

MICHIGAN FARMER

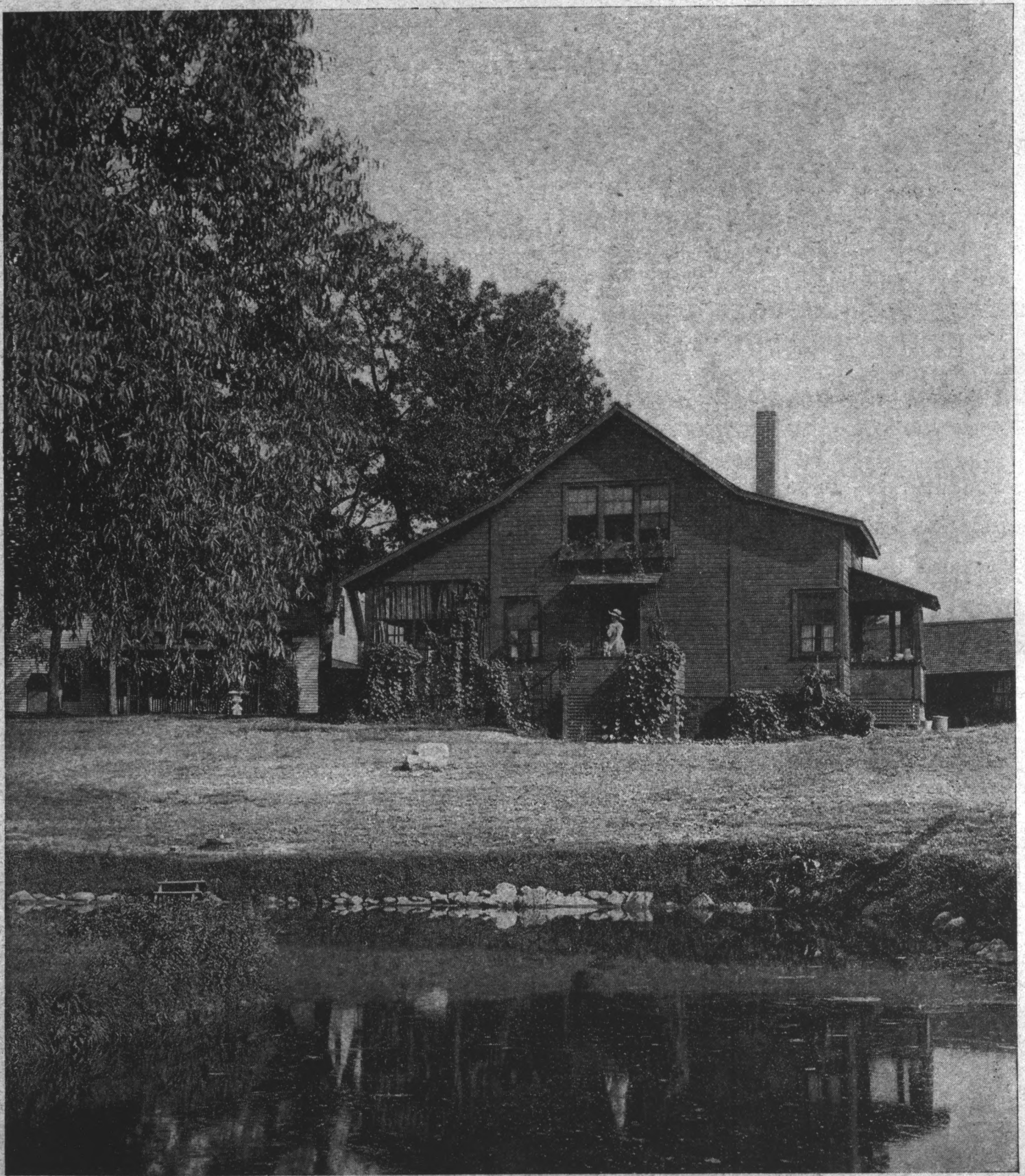
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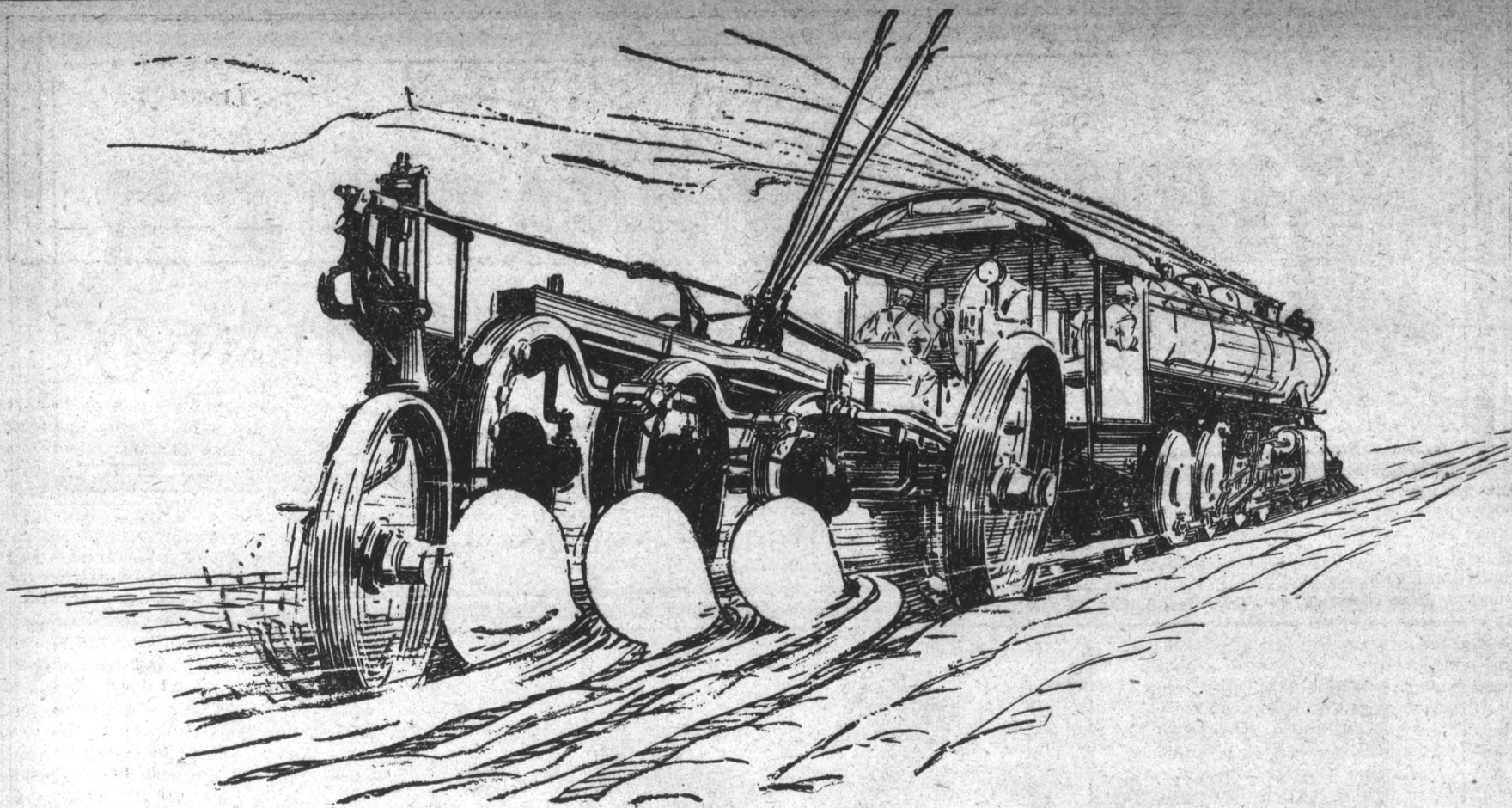
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DETROIT, MICH., SATURDAY, JANUARY, 25, 1919

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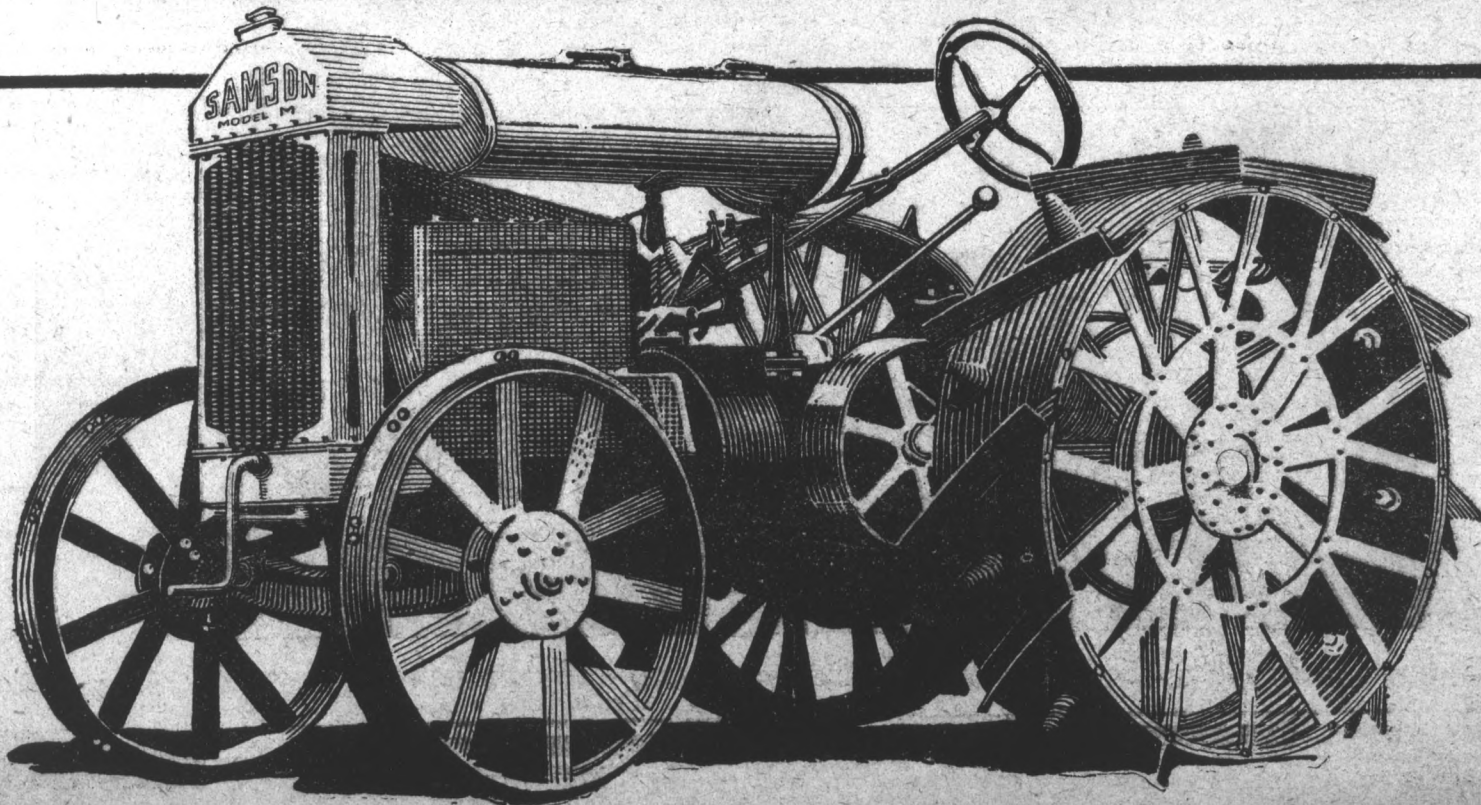
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VOLUME CLII.

MICHIGAN FARMER

AND LIVE STOCK JOURNAL
PUBLISHED WEEKLY
ESTABLISHED 1843.

A Practical Journal for the Rural Family

QUALITY
RELIABILITY
SERVICE

NUMBER FOUR

A Cooperative Farm Tenancy

THE first step toward a profitable farm tenancy is the education of the land-owners. Every man who owns a farm ought to have a knowledge of how it should be handled. He ought to understand the things that occur on a farm for which the tenant is in no way responsible. He ought to understand the tenant's life from the tenant's point of view. American land-owners must face the problem of educating tenants in matters concerning soil conservation. They must encourage them to become stockmen as well as tillers of the soil. Constant agitation of the soil allows no time for nature's restorative processes. We must grow clovers and grasses as well as grains. Large crops and live stock go together. All hoofs are golden in their effect upon yields of grain and upon the lining of the farmer's purse. The by-products of the farm—the straw and the volunteer growth incidental to the raising of cash crops—may be combined with the yield of grain to produce meat and milk and at the same time sustain and increase the yield of every crop grown on the entire farm.

Apparently the blame for the lack of social and cooperative spirit in many farming communities is determined to settle upon the tenant farmer. Those who make a special study of rural schools, churches, farmers' clubs and farmers' institutes, continually reiterate the accusation of the tenant for not exerting an effort to make himself agreeable and helpful to his neighbors. It is not so much the tenant as the faulty American system. Every winter finds thousands of tenants seeking fresh farms to skim of their most available fertility and complaining that the farm they had the last season did not have enough soil wealth to meet the reckless demands of their system of farming. March first finds these men with their wives and children in new locations where they naturally have little interest in anything outside of their own households.

It is not the tenant's fault. He would not be restless if given real encouragement to persist in one spot for a term of years, to put something into the soil in return for what he gets out of it and to feel the duties and responsibilities of citizenship. Grasping land-owners inspire greed in tenants by example as well as by creating the necessity for self-preservation. The policy of exacting from every field every year all the cash returns of which it is capable very rapidly squeezes wealth from the farm and its occupants. It is a relentless road to the ruin of rural community life.

The prosperity of the country depends largely upon land-owners who are willing to take a broad view of the matter and work out some just and equitable system of stock-raising and feeding with their tenants. Their own self-interest requires them to do this. If the land-owner never visits his farm, but exacts the last penny of cash or crop rent the day it is

The First of a Series of Articles Discussing a Profitable and Dignified System of Farm Tenancy

By C. B. Ford.



The Tenant Often Comes as a Humble Suppliant and Not as an Equal.

due, no matter what happens to blight the crops or cause loss among the live stock, he will sooner or later see his farm go down, lose its virgin fertility, get out of physical conditions, and become a disgrace to the community. Some land-owners have experienced great difficulty in getting at some kind of partnership lease for renting their farms to tenants who desired to keep live stock and rent for a long term of years. The most of this trouble has been due to their wanting too much and not being willing to wait two or

three years for profits. It takes time to build up a system of profitable stock-farming on a rented farm, and it is unreasonable to expect a tenant to live and get started in less than two or three years. Circumstances alter cases. What might be fair in one instance would not be fair in another.

How do the business men work out their problems? Do they seek the advice of neighbors, or do they get right down to facts and work out what they think is just and equitable with their partners? In the business world

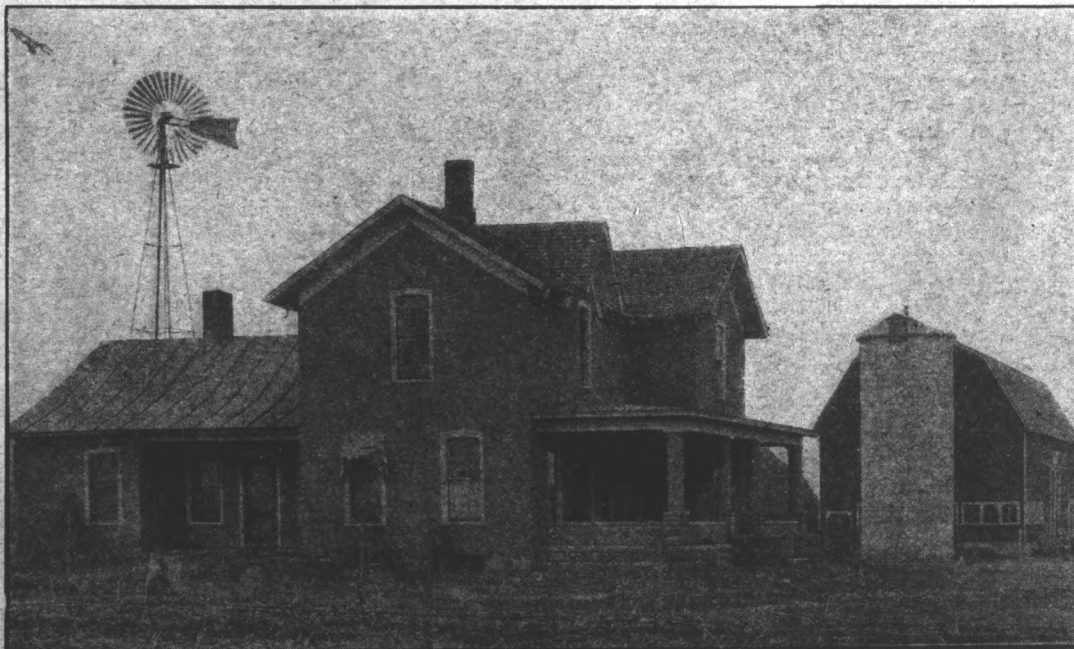
the capitalist puts his money against the brains and labor of the business man. The active partner carries on the business, keeping all the accounts straight, and open to the inspection of the silent partner any time he wishes, frequently consulting him and willing to accept his advice at all times. The need of more stock, improvements and facilities, he sees and makes provision. They have a mutual interest. The conditions in the business world and the proposed land owner and tenant partnership are in many respects analogous. The land-owner provides the capital, and the tenant the brains and labor, yet he should be willing at all times to have the landowner inspect the business and consult with him. There must be an intelligent and harmonious cooperation on the part of the land-owner and tenant if the farm is kept up and put on a money-making basis.

It requires some careful planning to get a farm into condition to bring in satisfactory returns on the investment as a renting proposition. Before deciding the problem one should make a careful study of the farm and its adaptability to certain crops and animals, and work out a system of farming that will in a measure conserve its fertility. By making such a careful study of the soils one is prepared to make a more intelligent estimate of the cost of buildings and fences necessary to properly conduct the system of crop growing and stock feeding he has in mind.

One of the important things to consider is the size of the farm. In many instances the purchase of adjoining land will make the property more attractive for renting. Another important item is that of arranging the fields so as to minimize the cost of buildings and fences and the expense for maintenance of both. Good buildings in which every dollar invested adds to the efficiency of the farm for renting should be the rule. It is best to plan the barns and buildings so that they may be easily used for various purposes. The shifting of tenants brings up many new problems, which can be more easily worked out if the buildings can be satisfactorily and cheaply converted to meet the requirements of the incoming tenant.

The problem of providing an abundant supply of pure water is one that should have the attention of every land-owner. It not only increases the efficiency of the farm as a renting proposition but it adds to its value. Outside of the monetary value of pure water, there is a humanitarian side of the question that should prompt every land-owner to provide a clean and healthful supply of water for the tenant's family and stock.

If some fields are rough and rolling it is better that they should be seeded with grass and used for grazing purposes. The owner who desires to keep his land right will find it necessary to make a provision (Continued on page 126).



Good Buildings in which Every Dollar Invested Adds to the Efficiency of the Farm.

The Michigan Farmer

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CURRENT COMMENT

Beef Cattle Improvement

THIS is the day of the pure-bred bull. In the present emergency beef cattle improvement must be speeded up. A vastly increased demand for good beef cattle, higher cost of feeds, and an increased necessity for the wider use of grasses, forage crops and by-product feeds of the farm require that mediocre and inferior animals be scrapped as rapidly as more efficient ones can be produced to supplant them.

Cows that drop indifferent or practically worthless calves to the service of the scrub sire may be readily advanced into the ranks of bovine patriots through mating with a bull whose line of breeding insures in his crop of calves the tendency to produce a smooth, compact carcass and to lay on flesh rapidly.

There is no reasonable excuse for a farmer to keep a scrub bull when the market invites his presence at a price that will give him more than the bull was ever worth. A few years ago there was some excuse for hanging on to a scrub sire because he was not worth much to the butcher. But present prices are a strong inducement to farmers to cash in on their scrub bulls. They can certainly get more for them than they are worth to keep on their farms. Now that the prices of bulls are so high for beef and the prices of improved blood so reasonable, the farmer can make a fixed change in policy by selling the old scrub bull and reinvesting the proceeds in a young bull which will not only get calves, but calves that will be worth something in the feedlot.

Conditions were never more favorable to begin beef cattle improvement in Michigan than today. Every old scrub bull in the state should be sent to the shambles during the present era of high prices and their places filled by pure-bred and thrifty young bulls which can be found in liberal numbers and at reasonable prices.

The illustrated story, by Horace Norton, of M. A. C., on page five of this issue clearly visualizes how the

entire complexion of the cattle in an entire herd may be changed in four generations by the use of decent bulls of one breed. Many thinking men believe that the time is here when our farms must contribute more largely to the supply of beef cattle needed to furnish our rapidly growing population with meat. Whether this is so, or not, it is true that any sound system of mixed farming in Michigan will permit of an economic place for a pure-bred bull—one that the owner need not feel ashamed of.

Now is the proper time to send the scrub bulls that are sowing their seeds of inferiority in our Michigan herds, to the stock yards, and in their places put a well-selected lot of pedigree bulls from the best herds in the state, that are bred in the blood which has proven its value wherever intelligently handled.

Cooperative Crop Reports

AT a meeting held last week in the office of the Secretary of State, Colman C. Vaughan, at Lansing, plans were discussed for securing more accurate crop reports through the cooperation of state and national crop reporting bureaus. Under the plan discussed, these two agencies, which in the past have collected crop data independently of each other and issued separate crop reports, would cooperate in the collection of more complete and accurate data and issue a single report under a cooperative heading.

The plan discussed was similar to that which has already been adopted in some other states, notably Wisconsin and Ohio, where the work has been previously carried on in a manner similar to that followed in Michigan. Mr. W. F. Callander, of the United States Department of Agriculture, who has been identified with the cooperative work both in Wisconsin and Ohio, was present and explained

years. Experience has shown that these estimates vary considerably from the actual acreage as determined by the succeeding census, the factor of error being more likely to increase with the lapse of time from the period when accurate data is obtainable. It is obviously impossible to take a census each year because of the expense involved. The plan contemplates acreage report by farmers secured by the supervisors when the assessment is taken, which is the next best thing and should be quite as accurate as census figures in this regard. The cost of securing this data would be comparatively small as measured with benefits which might be derived from more accurate and dependable crop reports.

The desirability of accurate and dependable crop reports is not debatable. Time was when there was a general feeling among producers that crop reports were detrimental rather than beneficial to them on the assumption that the information afforded dealers in food products a leverage to keep prices at a low level. Farmers, have, however, come to appreciate the fact that it is most important to them to have as accurate knowledge of crop conditions and production as is obtainable by the dealers from private as well as public sources, and there is no doubt that any plan which would add to the accuracy of official crop reports will meet with general favor.

Under present conditions, when the factor of error in acreage estimates is a constant handicap in the compilation of accurate crop estimates, the double reporting system is an advantage in that it provides a check as to accuracy, but under a plan better calculated to eliminate this factor of error, such duplication is unnecessary. Formerly the federal crop estimates were made by the Bureau at Washington on reports received from local correspondents in each state. During recent years the plan of state supervision has

couragement and it is probable that bills will be introduced in the legislature at an early date to provide for the collection of acreage data under this plan.

Prohibition Still an Issue

UP to the present time the legislatures of thirty-eight states have ratified the prohibition amendment to the Constitution of the United States as submitted to the various states by congress some sixteen months ago. As this action was necessary on the part of only thirty-six states to incorporate the amendment into the federal constitution, national constitutional prohibition of the liquor traffic is assured after the lapse of one year from the final approval of the amendment, at which time it will go into effect. Statutory national prohibition will take effect on July 1 next, in accordance with an act of congress which provides for the suspension of the manufacture and sale of liquor until the demobilization of our troops is completed. It is thus practically certain that prohibition will be effectively in force throughout the United States from and after July 1, 1919.

While Michigan was the sixteenth state to ratify this amendment of the federal constitution by a decisive vote of the legislature, which action undoubtedly reflects the preponderance of public sentiment in this state, it has been discovered that an error was made in the wording of the resolution of ratification, and that it must be again adopted in proper form to become effective. While there is no doubt that this action will be taken, its necessity will make Michigan the thirty-eighth, instead of the sixteenth state to legally ratify the amendment.

But in spite of these significant facts prohibition is still a live issue in Michigan. Our present constitution provides that proposed amendments to our fundamental law may be initiated by petition signed by not less than ten per cent of legal voters of the state. Such a petition was filed for the submission of a proposed amendment at the general election held last November, which would permit the manufacture and sale of beer and light wines in the state. The validity of this petition was successfully attacked on the ground that it did not contain the full text of the proposed amendment as provided by the constitution, thus preventing the submission of the proposed amendment at the November election. Petitions were again filed by those favoring this modification of the prohibition law for the submission of the same proposed amendment at the general election to be held next April. The form of this petition has been approved and the proposed amendment will be submitted to the electors of the state at the coming April election, unless contemplated restraining action is successful, which is scarcely probable.

Unless the voters of the state kill this proposed amendment at the polls, a section will be read into our constitution which will not only be ineffective, but at variance with a provision of the federal constitution which our legislature has approved in behalf of our state.

FARMERS' WEEK AT M. A. C.

Breeders' and Feeders' Association, February 5-6.
County Farm Bureau Conference, February 4-5.
Michigan Crop Improvement Association, February 4-5.
Michigan School Commissioners, February 4.
Michigan Muck Farmers' Conference, February 4-5.
Michigan Poultry Breeders, February 5-6.
Michigan Maple Syrup Makers' Association, February 5.
Michigan Drain Commissioners' Association, February 5.
Boys' and Girls' Conference, February 5-6.

SHALL OUR SYSTEM OF TAXATION BE CHANGED?

“Single Taxers” nearly succeeded in getting their plan of taxation before the Michigan Electorate for the 1919 spring election, in the form of a proposed amendment to the state constitution. Believing that land owners should understand how this system of taxation would affect their interests we have asked farmers and students who are, by both experience and study qualified to speak on the taxation question to give their views. Their answers furnish a most interesting series of discussions. The first of these will appear in next week's issue of the Michigan Farmer. Every owner of real property should read this entire series.

in detail the methods followed in those two states. Briefly, the method is as follows: The supervisors are required by law to collect data showing the total number of acres in each farm, the acreage in crops or to be planted to crops of various kinds, and such other information as may be desired to secure, as statistics with regard to land drainage, live stock, special products of any kind, etc. These statistics would be forwarded to the proper officials as soon as collected to be used as a basis of crop estimates to be made later on the reports of crop correspondents throughout the state.

Under present conditions, the factor of greatest error in estimated crop yields is the estimate on acreage devoted to the several crops. Accurate data as to crop acreage is secured once in ten years when the federal census is taken. Estimates of acreage for the succeeding decade must necessarily be made on the estimated percentage of increase or decrease of area devoted to different crops in the succeeding

been followed by the Federal Department, and this work, so far as Michigan is concerned, has been under the supervision of Mr. V. H. Church, with headquarters at Lansing.

The federal crop report service has become more valuable under this plan and it seems reasonably certain that under a cooperative plan such as was discussed at the recent meeting, still greater accuracy would be attained. Under this plan the state bureau would be of the greatest importance because it would have at hand the machinery for the collection of accurate acreage data as soon as it could be provided for by proper legislation, while the federal agency would have greater facilities for the collection and dissemination of data through the use of the franking privilege in this work and because of the careful supervision which it is possible to give to the collection of this data through the maintenance of a local office for the purpose.

Altogether the plan is worthy of en-

A Living and Ten Per Cent

By M. E. Duckles

EVERY man wants what he honestly earns, and some want more. For a long time there has been a growing conviction that the farmer has not been getting even what he honestly earns; hence the cry for "food insurance." The feeling prevails that unless better prices can be secured for farm products, more of our agricultural lands will be abandoned and the nation will go hungry. "If you don't want us to leave our farms, guarantee us a living and at least ten per cent on our investment," is the demand now rising out of every rural community.

We must agree that a living and ten per cent is none too much. It is what every efficient manufacturer is entitled to, whether he is a manufacturer of machinery, clothing, food, or some other necessity. But on this word "efficient" particular stress should be laid. To many it is a word with unpleasant associations, like castor oil, yet just as important to our health and welfare.

If the farmer must be guaranteed for his products a price that will put a premium on inefficient management of the soil under normal conditions, then those who can see relief only in higher prices are in the wrong.

There is no attempt here to justify the faulty methods of marketing and of distribution which prevail in most sections of the country, and which are largely to blame for high prices paid by the consumer and the low prices received by the farmer; that, as Kipling says, is another story, and we are making long strides in our endeavor to correct much of this abuse, as is evident by the increasing number of farmers' cooperative marketing associations now operating successfully in various parts of the country.

Putting aside the marketing problem which, it must be admitted, is a serious one and discouraging to the best efforts of many a good farmer, the question of efficiency as it applies to farming, particularly soil management, must not drop into the shadow. It



Good Cattle Are a Big Factor in Making a Living and Ten Per Cent.

must share the responsibility that belongs to it for its effect upon the prosperity of the producer. It needs but little argument to prove that the man who gets large yields per acre can afford to sell his product for less than the man who gets small yields. For example, in the case of potatoes, a two hundred bushel per acre crop which many growers get quite regularly can be sold at one dollar per bushel with no question about a reasonable profit, while the man who gets but one hundred bushels may scarcely break even at one dollar.

The same may be said in the case of beans. One well-known farmer in Grand Traverse county and another in Antrim county cleared fifty dollars per acre on their bean crops in 1917, while the great majority lost heavily. One of these two successful growers was a former farmers' institute lecturer and

the other a student at Michigan Agricultural College. The methods employed by both gave their crops a running jump right from the start, and in spite of one of the most adverse seasons ever known and in the face of adverse marketing conditions, they got paying returns for their labor.

The demand for "a living and ten per cent," if it were granted to suit the fellow who makes a practice of running his land and wasting his resources and using slipshod methods in general, would result in soil degeneracy everywhere, and in time the agricultural situation would be worse than it is at present.

There is nothing to be said against the contention that food producers should have the same chance as any other producer of the necessities of life and comfort; they should be able to employ labor at the same wage and

have a corresponding labor income for their own efforts where reasonably efficient work is done, and some system of food insurance should be established to make it more certain. The farmer who studies his business, who seeks to obtain the best seed, who tries to raise pure-bred live stock, who conserves the manure, protects the farm equipment, and in general follows the most approved practices, is entitled to all the encouragement that guaranteed profits afford. On the other hand, the man who neglects to study his business, who just takes a chance with his seed, who is content with scrub stock, who permits the manure to leach away, who allows his farm machinery and buildings to fall to pieces, and who persists in following old-time wasteful methods at every turn, should not be given any encouragement whatever. He is not entitled to serious consideration. The sooner he finds that his kind of farming "doesn't pay," why, the better it is for the community in which he lives and the country as a whole. Let him keep still. He forfeits the right to demand a living at farming, to say nothing of the ten per cent. In the economy of life there is a natural adjustment that makes it a competitive game; always the fellow who has a right to be heard is the one who complies with the conditions and "plays fair."

Leaving out the mooted argument of supply and demand, a law little respected in these days of complex commercialism, the economist should judge the price of farm products in its relation to the cost of production. In determining cost of production students of the problem are obliged to give great weight to the question of efficiency in farm management, not overlooking the varying advantages of widely separated areas over which the commodity is produced. The question for each individual farmer to settle is, are my methods up to date? Do they give me the right to speak?

How to Succeed With Geese

By H. L. Spooner

GESE have proved to be one of the most profitable side-lines for the farm, and the coming year will undoubtedly see many new breeders of these fowls. To those who have never had any experience with geese, there will be several points to learn, as the raising of geese is different from that of any other kind of poultry.

Geese for breeding purposes should be selected in the fall or early winter. In their natural state, geese mate in pairs and the best results will follow if the plan of nature is adhered to. There are some breeders who claim to have had good results by breeding one gander to several geese, but it is a quite general opinion that not over three females should be allowed to one male.

The age of the breeding stock is a big factor in securing both quality and quantity of eggs. The eggs of yearling geese seldom hatch well and it does not pay to bother with them. If they hatch at all, the goslings, as a rule, are small and weak. Two year olds may be used but they reach their best at three years of age.

The females retain their breeding qualities throughout their lives, but it is best not to keep them for this purpose over eight or ten years.

