gradually depleted until today the condition in the market has again become fairly normal and the market can be said to be firm. However, if butter gets through without any material delay, the price tendency will be downward as this is the season of the year when prices must seek lower levels. The total decline in the price of butter this week has been 2½c. Quotations are: Extras 65c; higher scoring than extras 65½@66c; firsts 58@64c; seconds 54@57c.

Cheese.—The cheese market remains quiet. Demand is principally for medium to high quality stock. Export demand is practically at a standstill, although there is a small amount of demand for skims. Quotations are: Held cheese, fair 23@27c; average run 28@29c; specials 29½@31c.

Eggs.—The quotations on eggs took a decided decline the first part of the week because of the arrival of great quantities of delayed stock. The market at present is firm and receipts are just about enough to care for the demand, which is quite strong. Quotations are: Firsts 58½@60c; extra firsts 61c; extras 62@63c.

Poultry.—Receipts of live poultry are moderate. Demand is good for fowls, but chickens are somewhat of a drag on the market. Old roosters are in abundance and the price tendency is downward. Quotations are: Chickens (as they run) 30c; chickens (select) 32@33c; fowls 40c; old roosters 20@22c; turkeys 35@40c.

ADRIAN COMMUNITY MARKET.

The following prices are quoted on Saturday, February 28:

Apples, green per cwt \$3.50; do red per cwt \$4; beans, choice hand-picked per cwt \$6; butterfat 65c; butter (packing stock only) 30c; cabbage Holland, per ton \$100; carrots, table, per bushel \$1; cream, butterfat, per lb, at 65c; eggs, hennerly white, 56c; eggs, gathered white 50c; do fresh brown 50c; honey (comb) per lb 32c; honey, extracted, lb 23c; hogs, dressed 50@100 lbs 18c; do 100@160 lbs 17c; do 160@200 lbs 16c; do 250 lbs and up 14c; lambs \$5@20; maple sugar, per lb 30c; mutton per lb 10@12c; onions, dry, per cwt \$4.50; parsnips per bushel 75c; rabbits tame, over 5 lbs 10c; potatoes, No. 1 per cwt \$4.10; turnips, table size, per bu \$1.75; veal, dressed, 100@140 lbs, 24c; veal, dressed, 80@100 lbs 20c.

Live Poultry.—Cocks, per lb 16c; ducks, white per lb 30c; heavy geese 26c; guineas, young, per dozen at \$5; hens, extra large and fat 34c; hens, Leghorn and Anconas, lb 26c; pigeons, per dozen \$1.25; springers, light medium 28c; springers, Leghorns 28c; turkeys, over 9 lbs 36c.

Wool.—Delaines per lb 65c; half bloods per lb 60c; three-eighths 55c; quarter-bloods 50c; common rough and braid 40c.

TO OUST MIDDLEMEN.

Wool growers are organizing to save for themselves and for wearers of woolen garments, millions of dollars now absorbed by middlemen. Milo D. Campbell, of Coldwater, Mich., said in an address before the Boston City Club, February 25.

Mr. Campbell, who is president of the National Milk Producers' Federation, and chairman of the executive committee of the National Board of Farm Organizations, spoke of the Boston Wool Dealers' Association as collecting the greater part of the wool from the fifty million sheep in the country.

"By a mere technical camouflage, they buy the wool of the farmer or local dealer in the grease and sell it to the mills as scoured wool," he said. "The wool has not been scoured by them. It goes to the mills as it comes from the sheep."

COMING SALES.

Hereford, March 5, 1920, Wm. B. Wood & Son, Dowagiac, Mich.

Shorthorns, March 13, 1920, Fred Carter, Vickeryville, Mich.

Angus, March 26, 1920, Michigan Aberdeen-Angus Breeders, Saginaw, Mich.

Milking Shorthorns, March 12, 1920, M. P. Cook, Flint, Mich.

Jerseys, March 8 and 9, 1920, John P. Gibbs & Son, Ithaca, Mich.

Shorthorn, March 16, 1920, Southern Michigan Shorthorn Breeders' Association, Hillsdale, Mich.

Holstein, March 13, 1920, Webster W. Hardy, Oakville, Mich.

