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Successful Farm Management With Clover

By W. MILTON KELLY

SUCCESSFUL farm management with the clover crop depends on clever and judicious planning of the crop rotations to accomplish the desired results. The crops may be managed in different ways, but a few fundamental principles must be observed to secure large yields and to derive maximum benefits from its power to gather nitrogen for the succeeding crops.

On many farms where but little stock is kept, and where the production of fruit and truck crops is an important factor in the farming, the clovers are among the most valuable crops for cover, to supply humus, and to add to the supply of nitrogen. It is because clovers can take nitrogen from the air, while other crops cannot do this, which renders them so much more valuable than most other crops for cover and green manuring.

The purpose of the writer, however, is to emphasize the logical necessity of growing clover on the dairy or stock farm. It belongs to every sound system of crop rotation practiced on dairy

and stock farms in the northern, central and eastern states. Having the power of taking nitrogen from the inexhaustible supply in the atmosphere, it not only supplies that element to the soil, but at the same time furnishes an abundance of hay and pasturage. It enables the dairy farmer to kill two birds with one stone. Clovers will always figure prominently in the best rotations for cattle, horses, sheep and swine. In the long run its greatest value is realized by feeding it to stock. All other uses of the crop are subsidiary, although in their entirety they are of vast significance.

Get Good Seed.

Good seed is an important part of success in the management of the clover crop. Buy clover seed early and test its germinating qualities. If a microscopic examination of the seed reveals the presence of weed seeds or foreign substances buy of some dealer who has pure seed for sale. The clover seeds upon the American mar-

ket appear usually to be of a good quality.

For the stock farm common red and alsike are the best clovers. Alsike clover has a more upright habit of growth, though it is finer than the common red variety. It is of great value in meadows, and is especially adapted to the stronger and moister soils, where it does better than the red clover. Being finer it cures more easily, and yields hay of excellent quality. Many of the best farmers always use alsike in their mixtures of seeds for the stronger and moister soils, where hay, including clover, is desired. For sowing in mixtures with timothy and alsike the mammoth red clover will give equally as good results as the common red. For a cover crop in fruit plantations and vineyards the mammoth red variety makes a more rapid growth and it is claimed by some experts that it is a more efficient nitrogen gatherer.

The fact that the clover crop is usu-

ally seeded with some small grain crop frequently places it in the same position as the guest who, invited to the festive board, finds it bare. Taken as a whole, it is no wonder so many farmers fail to secure vigorous stands of clover, when we consider the common practice in seeding clover with winter wheat along in February or March when the soil is in that peculiar honeycombed condition caused by alternate freezing and thawing, or to seed on a light snow and trust in Providence to furnish the rains or snow necessary to wash the seeds into the ground.

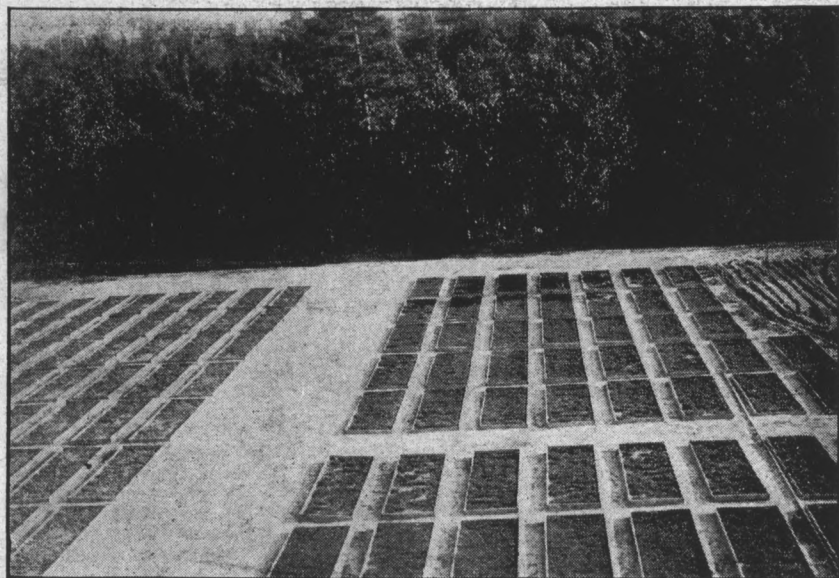
Seeding Methods.