There is nothing to be said against should be young, as they are more active and insure greater fertility in the eggs than old birds. They pass their

utility for breeding at five to seven years of age. Therefore new blood must be added and this is usually done by discarding some of the old ones each season and adding new ones.

Mongrel birds should never be purchased for breeding purposes as the majority lay only from ten to twenty-five eggs per season, while the pure-breds lay from forty to fifty.

The breeding birds selected should be strong and healthy. They should not be allowed to get too fat or there will be a low percentage of fertility in the eggs. During the winter give them as great a variety of food as possible. They require a great deal of green food and will do well on corn fodder or clover or alfalfa hay, with cooked potatoes or other vegetables, oats, corn, oyster shells, and grit. They also require considerable exercise and should have some space in which to run.

The laying season for geese depends upon the climate. In the northern third of the United States they usually begin laying



Many Farmers Find Geese a Profitable Side Line.

(Continued on p. 148).

The Thief in the Land

By E. W. Gage

WE have been considering the enormous loss caused by rats. Now let us consider a thief which works in plain sight and which is passed without any consideration by thousands of farmers, but which is reaching into their pockets each year and deliberately stealing several hundred million dollars. I speak of weeds. Have you heard of them?

A farmer of this section could easily produce sixty bushels of corn per acre. But weeds have a hold on the land and as a result he grows but twenty bushels. The same is true of potatoes, root crops, wheat, oats, buckwheat, barley, rye, flax and a long list of farm crops, the acreage production of which is cut short by weeds in the field, while millions of acres of pasture land are worth but a fraction of what they might be, did not weed growth flourish there.

There are three kinds of weeds, each of which is a profit absorber, the annuals, biennials, and perennials. The annual weeds are for but a year, but they will get in some good ticks and decrease production, and unless killed in season will leave seed for the next year's crop. These include ragweed, smartweed, crab-grass, etc. The biennial weeds live two years, and will self-seed for a longer growth if not properly exterminated. These include the thistle, wild carrot, and blueweed. Perennials produce each year underground parts which survive over the winter and produce a luxuriant top growth which crowds out the growing plants. Canada thistle, bull nettle, milkweed, Johnson grass, quack grass, wild onion, and dandelion are the common weeds of this class. They usually have a large tap-root which sucks up mois-

ture needed by the cultivated crop, and a top growth which keeps sunlight from the top of the growing plants.

When we remember that burdock, carrot, sow thistle, and some other weed plants are capable of producing as many as twenty thousand seeds each, we can easily see that it is more important that the farmer have no weeds to kill than that he kill weeds. To do this he must not allow them to go to seed on the farm; must not permit any weed seed to be brought and seeded with other seed, and must stop the top growth of perennial weeds, thus starving out the ground growth. Weeds are a great deal like animals and men, for the Biblical verse about it being handed unto the third and fourth generation holds good with the weeds. Not all weeds germinate their seed at once, but may delay sprouting for a period of several years, which is responsible for the old saying, "One year's seeding makes seven years' weeding."

Thorough tillage with a disk or spring-tooth, or spike-tooth harrow, af-

ter a good job of plowing, aids in preparing the seed bed so that weeds cannot make an early start. It is best to plow land early that is infested, harrow it two or three times before seeding, at intervals, thus stamping out the weed seedlings. With a cultivated crop keep the cultivators going and hoe out the row well, regularly to prevent the weeds near hills from maturing seed.

Small-grain crops may also be cultivated to advantage in the spring with spike-tooth harrow or weeder. This will not injure the young plants permanently, and serves to kill weeds. Grain farmers of the upper Columbia River basin have controlled wild mustard by repeatedly harrowing fall-sown wheat in the spring.

Fall plowing aids in stamping out weeds, and when done early enough, buries the green weed plants, which furnish excellent humus matter for the soil. Where grain soil is turned under, a disk should be run over to encourage germination of weed seeds, and when these have grown, they should be plowed under. But these must be turn-

ed under before maturing.

Early mowing of grass and forage crops insures the land against weeds. It is best to mow when the weeds have reached the full-bloom stage. The pasture may be mowed once or twice a year, which will kill out weeds and multiply the forage.

Spraying may be used in killing out weeds. This will not injure grain or forage crops, and although the application may not kill the weeds, it sets their growth back far enough so that they do not mature before killed by fall frosts. This is especially good with plants like wild mustard. The spray solutions are made by dissolving twelve pounds of copper sulphate, one hundred pounds of iron sulphate, and one hundred and twenty-five pounds of common salt in fifty gallons of water. This will spray an acre of weeds. Throw a fine mist with a power machine. The application should be made when the most advanced weed plants are just starting to bud.

In our present wool shortage many farmers have been successful in turning noxious weeds into profitable flocks thus making waste material into mutton and wool. Goats are also very good in this, but with either the flock must have access to the field early enough to consume the weeds before they go to seed.

Proper rotation of crops is an excellent insurance against weeds, for the longer the field is left in one crop the more sure weeds are to get a hold. This plan means growing clover, timothy, rape, cowpeas, corn, potatoes, etc., which call for cultivation, or which have plants large enough to discourage weed growth. The forage crops are usually cut before the weeds mature.

More Milk from the Breeding Herd

By Lester J. Meredith

THE breeder of registered dairy cattle who forgets that he is a dairy farmer as well as a breeder and depends upon the sales of stock from his herd at high prices, will never reach the cheerful heights of prosperity. Making the business pay is largely a matter of increasing the production of the herd until the sale of milk and its derivatives pays its proper proportion of the operating charges. There is a limit above which the new breeder must not let his expectations go. If his cows yield a profit above the cost of feed and necessary labor it can readily be seen that the profits from the sale of breeding cattle may warrant a liberal investment. Thus, if a large proportion of the cost of feed, labor and interest charges must be charged up against the breeding end of the business it is plain to see that one is lost. He must keep production as high as he can and expenses as low as he can, and then put the figures together to see how he is likely to come out if he does not wish to get into financial quagmires.

The operating charges of a dairy farm where the herd is made up of registered cattle are greater than where grade cows are kept. The barns and equipment should correspond with the business and one must keep better help to look after the cattle. On the other hand, the better dairy cows will return greater profits if given good care. Much of the milk that is sold at advanced prices is

being produced on farms where registered dairy cattle are kept. Good men are attracted to a farm where good cattle are kept, because, as a rule, there is a more satisfactory division of labor and the work is more agreeable to them than on the farm where the field hands do the chores after long hours of work in the fields. True, there are additional chores that breeding registered dairy cattle makes necessary, but it is coming to be well understood that on the breeding farm the chores are a regular part of the farm work and definite times allotted to doing them. What has made the chores on a dairy farm the bugaboo of the hired hand has been the fact that the owner has not realized the importance of doing them at a regular time. The breeder of registered dairy cattle knows that the time spent in looking after the cattle is the most profitable of any spent on the farm, and is coming more and more to make the work in the barns the center about which he

plans the other work of the farm. Thus the hired man finds the breeding farm more attractive than the ordinary dairy farm.

Successful breeders are finding community cooperation one of the cornerstones of their success in breeding better cattle and also in finding good buyers for their surplus stock. The use of improved sires purchased jointly permits the use of better ones, and make it possible to keep the ones that have demonstrated their value for a number of years without too close in-and-in breeding. It creates a friendly rivalry among the breeders in a community and gives them an opportunity to compare their animals with those of other breeders who are working along the same lines. Buyers from a distance visit their community and their annual public sales furnish an outlet for surplus animals at a minimum cost for advertising and correspondence.

The highest financial success in breeding registered dairy cattle de-

pends, in a large measure, upon the ability of the breeder to sell his surplus cattle at remunerative prices. Many of the best dairy animals sell for much less than they are worth, simply because their breeders are poor salesmen. A high-class animal will bring a good price anywhere, but if the owner is a good salesman the exercise of this one talent will often result in his securing a much larger price for the animal. Some very successful breeders are rather poor salesmen. Some of the most prominent money-makers in the trade have never become prominent as constructive breeders. Men are very scarce who have achieved the two-fold success as breeders and salesmen. A good salesman does not allow his commercial cleverness to dull his moral senses and dispose of inferior animals far above their intrinsic value, though this may frequently result through no studied effort of his own. While the experienced breeder often recognizes at once an inflated price for an inferior animal or a low price for one of unusual excellence—still, the intrinsic value of breeding animals has

been and always will be more or less of a vague and intangible quality. The most prescient of the prophets are at sea when they are asked to estimate the value of a young dairy animal. In fact, there is no way of telling when a seller is securing an inflated price for the best class of young animals. On the other hand, however, there



The Cow's Annual Production Determines Her Value in a Breeding Herd.

(Con. on page 145).

A Short Course in Breeding

By Horace W. Norton
Animal Husbandry Dept., M. A. C.

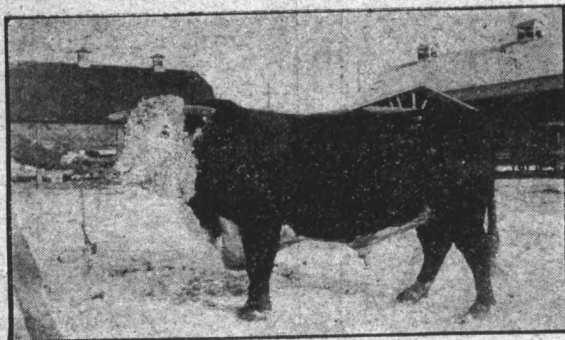
Which is the Better Type of Beef Animal, the One on the Right or the One on the Left? The One on the Right is the Result of Two Crosses of Pure Blood on a Scrub Cow and Her Progeny.



Pure Bred Sires Changed the Type in Four Crosses

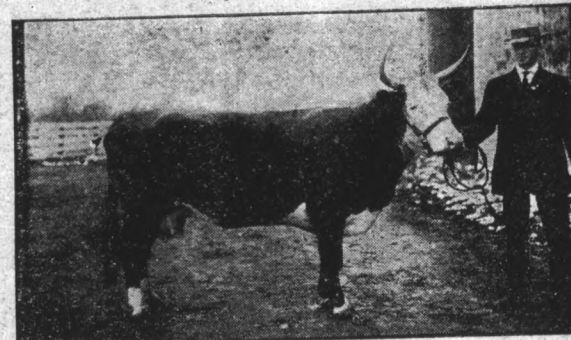


One (scrub cow)



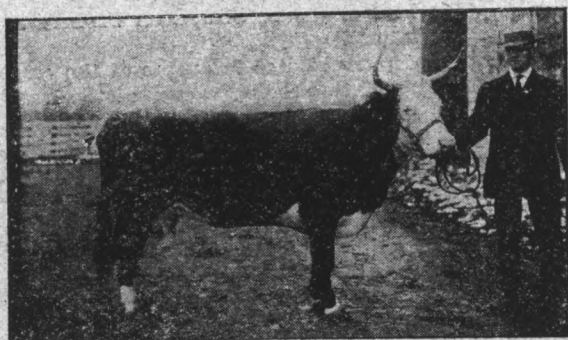
plus

Two (pure-bred bull)

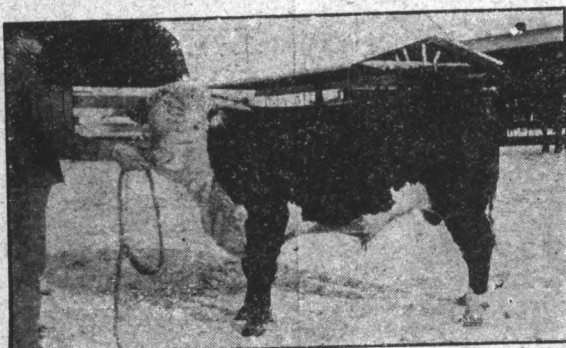


equals

Three ($\frac{1}{2}$ -blood cow)



Three ($\frac{1}{2}$ -blood cow)



plus

Four (pure-bred bull)

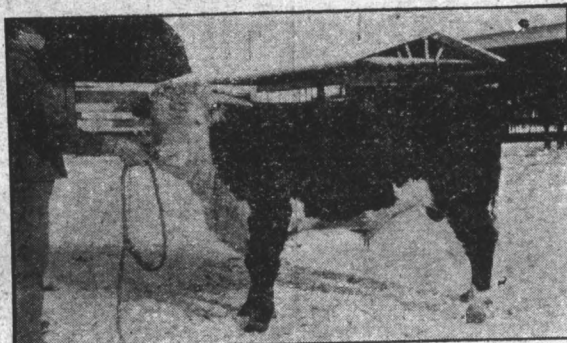


equals

Five ($\frac{3}{4}$ -blood cow)



Five ($\frac{3}{4}$ -blood cow)



plus

Six (pure-bred bull)



equals

Seven ($\frac{7}{8}$ -blood cow)

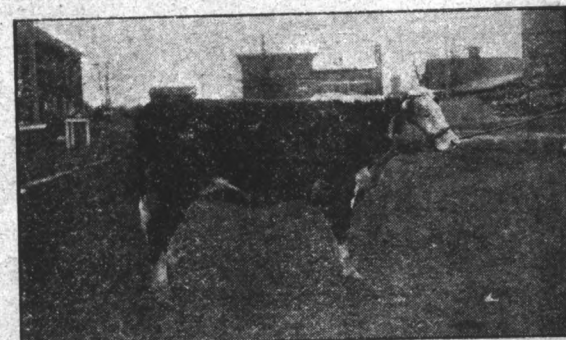


Seven ($\frac{7}{8}$ -blood cow)



plus

Eight (pure-bred bull)



equals

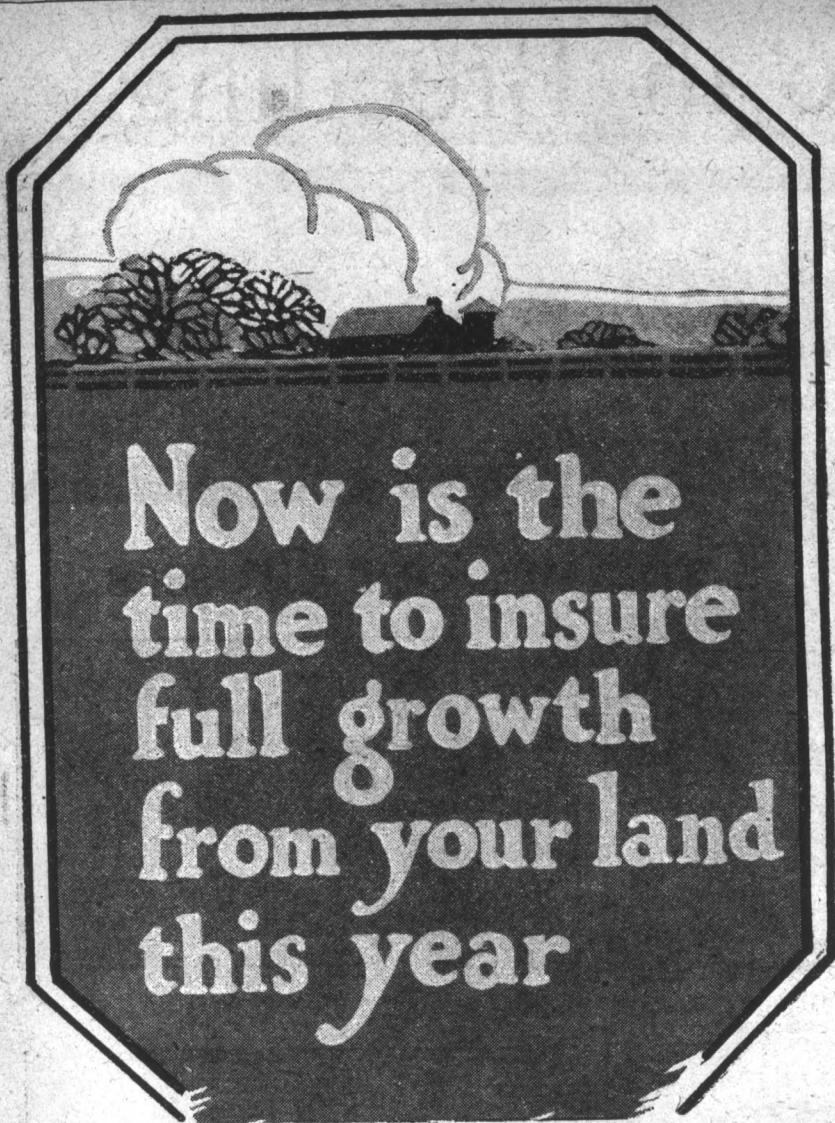
Nine (15-16-blood cow)



Therefore, Four Crosses of Pure Blood Changed the Type from
this
to
this

The Pure Bred Sire begins a Story with Interest and Fascination.





**Now is the
time to insure
full growth
from your land
this year**

-Now is the Time to Order Lime

Thousands of Michigan farmers are going to need lime this Spring.

Last year, hundreds were disappointed—had to plant in acid soil—because they placed their orders too late for delivery. Don't you be late this year.

If you will order your lime now for January or February delivery, we will date your invoice April 1st, extending our usual terms of 3% for cash if received before April 10th, or the amount in full by June 30th.

Order now—haul your lime while you have time to haul it—pay for it when you use it.

Solvay Process Company

2091 Jefferson Avenue

Detroit, Michigan

SOLVAY
PULVERIZED
LIMESTONE



**Order it Now
while you can
haul it**

**Be Sure of
having it
this Spring**



Agricultural News

DEVELOPING FOREIGN MARKETS. farming today is not only a service to farming, but a service to the nation.

A SHIP from Australia touched at New York recently on her way to the British army in France. She carried three thousand tons of jam made from Australian oranges, berries, and cane sugar. This cargo promises to be the first in a steady trade between Australia and England, giving farmers in that far-British colony a new solution of their difficult marketing problems.

Many other farm marketing problems in the United States and elsewhere are difficult puzzles until one applies to them the new key brought by war—the merchant ship. Then agricultural communities like our great fruit raising, dairying, and live stock sections find new outlets, not only for present products, but improved and concentrated products which give the best profit and the best balanced agriculture. Even a country so far from big consuming countries as Australia, through the merchant ship and world trade, is able to develop intensive industries like deciduous fruit, grapes, raisins, and dried fruit.

Must Fill their Holds.

Chairman Hurley, of the United States Shipping Board, is devoting attention to farm markets abroad in connection with the new American merchant marine. We shall presently be turning out merchant ships ready for sea service at the rate of more than five hundred thousand tons monthly. By this time next year hundreds of these ships will be running on new trade routes between the United States and Latin America, Europe, the Orient, and elsewhere. Ships alone can not create world trade—there must be teamwork between ships, banks, investors, manufacturers, and farmers. It is essential that our farmers give serious thought to the American merchant marine now, while it is in process of development. There are two general lines of interest.

First, merchant ships can be studied as transportation. Every farmer knows that transportation in the form of railroads gives him access to markets; that without railroads farming in many sections would be impossible. The American merchant marine simply extends our railroads over the trade routes of the world, giving farmers access to vast new markets for every product of the soil.

Study Foreign Trade.

Second, merchant ships can be studied from the community standpoint. Local farmers' organizations now can begin investigating local products in the light of world trade, ascertaining what the community produces that can be shipped abroad, and where possible world markets are to be found, and how connections can be made therewith. The government is already investigating world markets through such agencies as the Department of Agriculture (Bureau of Markets), the Department of Commerce (Bureau of Foreign and Domestic Commerce), the Consular Service (Department of State), the United Shipping Board, the War Trade Board, etc. These agencies can find out what farm products other countries want, and at what seasons, and in what form. They can supply information about world markets to the American farmer. But details as to what each farming community in the United States can produce for export must be ascertained largely by our farmers themselves. Earnest attention to the new American merchant marine as it bears upon American

COST OF WHEAT GROWING.

FIGURES computed from surveys made by the Ohio Experiment Station show that the production cost of an average bushel of wheat in Ohio is \$2.12. The cost price was procured from the average cost of producing crops for a ten-year period from 1906 to 1915, as determined by the Ohio station, and a fair compensation being added for the advance since 1915 in cost of rent, man and horse labor, machinery, seed and fertilizer.

For the period from 1906 to 1915 the labor cost per acre for wheat was found to be \$9.86 as compared with \$15.85 to the acre for 1918, when man labor is figured at twenty-five cents an hour and team labor at thirty cents an hour. The estimated field labor expended in the production of an acre of wheat was twenty-seven man hours and thirty-eight horse hours. With higher figures for man labor, the average being thirty-five cents an hour, the cost of wheat reaches \$2.12 a bushel for the average of the state's yield which is placed at sixteen bushels to the acre.

If one-third of the value of the crop is set aside for the rental of the land, this amounts to \$10.40 for 1918, as compared with \$4.75 for the average of the ten-year period. The increase in the cost of fertilizers to the acre for wheat has been from \$1.00 to \$1.60 in 1918.

No allowance is made to the farmer in these computations for his oversight of the work, his time being computed on the same basis as that of ordinary day labor.

LIMESTONE GETS RESULTS.

BROOME county, New York, this year used eight thousand tons of limestone, an increase of three thousand tons over the amount used one year ago. This increase has been due to the emphasis which the farm bureau and county agent have placed upon the value of applying limestone to the soil. One farmer applied one ton of ground limestone an acre in 1917 at the time of seeding. In 1918 the limed area produced 5,324 pounds of hay, while the plot beside it having no lime produced only 4,017 pounds, 1,307 pounds in favor of lime. Another farmer top-dressed hay land, that had been mowed one year, with one-half ton of marl per acre. On the limed area he secured 4,200 pounds of hay and on the unlimed area 2,160 pounds, a difference of 2,040 pounds. Still another farmer used one ton of lime an acre at the time of seeding. On the limed acre he produced 5,324 pounds of hay and on the unlimed acre 2,904 pounds, a difference of 2,420 pounds in favor of limestone.

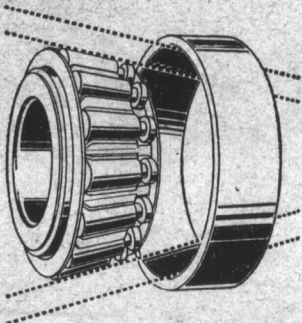
PLANT BLACK WALNUTS.

THE planting of a few black walnuts in every woodlot in the state is immediately necessary if the nation is to be assured in the future of a supply of this wood. The available reserve of black walnut was dangerously depleted during the war.

Black walnut is much used for airplane parts, for gunstocks, and other military purposes. In consequence our black walnut supplies have run low. Inasmuch as it requires a long time for this timber to grow, immediate re-planting should be practiced wherever any black walnut has been removed.

TIMKEN TAPER

Bearings that Stay New in Tractor, Truck and Motor Car



Dotted lines show how the inside of the "cup" of a Timken Bearing is tapered to fit over the tapered rollers.

The job of tractor bearings—in wheels and transmission, on the pinion or worm shaft, at the differential or in knuckle heads—is to keep the expensive working parts of the vehicle from wearing out. Bearings can't do this job if they *wear out themselves*, or even if they just *wear loose* and stay loose. Therefore, they should *stay new*—and Timken Tapered Bearings *do*.

The tapered design enables the bearing to resist not only up-and-down loads, bumps and shocks, but also the heavy *side or end pressures* inevitable in tractor service.

Naturally, with this *doubled power*

of resistance to wear and tear, Timken Bearings stand up where less sturdy bearings would be ground to pieces.

Secondly—If a little wear does occur after thousands of miles, it can be quickly and easily corrected, just by moving the tapered "cone" and rollers a trifle farther into the tapered cup. This simple "take-up for wear" extends the life of the bearings indefinitely.

The following list of tractors equipped with Timken Bearings shows how rapidly tractor owners and builders are appreciating the vital importance of Timken taper.

Acme
Bates All Steel
Bates Steel Mule
Bean
Beltrail
Cleveland
Coleman
Community-Water
Ballast
Craig
Cultitractor
Dart
Depue

Elgin
Evans
Fageol
Farmer Boy
Farquhar
Fordson
Four Drive]

Galloway
Gile
Gray

Harrow
Hendy

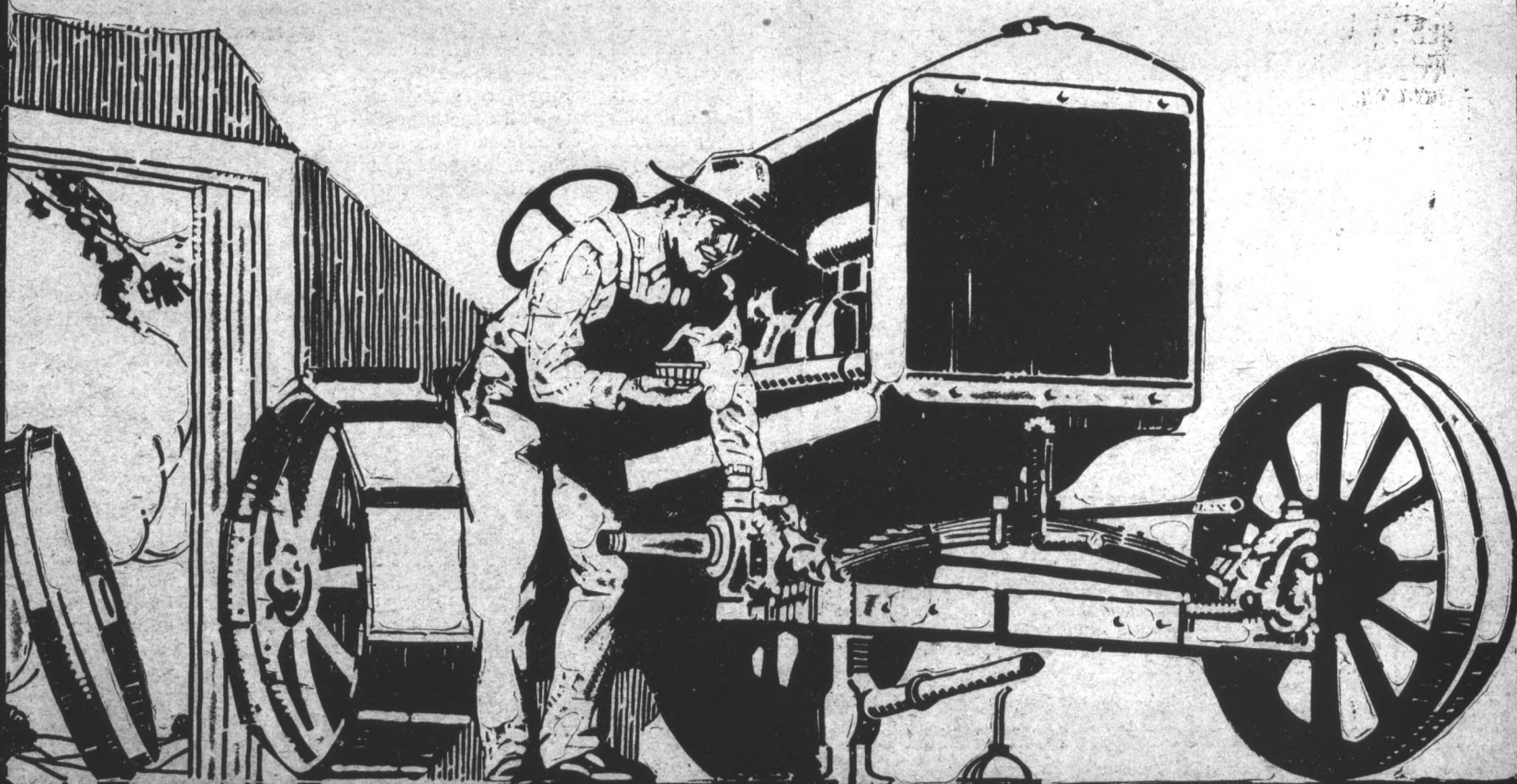
Hession
Hood
Illinois
Lang
Lanson
Lynn
Maxwell
Moreland
National
Parrett
Post
Russell

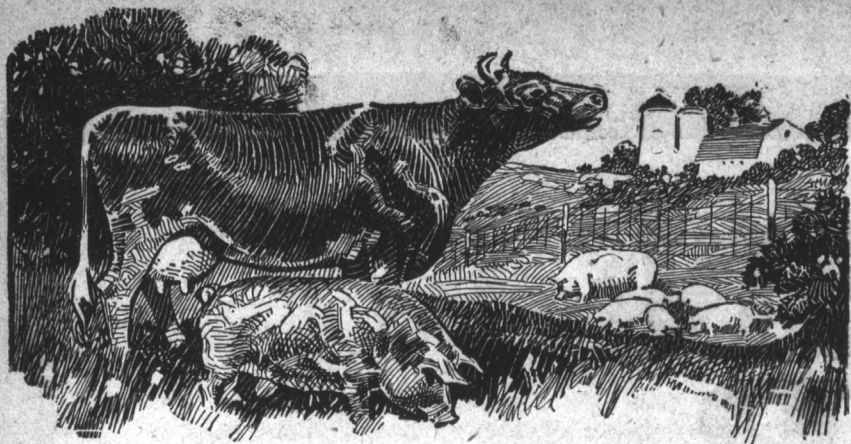
R & P
Square Turn
Topp-Stewart
Tracklayer
Uncle Sam
Velie
Whitney
Wichita Falls
Wisconsin
Wolverine

Write for free booklet T-2, "Timken Bearings for Farm Tractors."



THE TIMKEN ROLLER BEARING COMPANY
Canton, Ohio





Thousands of Dollars Added to Cattle Profits

OUT of every five bushels of whole grains fed your cattle, one bushel goes to the manure pile without being digested and is a total waste.

But ground feed is all digested. Feeding it, means a 20% cut in feed costs, also fatter, higher priced stock. Come in and let us show you without any obligation, how easy it is to get these results with the

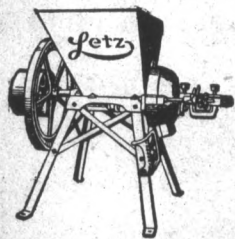
LETZ America's Leading Feed Mill

The fine cutting of the Letz is due to the 848 keen cutting edges of the patented Letz Grinding Plates. In one operation cuts, grinds, pulverizes into finest meal all grains and grasses, wet or dry; and cannot clog.

Grinds corn, shelled or on cob—snapped corn—or complete stalk, ear, leaves, and all. Grinds oats, hulls and all; grinds barley, rye; special attachment for alfalfa, clover, millet, Kaffir corn and other roughage crops. Grinds into finest flour.

Plates are self-sharpening—can be run together empty for hours without injury—average 2000 bushels of moderately fine cut meal before replacement is necessary.

Grinds the finest flour. Has 10 big exclusive features any one of which makes the Letz superior to any other process. Let us prove it. See a Free Demonstration today.



The Rayner Field Mfg. Co.

319-329 W. Franklin St.

JACKSON, -- MICHIGAN

Michigan and Ohio Distributors Celebrated Letz Grinders

Agriculture Loses a Famous Leader

DAVID LUBIN, of San Francisco, founder of the International Institute of Agriculture, and the American representative on its permanent board, died in Rome, Italy, recently, of pneumonia. His fatal illness followed an attack of grip.

David Lubin, known throughout the world as the enemy of the middlemen, was born in Poland of Jewish parents in 1849. When he was a youngster his mother—who had remarried after his father's death—came to

King of Italy the palace in which the institute held meetings and a \$60,000 a year appropriation. Not a cent of this ever reached his pocket. His work was wholly unselfish.

"The day that a practical agrarian credit system is established in the United States, that day the cost of living will be lowered and the profits of farming increased," said Senator Duncan J. Fletcher some years ago. "But David Lubin's work has not been for the United States only. He has tried



New York. Young Lubin was given a job dipping watch chain links in a plating solution. In two weeks he had invented a machine which did that loathsome monotonous job better than he could. In three weeks he had lost his job, and the other fellow had patented the machine. He hoboed to California, and landed in Sacramento, because there was no one at the railroad yards to keep him out. By and by he had enough money to rent a storeroom—on credit—and buy a case of overalls—also on credit. That was all he needed. In a few years he was a rich man.

Most of his patrons were farmers and Lubin was disgusted with the hopelessly unbusinesslike methods of the average farmer. He buys in the highest market and sells in the lowest. So Lubin went to Europe to study the practical workings of the cooperative societies there and in England.

When he returned he organized the California Fruit Growers' Association, which now maintains an exchange in San Francisco. Every other cooperative fruit growing association in the west—and there are many of them—is modeled on the plan he devised. Then it occurred to him that the farmers of the world could profitably cooperate if the farmers of a community could. He worked out a plan for such cooperation, which is largely an exchange of information, and in 1904 began traveling with his idea.