Milking Shorthorns

AT AUCTION

March 12th, 1920

At Flint, Michigan.

SALE STARTS AT 12:30

I have sold my farm and will sell at Auction, my entire herd of Milking Shorthorns, Durhams, consisting of 20 females and 5 bulls.

Included in this sale will be the Imp. Cow Darlington 19th. Darlington 19th is from the S. Sanday herd of Shorthorns, Chester, England. She has an official milk record of 6340.5 pounds of milk with her first calf at 2 years old. She is a splendid representative of England's most noted milking Shorthorns. Also a bull calf from this noted cow, sired by Royal Star, for some time herd bull for C. A. Otis herd at Willoughby, Ohio.

Another imported cow that will be included in this sale is Imp. Bobette 5th. This cow is from the great Hobbs herd, probably the best known herd of milking Shorthorns in England. She also has a milk record of considerably over 6000 pounds with her first calf. Her bull calf, now a year old, sired by Edgcote Broadhooks, herd bull for Carpenter & Ross, Mansfield, Ohio.

Maud Sharon, another noted milker, is included. This cow is a perfect dual purpose animal. She has an unofficial record of 60 pounds per day, when fresh. Two heifers of breeding age, and one bull calf from this cow will be in the sale.

The balance of the cows and heifers, are of the very best milking strain of this country and Europe. All great milk producers.

These animals are all bred in the purple. All the yearlings and two year olds are sired by Fairfield Goods, a grandson of the great Avondale. His dam is Fairfield Beauty, a great milker from the herd of H. B. Peters, Carland, Mich.

The balance of my dairy, about a dozen head consisting of grade shorthorns and Holsteins, will be included in the sale. All of the above animals are tubercular tested.

My farm is six miles south of Flint, on the Fenton road. People from outside who wish to attend the sale will please apply at the Bryant House, Flint for free conveyance to the farm.

Hot Lunch furnished.

Government Bonds and War Savings Stamps accepted at 1% above their market value.

M. P. COOK, Proprietor.

ANDY ADAMS, Auctioneer.

P.S. Send for catalogue and get the breeding of all these animals.

LARGE Type P. C. the largest in Mich. Spring boars now ready to ship. Boars for the breeders and boars for the farmers. Come and see the real large type with quality. Free delivery from Parma furnished visitors. Look up my exhibit at the Great Jackson Co. Fair, Sept. 8th, to 12th, expenses paid if not as advertised. W. E. Livingston, Parma, Mich.

Big Type P. C. sows bred to Le Big Bob & THIRTY Le Giant, fall pigs, none better, call or write. E. R. LEONARD, St. Louis, Mich.

Big Type Poland Chinas with quality, at reasonable prices. Pigs of both sex, and bred sows and gilts. G. A. BAUMGARDNER, R. 2, Middleville, Mich.

Big Type P. C. bred gilts, Fall yearlings, prize winners, out 1100 lb. sire and mammoth sows from Iowa's greatest herds. E. J. Mathewson, Burr Oak, Mich.

Pig Type Poland Chinas. Up-to-date in breeding. B with size and quality. We like good ones and believe you do also. Have three choice gilts for sale, bred for April 7, 9, 10, respectively. Their sire at 15 months weighed 640 lbs., not fitted, and stood 40 in. tall, 73 in. long and on a 10 in. bone. They are bred to a great son of Mountain Giant. Write or come and see. You're always welcome. WESLEY HILL, R. 6 Ionia, Michigan.

B. T. P. C. spring boars all sold. One Oct. 21st yearling boar, wgt. 225 lbs., as near perfect as any pig in Michigan. Price \$125. Gilts ready Jan. 1. Bred to a good son of \$10,100 Harrison's Big Rob. Every pig recorded free. JOHN D. WILEY, Schoolcraft, Mich.

L. T. P. C. Spring gilts ready to ship also fall pigs both sexes. P. R. ALEXANDER, R. F. D. 6, Albion, Mich., Bell phone 56PIL.

B. T. P. C. Gilts sired by Big Giant and O's Orange. Bred to O's Orange and Col. Jack Jr. No better breeding to be had. L. L. Chamberlain, Marcellus, Mich.