Good stands of clover are too rare and difficult to secure, and at the same time too desirable, to be jeopardized by a careless scattering of the seed upon a frosted soil. Except perhaps under ideal seeding conditions it will pay to delay the seeding a few weeks until one can go over the field with a light smoothing harrow and loosen up the top soil, scatter on the seed and follow

(Continued on page 307).

Scenes Showing Steps in Reforestation Work as Conducted by the Public Domain Commission

See Michigan's Forest Reserves, Page 332.



A Block of Norway Pine Seedlings, Two Years Old.



Transplanting the Seedlings to Nursery Rows.



Furrows Prepared for Permanent Planting of Seedlings.



Planted Ground Showing Development of the Seedlings.

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DETROIT, MARCH 10, 1917

CURRENT COMMENT.

One of our most successful captains of industry, in discussing the fixing of future policies, remarked that the best policy for the future could never be fixed upon precedent, that the future should be guided by the present and not by the past. The soundness of this doctrine which has led to phenomenal success in big business should appeal strongly to every farmer at the present time. Conditions surrounding agriculture are changing so rapidly that future policies in the conduct of farming operations cannot be predicated on past experiences to anything like as good advantage as upon a careful study of existing conditions.

The changes which confront us in the agricultural field are so many and varied as to almost defy enumeration, and to make a comprehensive analysis quite difficult. Then the nature of these changes in different localities and as affecting different lines of agricultural production are so varied as to make this an individual problem to almost every farmer. The phenomenal rise in values of agricultural products of all kinds, together with the increased scarcity and high price of labor for the accomplishment of farm work are facts which have universal application. To every farmer who would get maximum results from his year's operations the problem of how to increase production with the available labor supply is perhaps the most pressing one. The main factors to be considered in this connection are the distribution of the available labor at profitable employment throughout the entire year and an increase in the product of the available labor as measured by results in marketable products.

In most cases the better distribution of labor throughout the year means an increase in some department of live stock breeding or feeding upon the average farm. Which department of live stock production can be best increased to accomplish this result is an individual problem which will in many cases be difficult of solution, but without question there is room for the profitable increase of live stock production upon a very large proportion of Michigan farms. Such a policy may curtail to some extent the amount of land available for the growing of cash crops, but with better tillage and more liberal fertilization it will be possible to not only keep the yield in this department of our farming operations up to the standard, but to even increase the receipts from cash crops materially.

To this end our farming operations should be planned with a view to maximum production with a minimum ex-

penditure of labor. This can best be accomplished by limiting the number of cash crops grown, and increasing the acreage of such crops as can best be handled in season by the available labor, and for which we have or may procure the special equipment in tools and machinery required for the growing of such crops to the best advantage. While the farmer is often handicapped by conditions over which he has no immediate control, yet by the adoption of the most approved methods in carrying out a carefully planned program, this handicap can be minimized and the productive results of available labor materially increased upon the average farm.

Apparently under present conditions hand work is bound to be more limited than ever before upon most farms, and unless this is to be a limiting factor in production, thus reducing farm revenues at a time when there is need for maximum production, and when good prices are assured, head work must be substituted for hand work to the greatest possible degree, so that the available labor may be constantly employed in a productive manner so far as possible during the active summer campaign. This is a field for profitable thought which no progressive farmer should neglect at this time, to the end that our agriculture may be placed upon a sound commercial basis and its patrons secure a full share of prosperity under the unprecedented conditions which now prevail.