He traveled all over the United States and Europe, talking to prominent men, leaders of thought, and politicians. He spent his own money freely. There can be no doubt that his plan cost him a neat fortune, although he died a rich man. He was not even a delegate to the first session of the International Institute of Agriculture. He did not attend its meetings, but remained at his hotel, working out other plans for the future.

It was Lubin who obtained from the

to better the condition of the farm and the farmer in every country of the world. And he has measurably succeeded."

Mr. Lubin secured the introduction in congress of the proposal for the establishment of an international commerce commission. The measure was passed in 1914. He also fathered the measure providing for the improving of the parcel post service, making possible direct dealing between producer and consumer.

MORE PHOSPHATE NEEDED.

A HALF million tons more of acid phosphate than is now being used could be applied with profit to farms in Michigan, in the opinion of Dr. M. M. McCool, of the Department of Soils of M. A. C.

"I am forced to conclude," he declared recently, "that the tonnage of lime, as limestone or marl, used as fertilizer should be vastly increased, and that when acid phosphate can be purchased at local figures, at least one-half a million tons can be used annually with profit."

In a number of instances farmers have reported their success with acid phosphate where appearances were such as to indicate a lack of phosphorus in the soil. One farmer, in Ingham county, secured an increased profit on potatoes of ten dollars an acre, while another in Kalamazoo county, using three hundred pounds of acid phosphate to the acre secured an even larger return.

Both these farmers discovered what their soil lacked by sending samples to the Soils Department of M. A. C. for analysis. This service, which can be secured through the county agricultural agents, is done by the college without charge.

Profits

Every progressive farmer aims for the greatest profits. He must therefore be businesslike in his methods. He multiplies the returns from his labor by increasing his crops with

A·A·C· Fertilizers

They have made high records in crop production. This year they should pay better than ever because of the great demand and prospective high prices of staple farm products. They can be bought wherever fertilizers are sold.

How to Make Money with Fertilizers

is the title of a 56 page book containing information every farmer needs in relation to the proper use of fertilizers; it shows where profit is to be found, and how to get it. It is different from other fertilizer books and is not a catalogue. Any one of our offices named below will send it to you free. Simply mention this paper and ask for the book.



The American Agricultural Chemical Co.

ATLANTA CINCINNATI DETROIT NEW YORK
BOSTON CLEVELAND JACKSONVILLE PHILADELPHIA
BALTIMORE CHARLESTON LOS ANGELES ST. LOUIS
BUFFALO COLUMBIA MONTGOMERY SAVANNAH, ETC.

Agents Wanted in Unoccupied Territory



SOUTH AMERICAN MARKET FOR OUR APPLES.

ANOTHER year is expected to find many Virginia-grown apples being introduced to the markets of South America. Some of the fruit from that section has been sold in Havana and other Cuban cities for a number of years, and in spite of war conditions upsetting and paralyzing the export business trade relations and correspondence has been maintained with certain interests in Havana, through which Virginia fruit has been distributed with good results. One large grower of Grimes Golden shipped practically his entire crop of that variety to Havana several years ago and could have sold as many more. From Havana many of the apples found their way to the markets of Brazil, Argentina and other South American countries, and they were much in demand. Now that Chairman Hurley, of the United States Shipping Board, has indicated that the American merchant marine will control at least thirty-five per cent of the world's shipping tonnage, and that the South American trade will be given more attention, progressive growers of apples are awaiting the opportunity to place their fruit in the southern country.

SILAGE CORN.

For the past few years it seems impossible to get a crop of corn. Now, what I mean is ears of good ripe grain, and when we do we have to plant a small stock variety. I have a silo and it takes a large acreage of small stalks. The ears are soft. My cows freshen in the spring, so what I want is a food that will winter them in good shape. I read a statement in a journal lately that said: "It cost as much to produce a pound of beef as it did a pound of butter-fat." What is your opinion of this?

Sanilac Co.

F. L. H.

We can go to extremes either way in producing corn silage. My judgment is that we should plant a variety of corn that will mature for the roasting stage or a little beyond. If it does that it is in the proper condition to put into the silo. I don't believe we can afford to plant a small, early variety for silage; the yield per acre is not sufficient. On the other hand, we don't want to get too much ear. If we go as far south as Virginia to get seed for silage, there isn't one year in ten that it will mature sufficiently to make good silage, but if you will get a variety that matures in southern Indiana or Illinois or Ohio, these varieties will mature if we have an extra good corn year in Michigan. It is risky but there is very little danger that they will not sufficiently mature to make good silage and you can get very much more per acre with this kind of seed than you can with a variety of corn acclimated in Michigan.

There is abundant evidence from a great many experiment stations to show that the food necessary to make a pound of beef if fed to a good dairy cow will produce a pound of butter-fat. Of course, the labor in the production of a pound of butter-fat is much more than the production of beef, but you can often make cows produce from one and a half to two pounds of butter-fat in a day, and more, but on the average they will only produce about a pound of butter-fat in a day. That is a good average gain in weight a day for steers. It is a splendid gain to get one and a half pounds on the average and it is really an exceptional gain to get two pounds. A steer will require as much food to produce a pound of gain per day in weight as a good cow will to produce a pound of butter-fat.

C. C. L.



"My estimate is that for a single year if all of the farmers in the United States had used the Oliver chilled plows instead of the regular steel or iron plows, the saving in labor would have totalled the sum of forty-five million dollars."

—From Report in Congressional Record by Senate Statistician, 45th Congress (1877-1879).

The Statement of Yesterday -the Answer Today

The answer to the statement recorded by the Senate Statistician of the 45th Congress that a saving in labor of forty-five million dollars would result to American farmers through the use of Oliver plows is found today in the universal demand for Oliver products.

Even as early as the 45th Congress (1877-1879) Oliver quality had been proven in actual practice and Oliver leadership in providing plows that assured better seed beds already established.

The agricultural history of the years that have followed has borne out the correctness of this statement.

Oliver predominance has kept pace with the remarkable progress of American agriculture in the past half-century—with its doubling of farm area, its tripling of production, its tremendous reduction of cost and human labor.

Today, as we stand just on the threshold of modern power farming, Oliver leadership and progressiveness are signallized as emphatically as in the early days. A large majority of tractor manufacturers have openly declared their preference for Oliver plows and tractor implements to be used in connection with their tractors.

This preference is based on sheer merit. It has been earned by Oliver's thorough knowledge of soil conditions, plow design, plow hitches, tractor construction and operation. It has been held and cemented by Oliver's country-wide service organization.

In the "Statement of Yesterday"—proved by the experience of a generation—holding promise of greater achievements in this new era of American agriculture—you will find ample justification for Oliver's slogan: "Plow Makers for the World."

Oliver Chilled Plow Works
South Bend, Indiana



"Oliver Plowed Fields
Bring Greatest Yields"

OLIVER Tractor Implements



FIELD SEEDS AT WHOLESALE PRICES

We save you money on your Seed Bill. Write for our Special Money-Saving Price List and get our reduced prices on Best Quality Guaranteed Seed. You should know about our low prices. Write at once and be convinced. Everything guaranteed equal to samples or money refunded. Don't pay double profits on Grass Seed. Our seeds are sold subject to government test. Have low prices on Seed Corn, Oats, Wheat, Speltz, Barley, Cane, Millet, Cowpeas, Rape, Vetch, Sudan Grass, Potatoes and all Farm and Garden Seeds. Don't order until you write for big 116-page catalog. Free samples and special low prices on seeds you require. Will send free 60-page book on Growing Alfalfa to those who ask for it. Write at once, as we can save you money. A. A. BERRY SEED CO., Box 231 Clarinda, Iowa

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

Binder Twine Get our low 1919 prices. Farmer agents wanted. Sample free. THEO. BURT & SONS, Melrose, Ohio.



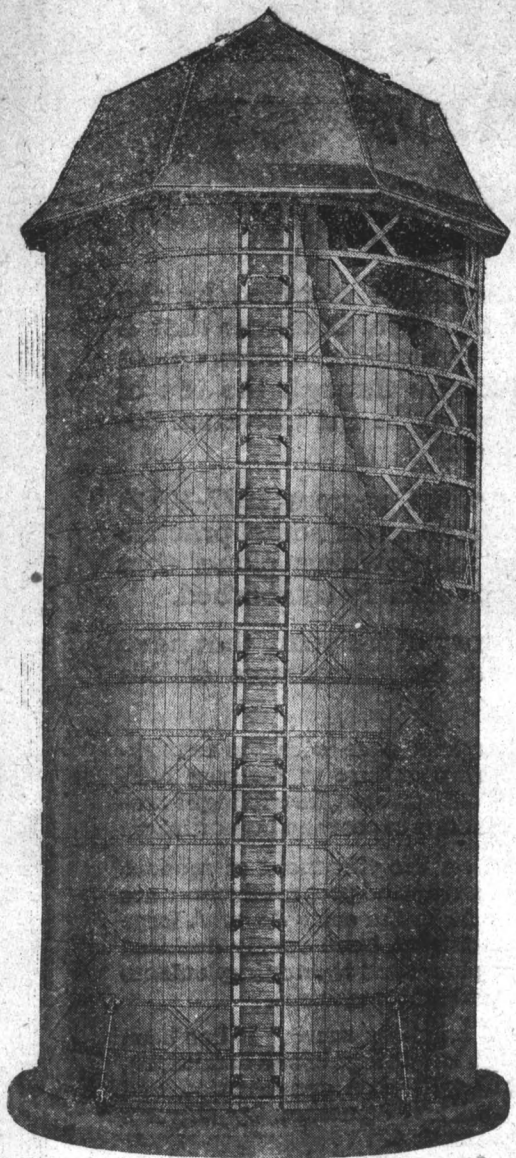
Sudan Grass Seed

Northern grown, free from Johnson grass, 20c per lb., bags free, postage, express or freight extra. White Sweet Clover, scarified 30c, Alfalfa \$3.00 per bushel and up. Order early. Supply short. Quality guaranteed satisfactory.

HENRY FIELD
Shenandoah, Iowa.

Strawberry plants 23 varieties, seed beans, oats and barley. Instructive list free. Pleased to mail you one. MAYER'S PLANT NURSERIES, Merrill, Mich.

A Remarkable Achievement



The Saginaw Liberty Silo With the Cross-Truss

Here it is—the Cross-Truss—absolutely the greatest development ever made in silo construction. An exclusive Saginaw feature that brings to perfection the hollow-wall wood silo and makes it the strongest and most practical silo made.

The illustration tells the story. As you can see, it shows a series of trusses that unite this silo into a tower of strength. This is a new application of bridge construction.

But it remained to the McClure Company to bring this principle into silo building. By its use a rigid frame work is secured—nothing could be stronger. A heavy wind could strike one side of this silo but due to the silo Cross-Truss the strain is distributed evenly.

Then this silo is securely anchored to the foundation. So strong is this construction that no cables are necessary. In addition to this new feature, there are many other advantages of the Saginaw Liberty Silo with its hollow-wall, which have made this silo popular wherever introduced. Its heavy inner wall, the dead air space between that and the outer wall, assure perfect insulation—no more frozen or spoiled silage.

The fact that this is a Saginaw silo is sufficient guarantee of its construction and quality—the result of fifteen years of silo experience. Write us for additional information. We build a silo that fits your own particular needs and pocket-book. Write now.

THE MCCLURE COMPANY

Saginaw, Mich.

Cairo, Illinois

Get our 1919 Calendar. If you are interested in live stock, you will enjoy this calendar. It is free. Send for it. A post card brings this attractive calendar.

(14)

SAGINAW SILOS

Wood Steel-Built—Wood Stave—Wood Hollow-Wall—Masonry

Save Money on Newspapers

Many rural readers have bought their daily and the Michigan Farmer in combination at a price that saved them money.

Save money by ordering through us. Tell your neighbors about it. We will give prompt and accurate service in the filling of all orders.

The Michigan Farmer—One Year Your Favorite Daily—One Year

On rural routes only at prices specified below in "Our Price" column.

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—1919—

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Handy Farm Equipment

WHEN there is a little spare money to spend for equipment that is very useful on the farm, some of the following articles might be considered: Four thermometers can be used on every farm to good advantage; one for the churn, one for the cellar, one for the living-rooms in the house, and one to suspend near the most frequently used door-step. It is quite necessary to have a thermometer to use in churning in order to do the most satisfactory work. If there is any danger of vegetables in the cellar freezing during severe weather, the thermometer will act as an indicator when danger approaches and immediate protection can be furnished in the nature of lanterns or oil stoves to keep the temperature up to a safe level.

Frequently farm homes are overheated and there is no attempt made to regulate the temperature during the winter. A thermometer to aid in keeping the temperature around the comfortable and healthful sixty-eight degrees, will be very desirable for the health of the family. There is nothing more interesting than occasionally following the trail of the mercury on the porch. In spite of the fact that it is a commonplace subject, there is nothing much more important or interesting than the weather on a farm.

Farmers who never own an alarm clock manage to get up early from a force of habit, but when city helpers appear on the farm a little jingling on the gong is necessary to start business going at the right time. The alarm clock can be used by the housewife to time the cooking and baking of various household necessities. When running an incubator or looking after sick live stock the alarm clock may be used to arouse the farmer at a certain hour during the night when attention to the work may be necessary to avoid serious losses.

The electric flash-lights possibly have more practical uses on a farm than in the city. The driver of an automobile will never wish to light any matches around the machine, either in the garage or at any stop on the road. If an examination of the car is necessary it is very dangerous to use a lighted match to help in determining the trouble. The flash-light is safe and furnishes an abundance of bright light just where it is most needed. When quick trips to the barn are necessary at night, the handy flash-light is less bulky and safer than the oil lantern. During sickness a light may be needed quickly in the home without electric lights and it will save time to have a flash-light by the bed. A substantial flash-light may save serious accidents on the farm while working around horses at night, and it is a great convenience and safeguard in the home whenever fire or thieves are suspected. It is just one of the handy farm helpers which are not absolutely necessary but yet very useful.

The keeping in repair of wire fences is necessary on the stock farm and so the wire stretcher is a handy tool, both in repairing and building new fences. Not many farmers own wire stretchers and they would be able to keep their fences in better condition if they had ready access to this handy tool. In many communities a substantial wire stretcher might be purchased in cooperation with several neighbors. It is not a tool that is needed frequently and yet it is very necessary in keeping the farm fences in repair and in building new fences. Tools of this kind

(Continued on page 137).



Keeping the Boy on the Farm

By E. V. Root

IN these days when the agitation of "back to the farm" is so pronounced and the "keep the boy on the farm" problem appears to be national in its extent, it might be well to ask the question, why the boy leaves the farm, and thus secure a working basis for our discussion. Merely talking of the advantages of farm life and pointing out the pitfalls of the city will not solve the problem. Agricultural courses in the colleges and high schools may help, but they will not solve the problem of the boy and farm relation, and we ask the question seriously, "Why does the boy choose to leave the farm?" In this brief discussion we shall try to indicate some of the causes at the bottom of this movement towards the city.

The boy of today, in spite of changed environment, is very much like the boy of generations ago. He repeats the experience of the race and we will find a time in the life of every normal child, when the love for adventure and excitement, for the new and untried are dominant influences and must have a legitimate outlet, and if the farm life does not furnish this outlet the restless youth will look for it elsewhere.

Now, farming has shown less advancement during the past fifty years than any other industry. To be sure, the invention of labor-saving devices and machinery has done much, but the general methods employed on the farm are much the same as fifty years ago and this in the face of unquestionable proof of the existence of better systems. The farmer as a rule is set in his ways and can hardly be said to be open to suggestion. Of course, there are many exceptions and we know that progress is being made and we see the dawning light of better days on the farm but speaking in a general way this statement is true and in this respect the farmer is different from any other business man. In no other industry do we find the methods of half a century ago followed today. All classes of business men have their combinations and associations; they study the market; they strive to reduce the cost of production; they even attempt to influence legislation, and in contrast to this, what is the farmer doing? Competition in other industries has had a stimulating effect but the average farmer is fast asleep to his best interests and needs a jolt to arouse him. The multiplication of insects and fungus enemies of the apple have really had a positive benefit in arousing the fruit grower and the progressive, wide-awake, ready-to-learn orchardist has reaped richer harvests than ever before, while his neighbors who have followed the methods of generations past have lost even their orchards.

Now, the restless youth looks around and finding farm life dead and numbing, uninviting and unremunerative, turns to the city, which immediately appeals to him. He likes to have a part in a system which moves and has a being; he likes the general air of progress and the changes that bring greater efficiency.

The press may advocate rural life and the colleges and high school offer courses to create a greater interest in farming and to assist the farmer in a practical way, but the solution of the boy problem is with the farmer and as long as he tries to hold the restless

(Continued on page 143).

The Hudson Super-Six \$2,200

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There are so few Hudsons of any model to be had just now and it will be so long before full factory production is attained that buyers will do well to select their car without delay.

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Every Hudson model has been admired, envied and copied by other makers. But under our plan there is constant development and so any Super-Six you get today is months ahead of similar types of other makes.

You can probably get a Hudson Super-Six today—perhaps the very model you prefer. In view of the situation, don't you think it best to see what models your Hudson dealer can supply? There is no certainty as to what you can get next spring.

Need you be reminded of Super-Six value. It is the recognized standard of motordom. For three years its leadership among fine cars has been undisputed. Today it carries the added endorsement of thousands who have learned to know its absolute reliability through all the months when automobile service attention was so hard to obtain.

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Fertilize your corn with Jarecki Fish Brand Fertilizer—supply every need as growth unfolds wants. Use from 200 lbs. to 400 lbs. per acre and increase the earnings from your farm. Write us for full information and name of dealer near you.

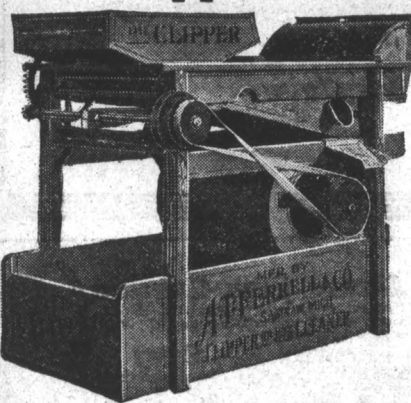
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The Clipper is different in principle from all other grain and seed cleaners. It has been thoroughly tried out by years of constant use by thousands of the best farmers, the U. S. Department of Agriculture, Agricultural Colleges, Experimental Farms and hundreds of the leading seedsmen, seed corn growers, etc.

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We furnish an outfit of 12 screens for cleaning and grading all kinds of seed, grain, seed corn, clovers, alfalfa, millet, timothy, flax, peas, beans, cow peas, soy beans, etc. And, after the most careful study and tests in actual work, we guarantee this screen outfit to be the best that has ever been offered with any mill. There are screens for clover containing buckhorn or plantain, timothy seed containing pepper grass, for separating cockle from wheat and many other difficult separations.

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The Tower System of Cultivation saves the corn by producing a mulch and protecting the root growth.

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THE TOWER SYSTEM ASSISTS NATURE

saves labor and increases crop yield. Cultivates thoroughly from row to row; light draft; can be handled by boy; kills all weeds; adapted to all parts of the Corn Belt. Reasonable cost.

Write for our "Reasonable Reasons Why" every corn raiser should use the Tower System; see your dealer for demonstrations. All "Tower" tools have the name on the tongue: Look for it. Manufactured only at Mendota, Ill.

J. D. TOWER & SONS CO., Mfrs., 37th St., Mendota, Ill.

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Cooperative Farm Tenancy

(Continued from page 115).

in his leases that certain fields must be kept seeded with grass. Often it may be found practical to grow a cultivated crop of some kind at intervals of five or six years and keep the land in pasture or meadow between times. Fields may easily be ruined if the tenant is always allowed to cultivate them as he sees fit. As land owners come to value their land more highly and take better care of it, underground drainage will be more largely practiced to prevent soil erosion. There can be no question but that in many cases tile drainage is the most effective preventative and in the long run the cheapest. The question of investing in tile drains on rented farms depends in a large measure on the value of the land and the class of tenants one has to deal with. If the land is worth one hundred dollars per acre and the owner retains control of the farm and is careful in his choice of tenants, tile drainage should pay nearly as high returns on the rented farm as those operated by the owner. In many instances draining a few wet acres and filling in the ditches will save sufficient fence material and cost of maintenance to make the investment a paying one, or at least, pay a considerable portion of the cost of the

lease should be accompanied by a map of the farm with the different fields numbered and should state explicitly how many acres of sod ground may be broken up and how many acres of land is to be seeded, as well as the quantity of seed to be sown to the acre. If the land-owner is alive to his interests he will plan to visit his farm at about the time the seeding is being done to see that it is properly sown and the proper quantity used.

In fixing up farms for renting the orchards should be put in shape to produce crops of fruit. As a rule, the fruit trees are sadly neglected on rented farms. If the land-owner puts the trees in condition and has a clause in the lease providing that they shall be properly cared for from year to year the tenant after seeing the benefits would realize that it pays to give the trees proper care. Another item that is sadly neglected on rented farms is the planting of ornamental and useful trees. By setting out a few trees about the buildings and in waste places they will grow into money and greatly enhance the value of the property. The land-owner has a right to be conservative and to know that every dollar invested in the farm shall add to its efficiency and value. Changes and im-



Good Live Stock is an Important Factor in Encouraging Long-term Leases and Building up the Fertility of the Farm.

system. But if the farm is rented for cash or crop rent and the tenant is not compelled to follow any definite system of farming or keep the outlets open the land-owner will find it difficult to realize any profit on the additional investment.

An important item in the location of fences is to follow the margins of soil types, so that all the field can be worked at one time. It is also important to have the fields large enough. The fences are a great item of expense and it pays to have the pastures they inclose produce profitably. The improvement of pastures by reseeding, by mowing the weeds during the summer and discing and the application of lime and phosphorus has proved profitable on many farms. By planning the work so that from five to ten acres may be disced, limed and reseeded each year, the land-owner supplying the seed and fertilizer, the tenant doing the work, pastures may be kept in good condition. As a rule the expenditure of forty or fifty dollars and two or three days' team work will help out wonderfully in improving the pastures. And if only a few acres are renewed each year, the expenditure is only moderate and the tenant's labor will be more than paid for in the benefits he derives from the preceding year's work.

The problem of fixing the proportion of pasture and meadow land to that devoted to grain and money crops requires careful study. This not only makes it possible for the tenant to practice a profitable rotation of crops but it encourages the feeding of stock and the raising of crops to feed out on the farm. What is needed on rented farms is sufficient stock to consume all the rough products and convert them into dollars and soil fertility. Every

improvements are costly. Therefore, it is better to institute some fixed system of farm management and see that it is followed and the rotations not broken up by some shiftless tenant who leases the farm for one year.

Some persons are uneasy about this tenant system, thinking that it portends the decadence of genuine interest in the farm; but as a matter of fact, farming is following the trend of every other line of industry—the putting of labor on a cooperative basis. If we would speak of our tenant farming as cooperative farming whereby each man employed had an interest in the business, thousands of the best posted economists in the country would all rise up at once and say it is the grandest thing for the laboring classes ever suggested, and yet the principles outlined are strictly cooperative. It is the most satisfactory way of employing labor when the owner cannot be on the farm every day in the year.

However difficult it may be for the landless to become owners, the state of Michigan is still rich in opportunity for good tenants to secure a foothold in a responsive, profitable soil. Thousands of farms are in need of good tenants. If their owners were sure of the character and ability of men available as tenants, long-time contracts would be entered into whereby the tenants in a few prosperous years could pay for small farms of their own. If a man cannot succeed as a tenant on a good farm he has no business going into debt for a farm of his own, although there are a few eccentric individuals who do not find themselves until they are free to carry out their own ideas. Any young man who pre-

(Continued on page 128).



Eradicating Quack Grass

Some time ago I wrote you asking for instructions about killing quack grass, and I shortly received them by mail. I have my ground fall-plowed nicely, but may I ask you what you think about planting it to corn, or sowing it thickly to barley next spring? Would either one do it as well as buckwheat? Of course, in either case I shall plow again in spring after harrowing thoroughly. If planted to either corn or potatoes would it not require very much hoeing, beside cultivating, and would not barley sown quite heavy, be more profitable? Also, is clay soil good for barley; would rye do to follow rye, and if I use commercial fertilizer, how much and what kind is best for clay?

Ionla Co.

E. E. D.

Your plan of sowing the ground continually to barley in the spring is not as good to overcome quack grass as it would be to sow it to buckwheat the latter part of June. The barley in order to amount to anything must be sown early and the quack grass has a change to grow along with the barley. By the other method, you have plenty of time to cultivate up to the last of June. You can eradicate a lot of the quack grass by thorough cultivation before it is time to sow the buckwheat, then if you sow thickly to buckwheat, it will smother more thoroughly than barley would. Possibly barley would pay better than buckwheat, yet this you cannot tell. A good crop of buckwheat is about as profitable as any grain at the present time.

Your opinion is correct with regard to planting to corn or potatoes. You will have very much hoeing to do in order to keep this quack grass down. It can be done but it is a painstaking, tiresome job.

Clay Land for Barley.

There is no better land than a good, strong clay loam for barley. Barley wants rich land containing plenty of phosphorous and it wants land that will not dry out too much by summer conditions, and a clay loam is almost ideal, providing, of course, it is well supplied with vegetable matter and in good condition.

Rye Following Rye.

It is not the best practice to have one cereal follow itself in a rotation. It is much better to have a rotation of crops and have plants follow each other that are of a little different nature, but on good land this can be done once or twice if it is necessary, or more convenient, with the idea that the ground should be seeded as soon as possible so as to get some grass roots and sod to keep up the vegetable matter in the soil. Commercial fertilizers would undoubtedly help the rye crop; it does most any crop. About two hundred pounds per acre is the amount usually used with any cereal crop. The fertilizer for a cereal crop should have a good per cent of available phosphoric acid in it.

C. C. L.

MICHIGAN CROP IMPROVEMENT ASSOCIATION.

The annual meeting and grain show of the Michigan Crop Improvement Association will be held February 4-5 in connection with Farmers' Week at the Michigan Agricultural College, East Lansing, Michigan.

One of the eight large barracks to be used for the week's display will be devoted to crops and soils. Many instructive and interesting exhibits will be placed in this building together with the corn and grains which the farmers bring in. The Crop Improvement Association has discontinued charging entry fees on any exhibits. The only requirement for entry is that the given grain be shown and grown by a farmer of Michigan.

Some of the best authorities in the country will be present to judge the grains and give talks at the meetings on Farm Crops Day, February 5.

Save Your Wheat From Winter Killing

DUNHAM

CULTI-PACKER

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Before Culti-Packing

The plants are heaved and soil is cracked, causing roots to freeze, break or dry out and die.



After Culti-Packing

The plants are tugged back into place and the cracks filled with moist soil giving roots a new life.

Every year thousands of acres of wheat give only half a normal yield—thousands more are plowed up and seeded to other crops because of winter killing.

Most of this lost wheat could be saved by timely use of the Dunham Culti-Packer.

Winter killing results from the heaving of plants and cracking of the soil caused by the alternate freezing and thawing in early spring. The wheat roots are broken and left exposed to the air thus cutting off nourishment from the plants above.

The Culti-Packer used on such fields just as soon as the soil is dry will tuck the heaved plants back in place and fill the cracks around the roots with moist soil.

The Nebraska Experiment Station found through a period of five years experiments that this spring packing gave an average increase of five and one-tenth (5.1) bushels per acre.

Go to the nearest John Deere Dealer NOW and arrange for a Culti-Packer to use on your wheat field this spring. If you do only half as well as the Nebraska Experiment Station you will pay for the tool on your wheat crop alone and you will use it on every other crop you grow.

"Soil Sense"

A 56-page book illustrated with over 90 field photographs showing the uses of the Culti-Packer on wheat, oats, corn, alfalfa, sugar beets, cotton, rice, etc. Ask your dealer or write direct for a copy.

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Ro-San Indoor Chemical Closet

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WHITE BLOSSOM SWEET CLOVER

BETTER THAN RED CLOVER
FOR SOILING AND A VALUABLE HAY CROP

Does not winter-kill. Succeeds on all kinds of soil. Better than red clover as a soil builder. Prepares the land for alfalfa and other clovers. Equal to alfalfa in feed value. We do not handle Southern seed, but offer choicest selections of Michigan grown; 99.75% pure; high germination, scarified, best in the world. Selling at about half the price of red clover seed, every farmer should investigate it. A Special Bulletin explaining cultivation and uses of this most valuable legume, sample of seed and our 1919 Seed Book free, on request. We are headquarters for Michigan Clover, Alsike, Vetch, Peas, Northwestern Alfalfa, etc.

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Send us your samples. Particularly of wet and off grade beans. Clover seed and seed screenings wanted. Quill beans for sale.

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Make Barn Work Easier For The Boy with **LOUDEN** Labor Saving Barn Equipment



"When the boys come marching home" they will find easier, more pleasant jobs on the farms where Louden Barn Equipment has been installed.

The Louden Equipped Barn is a neat, light, well ventilated, properly arranged barn, with up-to-date mechanical conveniences which ease and shorten the daily work every single day in the year, prevent waste of time and feed,

give health and safety, comfort and contentment to cows, not possible with out-of-date equipment—increases the quantity and improve the quality of their milk yield.

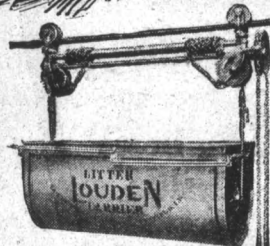
Louden Equipment Begins Making Money the Day It Is Installed

One man handles and takes care of twice the number of cows as in the old way—saves half the labor and time at feeding with Louden Feed Carriers; all the time and labor of watering with Louden Detachable Water Bowls; half the time and labor of barn cleaning with Louden Litter Carriers. You can install any part of Louden Equipment, or a complete outfit, in your present barn, without remodeling it.

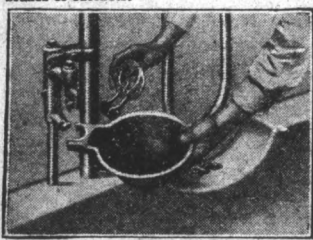
Get Our Big New 224-Page Catalog which we will be pleased to send you postpaid on request without charge or obligation. Shows Stalls and Stanchions, Feed and Litter Carriers, Animal Pens of all kinds, Hay Unloading Tools, Power Hoists, Barn and Garage Door Hangers, Detachable Water Bowls, Cupolas, Ventilators—"Everything for the Barn."

Are You Going to Build or Remodel a Barn? If so, get Louden Barn Plans—a 112-page book all on barn building. 74 barns with estimated cost; discusses every phase of barn building—postpaid, no charge or obligation. Write us what kind of barn you have in mind, number and kind of stock you wish to house, and our experts will offer dollar-saving suggestions.

The Louden Machinery Company
1909 Court St. (Established 1867) Fairfield, Iowa



Louden Emancipator Litter Carrier—Saves one-half the time in barn cleaning. Safe and trouble-proof. No clutches, brakes or ratchets.



Louden Quick Detachable Water Bowl—Supplies cows with water regularly—increases milk yield. Easily and quickly detached for sterilizing. Easily installed.



W. M. LOUDEN
Whose inventions in labor-saving equipment are used in over a million barns.



A Ration for Pigs

I have twenty-five Duroc pigs ten weeks old. Shall have June grass pasture next spring and after harvest plan to put them in market shape about September 1 on rye, as I have a large acreage and have had very good results in hogging it down. However, I shall have to purchase most of the feed from now until spring. Which is the best and cheapest ration for them and what amount would you consider as a daily allowance? Corn at \$2.75 per cwt; ground barley \$2.60; tankage \$6; middlings \$1.70 per cwt. I also have five brood sows and what would you feed them of the above feeds?

Hillsdale Co.

L. W. M.

In this case I take it that Mr. M. wishes to get his pigs through the winter as cheaply as he can and then furnish them with a more liberal ration on his home-grown rye. In other words, he wants to find a market for this rye through the hogs. But, in my judgment, it will not pay to scrimp them very much this winter because they will not gain any if you do and you are practically losing the food which you put into them. You can get along by feeding a very small amount and keep the pigs alive, but if they make no growth you have got practically nothing to show for the grain which you have fed them and so I would prefer to feed them a fairly liberal ration and get a good growth which will put them in a better condition to assimilate this rye than as though they had been poorly wintered.