U. S. FIGURES SHOW

a shortage of 2,578,000 hogs, over Jan. 1, 1919. Just figure a moment what this will mean to the farmer. Constructive breeder of Poland China Hogs. C. A. BOONE, Blanchard, Mich.

B. T. Poland China. Choice lot of gilts bred for Mar. Apr. and May farrow. Price very reasonable. Also a choice lot of fall pigs either sex. W. BREWSTER & SONS, Elsie, Mich.

I am offering Large Type Poland China Sows, bred to P's Orange, at reasonable prices; also fall pigs. Write or call Clyde Fisher, St. Louis, Mich. R. R. 3.

6th ANNUAL P. C. Bred Sow Sale March 13, 1920. For particulars write W. J. HAGELSHAW, Augusta, Mich.

Large Type Poland China Stock Hogs and Bred E. H. EISELE, R. 2, Manchester, Mich.

Tamworths The great bacon breed. Some good registered gilts bred for March farrow, also fall pigs. W. H. WARNER, Concord, Mich.

Pine Grove Hampshires, "Quality First" Michigan Bred and owned by us. Many other prize winners at Michigan State Fair 1919. Hog's for sale all ages, both sex. "Lookout Joe", a \$1000 boar heads our herd. GEO. COUPAR & SONS, R. 1, Mariette, Mich.

Bred Gilts all sold at present and more later. JOHN W. SNYDER, St. Johns, Michigan.

SHEEP.

Shropshires Registered ram lambs sired by Imp. Buttar. Also choice bred ewes. W. B. McQUILLAN, R. 7, Howell, Mich.

KIDS of Mich. You are the future farmers of the state. I am one of the best sheep breeders in the state. Let's get together that you may start your own flock of registered Shropshires now. A lot of kids have already done so, but I want more. I will buy your ram lambs and cooperate with you in every way. Write me for my proposition and prices. KOPE-KON FARMS, S. L. Wing, Prop. Box 4, Coldwater, Mich.

BUY A SHEEP

Wait a minute, buy Hampshires. The American Hampshire Sheep Association wants to send you a dandy little booklet with list of breeders. Some near you. Write COMFORT A. TYLER, Secretary, 22 Woodland Ave., Detroit, Mich.

Idle Wild Stock Farms Shropshire yearling rams from prize winning stock. Make your selection early. Cliff Middleton, proprietor, Clayton, Mich. R. 3.

Registered Shropshire bred ewes. 1 to 3 years old. Large, healthy well fleeced representatives of this stock gave satisfaction in 15 states, last season rams all sold. C. Lemen, Dexter, Mich.

Colswolds ewes bred to one of Canada's best rams, start right buy good ones while they can be had. A. M. BORTEL, Britton, Mich.

HORSES

A Good Opportunity to secure the registered Belgian Stallion, Barline, No. 10261. He is three yrs. old, weighs 1900 lbs. and is right in every way. Will exchange for cattle or Liberty Bonds. Valley phone. C. J. HOBART & SONS, Gagetown, Mich.

BELGIAN DRAFT HORSES

We have the best and largest herd in the world to select from, with Grand Champions heading our herd.

We won more premiums at the International Belgian Horse Show, Waterloo, Iowa, 1919 than any other breeder or exhibitor, competing against 25 exhibitors from Iowa, 3 from Indiana, 1 from Illinois and 1 from Canada.

We have sold 4 winners at the International Belgian Horse Show to an Iowa breeder. Those horses winning again at the International Live Stock Show at Chicago the same year.

We are listing mares of Iowa breeders and breeders from other states, to be bred to our Rubis 8004, whose offspring won at both Internationals this year, taking some of the highest honors in stallion and mare classes.

We can sell you a carload of stallions and mares or just one of either sex.

We invite your inspection and will meet you at any of the railroad stations if you will write us in time.

Come to Burt, Michigan, via Grand Trunk Railway or to St. Charles, Michigan, via the Michigan Central Railroad.