Under the federal aid Federal Aid in "road act approved on Road Building. July 11, 1916, \$5,000,000 was made available for use in extending aid to the several states in the construction of rural post roads for the fiscal year ending June 30, 1917, and \$10,000,000 for similar use in the fiscal year ending June 30, 1918. After deducting three per cent as the estimated cost of administering the law, the distribution was made in pursuance to the provisions of the act which were as follows: One-third in the ratio of area, one-third in the ratio of population, and one-third in the ratio of mileage of rural delivery routes and star routes in the various states.

The apportionment on this basis gives to Michigan for the fiscal year ending June 30, 1917, the sum of \$145,733.72 for such aid in road building, and for the fiscal year ending June 30, 1917, the sum of \$291,567.44. Under the provisions of this act certain requirements are made of the state which will require legislative enactment. Whether the application of the federal funds will be left to the discretion of the State Highway Department or provided for by the legislature, rests with that body.

Reports have circulated that a movement has been started for the using of such funds in the building of trunk line roads encircling the state in such a manner as to provide a main line of travel for tourists who might thus be attracted to Michigan. This alleged plan has brought vigorous protests from farmers, and highway officers in various sections of the state who contend that the federal funds should be applied directly to the improvement of rural post roads as specified in the appropriation bill, and that all sections of the state should participate in the distribution rather than to have the whole amount expended in building trunk line roads.

This federal appropriation covers a period to and including the fiscal year ending June 30, 1921, with an annually increasing proportion which for the last year of the period will reach \$25,000,000, at which time Michigan's proportion will approximate five times the funds available for the first year for which aid is granted.

It is important that the policy adopted for the distribution of this fund within the state should be one which

would give the greatest degree of satisfaction and benefit to the people of the state as a whole. Some county highway officials believe that the greatest benefit would accrue to the state through the use of this fund to aid in the building of highways where commercial traffic demands a permanent and expensive type of road, under which plan fairly equitable distribution could be effected. Many farmers, however, are of the opinion that the funds should be used in the permanent improvement of post roads not on main or trunk lines and not likely to be permanently improved under the present system for many years at least without such aid. Good public policy in the use of this fund requires careful consideration of many factors.

Every reader should give this proposition his careful thought, looking at the problem from the broad standpoint of the greatest good to the greatest number rather than from the more selfish standpoint of local needs. After studying the question from every angle, steps should be taken to arrive at the consensus of public opinion in every rural community as a guide to the legislature in shaping the required enabling legislation.

Very many communications have been received at this office offering suggestions for a more satisfactory dog law. Earlier in the season these suggestions emanated mostly from people who were interested in the sheep industry and who believe that more adequate protection from dogs is essential to the building up of this industry in sections of the state best adapted to it. More recently pleas have come to hand from many sources for a more stringent dog law, owing to an epidemic of rabies which has been prevalent in various sections of the state. In one case, at least, there is an attempt at organized action to secure legislation making it a misdemeanor to permit any canine to be off the owner's premises unless securely muzzled so as to render it impossible for any such animal to bite any other animal, and another bill emanating from the same source would make the owner of any canine liable for nominal damages for permitting such canine to trespass on another's land, which nominal damage in addition to cost of bringing suit and any actual damage which might be done by the trespassing canine may be collected from the owner.

This menace of rabies is worthy of more serious consideration and more active and effective remedies than the dog nuisance as affecting the sheep industry and contributing to the hunting nuisance which is burdensome in many localities. Doubtless, however, even such a menace will not make more effective dog legislation easy of passage. We believe, however, that in the event of the failure of general legislation along this line that a stringent dog law with a local option provision, such as was described in a recent editorial comment, would prove more satisfactory than the present ineffective law. If the legislature would pass a stringent dog law to be enforced in counties where the voters approved of it on submission, even this would be a move in the right direction, but it would not provide for the present emergency in suppressing rabies, now more than commonly prevalent in various sections of the state.