Now, a growing pig needs a liberal ration containing a sufficient amount of protein to make growth. Wheat middlings alone mixed with water are a splendid food for growing pigs. One winter I grew them and fattened them on middlings alone when this product was cheap and they did nicely. It is almost a balanced ration. You can feed corn or ground barley with tankage and make just as good a ration and perhaps better than middlings alone. If you are going to feed middlings the ration must be practically all middlings or you won't have a sufficient amount of protein. Ground barley or corn does not contain enough protein so that you must feed tankage with it. Either one of these rations or a combination of them will carry the pigs through the winter, making a reasonable growth and keep them in good condition. They should also have a good grain ration on the June grass pasture.

I would advise that as early in the spring as possible you sow a mixture of oats and peas and rape. This pasture will come in between your June grass and rye and will be as cheap and really better than the June grass. The peas and oats will come first after the June grass and the rape will continue all through the summer and will make a fine combination to give them with the rye. I am of the opinion that it will pay to feed a little grain and some tankage while you are hogging down the rye. You will get better results out of the rye and you can probably carry a few more pigs in this way to utilize the rye than as though you had nothing for them to eat but the rye. In other words, by balancing the ration with a little tankage and perhaps some middlings, you can make the rye go farther and with less waste.

I don't believe in weighing out the ration for a bunch of pigs. I am of the opinion that it will pay you to feed about what they will eat up clean without waste. By feeding in this way you will have pigs the first of September that will weight 250 to 300 pounds rather than pigs that will only weigh

150 or 175 pounds if they are scrimped on their food during the winter.

Brood sows do not need as much protein in their ration as do growing pigs. You can winter them nicely on ground barley, a little clover hay if you wish to do so, or you can give them a little tankage with the ground barley, and feed some corn, or you can make a slop composed of ground barley and middlings and feed a little corn, which will be greater variety and be relished by the hogs.

C. C. L.

COOPERATIVE FARM TENANTRY.

(Continued from page 126).

pares himself for the profession of agriculture, and combines industry, honesty, aggressiveness and tact with persistence and patience, can graduate from the tenant class to that of land-owner in a few years. It is an education as well as an opportunity to be a tenant on a good farm. It not only gives a man good training but it enables him to judge his fitness for agriculture. A good five years' course of training under an educated land-owner would give one as liberal an agricultural education as two years in a college.

I have given much study to the economic questions involved in rural co-operation, and I can see no place where they can be applied to better advantage than in leasing farms. I have found almost invariably that the farmers and manufacturers who pay the highest wages are those who in the long run get the most out of their men and are the most prosperous. They get better help, and feeling that the wages are high they make a special effort to do efficient work. The fundamental principles are the same in leasing a farm. The man who is given a good chance feels that he must manage the farm so that the owner can afford to bear the extra charges. It results in a better system of farming and larger profits to both parties.

The best remedy is square dealing by all concerned and a liberal system of cooperative leasing which takes into consideration the building up of the farm as well as immediate profits. Practical stock farming will always improve the average farm as we find it today. The land-owner who understands the situation will not only do his part in the way of adding needed improvements but will give the tenant such a share as will enable him to make a reasonable profit without robbing or neglecting the property. There is a close relationship between the tenant's income and the keeping up of the farm.

Editor's Note.—In succeeding issues Mr. Ford will discuss the problem of choosing good tenants, equitable division of profits, things to avoid in entering into the different kinds of partnerships, leases and agreements and other points which land-owners and tenants should understand before binding themselves to do thus and so. We feel sure that many of our readers could profit by reading these articles carefully and keeping them for reference.

Good pasture lands are the basis of successful dairy farming.

The herd should be taken up early in the fall, so as to allow the last growth of grass to afford protection to the roots during the winter.

Good stock and equipment will soon place a man in a position where he can buy land and pay for it too.

Get the ORIGINAL

"An Imitation—be it Ever so Good—is Still an Imitation."

When you invest in a manure spreader you are buying an implement that ought to be the most profitable machine on your farm. It will be, if you profit by the experience of others and choose the machine that has stood the test of time. Buy the original, the machine which revolutionized old-fashioned methods, which has always been the leader in quality, in sales and in improvements. This machine is the

NEW IDEA

Registered U.S. Pat. Off.

Lowdown, light draft. Loads and pulls without undue strain on man or team. Has solid bottom with chain conveyors. Pulverizes thoroughly and spreads evenly. 5 to 7 ft. wide. Spreads from 3 to 15 loads per acre, at your option, by merely shifting a lever. Drives with heavy sprocket chain—no gears.

See the "New Idea" at your dealer's. Don't wait for him to see you as he is probably short of help. Insist on the "New Idea," and don't buy regrets by taking some other machine. If you don't know who sells the "New Idea," write us and we will give you his name. Get our Book—"Helping Mother Nature," which gives much new information about manure and soil fertility.

(2)

The NEW IDEA Spreader Co.
SPREADER SPECIALISTS. COLDWATER, OHIO

We have found your Spreader to be most satisfactory. The light team, weighing only about 2000, handles it on practically all the farms. The evenness and strength of the growth after top-dressing with your machine, shows it is a tool no farmer can afford to be without if he wants results.
J. H. McCLUER.

Two years ago I bought one of your spreaders, last year I got a second one.

A good Manure Spreader is one of the best paying tools a man can have on a farm. We spread lime as well as manure with our NEW IDEA Spreaders. Would not think of running my farms without them.
A. S. WELCH.

I have used your NEW IDEA Spreader for five years. Am so well pleased with the work it does, that I would not have any other. Has cost me only 30c for repairs and that was caused by my own neglect.
P. I. WORTHINGTON.

Original letters on file. Addresses upon request.



Please Mention The Michigan Farmer When You Write Advertisers



Dairy Feeds

TO have spoken of a dairy ration two years ago would have been to remind one of grain. Roughage was so plentiful then and so cheap that it gave us little concern. Today it is different. Roughage is scarce and quite as expensive as grain, if one must buy it. Ensilage is the main factor in so far as roughage is concerned, for hay is too high, and too hard to find to be fed in liberal quantities unless it is grown on the farm where the cows are kept. It can hardly be possible that hay will be cheap for a year or two yet, and I look for it to be scarcer next year than it is now.

I pity the man who is trying to keep cows without a silo. He should at once make preparations to build one, or sell the cows. Think what the silo has meant to farmers in Michigan during the past year and a half. The corn crop of 1917 cut by the frost before it was ripe, the crop of this year grown from any seed that could be secured, and only part of it matured on that account. But the silo furnished our way out of the difficulty. Today we are glad we planted that late corn from the east and south. It was all we could get, and it furnished us a lot of good ensilage in a year when the feeding of it to a bunch of dairy cows will bring larger returns than at any other time within our recollection. We are going to make our ensilage last through until grass comes again. If we have plenty, we will feed liberally of it, but if otherwise, we will regulate the daily allowance so as to make it last as long as we are going to need it.

Generally speaking, we should do the same with respect to our hay. If we know where we can buy hay at a price that we can afford to pay, then we may feed as much of it as the cows will consume, but otherwise we should plan to feed as nearly an equal allowance of roughage as may be, throughout the season.

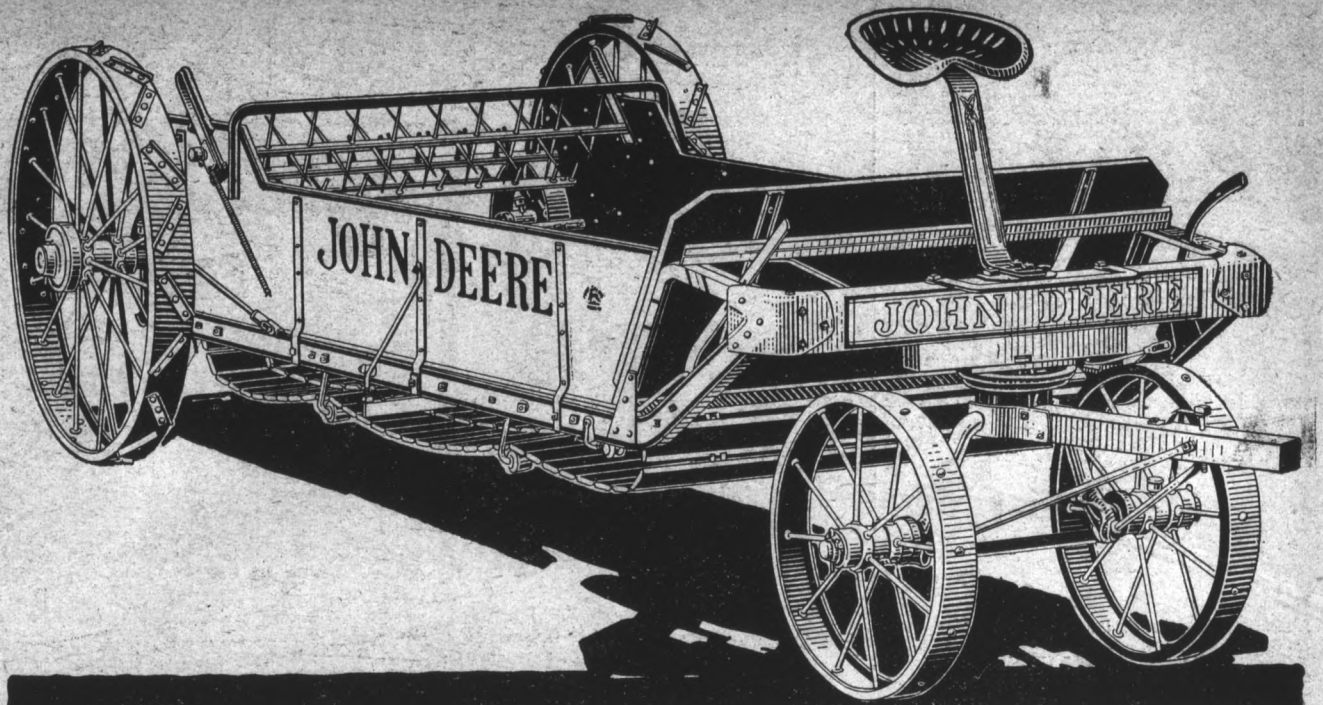
I know one good dairyman who has just a little alfalfa, and he has estimated the allowance of each cow at two pounds daily. Two pounds is therefore each cow's portion of alfalfa in the daily ration, and it helps out. It is much better to feed it in that way, than to feed ten pounds for a month or a little more, and have none of it throughout the rest of the winter.

Straw is bringing more in the market this winter than it is worth to feed, but if other roughage can not be conveniently bought, it will be better to feed it and save the trouble of marketing it, and hunting other feed to take its place. In times like this, one should watch carefully and not feed more roughage than will be consumed by the cows. Indeed, our supply may be so small that we shall have to cut down the amount and compensate by feeding more grain. In such a case let us plan to feed uniformly throughout the winter and spring.

Coming to the matter of grain, prices are certainly inspiring to those who have it to sell. The question is, "What shall we feed as our grain ration? Here, as elsewhere, "circumstances alter cases." Personally, I would begin with oats. For some time back, wheat bran, if it could be obtained at the mill where it was made, was comparatively cheap, but a day or two ago I received quotations from a large company in the west that nearly took my breath away.

Oats may be bought here at seventy cents a bushel and in some places just a little below that point I think. Seventy cents is not a high price for oats when we consider the price of corn.

Continued on page 144.



Seven Years' Leadership

SEVEN years ago the John Deere Spreader passed from the experimental stage into a commercial product. Distinctive in design, practical in operation, and having a combination of spreader advantages that are still exclusive, the John Deere Spreader met with the approval of farmers everywhere. The supremacy that the John Deere Spreader gained seven years ago is in evidence today to even a greater extent because it is *built right* in every detail.

JOHN DEERE SPREADER

The SPREADER with the BEATER on the Axle

IN no other spreader can you secure the combination of advantages that the John Deere Spreader gives you. Low down, it is easy to load from the front to the rear, and with high drive wheels the draft is lightened and plenty of traction is furnished, even for snow-covered or partly thawed-out fields.

Simplest spreader built; it has no clutches or chains and only half the parts necessary on the ordinary spreader. Main working parts mounted on the rear axle, where they cannot get out of alignment to cause binding, heavy draft or breakage. Beater drive simple and effective,

much like a triple-gear horse-power. Enclosed gears operate in a bath of oil.

These features, so desirable on a spreader, have been made possible only through mounting the beater on the axle of the John Deere Spreader, a patented feature.

With the straw-spreading attachment, furnished as an extra, the John Deere is a two-in-one machine, it spreads straw and manure and does a perfect job in both. To get the extra service, the extra convenience, the extra profits you are after, demand the John Deere Spreader.

JOHN DEERE, Moline, Illinois

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AND SERVICE



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is as profitable as Grain Growing

In Western Canada Grain Growing is a profit maker. Raising Cattle, Sheep and Hogs brings certain success. It's easy to prosper where you can raise 20 to 45 bu. of wheat to the acre and buy on easy terms.

Land at \$15 to \$30 Per Acre
—Good Grazing Land at Much Less.

Railway and Land Co's. are offering unusual inducements to home-seekers to settle in Western Canada and enjoy her prosperity. Loans made for the purchase of stock or other farming requirements can be had at low interest.

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You can obtain excellent land at low prices on easy terms, and get high prices for your grain, cattle, sheep and hogs—low taxes (none on improvements), good markets and shipping facilities, free schools, churches, splendid climate and sure crops.

For illustrated literature, maps, description of lands for sale in Manitoba, Saskatchewan and Alberta, reduced railroad rates, etc., apply to Superintendent of Immigration, Ottawa, Canada, or

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SCOTT'S SWEET CLOVER

Hulled and scarified white sweet clover is about ten dollars per bushel cheaper than red. (Unhulled cheaper yet.) As it is a biennial, taking the place of red in the rotation and any amount better as a land builder, it is an economical substitute. Winter sowing is the best. Ask for samples and prices as well as our catalogue telling "How to Know Good Seed". All other kinds of field seeds too.

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FREE SAMPLES Wonderful Value Wholesale Prices Profits Divided

with customers. Don't fail to investigate these bargains. Re-cleaned Tested Timothy \$4.75 bu., Alfalfa \$8.90, Alsike Clover and Timothy, Sweet Clover and other Grass and Field Seeds at unusually low prices.

All sold subject to State or Government Test under an absolute MONEY-BACK GUARANTEE. We are specialists in grass and field seeds. Located so as to save you money and give quick service. Send today for our big profit-sharing, money-saving Seed Guide which explains all, free. Buy now and save money. Write

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SEED CORN

12 varieties, sack gathered, Northern grown, shipped upon approval. Our 112-E holds world's record yield for Northern variety. Free dir. **C. E. & J. Graves, Antwerp, O.**



Getting Ready for Alfalfa

Kindly advise me as to the proper methods to practice in getting alfalfa started on my farm. What crops are the best to grow in preparing ground for this crop? Do you think inoculation is necessary where red clover grows? Some farmers in this section have trouble with weeds coming in and crowding out the stand of alfalfa. Can this be prevented by cultivating the plants and if so how should the work be done?

Livingston Co.

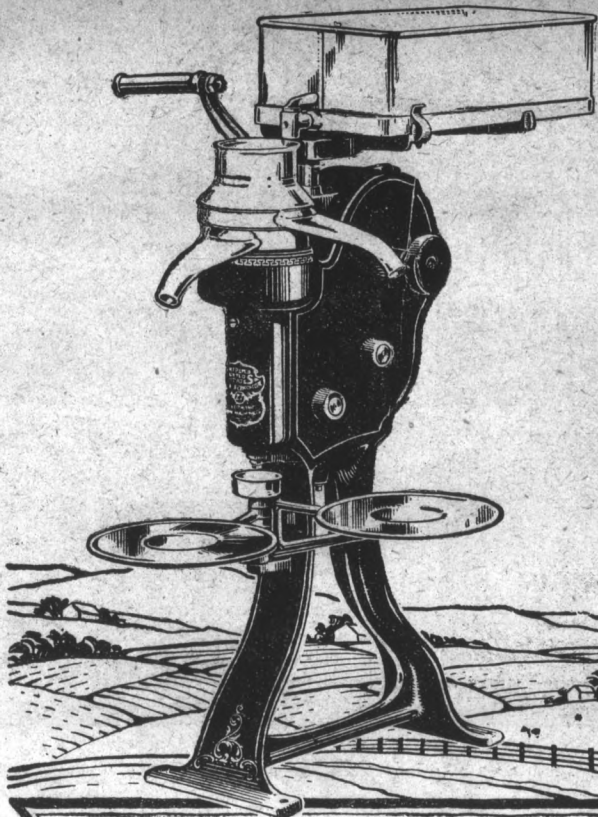
F. A. M.

After deciding which portions of the farm are best adapted for growing of alfalfa, the next step is the preparation of the soil for seeding. Under ordinary farm conditions this may best be accomplished by plowing under a heavily manured sod and planting a crop of corn and potatoes. The cultivation of the soil will hasten the decomposition of the organic matter, refine the particles and help to create ideal conditions for working up a good seed bed the following year. If a fertilizer carrying liberal amounts of available phosphorus and potassium is used for the corn or potato crop one is not only insured of a maximum yield of corn or potatoes, but the fertilizing elements not utilized by these crops will be at hand for the alfalfa plants. If ground is plowed the following spring, given an application of two tons of ground limestone to the acre and thoroughly harrowed to conserve soil moisture and destroy weed growth the conditions will be almost ideal for seeding the alfalfa crop the first week in August. Many farmers who have used lime to encourage the growth of alfalfa on their farms have secured a good stand only to have it turn yellow and become unthrifty because the soil lacked sufficient phosphorus to nourish the plants. It is, therefore, always well to provide liberal quantities of this element before preparing a field for alfalfa.

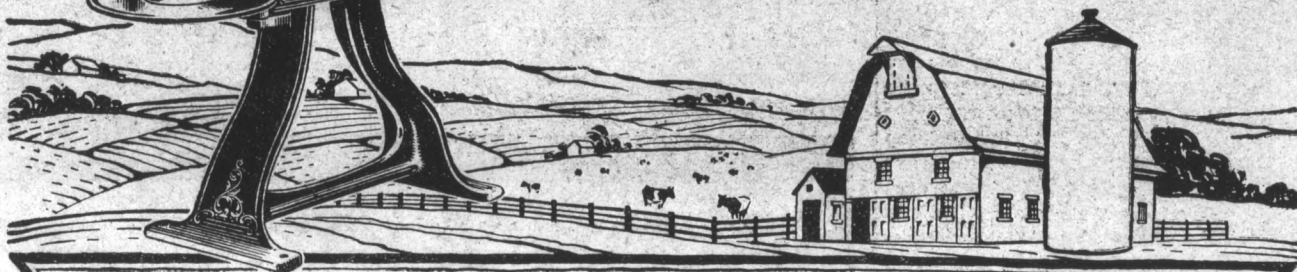
One of the first and most important points to consider when preparing a field for alfalfa is that of having the soil inoculated with the proper kinds of bacteria. If the soil is not acid this may be accomplished by seeding a quart of alfalfa along with the clover and timothy crops on each acre, using soil from an old alfalfa field as an absorbent in the stables where the bacteria will find a suitable place to multiply before being returned to the soil, and by applying a few bushels of soil from an old alfalfa field to the field that is being seeded. When applying the soil from an old alfalfa field it is necessary that the work should be performed while the weather is dark or cloudy as the direct rays of the sun will destroy the bacteria before they are incorporated with the soil. In this latitude the good results come from seeding the crop early in August so that the plants will make good growth before frost comes and checks their growth in the fall. After experimenting with and without nurse crops we find that uniformly better results are obtained when the alfalfa is seeded alone. If the crop makes too vigorous a growth it is frequently necessary to go over the field with a mowing machine and clip the tops several inches above the ground and leave the crop to serve as a mulch during the winter.

The best results are obtained by sowing one-half bushel of cleaned seed to the acre and covering it somewhat deeper than is the case when the seeding is done earlier in the season. Late summer seeding has many advantages, an important one being the compara-

(Continued on page 141).



How the War brought out this better Separator



Ever since the "United States" won the world's record for close skimming, in the most gruelling and most comprehensive contest ever attempted, its leadership could not be questioned. That point was settled.

Then came the war. It brought to the makers of the "United States" an obligation to place their manufacturing facilities on an 80% war basis.

Labor shortage on the farms brought also from the dairymen of the Country a demand for a separa-

tor that could set a new standard in time-and-labor-saving achievement.

The "United States" organization solved its own war-time problems and those of the dairymen as well—by mobilizing all its inventive energy in an era of improvement.

The new UNITED STATES DISC SEPARATOR is the result. Seven new and exclusive patented features—added to established "United States" superiorities—have produced a separator that asks only an investigation of those willing to be shown.

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Our milking machine can be moved, engine and all, from barn to barn; no installation expense.

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Please send me your book on Machine-Milking. Also your introductory offer.

I have.....cows. I operate.....milking machine.



WORLD EVENTS IN PICTURES



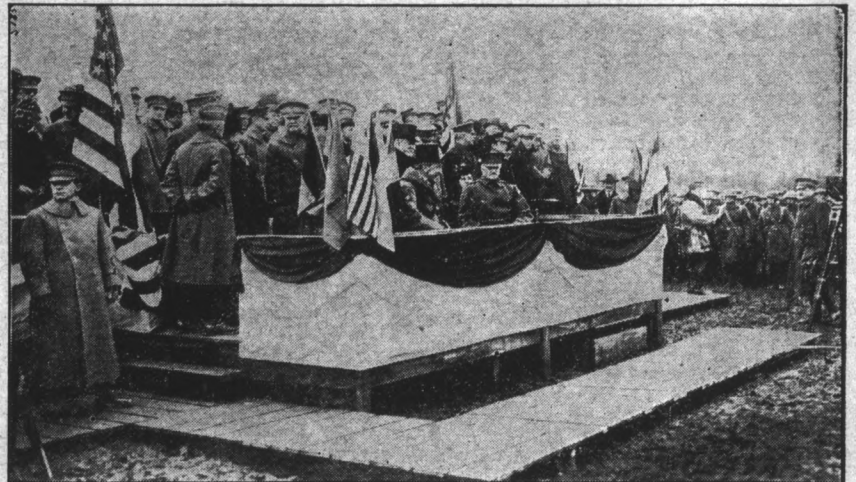
Federal Vocational Education Board to Assist in Retraining Disabled Soldiers.



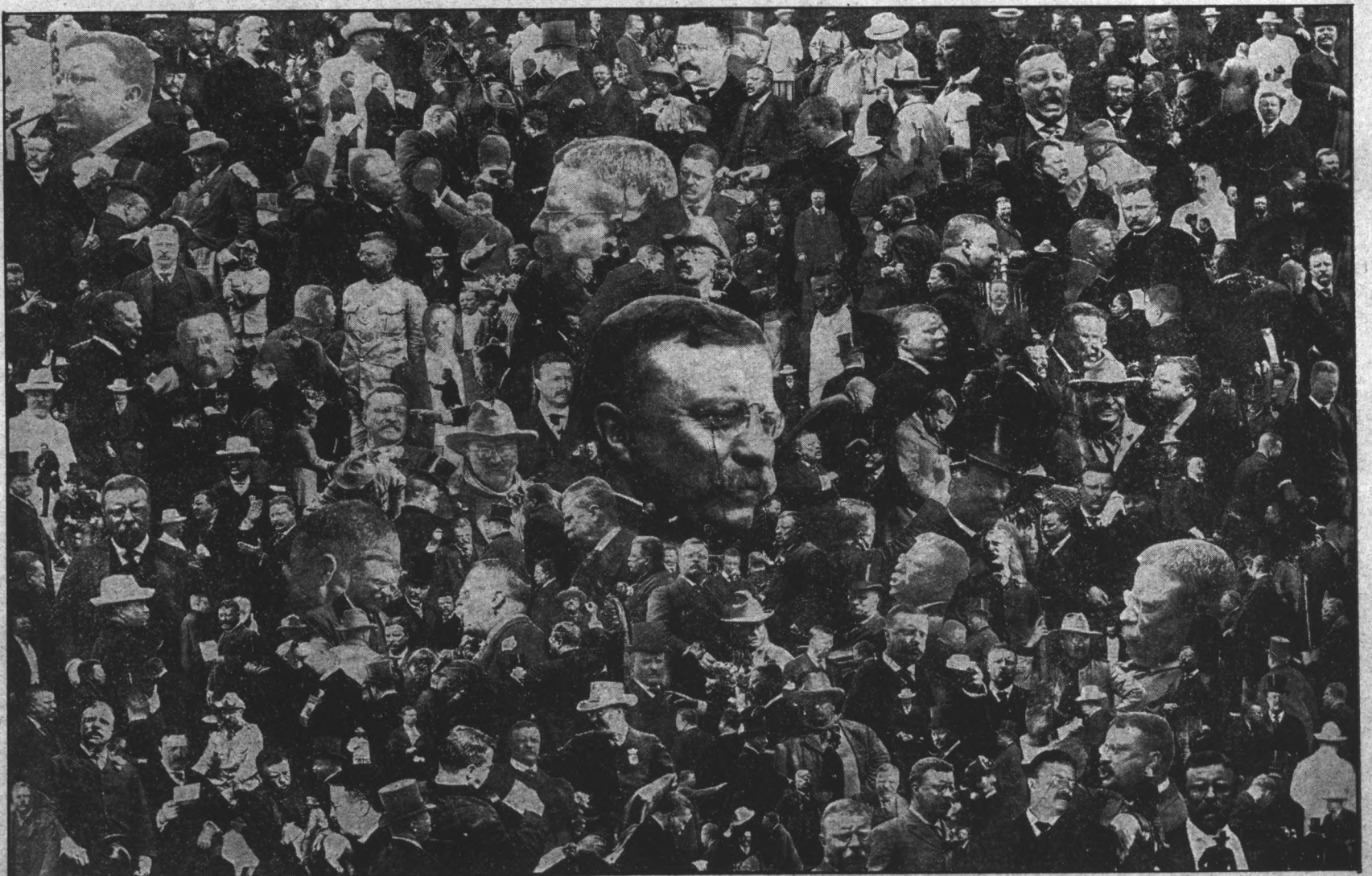
Food and Hot Coffee for Survivors of Transport Northern Pacific.



Braving the Waves to Rescue Wounded from Transport Northern Pacific.



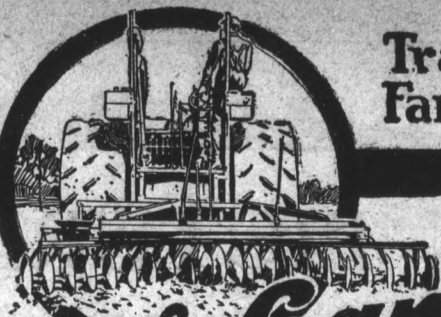
President Wilson Reviewing American Troops at Chaumont, France, Xmas.



Characteristic Poses which Tell Better than Words the Greatness of Theodore Roosevelt.

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gives the tractor owner the tillage equipment he needs for efficient and economical power use.

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Only Disc Of Its Style

It is especially designed and adapted for meeting every requirement of tractor use and always does the finest kind of work with surprising ease and speed. All axles and bearings are oversize—the frame has great strength and the proper weight—the flexible rear section allows disc to be turned like a wagon and to cultivate at even depth on turns. The double draft bars make rear discs cut midway between front discs under all conditions. Once over a field produces a level, thoroughly pulverized seedbed.

The rear sections cannot track with the front sections, because of our patented flexible connection and double draft bars. Center adjustment cuts out dead furrows.

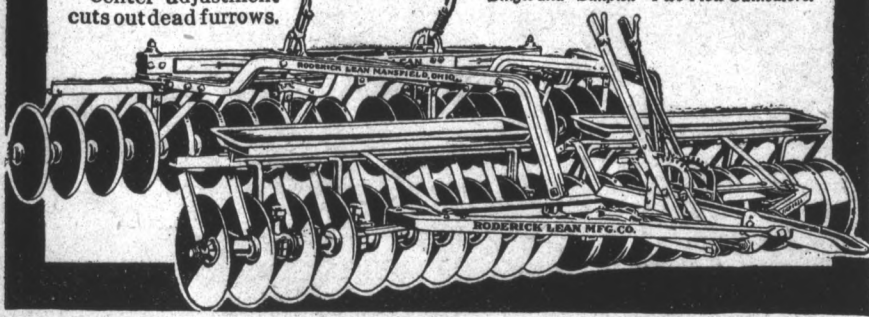
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with weight
boxes and
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for unusual
soil condi-
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Builders of "New Century Three Star" Single and "Simplex" Two-Row Cultivators.



Salzer Billion \$ Grass



A wonderful producer, a forerunner of a big crop. Preeminently the grass to sow for short hay crops. Gives two and three big, rich, luxuriant crops per season. Will mature in from six to ten weeks anywhere. A veritable wealth producer for the stockman.

SALZER SUDAN GRASS: No longer a question of "enough hay for the stock, but enough stock for the hay." Astonishing yielder. Free from Johnson Grass, the great southern pest.

In many districts Salzer Sudan Grass has done more for beef raising and dairy industries than any other hay crop.

America's Headquarters for Seeds

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Clovers Grasses Millets
Seed Wheat, Oats, Barley, Rye, Flax
Salzer's Famous Eagle Valley Seed Potatoes

We are AMERICA'S LARGEST MAIL ORDER SEED HOUSE the result of 51 years FAIR DEALING IN QUALITY SEEDS.

We court the implicit trust and faith of every farmer and gardener.

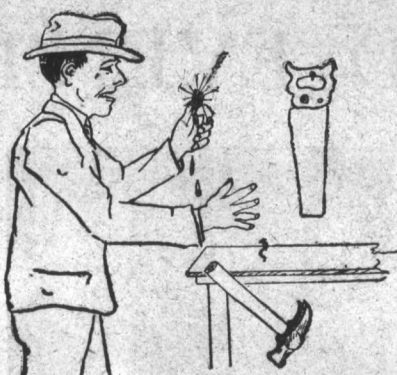
Let our 51 years' Reputation be your Guarantee.

JOHN A. SALZER SEED CO.

Box 135, La Crosse, Wis.

Resting and Rusting

By C. C. Johnson



"I'll do anything once," is a more or less familiar expression, supposed to indicate a venturesome state of mind. It was not with any conscious recklessness that I bought an old carpenter's bench and chest of tools.

Although fond of attending public sales, I had always been proof against the weakness of bidding in anything for which I had no reasonable use. In this instance I merely meant to encourage the auctioneer in getting the stuff started. It was all grouped as one item. He showed his ingratitude by knocking it off to me, with very little ceremony. Though none of it was in very good condition, the price paid was small, and I had the satisfaction of knowing that it was dirt cheap, providing I had any need for it, which I felt I had not.

However, I took it home with me, as a matter of course. To justify myself in the eyes of my wife, whose comments on the purchase were intended to be witty where they were not sarcastic, I converted one corner of the barn into a kind of shop. Further, I professed great satisfaction over the result intimating that a shop was something I had always desired. This was wholly insincere. I had never desired a shop. But it shows to what ends a man will sometimes go to prevent the companion of his bosom from getting something on him.

My wife's unsympathetic attitude has not been due to the mere presence of the bench and tools. There is nothing about either of them to excite caustic remark. They assumed such a power only when coupled with the circumstance that their possessor in this instance was notoriously unskillful, or at least unpracticed in the use of small tools. There were many little evidences of this about his premises. Usually he had to be coaxed into making the most trivial repairs.

Having gone so far, I could not save my face without forcing myself to the effort of making things. A man with even a very small sense of humor can see that a shop in which nothing is ever made is open to ridicule. Thus it was that I started in to put my new possessions to some account. It was not with very much enthusiasm, I will admit, until, very soon, I got grasp of a big truth, which is the point of all that I have been trying to say. It was that I had not had any playthings since I was a boy, although as a man I had needed playthings without knowing it, and now I had found some.

To make myself fully intelligible to the reader, it is perhaps necessary that I should here briefly digress. The most of us do not make a proper distinction between resting and rusting. When temporarily free from the work of our occupation we are apt to lapse into a state of mental and physical apathy. There are times, of course, when the mind and body need as near complete relaxation as is possible, but we are told by authorities on the matter that the best rest lies often in simply exchanging one form of activity for another.