We are in the market for Registered Belgian Draft Colts

Owosso Sugar Company Prairie Farm

ALICIA, Saginaw County, MICHIGAN

For Sale full blood Percheron Stallion Indicateur 60088, Wt. 1900 Black, this horse has no superior in Mich. from any angle. Mr. Horse man get on the job, as the first real horse man gets him. Also the Wilkes Stallion Clarelawn T. 2 19½ a bold fearless driver and a good ave. horse, these horses will be sold at once the first come first served. CHARLES L. STOCKDALE, Wayland, Mich.

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

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

For Sale Black Percheron Stallion, 8 yrs. old, wt. 1900 lbs. good foal getter and a good worker. H. WINKEL, Cooks, Mich.

FOR Sale or Exchange Stallion weight 1900 lbs. good condition, sound, price \$3000. For further particulars write Chas. Schneider, R. 1 Lenox, Mich.

POULTRY

I Still Have a few B. P. R. cockerels at \$3.00 each. Mrs. E. BELLEN, Whittemore, Michigan

John's Big beautiful Barred Rocks are hen hatched grow quick, good layers, sold on approval, make \$4 to \$8. Circulars photos. John Northon, Clare, Mich.

LOOK: BABY CHICKS AND DUCKS 10 breeds of chicks. 4 breeds of ducks. Utility and Exhibition grades. Postage paid and live delivery guaranteed. Capacity 100,000 weekly Catalog free. Stamps appreciated. NABOB HATCHERIES, Gambier, Ohio.

Rhode Island Reds—Rose Comb Cockerels hen-hatched, farm raised, big and thrifty, from prize winning strains. \$4 to \$7.50, four top birds \$10 each. For immediate or later shipment—orders filled in turn as received. Write now to secure best selection. BIDWELL STOCK FARM, Tecumseh, Mich.

Rhode Island Whites

Are the best all purpose Birds being year round layers, Egg and chicks and a few good males. H. H. JUMP, Jackson, Michigan.

S. C. Brown Leghorns Excellent layers. Farm range. Eggs postpaid, 15, \$1.50; 30, \$3; 45, \$4; 100 \$8. Floyd Robertson R. 1 Lexington, Indiana.

S. C. R. I. Reds. Choice cockerel and pullets from pure bred quick maturing heavy laying strains. Cockerels \$4.00 to \$5.00. Pullets \$3.00 to \$5.00. Pens \$15.00 to \$25.00. H. J. PATON, Route 3, Box 115, Ypsilanti, Mich.

S. C. B. Minorca Cockerels, 8 to 9 lbs. Price \$5 to \$10. Eggs in season. Satisfaction guaranteed. CHAS. SCHOOK, Alton, Mich.

Silver, Golden and White Wyandottes. Choice quality cockerels and pullets \$3.00 to \$5.00 each. C. W. Browning, R. 2, Portland, Mich.

S. C. R. I. RED

Cockerels, \$3.00 to \$5.00 each. Fine stock. Also Collie Dogs. O. E. HAWLEY, Ludington, Mich.

S. C. W. Leghorns. Baby Chicks and Eggs delivered anywhere. Heavy laying strain. The Rose White Leghorn Farm, East Lansing, Mich.

White Wyandottes Choice cockerels and pullets from pure bred quick maturing heavy laying strains. Cockerels \$4.00 to \$5.00. Pullets \$3.00 to \$5.00. Pens \$15.00 to \$25.00. H. J. PATON, Route 3, Box 115, Ypsilanti, Mich.

White Rocks. Choice Cockerel and pullets from pure bred quick maturing heavy laying strain. Cockerel \$4.00 to \$5.00. Pullets \$3.00 to \$5.00. Pens \$15.00 to \$25.00. H. J. PATON, Route 3, Box 115, Ypsilanti, Mich.

S. C. Rhode Island White and White Wyandotte eggs for hatching. Prices reasonable. write W. C. ECKARD, Paw Paw, Michigan.

White Wyandotte: out of choice stock for sale; cocks, cockerels \$5, \$5 each, send for my circular. DAVID RAY, Ypsilanti, Mich.

White Leghorns, Brown Leghorns, Ancona chick \$17 per 100. Live arrival guaranteed. Eggs of all varieties. Catalog free. Triangle, Clinton, Mo.

White Wyandottes: Eggs for hatching from selected layers. \$2.00 per 15, prepaid. 1 male 10 females \$40.00. Frank De Long R. 3 Three Rivers, Michigan.