ALWAYS SIGN YOUR NAME.

Many communications are received to which the writer forgets to sign his name or give his post office address. No reply is made to anonymous inquiries, since we have no means of knowing whether the writer is a subscriber and entitled to the service. If a reply is made through the paper the name will be withheld if requested, but it must be signed to the request or no

answer will be published, and no reply by letter is possible unless both name and post office address are given. Care in this detail would obviate disappointment and misunderstanding on the part of subscribers.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The British troops have made further advances in Somme and Ancre regions of northern France. On the Somme the Germans gave up ground over a front of two miles and to a depth of 1200 yards. Heavy casualties were inflicted upon the Teutonic forces. In the Meuse district north of Eix the Germans succeeded in entering French trenches, but were driven out in a counter-attack. Reciprocal bombardments east of the Meuse river have also been reported. Along the Russian front and in Roumania no fighting of moment has taken place. An Austrian attempt to storm Italian positions east of Gorizia was frustrated. Minor infantry operations and artillery duels continue in other sectors of the Italian front. The Russians are again operating in Asia Minor. They have defeated the Turks in Persia and captured the important town of Hamadam. The British are also succeeding in their campaign along the Tigris river in Asia Minor, having forced the Turks fully half way to the city of Bagdad. The submarine war continues to take vessels sailing in the restricted zones, although the number of ships reported sunk is gradually diminishing. However, there has just been reported the destruction of a vessel in the Mediterranean of 34,494 tons, the largest boat sent to the bottom since the beginning of the war.

A crisis has developed in the political circles of China by the refusal of the president to approve of the action of the Chinese cabinet which voted to join the United States in breaking off diplomatic relations with Germany. As a result, the resignation of the entire cabinet is expected.

National.

While a majority of the members of congress and the United States Senate favored giving President Wilson authority to arm United States merchant ships as a protection against attacks by German submarines, a small number of senators joined to prevent action on the bill by the upper House. As there appears to be no provision for the calling of an extra session of congress until next fall, this move on the part of these senators places the country in a serious situation. The publication of evidence, which has since been acknowledged by Germany, that an effort had been made by that country to entangle the United States into political difficulties with Mexico and Japan, served to get almost the entire support of the House of Representatives for our chief executive's measure on armed neutrality. A manifesto signed by members of the senate also showed a majority of the members of that body in full accord with the proposed action of the President. Eleven members of the senate, however, were able to tie the hands of the whole government.

Samuel Gompers, president of the American Federation of Labor has issued a call for a conference of the presidents of national and international labor unions affiliated with the federation, to meet in Washington for consideration of policies of preparedness and defense in connection with the present national crisis.

Five firemen were killed and three injured in a fire which did \$350,000 worth of property damage last Sunday in two store buildings on Woodward avenue, Detroit. The men were killed by the collapse of the floors in one of the buildings.

Property damage has been large in sections of Tennessee, Alabama and Georgia recently visited by disastrous floods. Streams have overflowed their banks, and driven hundreds of persons from their homes. As yet no lives have been reported lost.

President Wilson began his second term as chief executive of the United States when he took the oath of office at noon Sunday in the presence of Mrs. Wilson, members of his cabinet and Chief Justice of the United States Supreme Court.

A mother and her two children were burned to death in their home in Lansing, Sunday morning. The fire was caused by a kerosene explosion.

Official figures announced by the Federated Charities Board of Baltimore, show suffering and need among the poor to have decreased this year eight per cent as compared with a year ago.

Michigan's Junior Bean Growers

By C. A. SPAULDING

THE bean pennant race is over and again Michigan finished first. In spite of an unprecedented crop in California, and an unusually bad season in this state, Michigan produced more dollars' worth of beans this year than any other state.