While the tired muscles and brain-cells are being rested, others have been woke up and are being given needed exercise.

Playing any kind of a game is a form of work, only we never think of it in that way. The game makes demands upon our energies in some form, just as though it was something for which we were receiving pay. A business man after a day of hard mental strain will find refreshment in playing golf, and a group of mill-men, following severe physical toil, will get pleasure out of playing ball on the commons.

It had been my custom to put in a faithful day in the routine work of the farm, without much thought to anything else. When night came I was a pretty tired white man. I would perhaps doze for an hour or more over a newspaper and then seek an early bed. After I had acquired my shop I started in to do a little tinkering, for reasons already stated. The after-supper period was the time I chose for it. No one could have been more surprised than myself when I began to enjoy the thing.

The first piece of work I turned out was a portable chicken-coop. Its architectural lines were not very true and the workmanship was crude, but it held chickens. I was very proud of that coop. Although I did not have in me the making of much of a mechanic, I developed a certain rough skill in the use of the tools, which held my interest. The little wagon I made for the youngest member of the family was certainly a success, judged from the pleasure it gave him, despite the fact that the hind wheels were wobbly. I tried my hand at a variety of articles of a utilitarian or supposed ornamental nature, and while I could not point with pride to all of them, I struck a fair average of amateur achievement.

But this was all secondary to the entertainment I got out of it. It satisfied an instinct to create, and took my mind for the time being off the small vexations of my regular occupation. Any kind of an innocent hobby is a good tonic. Mine brightened me up. I could read my paper with greater satisfaction, and I became more companionable to my family. No attempt was made to reduce my shopwork to any routine. One of the fine features of it was that I could go in and pound and saw to my heart's delight, or I could leave the shop alone, just as I happened to feel about the matter. There were very few days, though, that I failed to take a little of this form of rest. Seeing the improvement it made in me, my wife became a strong champion of the shop idea, though I never could secure her cooperation in the form of holding a nail for me while I wielded the hammer.

I can imagine nothing more interesting than farm work, but if you don't have some diversion always at hand to get you out of the routine your mind runs along in the same old rut. You get stale and your brain becomes cobwebby. You are happier and more capable through having a little play-spell every now and then. I would not recommend a shop to everyone. What is good for me might not be best for the other fellow, though I believe there is something universally human in the use of tools. The nub to my argument is that a hobby, or secondary interest, of some kind is an element of physical and mental health. If you do not have some ready means for taking your mind off your work, you keep thinking about the work, subconsciously or otherwise, with the result that instead of resting you are often just rusting.

When a man loses confidence in himself he makes the vote unanimous.

When You Write to Advertisers Please Mention This Paper.

"By the Way"

WINTER SUNDAYS.

Oh, there's no time like in winter
On a Sunday afternoon,
When the wind howls round the gran-
ery,

And the fields with snow are
strewn,
As the day grows grey and father
Can no longer see to read,
Then he says, "Son, poke up the fire,
Guess some corn is what we need."

So I poke and stir the embers,
And I get the popper down,
While Pa measures out the popcorn
And the folks all gather round—
So's to watch the browning kernels
Till the popping is begun,
While ma melts a dish of butter
To pour on it when it's done.

Pretty soon pop—goes a kernel
Pop—there goes another one,
Pop-pop-pop—my what a racket
Did you ever see such fun?
Till the milk pan's piled up heaping
And ma takes a lot of pains,
As she pours the melted butter
On, in winding golden lanes.

Then we all set round the kitchen
And we eat, and eat, and eat,
Oh! there's nothing up to popcorn
for a winter Sunday treat,
Especially if there's apples
And a little cider, too,
It makes the most of happiness
About anything could do.

My, it's great on winter Sundays,
When its dark and Pa can't read,
And he says, "Son, stir up the fire,
Guess some corn is what we need."
L. W. S.

DANGEROUS BEASTS.

The teacher had been telling her
class about the rhinoceros family.
"Now name some things," she said,
"that are very dangerous to get near
to, and that have horns."
"Automobiles!" promptly answered
Johnny.

THERE ARE OTHERS.

Teacher, to dull boy of the class—
"Which New England state has two
capitals?"

Boy—"New Hampshire."
Teacher—"Indeed! Name them."
Boy—"Capital N and capital H."

SO HE WAS HAPPY.

"You haven't had all that you want-
ed in life, now, have you?" asked the
pessimist.

"No," replied the optimist, "but I
haven't had all that I didn't want,
either."

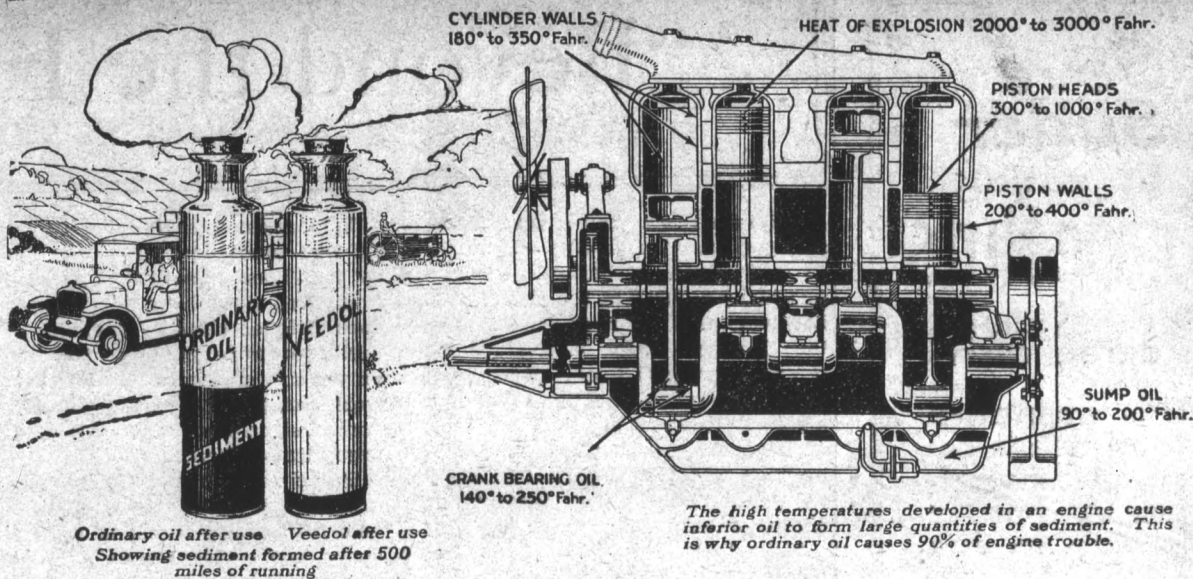
AIN'T IT THE TRUTH?

Teacher—"The sphinx has eyes but
it cannot—"

"See—" cried the children.
"Has ears but it cannot—"
"Hear—" they responded.
"Has a mouth, but cannot—"
"Eat!" said the chorus.
"Has a nose, but cannot—"
"Wipe it!" thundered the class.

TODAY'S RIDDLE

WHAT SHOULD
BE LOOKED
INTO?
(ANSWER)



Will the engine in your car run 50,000 miles?

NINE out of ten cars go
to the scrap heap
long before they reach
the limit of usefulness which
the maker built into them.
These are the cars which have
not been properly lubricated.

Experts say that an auto-
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least expensive cars, should
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will give this length of service.
How to get such life from your
engine and keep it running at
minimum cost for upkeep, is
mainly a problem of lubrication.

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—ordinary oil breaks down
quickly, forming a large pro-

portion of its bulk in black
sediment, which has no lubri-
cating value.

Sediment crowds out the
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surfaces and prevents it from
efficiently lubricating the fast
moving parts. Loose bearings
are almost always the result
of using poor oil. Engine
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rods, slapping pistons are an
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After years of experimenta-
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SIDNEY SMITH, Supt.

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more cows to freshen which means more bull calves.
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high producing stock. Buy one of these fine cal-
ves and raise a bull for next fall.
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Additional Stock Ads. on Page 137

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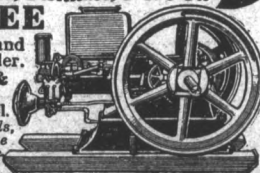
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"Beyond the Frontier"

By RANDALL PARRISH

Behind us stretched a long space of straight water, and one canoe was close, while the second was barely visible along a curve of the shore. Ahead, however, the river appeared vacant, the leading boat having vanished around a wooded bend. My eyes met those of Cassion and the sight of him instantly restored me to a recollection of my plan—nothing could be gained by open warfare. I permitted my lips to smile, and noted instantly the change of expression in his face.

"I have slept well, Monsieur," I said pleasantly, "for I was very tired."

"Tis the best way on a boat voyage," assuming his old manner, "but now the day is nearly done."

"So late as that! You will make camp soon?"

"If that be Cap Sante yonder, 'tis like we shall go ashore beyond. Ay! see the smoke spiral above the trees; a hundred rods more and we make the turn. The fellows will not be sorry, the way they ply the paddles." He leaned over and shook Chevet. "Time to rouse, Hugo, for we make camp. Bend to it, lads; there is food and a night's rest waiting you around yonder point. Dig deep, and send her along."

As we skirted the extremity of shore I saw the opening in the woods, and the gleam of a cheerful fire amid green grass. The advance canoe swung half-hidden amid the overhanging roots of a huge pine tree, and the men were busily at work ashore. To the right they were already erecting a small tent, its yellow canvas showing plainly against the leafy background of the forest. As we circled the point closely, seeking the still water, we could perceive Altudah standing alone on a flat rock, his red blanket conspicuous as he pointed out the best place for landing. As we nosed into the bank, our sharp bow was grasped by waiting Indians and drawn safely ashore. I reached my feet, stiffened, and scarcely able to move my limbs, but determined to land without the aid of Cassion whose passage forward was blocked by Chevet's huge bulk. As my weight rested on the edge of the canoe, De Artigny swung down from behind the chief, and extended his hand.

"A slight spring," he said, "and you land with dry feet; good! now let me lift you—so."

I had but the instant; I knew that, for I heard Cassion cry out something just behind me, and, surprised as I was by the sudden appearance of De Artigny, I yet realized the necessity for swift speech.

"Monsieur," I whispered. "Do not talk, but listen. You would serve me?"

"Ay!"

"Then ask nothing, and above all do not quarrel with Cassion. I will tell you everything the moment I can see you safely alone. Until then do not seek me. I have your word?"

He did not answer, for the Commissaire grasped my arm, and thrust himself between us, his action so swift that the impact of his body thrust De Artigny back a step. I saw the hand of the younger man close on the knife hilt at his belt, but was quick enough to avert the hot words burning his lips.

"A bit rough, Monsieur Cassion," I cried laughing merrily, even as I released my arm. "Why so much haste? I was near falling, and it was but courtesy which led Sieur de Artigny to extend me his hand. It does not please me for you to be ever seeking a quarrel."

There must have been that in my face which cooled him, for his hand fell, and his thin lips curled into a sarcastic smile.

"If I seemed hasty," he exclaimed, "it was more because I was blocked by that boor of a Chevet yonder, and it angered me to have this young gamecock ever at hand to push in. What think you were employed for, fellow—an esquire of dames? Was there not work enough in the camp yonder, that you must be testing your fancy graces every time a boat lands?"

There was no mild look in De Artigny's eyes as he fronted him, yet he held his temper, recalling my plea, no doubt, and I hastened to step between them, and furnish him an excuse for silence.

"Surely you do wrong to blame the young man, Monsieur, as but for his aid I would have slipped yonder. There is no cause for hard words, nor do I thank you for making me a subject for quarrel. Is it my tent they erect yonder?"

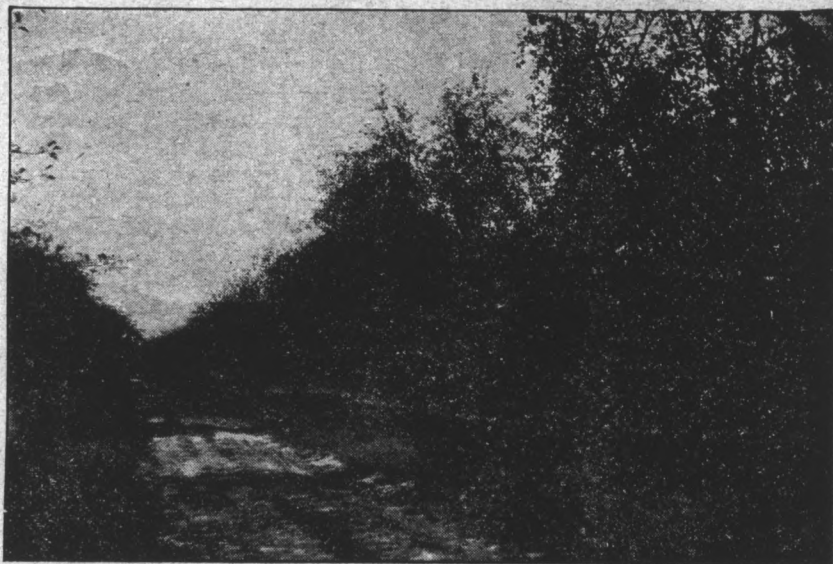
"Ay," there was little graciousness to the tone, for the man had the nature of a bully. "Twas my thought that it be brought for your use; and if Monsieur de Artigny will consent to stand

jaunty, careless figure, disappearing amid the trees, the very swing of his shoulders a challenge, nor did he so much as glance about to mark the effect of his insolent words. For the instant I believed Cassion's first thought was murder, for he gripped a pistol in his hand, and flung one foot forward, an oath sputtering between his lips. Yet the arrant coward in him conquered even that mad outburst of passion, and before I could grasp his arm in restraint, the impulse had passed, and he was staring after the slowly receding figure of De Artigny, his fingers nerveless.

"Mon Dieu—no. I'll show the pup who is the master," he muttered. "Let him disobey once, and I'll stretch his dainty form as I would an Indian cur."

"Monsieur," I said, drawing his attention to my presence. "'Tis of no interest to me, your silly quarrel with Sieur de Artigny. I am weary with the boat journey, and would rest until food is served."

"But you heard the young cockerel! What he dared say to me?"



aside, it will give me pleasure to escort you thither."

The younger man's eyes glanced from the other's face into mine, as though seeking reassurance. His hat was instantly in his hand, and he stepped backward, bowing low.

"The wish of the lady is sufficient," he said quietly, and then stood again erect, facing Cassion. "Yet," he added slowly, "I would remind Monsieur that while I serve him as a guide, it is as a volunteer, and I am also an officer of France."

"Of France? Pah! of the renegade Le Salle."

"France has no more loyal servant, Monsieur Cassion in all this western land—nor is he renegade, for he holds the Illinois at the King's command."

"Held it—yes; under Frontenac, but not now."

"We will not quarrel over words, yet not even in Quebec was it claimed that higher authority than La Barre's had led to recall. Louis had never interfered, and it is De Tonty, and not De Baugis who is in command at St. Louis by royal order. My right to respect of rank is clearer than your own, Monsieur, so I beg you curb your temper."

"You threaten me?"

"No; we who live in the wilderness do not talk, we act. I obey your orders, do your will, on this expedition, but as a man, not a slave. In all else we stand equal, and I accept insult from no living man. 'Tis well that you know this, Monsieur."

The hat was back upon his head, and he had turned away before Cassion Cassion drew aside the tent flap, and found answering speech. It was a peered within. He appeared pleased

"Surely; and were his words true?" "True! what mean you? That he would resist my authority?"

"That he held commission from the King, while your only authority was by word of the Governor? Was it not by Royal Orders that La Salle was relieved of command?"

Cassion's face exhibited embarrassment, yet he managed to laugh.

"A mere boast the boy made, yet with a grain of truth to bolster it. La Barre acted with authority, but there has not been time for his report to be passed upon by Louis. No doubt 'tis now upon the sea."

"And now for this reason to lay his cause before the King, the Sieur de la Salle, sailed for France."

"Yes, but too late; already conformation of La Barre's act is en route to New France. The crowing cockerel yonder will lose his spurs. But come, 'tis useless to stand here discussing this affair. Let me show you how well your comfort has been attended to."

I walked beside him among the trees and across the patch of grass to where the tent stood against a background of rock. The Indians and soldiers in separate groups were busied about their fires, and I could distinguish the chief, with Chevet, still beside the canoes, engaged in making them secure for the night. The evening shadows were thickening about us, and the gloom of the woods extended already across the river to the opposite shore.

De Artigny had disappeared, though I glanced about in search for him, as he had turned away before Cassion Cassion drew aside the tent flap, and found answering speech. It was a peered within. He appeared pleased

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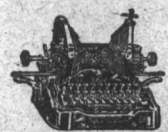
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CHICAGO FLEXIBLE SHAFT COMPANY
Dept. 127, 12th St. and Central Ave., Chicago, Ill.

at the way in which his orders had been executed.

"'Tis very neat, indeed, Monsieur," I said pleasantly, glancing inside. "I owe you my thanks."

"'Twas brought for my own use," he confessed, encouraged by my graciousness, "for as you know, I had no previous warning that you were to be of our party. Please step within."

I did so, yet turned instantly to prevent his following me. Already I had determined on my course of action, and now the time had come for me to speak him clearly; yet now that I had definite purpose in view it was no part of my game to anger the man.

"Monsieur," I said soberly, "I must beg your mercy. I am but a girl, and alone. It is true I am your wife by law, but the change has come so suddenly that I am yet dazed. Surely you cannot wish to take advantage, or make claim upon me until I can bid you welcome. I appeal to you as a gentleman."

He stared into my face, scarcely comprehending all my meaning.

"You would bar me without? You forbid me entrance?"

"Would you seek to enter against my wish?"

"But you are my wife; that you will not deny. What will be said, thought, if I seek rest elsewhere?"

"Monsieur, save for Hugo Chevet, none in this company know the story of that marriage, or why I am here. What I ask brings no stain upon you. 'Tis not that I so dislike you, Monsieur, but I am the daughter of Pierre la Chesnayne, and 'tis not in my blood to yield to force. It will be best to yield me respect and consideration."

"You threatened me yonder—before La Barre."

"I spoke wildly, in anger. That passion has passed—now I appeal to your manhood."

He glanced about, to assure himself we were alone.

"You are a sly wench," he said, laughing unpleasantly, "but it may be best that I give you your own way for this once. There is time enough in which to teach you my power. And so you shut the tent to me, fair lady, in spite of your pledge to Holy Church. Ah, well—there are nights a plenty between here and St. Ignace, and you will become lonely enough in the wilderness to welcome me. One kiss, and I leave you."

"No, Monsieur."

His eyes were ugly.

"You refuse that! Mon Dieu! Do you think I play? I will have the kiss—or more."

Furious as the man was I felt no fear of him, merely an intense disgust that his hands should touch me, an indignation that he should offer me such insult. He must have read all this in my eyes, for he made but the one move, and I flung his hand aside as easily as though it had been that of a child. I was angry, so that my lips trembled, and my face grew white, yet it was not the anger that stormed.

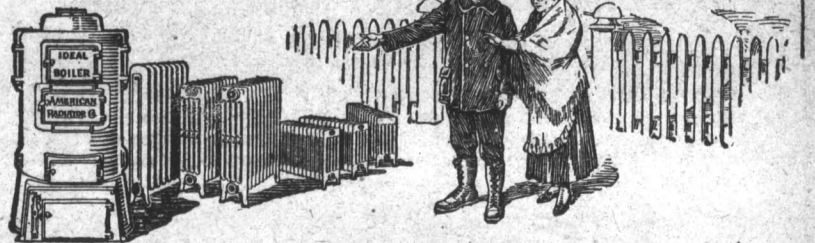
"Enough, Monsieur—go!" I said, and pointed to where the fires reddened the darkness. "Do not dare speak to me again this night."

An instant he hesitated, trying to muster courage, but the bully in him failed, and with an oath, he turned away, and vanished. It was nearly dark then, and I sat down on a blanket at the entrance, and waited, watching the figures between me and the river. I did not think he would come again, but I did not know; it would be safer if I could have word with Chevet. A



(Continued on next page).

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IDEAL Boilers will supply ample heat on one charging of coal for 8 to 24 hours, depending on severity of weather. Every ounce of fuel is made to yield utmost results.

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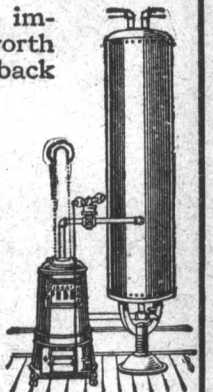
Banks will loan money to make this improvement because it is permanent, worth more than it costs and you always get back its first cost if you sell or lease, besides the big yearly savings of fuel. There is no need to burn high priced fuels in IDEAL Boilers.

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320 acres fine level dark loam with clay subsoil, flowing well, spring stream. Best dairy proposition in Gladwin Co. Two telephone lines, R. F. D. 4 miles to Gladwin. Write at once for full description. I have other small farms. U. G. REYNOLDS, owner, Gladwin, Mich.

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Big money for you in my special Farm Bargain List: Cattle, Sheep, Hogs, and farm produce was never higher and will remain so for a long time. You can pay for one of these special farm bargains quickly, as well as to make a big profit on the increase of the farm. Don't delay, come or write me at once. U. G. REYNOLDS, Gladwin, Michigan

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My 80 acre farm, good land, good buildings, good water pumped by windmill in house and barn yard. 5 miles from good markets, good roads. Sold at a bargain if bought at once. For particulars write to owner. AUGUST C. BORCK, R. 3, Reed City, Mich.

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Pedigree Trees
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Rider Agents Wanted

Wanted: Married man to take charge of farm, who understands general farming and care of cattle, hogs, sheep; farm near Baldwin, Mich. Must have references. H. W. Leverenz, 517 Mather St., Chicago.

soldier brought me food, and when he returned for the tins I made him promise to seek my uncle, and send him to me.

CHAPTER IX.

The Flames of Jealousy.

MY only faith in Hugo Chevet rested in his natural resentment of Cassion's treachery relative to my father's fortune. He would feel that he had been cheated, deceived, deprived of his rightful share of the spoils.

The man cared nothing for me, as had already been plainly demonstrated, yet, but for this conspiracy of La Barre and his Commissaire, it would have been his privilege to have handled whatever property Pierre la Chesnayne left at time of his death. He would have been the legal guardian of an heiress, instead of the provider for an unwelcomed child of poverty.

He had been tricked into marrying me to Cassion, feeling that he had thus rid himself of an incubance, and at the same time gained a friend and ally at court, and now discovered that by that act he had alienated himself from all chance of ever controlling my inheritance. The knowledge that he had thus been outwitted would rankle in the man's brain, and he was one to seek revenge. It was actuated by this thought that I had sent for him, feeling that perhaps at last we had a common cause.

Whether, or not, Cassion would take my dismissal as final I could not feel assured. No doubt he would believe my decision the outburst of a woman's mood, which he had best honor, but in full faith that a few days would bring to me a change of mind. The man was too pronounced an egotist to ever confess that he could fail in winning the heart of any girl whom he condescended to honor, and the very injury which my repulse had given to his pride would tend to increase his desire to possess me.

However little he had cared before in reality, now his interest would be aroused, and I would seem to him worthy of conquest. He would never stop after what had occurred between us until he had exhausted every power he possessed. Yet I saw nothing more of him that night, although I sat just within the flap of the tent watching the camp between me and the river. Shadowing figures glided about, revealed dimly by the fires, but none of these did I recognize as the Commissaire, nor did I hear his voice.

I had been alone for an hour, already convinced that the soldier had failed to deliver my message, when my Uncle Chevet finally emerged from the shadows, and announced his presence. He appeared a huge, shapeless figure, his very massiveness yielding me a feeling of protection, and I arose, and joined him. His greeting proved the unhappiness of his mind.

"So you sent for me—why? What has happened between you and Cassion?"

"No more than occurred between us yonder in Quebec, when I informed him that I was his wife in name only," I answered quietly. "Do you blame me now that you understand his purpose in this marriage?"

"But I don't understand. You have but aroused my suspicion. Tell me all, and if the man is a villain he shall make answer to me."

"Ay, if you imagine you have been outplayed in the game, although it is little enough you would care otherwise. Let there be no misunderstanding between us, Monsieur. You sold me to Francois Cassion because you expected to profit through his influence with La Barre. Now you learn otherwise, and the discovery has angered you. For the time being you are on my side—but for how long?"

He stared at me, his slow wits scarcely translating my words. Seemingly the man had but one idea in his thick head.

"How know you the truth of all you have said?" he asked. "Where learned you of this wealth?"

"By overhearing conversation while hidden behind a curtain in La Barre's office. He spoke freely with his aide, and later with Cassion. It was my discovery there which led to the forced marriage, and our being sent with this expedition."

"You heard alone?"

"So they thought, and naturally believed marriage would prevent my ever bearing witness against them. But I was not alone."

"Mon Dieu—Another heard?"

"Yes, the Sieur de Artigny."

Chevet grasped my arm, and in the glare of the fire I could see his excitement pictured in his face.

"Who? That lad? You were in hiding there together? And did he realize what was said?"

"That I do not know," I answered, "for we have exchanged no word since. When my presence was discovered, De Artigny escaped unseen through the open window. I need to meet him again that these matters may be explained, and that I may learn just what he overheard. It was to enlist your aid that I sent for you."

"To bring the lad here?"

"No; that could not be done without arousing the suspicion of Cassion. The two are already on the verge of a quarrel. You must find some way of drawing the Commissaire aside—not tonight, for there is plenty of time before us, and I am sure we are being watched now—and that will afford me opportunity."

"But why may I not speak to him?"

"You—" I laughed. "He would be likely to talk with you. A sweet message you sent him in Quebec."

"I was drunk, and Cassion asked it of me."

"I thought as much; the coward makes you pull his chestnuts from the fire. Do you give me the pledge?"

"Ay! although 'tis not my way to play sweet, when I should enjoy to wring the fellow's neck. What was it La Barre said?"

I hesitated a moment, doubting how much I had better tell, yet decided it would be best to intrust him with the facts, and some knowledge of what I proposed to do.

"That just before he died my father's property was restored to him by the King, but the Royal order was never recorded. It exists, but where I do not know, nor do I know as yet for what purpose it was concealed. My marriage to Cassion must have been an afterthought, for he is but a creature of La Barre's. It is through him the greater villains seek control; but, no doubt, he was a willing tool enough and expects his share."

"Why not let me choke the truth out of him then? Bah! it would be easy."

"For two reasons," I said earnestly. "First, I doubt if he knows the true conspiracy, or can lay hands on the King's restoration. Without that we have no proof of fraud. And second, coward though he may be, his very fear might yield him courage. No, Uncle Chevet, we must wait, and learn these facts through other means than force. 'Tis back in Quebec, not in this wilderness, we will find the needed proofs. What I ask of you is, pretend to know nothing; do not permit Cassion to suspicion that I have confided in you. We must encourage him to talk by saying nothing which will put him on guard."

"But he is already aware that you have learned the truth."

"Of that I am not certain. It was the conversation between La Barre and Colonel Delguard which gave me the real cue. Of this Cassion may not have heard, as he entered the room later. I intended to proceed on that theory, and win his confidence, if possible. There is a long, tiresome journey before us, and much may be accomplished before we return."

(Continued next week.)



HANDY FARM EQUIPMENT.

(Continued from page 124).

last almost indefinitely and a farmer with a fair-sized acreage can afford to own one as the yearly expense of owning such a tool can be spread over a large number of years.

Windows are often broken in the house, barn or poultry houses and if there is no glass cutter, putty, or glazier's points handy, the window may stay broken for a long time, even though there are plenty of pieces of glass on the farm that might be cut to fit the space formerly filled by the broken pane. The glass cutter and the putty knife are handy tools for the farmer and needed at the most unexpected time at any season of the year.

Both the step-ladder and the high ladder are necessary equipment that will be needed frequently. The step-ladder will be handy in picking fruit, pruning and repairing work around the house and barn. The high ladder is valuable in fire protection. If a barn catches on fire it is very handy to have a quick means of getting up on the house to protect the roof from the sparks. In case of a small chimney fire spreading to the roof of the house, the farmer with a high ladder available might be able to save his home even though the house might have burned if a trip to the neighbor's to borrow a ladder had been necessary.

The portable fire extinguishers are practical and may save much trouble due to fire on the farm. In the barn, the auto garage or in the home they can sometimes be used quickly to stop a fire that might cause serious damage to life and property. The presence of a fire extinguisher will give an added safety to many farm homes. There is a limit to the purse and the above mentioned articles are not absolutely necessary but they are a practical investment and worth all they cost to the farmer.

Ingham Co. R. G. KIRBY.

PUSH THE BUTTON AND FIND A PIG.

LITCHFIELD, (CONN.), county agent originated an interesting plan for an agricultural survey. If you want to locate a supply of seed corn or oats, a grain binder a pure bred bull or some young pigs in any community in five counties in this state, all you have to do is to walk into the office of the state librarian at Hartford, Conn., run a series of cards through an electric sorting machine, and, presto, you have the information. Five of the eight counties began surveys early in March, 1918. Forty questions, under the headings of area, crops harvested in 1917, crops planned to be harvested in 1918, live stock on hand, machinery on hand, and employees, were included in the survey, and a corps of volunteer farmer census enumerators got busy. When the survey was completed the farm bureaus had a stack of cards containing minute information as to the resources and needs of every farm. An electric sorting machine was installed in the state library, and any fact disclosed by the survey can be made available by throwing on an electric switch. The survey has been invaluable in helping Connecticut to mobilize her agricultural forces.

Keep an eye open for those fat, plump, young pigs that do not come out of their nest for exercise. They are the ones that are apt to have the thumps. Give the sow and litter free range and allow them to exercise part of their superfluous fat off and in its place put on a good growth of bone and muscle.

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The Big Profit Maker that Pays for Itself

ON MORE than 60,000 farms the Indiana Silo has already paid for itself in crops saved, in fatter cattle, in better milk, and is returning big profits to every owner, every year.

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INDIANA SILO

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Our large purchasing power enables us to supply better materials and better workmanship than can be had in silos that cost more. Ask the owners of Indiana Silos in your neighborhood. Prove to yourself that there is no silage better than that made in an Indiana. It's a big profit maker for your farm, and lasts a lifetime.

Write for our easy payment plan and descriptive catalog.

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This tractor does all kinds of farm work with the horse implements you already have and without special and expensive hitches or equipment. Weighs no more than one large horse. Replaces four horses and one man. Costs less than horses and 60 per cent less to keep going. Cuts time spent on chores. The Indiana plows, harrows, drills, cultivates, mows, pulls a binder and does belt work.

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Keep Bag Balm on hand; feed dealers and druggists sell it in liberal 60c packages.

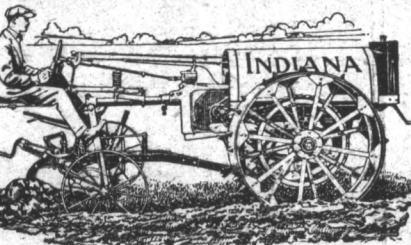
Booklet, "Dairy Wrinkles," sent free. DAIRY ASSOCIATION CO. LYNDONVILLE, VT.

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For flocks up to 300 use Stewart No. 9 Ball Bearing Machine, hand operated, \$14.00. For flocks up to 3000 use Stewart Little Wonder, two horse power engine, high tension magneto, two power shearing machines and power sharpener—\$150. For larger flocks there are as many power shearing units to operate on line shaft as needed. \$50 per machine complete. Send for catalog.

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MAN WANTED

A practical married farmer and dairyman to work a 9-acre farm close to Detroit, must be thorough and furnish references. Box J11 care of Michigan Farmer, Detroit, Mich.

Position Wanted on a well equipped stock and grain farm by young married farmer, capable of taking full charge of large farm, on present farm 8 yrs. Box P. 124, Mich. Farmer, Detroit, Mich.

Wanted. Tenant on a 210 acre stock farm in southern O. Tenant to feed all crops. STEEN FREEMAN, Wamsley, Ohio.

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Send for our booklets—they contain much valuable information.

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At Maple Avenue Stock Farm are under Government supervision. The entire herd have just been tuberculin tested and not one reactor. A good place to buy that bull you are looking for, and I have two very fine, richly bred, and splendid individuals ready for any amount of service. I want to answer any question you may ask about them.

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"Where the Champions come from"

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

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

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Cows all fresh since October save one, due this winter. All under Government supervision for control of tuberculosis. Herd located at Fabius Station near Three Rivers, Michigan.