White Plymouth Rocks Choice breeding. Eggs 15, \$2.00, 100, \$20.00, 100, \$10.00, prepaid. Day old chicks, 100, \$20.00. Richard M. Grettton, Mason, Mich.

For Sale Bourbon Red Turkeys. Toms \$15 and \$25. Hens \$10. THOS. G. CALLAGHAN, Fenton, Mich.

Wanted. Several large Standard Orpington incubators. State condition and price wanted. Interlakes Farm, Lawrence, Michigan.

W Holland Turkey Toms, \$15.00 Pairs \$27.00. White African Guineas \$2.00 each Trio \$5.00. A few Columbian Wyandotte Cockerels at \$4.00 safe arrival guaranteed. Alden Whitcomb, Byron Center, Michigan.

BUY YOUR NAPPANEE SILO NOW



This BIG FREE BOOK Tells How

You would put a new silo on your farm tomorrow, if you thought you could get one for nothing—wouldn't you? Well, we have a Silo Selling Plan whereby you can do just that. You can place a NAPPANEE Seal-tite SILO on your farm and it won't cost you a cent. That sounds interesting—doesn't it? Our big FREE Book tells how you can order your NAPPANEE SILO now and make it pay for itself on your farm. Think of it! On this novel plan you virtually get a silo for nothing. A silo that will earn its own cost the first year or so and make you a couple of hundred dollars clear profit every year after that.

Better write for your copy of our big silo book today and find out all about this easy way to own a silo. The book is FREE and postpaid for the asking.

Over 15,000 NAPPANEE SILOS in Use on American Farms

Thousands of American Farmers have taken advantage of our liberal Silo Selling Plan. The fact that NAPPANEE SILOS are being used in every part of the country from New England to Texas, proves that this Nappanee Selling Plan is ALL RIGHT and that NAPPANEE SILOS are "making good" wherever they go. Get our big FREE Silo Book and see for yourself the many gratifying letters of satisfaction which we have received from NAPPANEE owners. Many say that their silo paid for itself with the first crop they put in it. They tell why they like the NAPPANEE better than any other silo and some give actual facts and figures on the profit the NAPPANEE has made them.

If the NAPPANEE will produce big returns for so many other farmers it will do the same for you. And on our liberal Selling Plan you cannot afford to get along without a NAPPANEE another day.

Read What These Michigan Farmers Say:

Tecumseh, Mich.

Dear Sirs:—The Nappanee silo has proven alright and paid for itself the first year and would not be without one at any price. It was easy to erect, went together fine and everything was alright.

Jahmie Boyd

Rockford, Mich.

Dear Sirs:—I have had my silo three years and have filled it three times and am satisfied that it has saved me the price of it, alone, in feed. Some of my neighbors have cement silos around here that cost three times as much and they say my Nappanee is just as good, and we are well pleased with the silo.

Frank E. Buckley.

Elm Hall, Mich.

Dear Sirs:—I like your silo better than any I have ever seen. It stood the test of a cyclone. It never faded it. It blew down the silos around here, but the Nappanee stood. It is a good silo. We could not do without it.

Thos. Croton.

Camden, Mich.

Gentlemen:—I have a Nappanee Silo and I am very much pleased with it. I can get more feed out of an acre than I can any other way. If any farmer is going to buy a silo he should be sure to look at the Nappanee. It has the best points of any silo I have seen.

Frank Howard.

We have many other letters as gratifying as those above in our files from this state and other states, but the limited space does not allow us to print them all.

Send for Our FREE Silo Book Today—Use the Coupon

Just fill out the coupon with your name and address, or drop us a postal if you prefer, and we will send you FREE and postpaid our new 1920 NAPPANEE Silo Book—the biggest and finest silo catalog ever printed.

It tells all about our novel Silo Selling Plan whereby you can get a NAPPANEE SILO practically for nothing. It also tells all about how NAPPANEE SILOS are made and their 25 points of superior merit, such as our Perfect Splice which is air-tight and rot-proof, our Anchoring System which is storm-proof, our Hip Roof which gives more room, our Ladder that is accident-proof, our Seal-tite Silo Doors that are real man-sized and will never warp, and many other exclusive improvements.