Due to the favorable conditions for growing this crop in some parts of the state, and influenced by the prevailing high price paid for beans, the raising of an acre of beans has become one



Dorothy Pawloski, Champion Bean Grower.

of the most popular of the "projects" now carried on by the Junior Extension Department. And just as Michigan leads the other states in production, so the boys' clubs raising beans this year outstripped the clubs of other states. During the past year some one hundred and fifty boys and girls were enrolled in the bean growing clubs of the state, each raising one-half or one acre of white pea beans under the direction of the Junior Extension Department.

The year was not a good one for beans in the larger part of the state, the extremely hot weather of July and August blasting off part or all of the first setting of blossoms in the middle or southern counties. On the other hand, the boys and girls were not bothered as much this year as usual by the blight or anthracnose, since the hot dry weather tended to inhibit the growth of these diseases. Many of the club members anticipating these diseases purchased northern grown seed which is usually more free from infection and does better than home-grown seed. This was made possible through the courtesy of the banks in extending credit to boys who did not have money enough to pay the extra expense of securing this type of seed. The bankers of Grand Rapids took the personal notes of the bean club boys payable at the time of selling the bean crop and thus aided materially in the introduction into Kent of better seed beans. Many other banks did the

same and as a result the type of beans raised by the club members this year was considerably better than the general run of market beans.

By following out the instructions issued by the Farm Crops Department to bean clubs the members did much to raise the average yield. They also demonstrated the fallacy of the old theory that beans do not require a fertile soil. In the best club in the state over fifty per cent of the members used fertilizer and about twenty-five per cent of them used both fertilizer and manure.

Ninety-seven boys and girls finished up all their work, exhibited their beans and reported at the close of the season. These boys and girls averaged 20.3 bushels per acre and they raised a product valued at approximately \$9,000. A large part of the beans raised by these boys and girls have already been sold for seed and the ninety-seven boys and girls have made a net profit of \$5,915.

The following report and story of the bean club champion for 1916 is fairly typical and illustrates what is being accomplished by this type of work.

BEAN GROWING.

BY DOROTHY PAWLOSKI.

Cost, Yield and Profit for Year.

Estimated rent land (1 acre)...	\$ 5.00
Cost of seed.....	2.50
Cost of plowing, harrowing, spading, manuring and other work of self or team.....	11.08
Cost of planting.....	1.00
Cost of cultivation.....	2.50
Cost of marketing.....	1.58
Total cost of crop.....	23.66
Total number bu of beans.....	28
Number bushels sold.....	27
Price received per bushel.....	7.00
Total income from crop.....	189.00
Value of beans saved for seed..	7.00
Total value of crop.....	196.00
Net profit on crop.....	172.34
Cost of raising one bushel of beans	84½c

How I Made my Crop of Beans.

Several of the boys and girls in our district entered the bean contest and so I decided to do so too.

As the season was late the outlook for a good crop was rather bad, but I made up my mind to get my acre of beans in even if it was late.

I got my brother to plow it for me and it took him five hours to plow it. I would have plowed it myself but I didn't because I couldn't handle the plow.

The soil was plowed in the afternoon of June second and I started to get it into shape for seeding early the next morning.

I harrowed it twice. Once with a spring-tooth and once with a disc harrow. I dragged it with a planker after each harrowing. Then I let it lay till the nineteenth when I harrowed it with a spring-tooth harrow and then with a planker. Altogether it took me six hours to get it into shape.

I sowed it with a hand drill on the twentieth; it took me all day. I wanted to wait longer because it looked

like rain, but my brother told me not to wait any longer. He said if a crust formed I could loosen it up with a spike-tooth harrow. Luckily the rain wasn't very heavy, only a shower.

I cultivated them on July 11; my brother taught me how. It was a hard job at first and before I learned how I destroyed quite a few plants. I cultivated them a second time on the twenty-first and would have cultivated them again but I was afraid I'd knock the blossoms off. It took me twelve and a half hours to cultivate them both times. I got my sister to help me hoe them. It took us two days. This was the easiest part of the work because there weren't very many weeds.