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

Reg. Holstein Bull, three mo. old, also some females, some spring barn now good A. R. O. breeding. VERNON CLOUGH, Parma, Mich.

One 4 Year Old

Choice Reg. Guernsey Heifer, will freshen inside 60 days right in every way, \$400. J. M. WILLIAMS, North Adams, Mich.

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

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

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\$60 gets 1 mo. old gibbon of Maplecrest Korn. Heng. 26 lb. dau. of Johan. Heng. Lad. Dam is gibbon of Pontiac Maid 30.21 lb. Liberty Bonds or terms for what I have for sale. M. L. McLAULIN, Redford, Mich.

\$200 Buys 4 yr. old Reg. Holstein cow fresh July 19 1918 Due June 8 1919, grand daughter of Butter Boy Rosina & Johan. Hen-Lad. B.B. Reavy, Akron, Mich.

\$240 buys two nice high grade Holstein heifers one 2 yr. old due in Feb. and one 3 yr. old due in Mar. and one Reg. bull calf 2 months old sired by a grandson of King of the Pontiac's and the dam is a Segis cow. HENRY S. ROHLFS, R. 1, Akron, Mich.

Reg. Holstein Bull Calves dandies at \$50 reg. and del. J. ROBERT HICKS, St. Johns, Mich.



The Wildwood Jersey Farm.

Bulls for sale by Majesty's Oxford Fox 134214 and Emment Lady's Majesty 150834, and out of R. of M. Majesty dams. ALVIN BALDEN, Capac, Mich.

Maple Lane R. of M. Jersey herd. Bulls, bull calves and heifer calves sired by a nephew of the new World's Champion, Sophie's Agnes. Also R.I.R. Cockerels, both combs. Irwin Fox, Allegan, Mich.

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

Additional Stock Ads on Page 149



Woman and Her Needs

At Home and Elsewhere



Fill Idle Minds and Hands

SATAN finds some mischief still for idle hands to do," was the maxim which an old Scotch school master used to hurl at our heads. Viewed with the judgment of maturer years I've wondered much why he didn't mull it over to himself, and visit our homes to impress it on our parents. For if anyone needed the saying it was not the youngsters who got into the mischief, but the adults who failed to provide proper fun and interesting work for the active children committed to their care.

Children naturally must be busy. So well accepted is this fact that when a child sits down quietly we instantly decide he must be sick. And yet we fail to make provision for this immutable law of child nature. The baby from the time he creeps until he passes out of babyhood is the most striking illustration. We say every day, "Wouldn't you think he would get tired and want to sit down and rest?" But he never seems to. All day long he trots about investigating, and mothers, recognizing the principle of keeping him out of mischief by keeping him interested, coax him from the things he shouldn't do with a promise of a different amusement or a new toy.

The very young child is provided for, possibly because it takes so little to amuse him. A string of spools or buttons, a box of clothes pins, a spoon and a sand pile, a ball made out of twine, these will furnish the young child amusement. But when he grows older, passes into school days, learns to read and to play with his fellows, we lose sight of the basic principle that he must be kept always busy unless he is to get into mischief, and then mischief is indeed begun.

The Children's Bureau of the United States Department of Labor has published some interesting findings on the effect of this lack of supervision. Out of one hundred and eighty-five chil-

dren who were guilty of delinquency, only about thirteen were mentally deficient, it was found that these normally bright children were led into trouble because of "lack of opportunity for moral and mental training, for recrea-

Wholesome recreation suitably supervised is the crying need of young folks, especially in the country and small towns. The young folks of cities fare better in this respect than country children, in spite of the advantage of

Y. M. C. A., with its swimming pool, basket ball, indoor base ball and game tables. Libraries offer books and story telling hours, and churches keep open house with their gymnasiums.

Wholesome recreation is thus provided for the city child, and in addition night schools in winter and vacation schools in summer offer a "variety of interesting occupations with a promising future." The boy and girl are given every opportunity to make the most of life so far as schools can help them. And best of all, they are supervised. Instead of being left to grope in the dark, their efforts are directed by the teachers.

Public playgrounds, gymnasiums, swimming pools and skating ponds are still in the future for most rural children. But conscientious parents can supply their place if they make the effort. When you give the order for concrete pens for your porkers and watering troughs for your stock, go a step farther and order a swimming pool for your children. Children, rightly handled, are a more paying investment than live stock. Fit up the parlor or the "spare" bed room for a gymnasium. A punching bag, horizontal bars, and boxing gloves cost but little and pay for themselves a hundred-fold if they help keep the boys at home and out of mischief. Plan for games for long winter evenings. If you are opposed to playing cards there are dominoes, checkers and chess, finch and a dozen other games.

Recognize the fact that the child must be amused. He must have fun and he is going to get it some way, if not in a lawful way under your eyes, then unlawfully. Keep him interested in work or play. But above all, keep your eye on him. Not oppressively, of course. Don't snoop nor spy but just the same, know what your boy and girl are doing and who are their friends and playmates.

DERORAH.

LOVE'S LABOR

By Lydia M. Thornton

What have I done today, now let me think,
I haven't read the book I should have read;
I didn't make that call on Mrs. Brink,
Nor spend the youth-restoring hour in bed.
Nor massage out the wrinkle in my cheek,
I didn't bake the fruit-cake, but may-be
I wrought as well—I sung my son to sleep,
Close cuddled and content upon my knee.

What have I done today, I missed the Guild
And quite forgot my shopping trip to town;
My music rack with treasure amply filled,
I left the cover of my organ down.
I didn't sew the new flower on my hat,
But son and I played marbles on the floor,
And there was virtue quite as much in that
Perchance than though I had accomplished more.

What have I done today, now let me see,
I've put the paltry things from out my soul,
I've mothered Laddie and he's played with me
And we've been happy; making that my goal.
I've learned why God, creating human kind
Made Mothers to be guarded safe from harms,
To train a baby's active, eager mind,
To hold a little lad in loving arms.

tion, and lack of variety of interesting occupations with promising futures."

Few normally bright children deliberately go wrong. Idleness is one contributing factor. They have nothing to do and as a result drift into mischief, not malicious mischief at first, but idle mischief which little by little leads to deliberate wrong doing, destruction of property or perhaps theft.

outdoors. For what is the use of the outdoors if there is nothing to do, except to work, from a child's point of view? Cities have their public playgrounds with swimming pools, swings, sand piles, May-poles, base ball diamonds, tennis courts, everything for wholesome sports, with the added advantage of a supervisor. In winter there are the skating ponds and the

A New Knitting Pattern

WHEN the grim necessity of "war knitting" is over, women who have learned the art will turn it to account in the making of useful articles, and new patterns will be in constant demand.

This design was originally used in a knitted shawl, but it can be adapted to a variety of uses. It would make an excellent scarf or a sweater like young girls are wearing. One advantage of this design is that any novice knowing the knit and purl stitches can make it by following the simple directions, which are as follows:

Cast on any number of stitches divisible by nine. First Row: Knit 8, purl 1 all the way across.

Second Row: Knit

2, purl 7 all the way across.

Third Row: Knit 6, purl 3.

Fourth Row: Knit 4, purl 5.

Fifth Row: Knit 4, purl 5.

Sixth Row: Knit 6, purl 3.

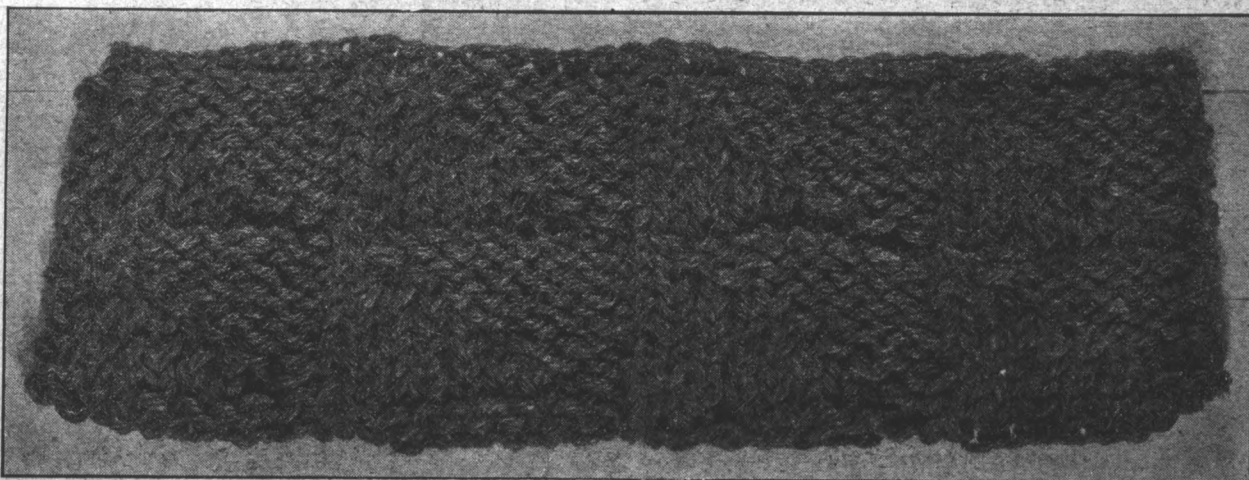
Seventh Row: Knit 2, purl 7.

Eighth Row: Knit 8, purl 1.

It will be noticed the number of purl stitches is always odd, and the number of knit stitches always even. For a baby carriage robe, nothing could be prettier than this design in white Germantown zephyr, with white or colored crocheted border.

Knitted Shawl.

The shawl mentioned above was made of dark red Germantown zephyr yarn done on medium-sized wooden needles. As the pattern calls for groups of nine stitches, the number cast on—or "set up" which is the modern term—must be divisible by nine. A good number is 162, making eighteen blocks of the pattern. A beautiful shawl may be made by turning the tenth block so that it forms a half square down the center of the shawl. To make this, have an even number of groups of nine, say eighteen groups or 162 stitches. The box plait or half square however, requires but seventeen stitches instead of eighteen, so there



A New Pattern for Young Girl's Sweater or Baby Carriage Robe.

would be only 161 stitches required. The making of the box plait also reverses the work, so that instead of all the rows beginning with the knit stitches, alternate rows begin with purl. Furthermore, while all squares have an even number of knit and an odd number of purl stitches, the alternate rows of knit and purl in the center of the box plait all have odd numbers of stitches.

The directions for the work with box plait using 161 stitches for a basis—the worker reducing or adding to the number by simply making the middle stitch of the work the center of the plaits—are as follows:

Knit 8, purl 1 all the way across. (Tie a white thread to the middle stitch, the 81st, so it will not be necessary to count stitches on the next row). This row will end with eight knit stitches.

Second Row: Purl 7, knit 2. At the center knit 3 instead of 2, one on each side of center stitch.

Third Row: Knit 6, purl 3; purl 5 at center.

Fourth Row: Purl 5 knit 4; knit 7 at center.

Fifth Row: Knit 4, purl 5; purl 9 at center.

Sixth Row: Purl 3, knit 6; purl 11 at center.

Seventh Row: Knit 2, purl 7; knit 13 at center.

Eighth Row: Purl 1, knit 8; at center knit 15. This finishes the pattern.

MRS. HELEN COOMBS.

HOW TO REST.

BY JULIA R. DAVIS.

SO often when we lie down for a short rest, we find ourselves unable to let go for the time being, the tired strain on nerve and muscle. We are so used up by a hard day's work, or from some deep mental effort, or haunting anxiety, that we can not get rid of the nerve and brain tension.

The following remedy is a blend of will power, and imagination. It was recommended to me several years ago by one who had found it a cure for tired nerves, and I also have tested its power to soothe.

When very tired lay down with closed eyes, and let yourself hold but one thought—think of nothing but the passing of a gentle, imaginary hand very softly, over your forehead, firmly and tenderly smoothing out the weary lines. You will feel them yielding, almost unconsciously, to the restful influence. The brain knots will relax, and in a short time you will lose your strained feeling entirely.

Even though the actual sleep thus won may have lasted only a few minutes, you will rise far better able to take up work and go on with it in a clear headed fashion.

GOVERNMENT SHOULD PROVIDE CARE FOR MOTHERS.

THE failure of the United States to provide adequate care for mothers before and at the birth of their children and the great loss of maternal and infant life which results, are cited by Miss Julia C. Lathrop, in her sixth annual report as Chief of the Children's Bureau of the United States Department of Labor as evidence that the United States should develop on a national scale facilities for protecting maternity and infancy and thereby for cutting down the maternal and infant death rates. The English government in August, 1918, passed a measure extending local provision for the care of mothers with government aid. New Zealand has for several years provided special facilities for mothers and has reduced its infant mortality rate from 88.8 in 1907 to 48.2 in 1917—a rate less than half that of the United States. The Bureau's studies show that adequate care before and at childbirth is now available for mothers,

whether in city or country. The seriousness of these conditions is emphasized by the fact that in 1915, for instance, more than two-fifths of the infant deaths occurring in the birth registration area of the United States Census Bureau were from diseases directly traceable to the care and condition of the mother during pregnancy and confinement.

BULBS FAIL TO FLOWER IN HIGH TEMPERATURES.

Too high temperature is responsible for the "blasting" of buds of such plants as the Chinese sacred lily, paper white narcissus, and hyacinth.

The serious mistake in bulb culture is to set the bulbs in the warmest and sunniest location in the house. This is entirely wrong treatment, for it encourages rapid growth, resulting in abundant foliage and no flowers.

The bulbs should be set away in a cool, dark place until they have developed a goodly supply of roots. If top growth starts somewhat and is white, the bulb enthusiast need not be alarmed, for the shoots will turn green after being brought to the light.

From four to six weeks, depending on the bulbs and conditions of growth, will be required to develop the desired root system. Even when the roots are developed and the bulbs are brought to the light, they should not be subjected to too high temperatures, as this is the cause of "blasting" of buds. In no case should the temperature exceed seventy degrees, and sixty degrees is preferred.

LETTER BOX.

Household Editor:—I have been a silent reader of the Michigan Farmer for a long time. I know how to sympathize a little with Deborah. Her theory is all right, but she misjudges us more calm women. I, for one, practice calmness. I try to be civil to everyone. We have a right to choose our friends. There come times in all our lives when we have to confide in someone, and it is much more so with women.

We pass through the most important epochs of our lives before we learn what we should have known years ago.

I have six daughters and they are being taught more in their schools now days in one year than I used to get in two years. Maybe some will call it cramming, but I think most of it will stick by them.

Now, about women working out of doors. I was visiting with a neighbor the other day, and our conversation naturally led to women working out of doors. I think it is a great privilege to be able to work out in the field. The neighbor was afraid people would make remarks. I told my neighbor that only ignorant people would make sarcastic remarks about a woman working out doors. Anyway, it's honest work. I enjoy working with a team. I was always my father's "boy." He brought me up to work with him, I had three sisters to take my place in the house. The hardest years of my life have been those when I had to stay in the house with my babies.

I cannot quote Emerson, but I can say:

"To love and labor is the sum of living."—Daisy McKnight.

Instead of scouring knives, forks, and spoons with a silver polish, fill a dish pan half full of sour milk or buttermilk, set the silver in it over night and wipe dry in the morning. It will be as bright as though hours had been spent over the work.—L. M. T.

Keep a flashlight in the dresser drawer and when it is necessary to have a light in a closet use it instead of a lamp or candle. This is one of the worth-while fire prevention hints.—L. M. T.,



Born Cooks and Others

The woman on the farm, though she may be a born cook and a peerless housekeeper, is sometimes handicapped by a lack of information concerning certain new methods that have been adopted in the cities.

To some extent this has been true in the case of Jell-O, which in the cities has for several years been the most popular preparation for desserts and salads.

As rapidly as possible steps have been taken to spread among all women complete knowledge of the subject.

In Domestic Science and Home Economics classes in city and country, trained women have demonstrated the simple and economical Jell-O way, and recipe books have been distributed with care and thoroughness. As Jell-O is now sold in practically every general store in the country, farmers' wives are enabled to share the privilege enjoyed by their city sisters.

The Jell-O Book, containing recipes for all kinds of plain and elaborate desserts and salads, and explaining the easiest and cheapest way to make them, will be sent free to every woman who writes and asks us for it. It is a book which every housewife in America should possess.

Jell-O is put up in six pure fruit flavors: Strawberry, Raspberry, Lemon, Orange, Cherry, Chocolate. Each 13 cents or two packages for 25 cents.

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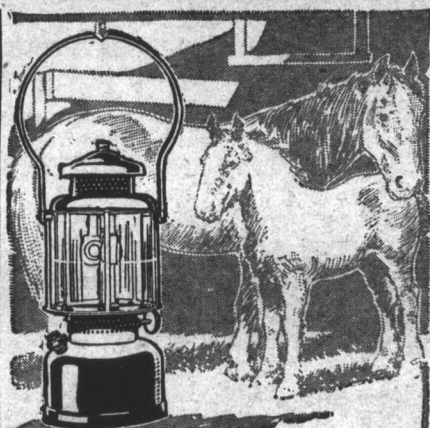
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Canned Rabbit

HUSBAND is a great hunter and in the winter we sometimes get tired of eating rabbit, but with the present high prices of meat, I am canning them and when summer comes there will be some quickly gotten and greatly relished meals at our house.

When husband brings in a big bag of rabbits I sort them and put the old ones in one pile and the young ones in another, keeping them separate when dressed. The young ones are cut up as for frying, well washed and drained dry. They are packed in well sterilized quart cans with new covers and rubbers, filling the cans with meat up to the shoulder and putting one heaping teaspoon of salt, a little dash of pepper and a tablespoon of grease or lard on top. See that the can is not too full, or juice will run over and waste.

Put cans in boiler or large kettle with rack in the bottom, fill up to covers with cold water, bring to a boil and boil hard for three hours, filling in boiling water as fast as it boils away. Invert cans only long enough to see that they do not leak and turn right side up to cool, so that grease will be on top when cooled.

Cut up the old rabbits in the same manner, removing every bit of fat, cover with cold water, bring to a boil, add a pinch of soda, boil a minute more and drain, rinsing well with hot water. Remove to stove, add a couple of slices

of salt pork diced fine, cover with boiling water, cook till water boils off and fry a light brown, seasoning to taste. Now pack in sterilized cans, add water to cooking dish as if to make gravy, using only enough to cover the meat in cans. Fill up cans and boil in water as described for young rabbits, boiling hard for two hours.

When cans are opened have them well warmed and the meat will come out easily, staying in nice whole pieces if carefully removed with a spoon. Brown quickly in frying pan, make gravy and serve. If liked smothered in onions, fry the onions while meat heats in oven, put together and serve.

The fried canned rabbit is also good served with cooked rice in piles on the platter with the meat, the whole being covered with the browned gravy. It may also be used for hash or meat loaf just the same as beef. Chopped with a little onion or pickle and wet with salad mustard or salad dressing, it makes good sandwich filling.

"Rabbit biscuit," as the children call them, are made by rolling up pieces of the meat in biscuit dough about the size of ordinary biscuit. Stand on end in a deep covered baking dish, pour the well-seasoned juice around the biscuit, adding a tablespoon of tomato catsup to juice, and sprinkle in a little flour. Bake till biscuit are well done, about thirty minutes, basting often; serve piping hot.—Mrs. M. Kennedy.

A Power Ironing Machine

WHILE you are fitting up your home with modern labor-saving machinery these days, why not consider installing an ironing machine? Most housekeepers would rather wash than iron. With modern methods of washing—soap powders, hot water systems, stationary tubs and naphtha soaps—washing has been robbed of most of its hard work. But ironing day, even with electric, gas, or gasoline irons means hours of standing before an ironing board and close attention to details if we are to have nice work. It means a steady pressure to insure smooth table linen, with consequent expenditure of muscle. Most housekeepers have some kind of washing machine, if not a power washer, at least a hand machine which small boys may be set to working. But few have an ironing machine of any sort, not even a small hand mangle.

The ironing machine is as simple to operate as the power washer, and it saves as much work. For, while fine waists and stiffly starched shirts can not be done with it, practically everything else may be ironed with the ironer in about a fifth of the time required to do it by hand. Understand, this is a hot ironing machine, not the cold mangle which irons only towels, sheets and other bits of "flat" work. With the hot ironer you can iron your table linen, cloths, napkins and dollies, and give them as good a gloss as with the hand iron. Aprons, nightgowns, pajamas, children's play clothes, men's soft shirts, handkerchiefs, dresser scarfs, curtains and bedding may be done easily and well. Men's trousers may also be pressed with the ironer.

The machine is simple of construction and easy of operation. The ideal one, of course, is heated with gas or electricity and driven by an electric motor. But if you have no electricity the power machine may be driven from a line shaft. If you have neither electricity nor gas engine, there is a hand-power machine to be bought, which runs easily enough for a child to turn the roller while the mother feeds the garments into the machine. This sort of ironer would very much simplify the work on ironing day. If you already have a washing machine with an electric motor, your ironer results

may be attached to the same motor. In addition to saving you labor and time—it is estimated that the ironer will do in one hour work that would take five hours to do by hand—the ironer saves money in operating. It is claimed that an average ironing costs about thirty cents for fuel, if either coal or electricity are used, while by using an ironer, which does the work

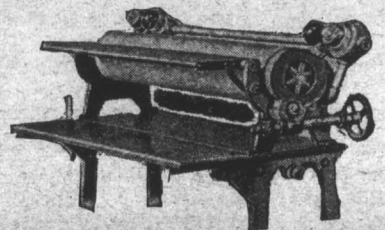
in so much less time, only about five cents worth of fuel is burned.

Do not expect the machine to perform miracles, however. It will pay for itself in time, strength and money saved, but it will not do everything. You can not expect to put in fine, lace trimmed organdie frocks and dainty waists and lingerie and have them come out ironed as an expert hand laundress would do. But for the articles mentioned, the ironer does fine work, leaving the worker fresh to do the fine pieces.

HOME QUERIES.

Household Editor:—Can you please give me a recipe for trying out beef tallow so it is good for shortening? Do you have to mix it with lard?—Mrs. R. G.

Beef suet should be cut up in small pieces and tried out like leaf lard. It is better if cooked in a double boiler with about a pint of water added while cooking. When all the fat is cooked out, pour off into a crock, allow it to cool, then pierce the fat which has hardened on top and pour off the water. Suet should be softened if it is to be used for shortening by adding either some lard or a small quantity of any of the corn oils or vegetable oils on the market. About one-fourth pound of leaf lard to every three-fourths pound of suet is a good proportion, and one cup of oil to every three of melted suet should give very good results.



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Write for Catalogue

One of my neighbors got a can of milk back from the creamery because it was spoiled. He had a milking machine and I believe the reason the milk spoiled was because the tubes were not kept clean. One thing is sure, the tubes must be thoroughly cleansed every time they are used. A few minutes will do it and save several dollars worth of milk. The can that man lost was worth at least three dollars.

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KEITH BROS. NURSERY

BOX 402, SAWYER, MICH.

GETTING READY FOR ALFALFA.

(Continued from page 130).
tive freedom from weeds and annual grasses. Then, too, a better seed bed can be established and frequently the land can be profitably utilized for the growing of some early maturing crop. If sown early in August the plant will make a vigorous growth before winter sets in, thus assuring an early and vigorous start in the spring, and in this way subduing the weeds. In fact, the alfalfa sown along in August will produce as much forage the following season as that sown earlier. If the seeding is done in the spring a nurse crop should be employed to keep down the growth of rank weeds and grasses, but when seeded in alfalfa needs the moisture, plant food and sun. If the land is foul with weeds they should be destroyed before the field is seeded.

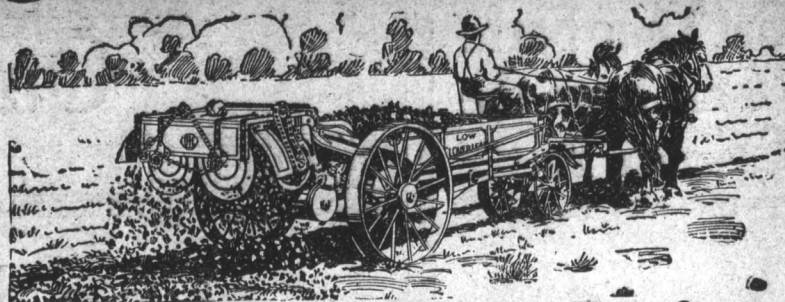
Frequent failures with alfalfa are due to the use of poor seed. Many farmers who have met every other requirement necessary to succeed with alfalfa have failed because their seed was of inferior quality. Unless a man is sure that his seed is pure and free from dodder and other weed pests he should send a sample to his experiment station for analysis. This is always the best plan, for there is no uncertainty. No matter how good the soil or how well the conditions necessary to insure success have been met, the greatest success can not be gained without pure seed that possess strong germinating qualities. If possible it is always better to buy seed that has been grown in the same latitude or at least seed that comes from as far north as the latitude in which it is to be planted. It is rather of a risky undertaking to attempt to grow varieties of alfalfa that are adapted to a mild climate in a locality where the winters are cold and rigorous.

If the field becomes infested with weeds and grasses it is frequently necessary to hold these unwelcome guests in control until the stand thickens and takes full possession of the ground. The best implement to cultivate the alfalfa plants with is a spring-tooth harrow but the efficiency of the implement is greatly increased if the teeth are made about three-fourths of an inch wide at the points and round instead of sharp. Then by trimming off the edges for several inches back the points of the teeth will slip around the plants and cause them to escape injury. This simple implement will remove the grasses and weeds and give the alfalfa plants an opportunity to expand and gain full possession of the ground. Several prominent growers report excellent results from the use of this implement after trying various disk and cutaway harrows with rather discouraging results. The work with the spring-tooth harrow is not heavy. A good team will handle it with comparative ease. The second time across the field will give the weeds a thorough disturbing and create ideal surface conditions for the plants to crowd out the noxious weeds and undesirable grasses.

L. J. MEREDITH.

KEEP TUBES CLEAN.

One of my neighbors got a can of milk back from the creamery because it was spoiled. He had a milking machine and I believe the reason the milk spoiled was because the tubes were not kept clean. One thing is sure, the tubes must be thoroughly cleansed every time they are used. A few minutes will do it and save several dollars worth of milk. The can that man lost was worth at least three dollars.



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

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Tillage Implements	Planting and Seeding Machines	Other Farm Equipment	
Disk Harrows Cultivators Tractor Harrows Spring-Tooth Harrows Frog-Tooth Harrows Orchard Harrows	Corn Planters Corn Drills Grain Drills Broadcast Seeders Alfalfa & Grass Seed Drills Fertilizer & Lime Sowers	Manure Spreaders Straw Spreading Attach. Farm Wagons Farm Trucks Stalk Cutters Knife Grinders Tractor Hitches Binder Twine	

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POULTRY

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Additional Poultry Ads. on Page 148

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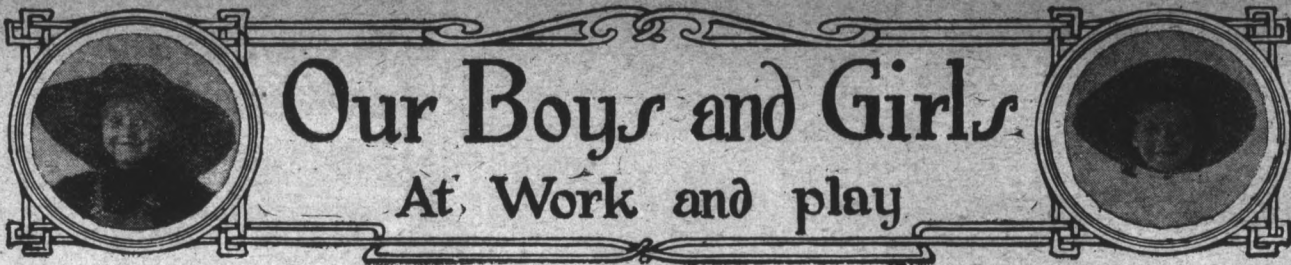
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The Boy's Farm Den

By E. L. Vincent

MOST of the articles I have read about the room which the boy on the farm occupies, have come from the standpoint of the woman, and as such, have been more or less shaded by the woman's desire to have things always just so—everything in apple pie order. Now, we all know that no live boy can always keep his room sleek and clean. He wants to move around, to use the things that are in his room, and have a good time. So at the risk of saying some things which the women folks may be somewhat opposed to, let me give my idea of what a real, up-to-date boy's room on the farm ought to be.

In the first place, it should be comfortable. You shut a boy up in a room that is dark and uncomfortable, and he will either climb out of the window and take to his heels or else he will make such a fuss that something will be done to fix that room over. So begin by making his room bright with windows, cheery paper on the walls, a few nice pictures, and a pretty carpet on the floor. Put some shades up at the windows that can be raised and lowered without coming down every time they are touched, and inside of the shades put some nice curtains, with hooks and loops to hold them back when more light is needed. The boys like plenty of sunshine.

Next, put a table in the room, with a neat cloth over it, and don't, for pity's sake, be shocked into displaying bad temper if some day you drop in and find the boy sitting with his feet on the top of the table. Never mind; he will not spoil the cloth. If you look, you will find he has a paper or something of that kind on the cloth and under his heels. To go with the table, let there be a number of chairs, one of them a good easy rocker. And see to it that those chairs have good stout bottoms. Chairs sometimes come to bear the print of a boy's shoes. But what are chairs made for but to be used? In a corner of the room where the light will be good, place a bureau with plenty of drawers. There should be a big glass in the top. At the side of the room there ought to be a bookcase. Help your boy to get the lumber, furnish him with the tools and he will make this himself. Give your boy as good a bed as there is in the house. He gets tired every day and is worthy of a good place to sleep. Do not worry if the spread gets soiled sometimes. How can it be helped? Boys have to sit somewhere.

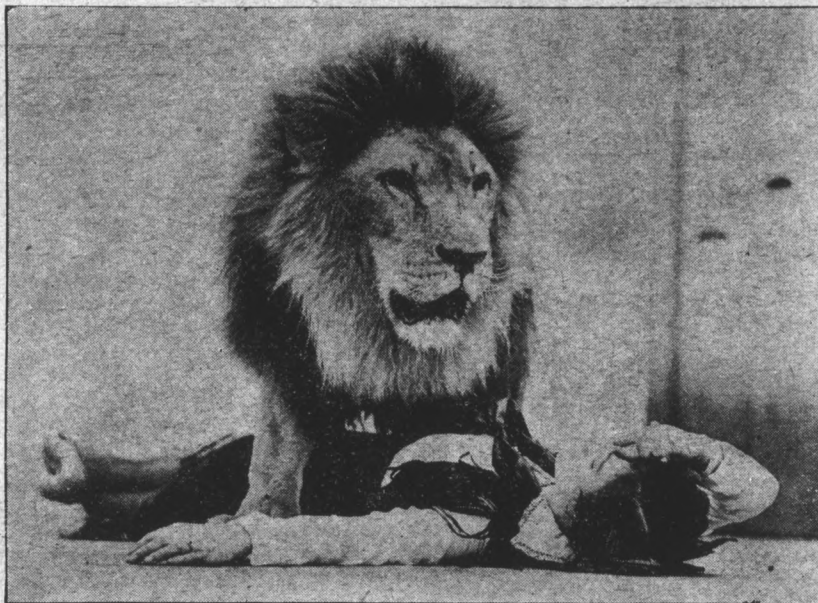
Furnish the boy's table with pen, ink and paper. He will want to do some writing now and then. By the time he is around fourteen he will thank you if you give him a nice diary for a birthday or Christmas present. On the shelf under the table there is room for the boy's favorite magazine. There may be other papers in the home, but he will be glad to have one that is his very own. Before you put a book on the shelf in the boy's room, know what that book teaches. It may take a little time to do that, but you would look pretty carefully that he did not get poison from a bottle, and why not use the same precaution as to poison from books? Then, too, there ought to be another set of shelves on which your boy may place the odd things he picks up about the farm, pretty stones, deer horns, big hornet's nests and all sorts

of interesting trinkets. Some day he will have a good camera and that may have a place on these shelves.

Finally, visit the boy in his room often. I know a mother who went upstairs with her boy every single night until he was nearly a man grown. There she and her boy had many a heart to heart talk before the good-night kiss, and I am quite sure he will

never forget it as long as he lives.