No matter when you expect to put up a silo send your name and address for this BIG, FREE SILO BOOK TODAY.

NAPPANEE LUMBER & MFG. CO.
Box 67 NAPPANEE, INDIANA

NINE Out of Every TEN Silos Are Built of Wood Why?

The next time you drive to town or to the County seat, take particular note of the silos in your community, just for your own satisfaction.

We venture to predict that in your neighborhood, just like most farming districts throughout the country—that probably nine out of every ten silos you pass (or at least a great majority) will be built of wood. Why?

There Must Be Some Good Reason for This

Your own good, common sense will tell you that it would be absolutely impossible to persuade the majority of the hard headed, successful farmers in your community who own silos to build them of wood unless there were some mighty good sound reasons for giving wood silos the preference. And you can "bet your bottom dollar" there are some good logical reasons why most farmers buy wood silos.

Wood Silos Give Better Service

Did you ever hear anyone say that silos of other materials will cure silage better or keep it better than wood? No! But many agricultural experts, chemists and thousands of farmers who speak from actual experience emphatically assert that wood silos make and keep silage far better than do other kinds of silos.

It takes a certain amount of heat to cause fermentation in the silo and cure silage properly for wholesome feed. Wood is the only material non-conductive of heat and cold. Wood keeps in the heat necessary for the proper fermentation, and it also keeps out the extreme cold that causes silage to freeze.

Of course, you have to paint a wood silo every five or six years on the outside. But painting a wood silo on the outside is a whole lot easier than "doctoring" up the walls on the silo inside with some preservative preparation every few years. And remember, when the roof is on the silo you can't get a ladder inside of it.

These are some of the reasons why the majority of silos throughout the country are built of wood. And the best wood silo you can buy is a NAPPANEE Seal-tite SILO, because they are the most practical, the most serviceable, the most useful and convenient wood silo for any farm—the silo that will give you the biggest value for your money.

Wood Silos Cost Less

A NAPPANEE SILO costs just about half the price asked for silos built of other materials. And the cost of erecting it is far less, too. You don't need a crew of skilled mechanics to erect a NAPPANEE. The average farmer can do the work himself with the help of a farm hand and finish the job in two or three days time.

Where else can you find a silo that will give you all the convenient, useful, time and labor saving features that you will find incorporated in the NAPPANEE, such as the Double Anchor System that is as near storm-proof as it is possible to make—the real Man-Sized Doors that are six inches wider than the average silo door and give ample room and comfort in entering the NAPPANEE—the extra heavy metal Door Fasteners that seal up the NAPPANEE as tight as a fruit jar—the safe and sane Ladder, built so it is almost impossible to slip and fall—the Hip Roof Rafter that are furnished FREE with the NAPPANEE and add more room to the silo, and so on all down the line.

A NAPPANEE SILO is easy to erect, easy to fill and will cure your silage perfectly. It will keep the silage in A1 condition so that it is safe to feed to your live stock. Yet the NAPPANEE costs you no more and sometimes a great deal less than other silos.

The Silo You Ought To Have At the Price You Ought To Pay

A NAPPANEE SILO on your farm will make every acre of corn you put into it do the work of two acres the old fashioned way. And the NAPPANEE is backed by an iron-clad guarantee that it will not only give you satisfactory service, but will pay for itself on your farm.

Find out about the NAPPANEE SILO today. Find out about our easy payment plan, where by you can put a NAPPANEE on your farm now and make it pay its own way. Don't fail to write for our big FREE 1920 NAPPANEE SILO BOOK as offered on this page—the biggest and most interesting silo catalog ever published. It tells all about the many time-saving and labor-saving features on NAPPANEE SILOS not found on other silos. It also tells all about our novel silo selling plan that makes it possible for you to own a NAPPANEE without it really costing you a cent. This big silo book is FREE and postpaid. Mail the coupon on this page for it, or a post-card will bring it by return mail.

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Box 67, Nappanee, Indiana

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Box 67, Nappanee, Indiana

Gentlemen: Please send me FREE and postpaid, a copy of your Big 1920 Nappanee Silo Book and also complete information on your SPECIAL SILO SELLING PLAN.

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