The time for pulling the beans came earlier than usual on account of the dry weather. My brother pulled them with a puller on September 16 and I gathered them up in piles. It took him an hour and a quarter and me all day.

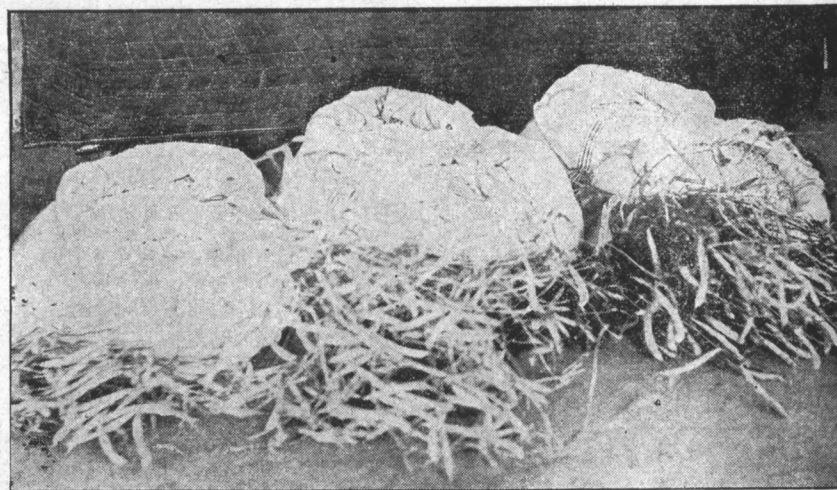
On the twentieth the beans were cured enough to be taken into the barn. I got two large loads. My father and I hauled them in. One on the afternoon of the twentieth and the other the next forenoon.

The beans were threshed on the ninth of November and I got twenty-eight bushels. My father got half of these for seed for next year and the rest I sold to neighbors. I kept one bushel for myself because I expect to

for years used manures to bring along the new seeding. Some dairy farmers make one or two compost heaps with their spring and summer manure and use it to patch up the seeding as soon as the grain crops are harvested. The top-dressing may be done any time from early in the spring until late in the summer after the grain crop is removed. On the writer's farms the best results have come from applying about eight loads of manure to the acre as soon as possible after cutting the small grain crop.

Late Summer Seeding.

Many farmers in the eastern states and in some parts of the central states are finding the late summer an ideal time to sow clover seed. If the field can be cleared, plowed and thoroughly fitted and the seed sown in August, failures to secure a good stand will be rare, provided the other conditions are favorable for the crop. On many dairy farms clover sown in the silage corn at the time of the last cultivation, becomes thoroughly established before winter, and will give a full crop the following season. Those who have not tried this method of seeding frequently hesitate for fear the stubble of the corn will be in the way of the hay crop, but if the field is rolled the next spring no such difficulty will be likely to be experienced. Silage corn, being removed from the field as soon as cut, furnishes more satisfactory conditions



Typical Exhibits of Club Members—One-half Bu. of Beans and Three Stalks.

sow two acres next year. I charged them \$7.00 a bushel.

My acre of beans brought me a profit of \$172.34, which is more than I looked for last summer.

SUCCESSFUL FARM MANAGEMENT WITH CLOVER.

(Continued from first page).

with a weeder. This insures a more even germination of the seed and the tiny plants will be down where the roots will gain a better foothold and be able to go through periods of drouth in better condition than is the case when they are growing up out of huge cracks in the soil through which the moisture rapidly escapes.

The benefit to the grain crop following the use of the harrow and weeder is not generally realized. If the spring is dry the use of these implements destroys many weeds and prevents the loss of soil moisture. By making a hospitable home for our clover seed and protecting the resultant plants from robbery by weeds, we are increasing the harvest of grain.

Light Seedings of Grain are Best.