It costs to do these things, and it costs to keep the room neat and attractive, but it certainly costs more not to do it. You are a good mother, and you want your boy to look back to that nice room away back on the farm, as the best spot on earth, the spot to which he would like to come back once more, even when his head is white with time's wintry snows. A boy's room has much to do with his character.



A REAL LIVE "KING OF THE JUNGLE" TRAINED AS MOVIE ACTOR.

The savage lion about to sink his fangs into his "fair victim" which he has just "slain." The photograph was taken during a rehearsal of a moving picture which may be entitled "Love in the Jungle." Mlle. Ottawa is the

fair "victim." She is an animal trainer and is assisting Capt. Jack Bonavista in training this lion and other animals to act for the movies at Bostock's Wild Animal Arena at Luna Park, Coney Island.

Club Notes

THE following statements, selected at random from reports filed with the State Leader of Boys' and Girls' Club Work, indicate that gardening conducted on the club basis has been highly satisfactory in the cities of Michigan during the past year.

One hundred and one club members produced \$1,113 worth of food stuffs. East Lansing boys and girls found gardening profitable on plots from 375 to 2,500 square feet in area. Net profits varied from \$2.00 to \$30.

The board of education of Escanaba cooperated with the Department of Agriculture in promoting gardening for children. Two hundred and ninety-seven boys and girls produced \$2,208 worth of garden produce. Mr. R. E. McLean furnished plowed lots to club members who were unable to procure plots at home. Banks of the city awarded each finisher a bank book and a \$1.00 deposit. Banks in many other cities did the same.

Theodore Terpstra won the distinction of city champion gardener of Grand Rapids. On a garden twenty by thirty feet he produced \$110.72 worth of material. By practicing succession of plantings he raised four crops on one space.

Out of one hundred and eight members enrolled in the city of Marshall, one hundred and three completed their projects.

The total net profit of 1,500 club members in Lansing was \$14,490.

One thousand four hundred and twenty-four club members in Saginaw contributed their share in "Winning the War."

Ypsilanti, with its five clubs, made an excellent showing.

Tecumseh returns sixty-two finishers out of eighty enrolled.

Grand Marais reports \$300 worth of garden produce raised.

Boys' and Girls' Club members in Hillsdale added \$2,585 to the wealth of the county this past year. Ray Redman won the county gardening championship for the third consecutive time. He won fourth place in the state last year.

Kalamazoo clubs raised and used at home \$1,460 worth of food stuffs.

Alma club members practiced food conservation to the extent of canning 4,200 jars of vegetables and greens raised in their gardens.

Muskegon reports 656 members in garden clubs, \$2,600 worth of produce raised and 2,500 jars canned.

Leslie clubs plan to continue their work this coming year.

Club members in Big Rapids not only found it profitable to garden, but say that "the biggest returns came because the club worked together as a whole."

Grand Rapids has completed three years of gardening on the club basis.

From nineteen active garden clubs in 1916 the number increased to forty-eight in 1918.

Effie Dykehouse, of Kalamazoo with a most remarkable record, illustrates that girls may rival boys as successful gardeners.

Mr. A. G. Kettunen has joined the state staff as Assistant State Club

Leader. Mr. Kettunen is a graduate of M. A. C., was formerly county club leader in Marquette county and last year acted as Emergency Assistant State Club Leader.

Miss Eva Duthie has left the state staff to enter Columbia University. Miss Duthie has had charge of recreational activities.

Fifty Mice for a Circus Ticket

WHEN I was a boy on the farm my father lived in the old, old house that his grandfather had built many years before. There were huge hand-hewn rafters and timbers, darkened and stained by time, and the mice were plentiful in the old house. And now let me tell you how I earned my ticket to the circus.

One day father said: "George, if you will catch fifty mice before the next circus comes to town, you shall go to the circus."

Hurrah! didn't I get busy. Fifty poor little mice might as well have made their wills that day for it was a foregone conclusion that I was going to that circus. Wire traps and wooden traps, spring traps and deadfalls; traps in the garret and pantry and cellar.

I tried my best to sleep with one ear open, and the sound of a trap as it sprung and ended the career of some luckless mouse, was sweetest music to my ears. My dear father would sometimes get up in the middle of the night to take mice from the trap for me—you see I would occasionally forget to sleep with one ear open. Not many years had passed since my father was a boy, and since his heart had beat faster at the thought of all the wonders of the circus—animals, clowns, etc.—and he was interested in the outcome.

Ten, twenty, thirty, forty mice were numbered with the slain. But now they were becoming wary, traps must be set with greater care lest they take the bait and fail to spring the traps

and the circus be nothing but a vanishing dream. Did I ever count ten so slowly? One, two, three, four; little by little the number grew. At last the count was full and my reward assured.

Then came the morning when some miracle must have been wrought for I rose before the sun without being called, and hastened down to the old turnpike to see the long procession wind past. The huge elephant and the camels came first, then the heavy wagons with their mysterious contents. Here and there a smothered roar in the depths of some cage made my heart beat faster at the thought that later in the day my mice-earned ticket would open to me a land of wonders, a world of savage beasts, and clowns, trapeze performers, etc.

Back home I hurried and prepared for the journey to the city. My, how I enjoyed that circus after working so hard for my admission. Somehow, father seemed to enjoy it almost as much as I did for, he seemed to renew his youth as we took in all the wonders of the great show—elephants, lions, tigers, rhinoceros, giraffe, five-legged calf, giants and dwarfs, what a fairy land of mystery and romance was opened to my eager feet and eyes that wonderful day.

Only the other day it was circus day and I was reminded of my youth as I heard a young hopeful say to another, with great emphasis, "No, sir, I'm not afraid of Indians. Only things I'm afraid of are elephants, tigers, and those big, fat horses that they have on the circus wagons."—G. W. TUTTLE.

Grow Cayenne Peppers

CAYENNE peppers, or all hot varieties, have considerable value outside the use we make of them in pickles and catsups. They are as greatly relished by poultry as by people, and here they are apt to do the most good. If they will build up the appetite of an old hen until she wants to beat the pullets laying we are the gainers, and the pullet will get an incentive to greater eating and thus greater laying also.

Peppers have to be started early in the spring to get the best results so we must start the plants either in boxes in the house or in hot-beds. The little plants grow slowly, so they can be started in boxes of good mellow soil very nicely. They need more heat than tomatoes to do their best growing, though they will come along slowly when grown cooler, and will make very good plants, well hardened.

The large cayenne is a good bearer, but the small pointed peppers used for pepper sauce can be used for more purposes about the house, and are just as good for any purpose. They bear enormous numbers of bright red peppers standing straight up, and the heat is all there. They self-sow quite often and you will have a lot of little plants that come up later if your supply from early planted seeds fail you.

Hens should not be fed peppers too freely, for they are very stimulating and with them, as with people, the taste for them may cause a lack of desire for food not so highly seasoned. I liked to cook the peppers in the mash or cooked vegetables and grains. Cooking the oats with a pepper or two cut up in fine pieces, and with a sprinkling of salt, will make a meal that the hens will eat up and call for more, and be

willing to shell out the eggs to pay for.

Peppers like rich soil, and hen manure is a good fertilizer to use for them. They like a warm soil, too, so a sandy location will be better than a heavy clay soil. A mellow sandy soil with plenty of manure and decaying vegetable fiber will send them along rapidly.

L. H. COBB.

KEEPING THE BOY ON THE FARM.

(Continued from page 125).

youth in the rut of ages, so long will he be warring against the instincts of nature and is bound to fail, but when he is willing to experiment, to venture out, to give the boy a chance on some problem that promises remuneration for effort, as soon as he can reduce his farming operations to a really successful business basis, then the "boy on the farm" problem will be solved and as many of the boys as should remain on the farm will be found there; for as a matter of fact, we do not want all of the boys to remain there, some of them being by nature better fitted for other callings and needed in other industries; for in spite of the seeming educational advantage possessed by the city boy it is a fact that the rural youth as a rule will outclass his city cousin in any trade or profession, even the merchant preferring a green country boy as a clerk, as against the best that the city affords. A merchant told me this less than a week ago.

The great men in all industries have largely been farm boys, and we do not want to keep all boys on the farm, but we do want to correct a condition that exists in some parts of the state where there are not enough of the younger generation left to till the soil.

This year demands the biggest crops in history



Every patriotic farmer, every loyal gardener must use supremest effort to produce the needed food. Triple your acreage—it takes no more time or labor to sow and cultivate it with Planet Jrs. than your usual acreage with ordinary tools, for Planet Jr. Tools are scientifically constructed and enable you to do the work easier, quicker, and more thoroughly.

Planet Jr.

No. 4

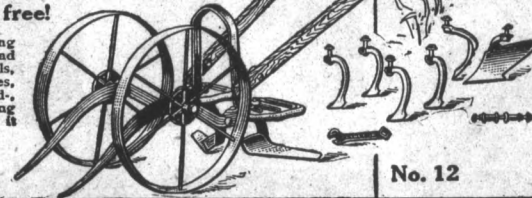
No. 4 Planet Jr. Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow

is a special favorite, and there are more of them in use throughout the world than any other seeder made. Opens the furrow, sows all garden seeds (in hills or drills), covers, rolls down and marks the next row all at one operation. Hoes, plows, and cultivates all through the season. A hand machine that will pay for itself in time, labor and seed saved in a single season.

No. 12 Planet Jr. Double and Single Wheel-Hoe has hoes that are wonderful weed killers. The Plows open furrows, cover them and hill growing crops. The Cultivator Teeth work deep or shallow. The Leaf Lifters save much time in late work when plants are large or leaves too low for ordinary work. Crops are straddled till 20 inches high, then the tool works between rows with one or two wheels.

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Illustrates Planet Jrs. doing actual farm and garden work, and describes over 55 different tools, including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard, Beet- and Pivot-Wheel Riding Cultivators. Write postal for it today!



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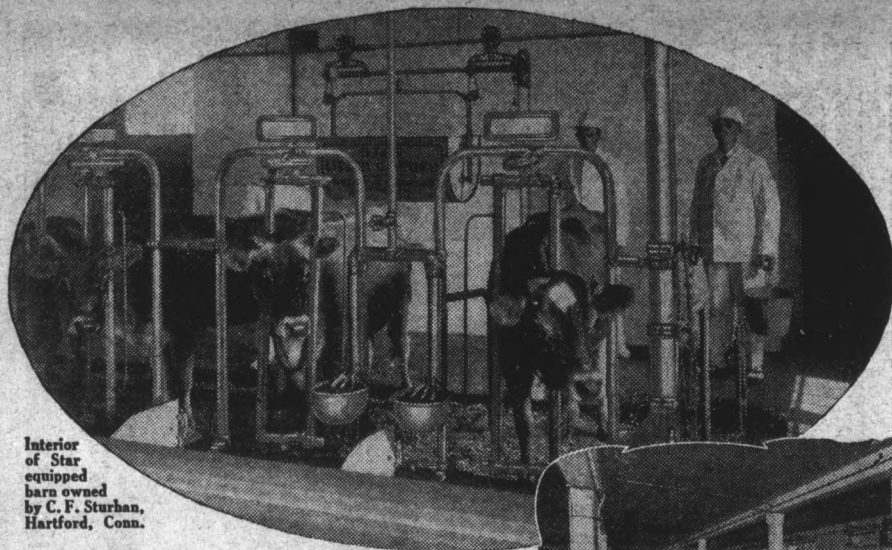
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WE WANT VETCH. SEND US SAMPLE. YOUNG-RANDOLPH SEED CO., Owaso, Mich.

DAIRY FEEDS

(Continued from page 129.)

Ground oats are good feed for dairy cows, but they must be mixed with something else in order to increase the protein. Oats do not contain as much protein as bran, but they are richer in carbohydrates. Pound for pound, I should consider them worth a little more than bran.

I am now feeding a grain mixture consisting of cull beans and oats ground together, three parts beans and two parts oats, mixed with bran and oil meal in the following proportions: Three hundred pounds of the oat and bean mixture, one hundred pounds of wheat bran and the same amount of oil meal. I empty the sacks on the cement barn floor and shovel the feed in the form of a cone, as when mixing cement. It is but the work of a few minutes to mix five hundred pounds, and I find this amount just about enough to handle at once. After mixing, I shovel the feed into the sacks again, and it is ready for use.

The cows like this mixture, but it is a little less palatable than it would be were there not quite as many beans. It is, however, much better liked by the animals than the usual brands of ready-mixed feeds on the market. If one can not get the beans conveniently, barley ground with the oats will

to furnish it in cottonseed meal, or oil meal than to fail to do so, and simply take what we can get out of a ration composed of whatever happens to be on hand, or of grains mixed with no thought of balance. Dried beet pulp will work into the ration nicely this winter, providing one is near enough to the shipping point, but one can not pay too much freight on it. The price is just about to the limit of its relative value as it is. If the freight were more than two dollars a ton I should let the other fellow have it, unless I were trying to get along without a silo.

Oceana Co.

W. F. TAYLOR.

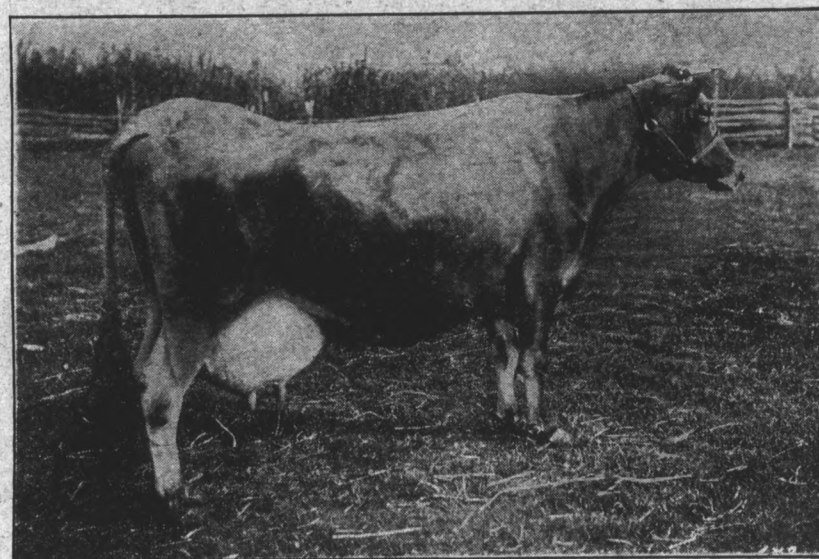
MAKING A BALANCED RATION WITH CORN-AND-COB MEAL.

Will you please answer the following questions? I have corn-and-cob meal, and oats ground together equal parts. I also have bran not mixed with above grains. For roughage, good oats and wheat straw, mixed timothy and clover hay and corn fodder. How can I feed the above to get the best results for milch cows? Shall I add some other feed to make a good ration? I have a lot of small potatoes and carrots to feed.

Oceana Co.

J. E.

With a roughage ration of straw, mixed hay and corn fodder, it would



High-Producing Cows Are an Important Factor in Determining the Economy of the Ration.

answer nicely. In this case, the bran may be omitted, and more oil meal added. If bran must be bought at present prices, it should be omitted in any case, and oats or barley used in its place. Of course, the proportions must necessarily be changed to maintain the balance of protein and carbohydrates in the ration. Oats, barley, and beans ground together in equal quantities, with three parts of the mixture to one part of oil meal, will make a feed that will analyze practically the same in protein and a little more in carbohydrates than the feed I am now using, and will cost considerable less if we figure bran at the present high price.

A fact that we must not let get away from us is, that barley and oats are the cheapest grains on the market and should be fed. Cull beans when cooked of live stock, but it is a good deal of trouble to cook them and the cows will eat a limited quantity of them in a grain mixture when raw, if they are well ground, and results seem to be quite as good as when they are cooked. Cottonseed meal is satisfactory in any of these mixtures if oil meal can not be gotten.

With clover hay as scarce as it is this winter, the problem of protein is increasingly difficult. With ensilage and a small quantity of cornstalks or a little mixed hay or straw for roughage, the cows can not get enough protein from ground oats or barley to keep up the flow of milk. It is much cheaper

be impossible to balance the ration by feeding equal parts of oats and corn-and-cob meal. Mixing bran with this grain would help, but bran is not rich enough in protein to balance so much carbonaceous food. To get the best results with these foods it will be necessary to feed either cottonseed meal or oil meal. Mix the corn-and-cob meal and oats equal parts with wheat bran and feed two pounds of cottonseed meal per day to each cow and a sufficient amount of other grain mixture to give each cow one pound for every four pounds of milk produced per day if the milk tests less than four per cent. If it tests more than four per cent one pound of grain to every three pounds of milk produced in a day.

If you have no silage it will be well to feed small potatoes and carrots to furnish a succulence to the ration. I would not recommend feeding potatoes and carrots in large quantities, feed say fifteen or twenty pounds or even less per day, rather than large quantities. Fed in small quantities they tend to keep the digestive system healthy and assist in the digestion of other foods.

C. C. L.

A neighbor of ours tried feeding corn exclusively. His cows did not do at all well on it. They had looseness of the bowels a good share of the time and grew thin in flesh. The reason for that was that they needed some good timothy or clover hay. When we feed hay the cows are rarely troubled with loose bowels.



Dairy Problems

GIVE COWS WARM WATER.

EVERY hundred pounds of milk contain eighty-seven pounds of water. The cow requires in addition, large quantities of water for carrying on her bodily functions. This water cannot be of any use to the cow until it is warmed. If it is swallowed ice cold it must be warmed inside of the body. This gives the body a severe chill and requires a great deal of energy from the food to return it to the proper temperature. The cow does not drink as much as she should and the milk production is limited. A part of the food which should go to make milk is used to warm the cold water taken into the body and to overcome the decided chill imparted to the body. There are more economical ways of warming water than by the use of expensive grain.

A group of cows drinking from an icy stream is a common winter sight in many parts of the country. In many cases these cows are driven half a mile or more for this privilege. In many cases the cows refuse, under such conditions, to drink as much as they should and are driven back to the barn to wait until the following day, when they will be offered the same thing over again. A cow cannot be a heavy producer of milk under these circumstances.

The best place to water dairy cows in cold weather is in the barn. When running water is available this can be accomplished by installing the individual drinking cups, or by watering them in a gutter-like manger. In this case, the water will not need to be warmed, as the water in pipes is not too cold. Individual cups have another advantage by allowing the cows to take small quantities at frequent intervals.

FEEDING COTTONSEED MEAL.

I have heard quite a lot about feeding cows cottonseed meal and oil meal and would like to know which is the best and in what way one would have to feed oil meal to get the cows to eat it. I have tried mixing it with other grains and as soon as they smell it they refuse to eat any, and I have tried it in a mash, but they won't eat it that way.

Charlevoix Co.

R. G.

There is usually no trouble in getting cows to eat oil meal; most of them are very fond of it. Some cows, like some people, eat nothing new practically until they are forced to do it, then they soon enjoy it as well as the rest. If a cow won't eat oil meal at first it can be mixed with wheat bran or with corn meal and once they get a real taste of oil meal there will be no trouble in getting them to eat it. Both cottonseed meal and oil meal are very concentrated foods and it is best not to feed them alone. You will get better results if they are mixed or diluted with some bulkier food.

If you feed corn silage for instance, the best way to feed this highly concentrated food is to sprinkle it on the corn silage then none of it is wasted and it makes the whole ration very appetizing. It is best not to feed over two pounds of cottonseed meal a day to a cow as it is liable to injure her if more is fed. One can feed more heavily of oil meal but it is usually not necessary to feed more than two pounds if you feed other foods in connection with it. If you haven't got corn silage to feed you can do as suggested and mix these concentrated foods with corn meal, wheat bran or

ground oats but be careful not to feed too much at a time.

C. C. L.

ECONOMICAL BALANCED RATION.

Please give me the most economical balanced ration for Holstein cows. Am feeding silage, deficient in corn, forty pounds per day; mixed hay and bean pods all they will clean up, once per day each. Have barley at \$2 per cwt; oats at \$2.25 per cwt. Can buy bran at \$50 per ton; 36 per cent cottonseed meal at \$65; 20 per cent cottonseed meal at \$55. Which cottonseed meal shall I buy at the given prices?

Shiawassee Co.

C. H.

There are no better and no more economical roughage foods than the silage, hay and bean pods which you are feeding. Of course, one improvement can be made in having clover hay or alfalfa in place of mixed hay. This roughage should be fed freely; the cows should have all they will eat up clean without waste.

My advice would be to buy a thirty-six per cent cottonseed meal. You know what you are getting, but I wouldn't care to feed over two pounds per day per cow of cottonseed meal and with bran at \$50 per ton, I think you might better feed some oil meal instead of bran and so I would suggest that you feed one and a half pounds of cottonseed meal and one and a half pounds of oil meal per day to each cow and the balance of the ration should be barley and oats ground together equal parts by weight. The rule for the amount of grain would be that you feed in addition to this three pounds of highly concentrated food, a sufficient amount of ground barley and oats so that each cow will receive one pound of grain per day for every four pounds of milk produced per day.

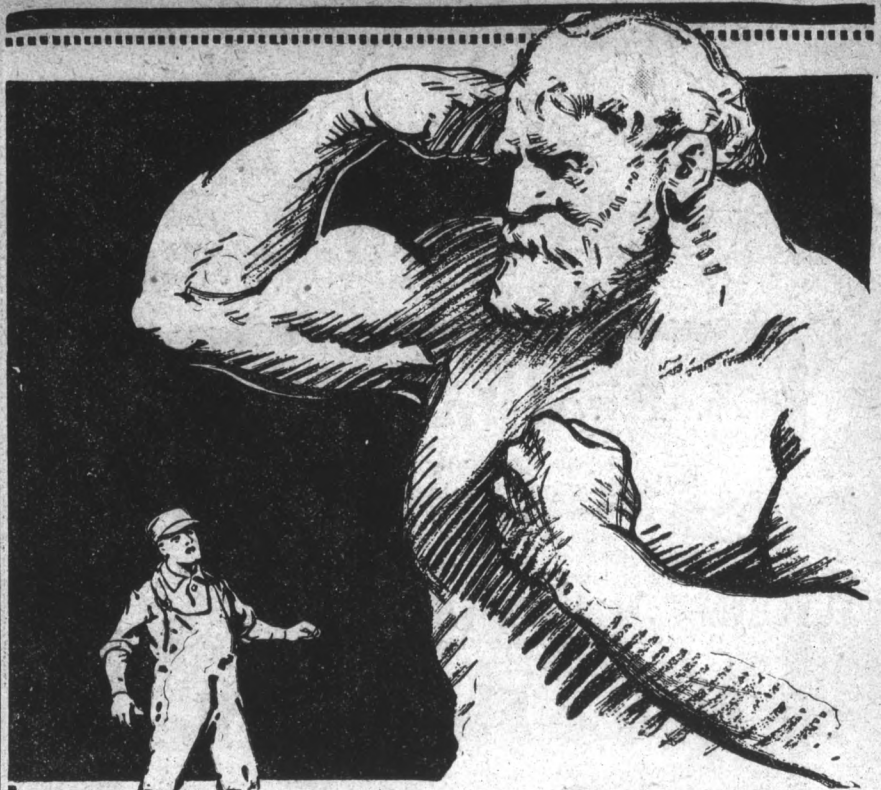
C. C. L.

MORE MILK FROM THE BREEDING HERD.

(Continued from page 118).

are many grades of inferiority and also of superiority, and when they are multiplied it is evident that unless the animal is a real "scrub" or an unmistakable winner there can be no set standard which can be used in estimating its actual value. One thing is certain, more pure-bred dairy cattle are sold below than above their true value. The fact that speculators can buy animals for low prices from breeders and sell them for many times what they paid the breeders for them is very strong evidence that they possess better ability as salesmen than the men who bred the animals.

Only a few breeders are natural salesmen, but every breeder is capable of making a careful study of the selling problem that will be of great value to him in conducting his business. Any man can sell good stock for absurdly low prices, but it requires an intelligent man who is a close student of human nature to get the last dollar represented in the animal he is selling. Good salesmanship can yield good returns in compiling catalogs and writing advertising matter, in correspondence and in discussing the business face to face with the buyers. One should make a study of the art of selling his cattle and be able to get what they are worth. Make a study of each letter and of each visitor. One will find that fully as much of his success will depend upon his ability to obtain good prices for his animals as it will upon his ability to produce and develop them.



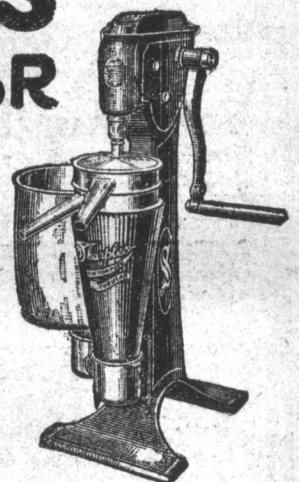
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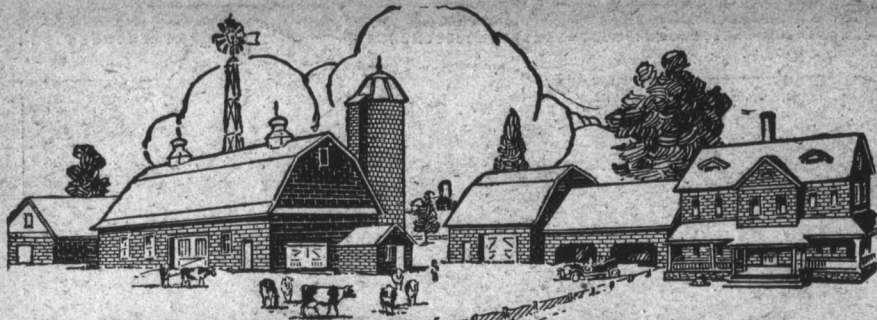
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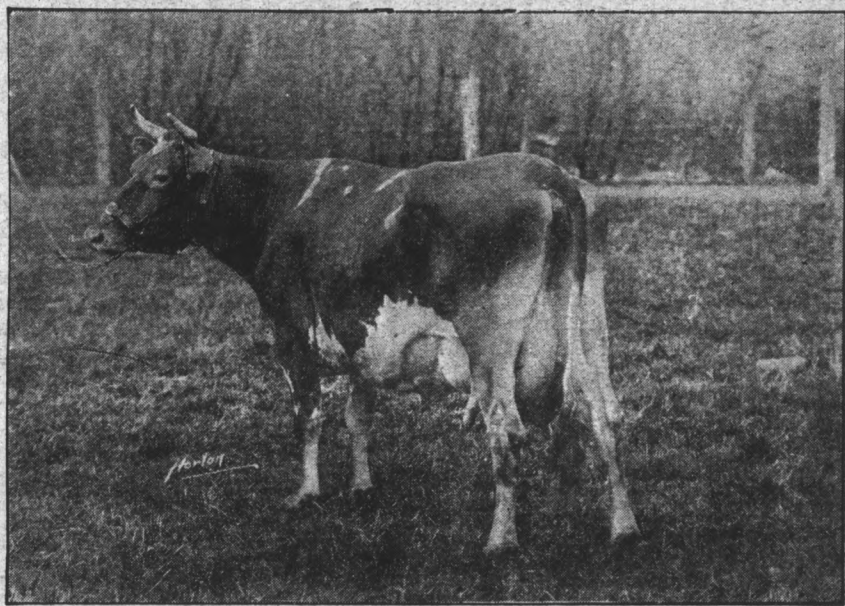
Regularity in the Dairy

FEW farmers realize the importance of regularity in feeding and milking the dairy cow. They do not realize how easily disturbed the cow really is. It was called to my attention several years ago in this way; we were milking one afternoon when a strange dog chased one of our barn cats through the stable and under some of the cows. The cow that the writer was milking shut off her milk the moment the dog ran through the stable. The hired man remarked that the cow he was milking was holding up her milk. How did those cows do it? They certainly held up their milk, and did not give down again for some time after the dog had gone out. When the calf is taken away from the cow she will frequently hold up her milk. In these cases it is not an act of will but an unconscious effect upon the nervous system.

Several years ago the writer had a beautiful Jersey heifer which had recently calved and was doing finely. We were so pleased with her that we took her to the village for a family cow. One day she got out of the yard and

wandered into a field of grain. Some boys set a dog onto her and it was two days before she came back to her milk. She was so excited and nervous that somehow unconsciously her muscles contracted in such a way that the milk would not run down.

This perhaps can be appreciated more readily when one understands the peculiar structure of the udder. Above the teat is a small milk cistern holding about half a pint, and above that are little canals or ducts, which divide and sub-divide, and at every division there is what is called sphincter muscles. The cow has a certain control over these muscles. When anything occurs out of the ordinary she closes those muscles and shuts off her milk—not all of it but some of it. Now, when we abuse a cow, or fail to feed, or fail to milk her, or in any way disturb her nervous condition, it does something to her which causes her to unconsciously hold up her milk or a part of it. And that is the reason for kindness and care and regularity in the care and management of cows.



Regular Feeding and Milking is Essential to Normal Milk Production.

Ground Oats and Corn for Cows

Will you suggest a dairy ration for my cows which freshened this fall? I am feeding bran, unshelled corn, oats, ground, corn meal, cottonseed meal and mangels, and for roughage corn fodder, mixed hay and wheat straw.

Ottawa Co. C. H. E.
The cows ought to do well on this ration if it is fed in anywhere near the right proportion. Cornstalks, mixed hay and wheat straw are deficient in protein but this can quite readily be overcome by feeding a little oil meal and cottonseed meal. It is wasteful to feed corn in the ear; the dairy cows do not properly masticate it and much of it passes through them without furnishing any nutriment; the same is true of oats. Corn and oats should be ground for dairy cows where it is possible to do so. I think it would pay you to shell the corn and mix with oats, equal parts by weight, and get them ground. If you have only a small amount of oats it might be better to save this for other stock and purchase bran to mix with the corn meal, equal parts by weight, and have the balance of the ration cottonseed meal and oil meal.

I would suggest that you feed one and a half pounds of cottonseed meal each day to each cow and then feed a sufficient amount of corn meal and wheat bran so that you will give each cow a pound of grain per day for every four pounds of milk she produces in a day if the milk tests less than four per cent. If it tests more than four per cent then feed a pound of grain to every three pounds of milk produced in a day.

The mangel-wurtzel beets are excel-

lent to feed as a succulent food with this ration. As you only have them in a limited quantity, I would feed only a small amount once a day so as to make them last as long as possible. These beets are valuable because they keep the cow in good condition, enable her to consume and digest more of the other foods in the ration. As you only have three tons of beets or one ton for each cow, it would be better to feed only about fifteen pounds of beets per day to each cow, then you will have a sufficient amount to last until grass grows in the spring and I am sure you will get better results than you would if you fed them more liberally now and later on had none at all.

C. C. L.

RATION FOR YOUNG PIGS.

Kindly give me a ration for young pigs from eight to ten weeks old. How should the ration be changed as the pigs grow older? I have no skim-milk, have corn, oats, barley and rye. Would it pay to buy middlings at \$3 per cwt? Monroe Co. C. B.

It is difficult to make up a satisfactory ration for young pigs unless one has skim-milk. I would suggest grinding one hundred pounds of oats and one hundred pounds of barley, (sift out the hulls), and mix with one hundred pounds of middlings and fifty pounds of oilmeal. Such a ration should produce rapid gains for several weeks. A little later the addition of corn meal and digester tankage should hasten development and maintain better flesh condition.

W. M. K.

Beet Pulp Versus Corn Silage

Will you please advise us regarding sugar beet pulp? Our ensilage is not going to last until we have other succulent feed. Is sugar beet pulp as good as silage for dairy cows? Is it as cheap feed? (freight rates). Which is best, dry or wet pulp? How could we store wet pulp so as to keep it into the summer, would putting it into the silo do? Where can we buy beet pulp to best advantage in carload lots? How many tons in a carload? Probable and reasonable price per ton?

Antrim Co. H. M. H.

Beet pulp is not as valuable as corn silage for food. The digestible ingredients of corn silage on the average are one per cent digestible protein, 11.3 per cent digestible carbohydrates and 0.7 per cent fat or ether extract, while beet pulp contains only 0.6 of one per cent protein, 7.3 per cent of carbohydrates and absolutely no fat. It would therefore be safe to say that the average beet pulp is not worth more than one-half as much as the average corn silage and perhaps not that, so far as food nutriment is concerned. But this class of foods has a value that is not indicated by chemical analysis, viz. succulency. You cannot get as good results in feeding dairy cows without a succulent food as you can with one, because this succulency keeps the animals in good conditions and enables them to consume more of the dry forage in the ration and to get better results from it. They are appetizers; they stimulate the flow of the digestive fluids. Now, the beet pulp is just as good, if not better, as a succulent food than corn silage.

The little food value which wet pulp contains would make it impracticable to ship it very far or even to haul it very far unless one hauled it back when he was delivering beets at the factory. I experimented with wet pulp once and came to the conclusion that I could not afford to pay the freight on it and draw it one and one-half miles from my station, although I paid nothing for the pulp. You don't have this cost with corn silage because you raise it close to the barn and the labor in delivering it to the silo is very little compared to hauling beet pulp, especially in cold weather.

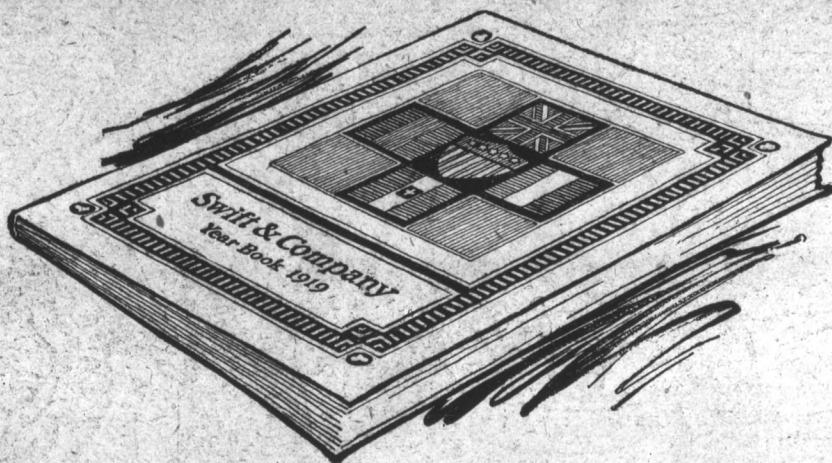
Of course, ton for ton, dry pulp is worth a great deal more than wet pulp. As I understand it, eighteen or twenty tons of wet pulp are necessary to make one ton of dry pulp so that one can afford to pay the freight on dry pulp if he hasn't got to pay too much for it.

You can readily store wet pulp in a silo; it will keep indefinitely when you put it into a good silo.

You can find out whether you can buy either wet pulp or dry pulp by writing to any sugar factory in the state. If you buy wet pulp, they would simply load it into open gondola cars and load them to capacity. If you buy dry pulp you will have to get now twenty or thirty tons for a carload because they want to load cars to their full capacity. The price of beet pulp is fixed by the beet factories and you will have to pay the price they ask.

Where one doesn't have corn silage or any roots of his own growing to feed, he can afford to pay more than the food analysis of beet pulp would warrant in order to have a succulent food in his ration. I would prefer to buy the dry pulp and then moisten it for a few hours before it is fed. If you have a cement floor in the stable where it will not freeze you can moisten this beet pulp and it will assume very nearly its former condition. Beet pulp will absorb a vast amount of moisture and not be sloppy either, and then when it is fed in this condition it seems to be almost as valuable as a succulent food as the ground pulp and one can afford to add the water at home rather than to pay the freight on it from the factory in the form of wet pulp.

C. C. L.



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You may think The Farm Journal is too much excited about this subject of crop prices, but we believe it is the biggest question there is just now. There must be a proper margin between production cost and selling price, and any reduction of this margin threatens you. Also read:

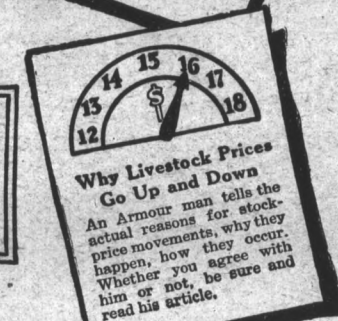
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A Rousing Number for February

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Read the Big February Number



POULTRY

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Additional Poultry Ads. on Page

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Prize Winning Model—Hot-Water, Copper Tank, Double Walls Fibre Board, Self Regulated, Thermometer Holder, Nursery. With \$6.35 Hot-Water 140-Chick Brooder—Both only \$15.95.

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130 Egg Incubator and Brooder Both for \$14

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INCUBATORS 10 Standard Model machines holding 400 eggs each, used two seasons. Price \$25 each. Must sell at once to make room for large mammoth machine. Wolverine Hatchery, Zeeland, Mich.

How to Succeed With Geese

(Continued from page 117).

in March or early April. If eggs are laid before this time, there is no economy in setting them, as the goslings require an abundance of green grass and this would not be present until April at the earliest. The laying season can be controlled to a large extent by the plan of feeding. The opening of the season can be hastened materially by heavy feeding during the winter or it can be delayed by allowing only a small diet. From November to February the fowls should be given just enough to keep them in good health. After that date, the ration may be gradually increased.

Goose eggs are hatched in three different ways—by the mother goose, by hens, and by incubator. Those set under mother goose have natural incubation. A nest in a quiet place where the mother is not likely to be disturbed should be provided and from ten to fifteen eggs placed under her. While sitting she should be provided with plenty of green food, grain, and clean water, placed where she may easily reach it. Goose eggs are extremely sensitive to chill—therefore the mother should not be taken from the nest to feed. If she is allowed to choose her own time to leave the nest, she will cover the eggs with either down or feathers.

On account of the close, downy feathers of the goose, the eggs have less ventilation, thus preserving more moisture, than when set under hens. Therefore if hens are used, some moisture must be supplied. This may be done to some extent by placing the nests on an earth floor and covering them lightly with straw. The last week or two of incubation, however, more moisture than this plan supplies may be needed. The additional amount required may be provided by placing a sod three or four inches thick under the nest, covering it lightly with straw and moistening it with warm water as needed. A good plan is to pour a half-pint of the warm water directly over the eggs, which will be quickly absorbed by the sod. From five to seven eggs are all that should be given to a hen.

The ordinary incubator is not the most successful way to hatch goose eggs, owing to the size of the eggs and the thickness of the shells. Experienced breeders, however, get good results from the incubator, but it takes much care and attention. One of the most practical methods is to set the eggs in an incubator about seven days, test out the fertile eggs, and set the balance under hens, supplying the moisture as before stated.

When artificially incubated, goose eggs should be turned three times a day. Alternate days of the last week a damp woolen cloth should be laid over them to soften the shells. The goslings will not leave the shells for some time after pipping and it may be necessary to help some of them out. Great care must be used in this, however, as the membranes are easily torn causing them to bleed to death.

As soon as dried, they should be removed from the incubator and placed in a brooder at a temperature of ninety degrees, heat being gradually reduced until at the end of the second week it has dropped to seventy degrees. The brooders must be kept very clean as young goslings are much more sensitive to unsanitary conditions than are young chicks. They are also very sensitive to dampness when young, but when a month old they are the most hardy of domesticated fowls.

20 Mares

5 Stallions

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MICHIGAN HORSE BREEDERS ASS'N.

PERCHERONS and BELGIANS

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40 HEAD

At Michigan Agricultural College

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32 Are Cows, 7 Heifers and Two Bulls

A 32.48 lb. cow (increased from 31.81 since last week) a 32.36 lb. cow, a 27.3 lb. cow, a 25.6 lb. cow, and her 22.2 lb. and 26.9 lb. daughters, a 25 lb. 3 yr. old a 20 lb. 2 yr. old, a 22.5 lb. daughter of a 24 lb. cow. Several on test and more good records will be announced at the sale. Bred to bulls from 20 lb. 2 yr. old to 35 lb. full age dams.

A bull calf from a 29.91 lb. jr. 4 yr. old sired by a 32 lb. son of King Segis Pontiac Alcartra the \$ 0,000.00 bull. The dam looks like a sure 30 lb. cow.

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All tuberculin tested and sold subject to a 60 day retest and guaranteed breeders if of breeding age.

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Duroc Jerseys Large heavy-boned gilts, bred to April farrow; prices reasonable. Come and see them, free live expenses paid if not as represented.
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O. I. C. Gilts bred for Mar. and April farrow a few good fall boar pigs about 100 lbs. I ship C. O. D. pay express, guarantee to please. F. C. Burgess, R. 3, Mason, Mich.

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A 400 lb. Aug. 29, yearling and a few 250 lb. Apr. gilts. Quality, stuff, registered, and cholera immune. Bred for Mar. and Apr. farrow.
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Mammoth P. C. Starchy big boned individuals 175-200 lbs. 5% months double immune. Write wants. Clyde Weaver, Ceresco, Mich.

Hampshire spring boars at a bargain, bred gilts now ready to ship.
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To The Kids of Mich. I have 75 beautiful registered Hamshire and Shropshire ewes that will have lambs this spring. I wish to sell them to you and buy back the ram lambs next fall at a mighty good price. Start now in a small way. Liberty Bonds taken. Write at once for particulars.
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200 Bred Ewes Choice natives, coming two years, bred to Shrop Rams, in lots to suit.
ALMOND B. CHAPMAN, South Rockwood, Mich.

Shropshire Rams Yearlings and Ram Lambs of Quality.
B. D. KELLY & SON, Ypsilanti, Mich.

FOR SALE SHROPSHIRE LAMBS, ewes or rams.
ARMSTRONG BROS., R. 3, Fowlerville, Mich.

OXFORD Down Ram lambs, also a few ewe lambs. Berkshire both sexes. Booking orders for fall pigs.
CHASE STOCK FARM, R. 1, Marlette, Mich.

For Sale Registered Oxford Down rams and ewes; can be seen at FAIRVIEW STOCK FARM. Fred Wolfe, Snover, Mich.

WANTED: REG. OXFORD EWES
J. M. HICKS & SONS, R. 2, Williamston, Mich.

HORSES

Saginaw Valley

STOCK FARM

Belgian and Percheron Stallions and Mares and registered Holstein Cattle, of the best breeding, for sale.

Eli Sprunger & Son, Saginaw, W. S., Mich.

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We have on hand at all times a choice selection of young Percheron Stallions.

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Belding, Mich. R. R. Orleans.

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DORR D. BUELL, Elmira, Michigan.

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

For Sale Reg. Black Percheron 3 yr. old Stallion and a number of good sound grade draft colts.
CHAS. BRAY, Okemos, Mich.

Percheron for sale stallions and mares at reasonable prices.
Wm. BLAKE, Dutton, Mich.

LATEST MARKET REPORTS

SECOND EDITION.

The markets in this edition were revised and corrected on Thursday afternoon, January 23.

WHEAT.

The wheat market is quiet. Prices, however, are maintained on the same basis as for several weeks past. Deliveries at country elevators are falling off somewhat, although the visible supply for the United States shows an increase of 3,248,000 bushels for the week. The flour market is dull and mill feeds are quiet, the latter situation being due no doubt to the rapid advance in prices since the federal ban has been removed. The condition of the growing crop is very good. One year ago No. 2 red wheat was selling on the local market at \$2.17 per bushel. Present prices here are:

No. 2 red	\$2.30
No. 2 mixed	 2.28
No. 2 white	 2.28

CORN.

During the past week the change in corn prices has favored the bears. Receipts of corn at country elevators have been large. The absorption by the trade has also been of considerable volume, thus giving an increase in the American visible supply of 965,000 bushels. A feeling prevails among dealers that the government will abandon before long its attempt to maintain hog prices on the present basis. Should the government withdraw its support to the hog trade, the corn market will go to lower levels without doubt. Very little has been said this week about importations from Argentina. One year ago No. 3 corn was quoted at \$1.80 on the local market. Present quotations at Detroit are as follows:

No. 3 corn	\$1.33
No. 3 yellow	 1.38
No. 4 yellow	 1.33
No. 5 yellow	 1.30
No. 6 yellow	 1.25

Chicago prices for corn have been on the down grade with No. 3 yellow quoted at \$1.33@1.37; No. 4 yellow at \$1.29@1.33; No. 5 yellow at \$1.25@1.28; May corn \$1.23.

OATS.

The oat deal has been only fairly active the past week and prices have suffered declines largely through the influence of corn. The demand at present is easy, while receipts are only in moderate volume. During the past week the visible supply for the country showed an increase of 1,129,000 bushels. One year ago standard oats sold on our local market at 85½¢ per bushel. Present prices at Detroit are:

Standard	69½
No. 3 white	 69
No. 4 white	 58

RYE.

Nobody is asking for this grain, and the trade is inactive with prices several cents below the quotation of last week. At Detroit cash No. 2 is now quoted at \$1.53 per bushel.

BARLEY.

There is no activity in this grain. Prices are essentially nominal as follows: Cash No. 3, \$2; No. 4, \$1.95; feeding barley \$1.80@1.90 per cwt.

BEANS.

The decline last week in prices on Michigan markets has had its influence in the east where values have since fallen to lower levels. In New York City the trade is very quiet with pea beans quoted at \$9.50@9.75 for choice and medium. The demand on the Detroit market is slow, with the quotation remaining at \$8.75 for immediate and prompt shipment at shipping points. Holders are having some trouble in making sales in Chicago, where offerings have increased. Prices there are a little easier with choice to fancy hand-picked pea beans at \$8.50@8.75, and the same grade of red kidneys at \$12@12.50.

SEEDS.

There is no change in seed prices this week. Quotations are: Prime red clover \$25; March \$25.20; alsike \$19; timothy \$5.

FEEDS.

Recent advances in feed prices had apparently reached the limit and a reaction has already set in due no doubt

to the disinclination of the buying public to take feed at the extreme prices unless absolutely compelled to do so. Local prices have declined from \$1@3 per ton as follows: Bran \$53@55; standard middlings \$51@53; fine middlings \$52@54; coarse corn meal \$60; cracked corn \$60; chopped feed \$51.50 per ton.

HAY.

A weaker tone prevails in the local hay market and prices shows a decline, with quotations here as follows: No. 1 timothy...\$27.50@28.00 Standard timothy 26.50@27.00 No. 1 mixed.... 25.50@26.00 No. 1 clover.... 23.50@24.00

BUTTER.

All our important butter markets show an easier tone and a lower range

of values. At Detroit there is very little life to the trade, although dealers are far from being over-supplied with the product. Prices here have declined to 56@57c per pound for fresh creamery firsts. In Chicago the market is lower with the creamery sales ranging from 54@57½c. New York prices have declined to 55½@59c, and in Philadelphia western creamery extras are down to 58c.

EGGS.

This trade now rules from steady to higher. On the local market a fractional gain is reported with the extra firsts candled in new cases at 60c; fresh firsts 58c. The Chicago market is higher with firsts at 58½@58¾c; ordinary firsts 56½@57½c. The New York market is firm with the western stock ranging from 64@72c. Philadelphia

has a higher market and western offerings are quoted at \$18.90@19.50 per case.

CHEESE.

This trade rules steady with the supplies small. Michigan flats are selling in Detroit in jobbing lots at 38c; brick cheese at 35½c. In New York specials are quoted at 36c, and average run at 35c. The Philadelphia trade pays 37@38c for full milk.

POULTRY.

The local market is reasonably well supplied with poultry and trading is a little dull. Live springers are quoted at 25@28c; hens at 26@30c; roosters 20@21c; geese 28@30c; ducks 34@35c; turkeys 34@35c.

POTATOES.

This market keeps going downward with values in producing sections showing large decline. The favorable weather has encouraged the movement of stock and accumulated supplies are being used to force lower prices. Michigan round whites sacked U. S. No. 1 are selling in Chicago at \$1.75@1.80; in Cleveland \$2.00@2.25; in Buffalo \$2@2.10; in Cincinnati \$2.10@2.15; in Pittsburgh \$2@2.07; in Indianapolis \$2.00; Columbus \$3.50 per 150-lb. sack. At Detroit the demand and movement are slow with the above grade quoted at \$2.90@3 per 150-lb. sack. At Michigan points growers are getting from \$1.05@1.50 for U. S. No. 1 in bulk at warehouses.

APPLES.

This trade rules firm with the general trend of prices upward. Sales have been in small volume with a good grade of Spies selling around \$7, and Baldwins \$6.50@7.

DETROIT CITY MARKET

Over a hundred farmers offered produce on the eastern market Tuesday morning. Supplies consisted largely of apples and potatoes. There was a good demand, especially for apples, on which the prices ranged from \$2.50@3 for fancy Baldwins and Greenings and down as low as \$1.60 for the inferior grades; average sales were around \$2.25 per bushel. Potatoes generally sold from \$1.00@1.10 for good stock; turnips at \$1.25; rutabagas 80@90c; parsnips 90c@1; onions \$1@1.25; carrots 75c@1; cabbage, white \$1@1.40; red \$1.40@1.50; beets 75@90c; celery ranged in price from 40@75c per doz; fresh eggs 70@75c; butter 70@75c; live poultry 30c; dressed hogs 22@23c.

LIVE STOCK NEWS.

The federal sheep investigator in South Dakota says that dogs cost more than five million dollars a year in that state, and his statement is made the basis for legislation for preventing killing of sheep and lambs by dogs. He claims that there are 150,000 dogs in the state, or one for every four residents. The average dog, he says, consumes \$34 worth of food annually.

Word comes from Medford, Missouri that few cattle are feeding, but farmers are largely interested in hog raising. For the first time in years, some farmers are grazing their wheat fields.

A Boston man has bought a farm of four hundred acres in Jefferson, Me., and is devoting it to stock raising, having purchased the greatest herd of pure-bred Aberdeen-Angus cattle east of the Hudson River and one of the best east of Ohio. This is the first time that Angus cattle have had a trial in Maine, and farmers are watching the outcome with much interest. For Esperanza sixth he paid in Iowa \$1,475 and for Black Erma he paid to the Iowa owner \$1,025, while for Quomita he paid to the Texas owner \$500.

The leading authorities favor hog breeding of extensive proportions. As a writer expressed the matter the other day, "there is a belief common that much more damage can be done corn prices than hog prices."

MICHIGAN POTATO GROWERS.

Michigan Potato Growers' Association will meet at East Lansing between February 4 and 7, exact date to be announced later.

Live Stock Market Service

Reports for Thursday, January 23rd

BUFFALO.

Today pigs sold at \$14; good light hogs at about \$15; others \$18@18.10; no calves or lambs were selling but prospects for calves were \$16.50 and for lambs \$16.50. No report was made on the cattle trade.

CHICAGO.

Cattle. Receipts 19,000. Choice steers are steady; others and butcher stock slow to lower.

Good to prime choice steers \$16.40@16.40; common to medium butchers \$9.75@16.40; heifers \$8.15@14.50; cows at \$7.25@14. bologna bulls \$7.85@12; canners and cutters \$6.70@7.25; stockers and feeders, good \$10.75@14.25; do medium \$8@10.75.

Hogs. Receipts 55,000. Held over from yesterday 23,550. Market weak to 50c lower. Tops \$17.80; bulk of sales at \$17.35@17.75; heavy at \$17.70@17.80; mixed and light \$17.55@17.75; packers hogs \$16.50@17; medium and heavy \$16.85@17.35; light bacon hogs \$16.75@17.55; pigs good to choice \$12.50@15; roughs \$16@16.50.

Sheep and Lambs. Receipts 14,000. Opening strong to 15c higher. Choice to prime lambs at \$16.25@16.40; medium and good lambs \$16@16.25; culls \$11.50@13.75; medium good and choice feeders at \$14@15.35; choice yearlings \$14.15@14.40; medium and good yearlings \$11.65@

wethers medium and good at \$10.35@11.75.

DETROIT

Cattle.

Receipts 2,193. Market strong and 25@50c higher than last week. Best heavy steers\$14.00@15.50 Best handy wt bu str. 10.50@11.50 Mixed steers and heifers 9.25@10.25 Handy light butchers 8.25@ 9.00 Light butchers 7.25@ 8.00 Best cows 9.00@10.00 Butcher cows 7.55@ 8.50 Cutters 7.50 Canners 6.50@ 7.25 Best heavy bulls 10.00@11.00 Bologna bulls 8.50@ 9.00 Stock bulls 7.25@ 7.50 Milkers and springers ..\$ 60@ 100

Veal Calves.

Receipts 1,435. Market very dull. Best\$16.00@16.50 Others 7.00@15.00

Sheep and Lambs.

Receipts 4,976. Sheep steady; lambs 50c lower. Best lambs\$ 15.00 Fair lambs 13.00@14.00 Light to common lambs.. 10.00@11.00 Fair to good sheep 8.50@ 9.00 Culls and common 6.00@ 7.00

Hogs.

Receipts 6,640. Pigs 50c lower and mixed hogs steady. Pigs\$ 14.50 Mixed hogs 17.50@17.60

Reports for Wednesday, January 22nd

BUFFALO.

Cattle.

Receipts ten cars; market slow; prime heavy steers \$16.50@17.50; best shipping steers \$14@14.50; medium do \$13@13.50; best yearlings, 950 to 1000 pounds \$16@16.50; light yearlings of good quality \$13.50@14.50; best handy steers \$12.25@13; fair to good kinds \$10@10.75; handy steers and heifers, mixed, \$11.50@13.50; western heifers \$13@14; best fat cows \$9@10; butcher cows \$7@8; cutters \$6.50@7; canners \$6@6.25; fancy bulls \$10@10.50; common bulls \$6@7; best feeding str 900 to 1000 lbs \$10.25@10.50; medium feeders \$9@10; stockers \$7@8; light common \$6@7; milkers and springers \$7.5@150.

Hogs. Receipts ten cars; 15@25c higher. Heavy \$18.40@18.50; yorkers \$18.25; pigs \$14.50@16.

Sheep and Lambs. Receipts ten cars; slow; top lambs \$16.50@16.65; yearlings \$14@14.50; wethers \$11@12; ewes \$9.50@10.50.

Calves. Receipts 1,500; 15c lower; tops \$17; grass calves \$7.

CHICAGO.

Cattle.

Less than 55,000 cattle have been received during the first half of the week, counting the run today at 8,500 head, whereas for the same part of last week receipts numbered 76,731 head. The unusually mild weather for this time of year is seriously checking the demand for beef and other meats, but the light receipts of cattle are

putting more strength into prices, and sales today look as much as 15c higher for butcher stock in numerous instances. Steers are certainly stronger in price, but calves are lower, with the choice lots at \$15.50. Steers are selling mainly at \$14@17.50, with occasional sales of fancy lots at \$19.50@19.75, few going as high as \$18. A few little canning steers go at \$8.25@9.50. Butchering cows and heifers are purchased at \$8@14.50, canners and cutters selling at \$6.50@7.95 and bulls at \$7.25@13.

Hogs.

Estimating the receipts today at 41,000 hogs, 137,000 have arrived during the first half of the week, being 7,000 more than for the same days last week. Western packing since the first of November amounts to 11,226,000 hogs, comparing with 7,643,000 a year ago. The Wednesday market is overloaded, 21,500 hogs having been carried over unsold last night, and the prices are 10c or more lower, with a very bad close and much of the supply unsold. Plenty of choice hogs went at \$17.80 and under, although the early top was \$17.85. Poor to good heavy packers sold at \$16.50@17, pigs selling at \$12.50@14.50.

Sheep and Lambs.

Only about 61,700 head have been received during half of the week, comparing with 80,000 for the same time last week. The Wednesday receipts are only about 10,000 head, and prices are stronger and in instances a little higher, lambs being salable at \$12@16.25 and a scarcity of the best kind. Yearlings are quotable at \$11.25@14, wethers at \$9.40@11.40, ewes at \$5@10.25 and bucks at \$8.50@9.

News of the Week

Wednesday, January 15.

BOLSHEVIK leaders operating in Argentine have been arrested following their identification with recent strikes in which eight hundred persons were killed and five thousand injured.—The Bolshevik government in Petrograd sends ultimatum to Switzerland that unless thirty Bolshevik prisoners are released by February 1, the corresponding number of Swiss citizens in Petrograd will be shot without trial.—American troops in northern Russia capture Vologda with the aid of loyal Russians.—The Ukrainian directorate falls.

Thursday, January 16.

THE new German republic threatens to fight if further diminution of the nation is attempted by the Allies; Ebert declares that the people are now supporting the government policy.—Reports state that peace parleys are to be secret.—The ratification of the federal prohibition amendment by the state of Nebraska makes the necessary thirty-six states required to place that amendment in our fundamental law, thereby prohibiting the manufacture and sale of intoxicants a year hence.—The Railroad Administration asks congress for \$500,000,000 to make needed improvements in our transportation system.

Friday, January 17.

FIVE hundred persons perish when a French steamer enroute from Rome to Marseilles strikes a mine and sinks within four minutes.—President-elect Alves, of Brazil, dies after a long illness.—The demobilization of all combat units in the United States has been ordered, according to advices given congress.—There is fighting between the forces of Montenegro and Serbia, following the occupation of Montenegrin territory by Serbian soldiers.—Former President Taft starts a campaign for a national congress for a League of Nations.

Saturday, January 18.

MARSHAL FOCH advises Allies to keep control of the Rhine as an insurance to future peace.—President Poincaré opens the long awaited peace conference.—Peace delegates have voted to admit representatives of the press to all meetings of the full peace conference.—Germany is again mobilizing her troops probably for the purpose of defending the eastern frontier against the Poles.—Russian Reds offer to cease its world propaganda if the Allies will agree to enter into peace negotiations with them.—The strike in Peru is ended by the establishment of an eight-hour day by government decree.—President Wilson decorates French army heroes with the American service cross.

Sunday, January 19.

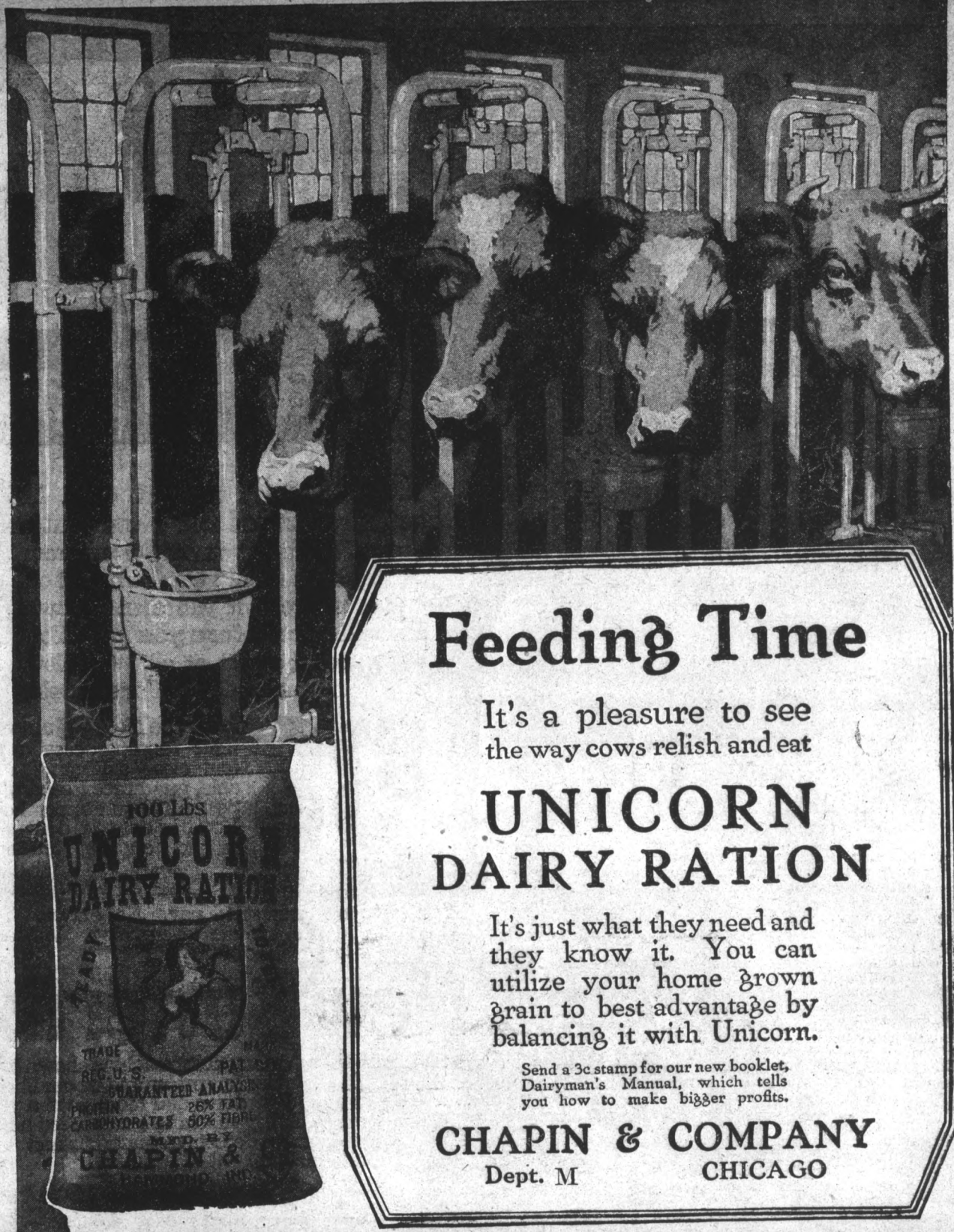
IT is announced that among the first issues to be considered at the peace conference is President Wilson's proposal of a League of Nations.—Three big ships return ten thousand American soldiers.—Germans evacuate Mitau the capital of Courland, leaving it in the hands of Bolshevik troops.—Virtually the entire German mercantile fleet is placed at the disposal of the Allied governments to be distributed among them according to their needs.

Monday, January 20.

GRAVE election riots are taking place in Germany where the people are voting to choose members of a national assembly.—Several changes have recently been made in the Italian cabinet.—Lloyd George of England moves to stop the assemblage of the Irish congress.—Of the two million Russian prisoners captured by the central powers, one million have died in captivity.—In an address before the Philippine congress the president of the senate declares that the Philippines want complete freedom, but that the United States has been so just and honorable in her dealings that the matter will not be pressed during the present emergency.

Tuesday, January 21.

THE sentiment thus far expressed at the peace conference is that the leaders of the central powers should be indicted for bringing about the great world war.—Reports are made to the conference by special agents that Bolshevik activity is responsible for Russia forsaking the Allied cause, for sending supplies to the Teutons and for inciting opposition to the truce terms, and these agents demand that the leaders in this movement be severely dealt with.—The Ebert party is apparently victorious in the German elections.—British government removes the order prohibiting parades in Ireland.—Brazil will choose a new president on April 13 to succeed the late Dr. Alvees.



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15 lbs.	1.00
30 lbs.	1.75
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up to our big 800 lb. capacity machine shown here
—all sold at similar low prices and on our liberal
terms of only \$2 down and more than a year
to pay. Every machine guaranteed a life-
time against defects in materials and
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30 Days' Trial

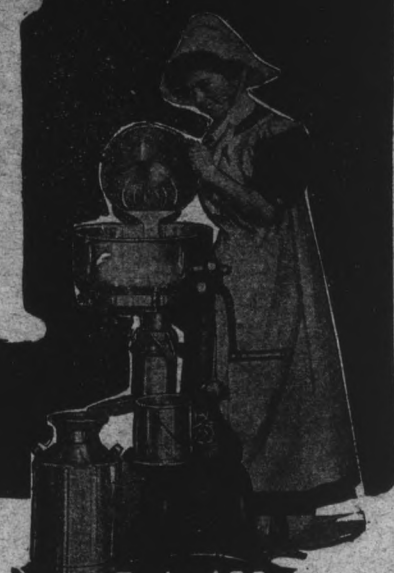
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easily one of these splendid machines
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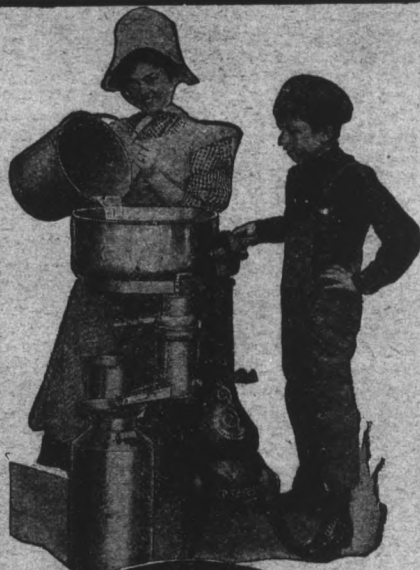
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"We would not do without our Butterfly Sepa-
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Simplest, Easiest to Clean
"My son took a course in agriculture at Cape
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simple and easier cleaned machine than any of
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