Clover when seeded in small grain often dies out because too much grain is used in seeding. If one is seeding clover with small grain at least one-third less grain should be sown than when seeding the grain crop alone. If the soil conditions are not exactly ideal or if there are thin spots in the field one will obtain good results from top-dressing the new seeding with barnyard manures. Many corn belt farmers are finding the new seeding an ideal place for their farm manures. In the eastern states many farmers have

for the clover than the field corn that is left in the shocks to stand while curing.

Seeding Timothy with Clover.

Notwithstanding the teachings of soil experts that clover is the most valuable factor in building soil fertility, many farmers who keep stock find that better and more economical results are secured by seeding timothy along with the clover and allowing the meadow to stand two or three years. It is not the writer's purpose to minimize the value of the clover crop in building soil fertility, but rather to show the necessity of securing an adequate supply of humus as well as nitrogen to form the basis of future operations.

On all fields that are drained and contain a fair amount of available plant food a stand of clover and grass may be obtained by sowing a proper mixture of clover and grass seeds. One may not have such luxuriant forage on all parts of the field as where the clover thrives, but the average yield of hay will be far greater and the quality superior than is the case where red clover is seeded alone. Then, too, the difficulty of curing a heavy crop of red clover is to a large extent minimized if the mowings are made up of a portion of alsike and timothy.

Clover Feeds the Grasses.

Another point in favor of seeding timothy along with clover is the fact that timothy, when growing with clover will have a larger protein content in the stem and stalk than when growing alone. The fact that when a clover sod is broken up the following crops do exceptionally well is pretty generally understood. That the tim-



The Prize-winners in the Huron County Contest, including State Winner.

othy growing in the field will ultimately derive great benefit from the clover which is grown with it is not so generally understood. That such is the case, however, cannot be doubted. As has been pointed out, drainage, lime, manure and chemical plant foods will encourage a large percentage of clovers in the older mowings. It must be kept in mind, however, that the individual clover plants are not long lived. Red clover is short lived; the plant will not as a rule, live more than two or at most, three years. Clover remains in the mowings simply because some of the seed almost invariably ripens previous to the cutting of the crop. Considerable numbers of clover plants undoubtedly die each year. It is the decay of the roots and stubble of these plants which accounts for the benefits to the grasses in the mowings. Grasses grow best where nitrogen is available in the soil. The decay of the roots and stubble bring this element within reach of the grasses, and thus the clover plants which first help themselves by drawing nitrogen from the atmosphere, in their death and decay help the grasses as well. Any permanent mowing which at the outset is brought into good condition to produce good clovers will produce good, strong growth of grasses as well as clovers.

The writer has been severely criticized for advising farmers to grow timothy along with the clovers, but on the other hand, a great many farmers have failed to derive maximum benefits from the timothy and grass crops because they have been lectured to over and over again that only legumes add any nitrogen to the soil. Of course they are the best but, again, there are millions of little organisms ready and waiting to seize upon anything organic, any root or stem, to make nitrogen for another plant. This may explain why a thick, heavy sod has so much greater value to the crops grown in the rotation than merely stimulating one crop and leaving the soil depleted in organic matter.

Use the Manure on Meadows and Pastures.

Still another point in favor of maintaining older mowings and permanent pastures is the fact that it enables the farmer to derive a far greater value from the farm manures. When we apply the manure crop to the clover and grass crops we are getting the lever under the very center of gravity of the whole farm, and when we lift the clover and grass crops the whole farm comes up with them. Common experience, as well as the reports of exact experiments, shows that manure will grow as large a crop of corn when applied to the clover and grass crops the previous year as when left in the yards and used immediately before the field is plowed in preparation for the corn crop. If this holds true on all farms, and it is my judgment that it does, the increased growth of the clover and grass crops caused by the application of the manure represents so much clear profit, besides affording a better base of humus for future operations. As a general undertaking it is better to plow under a thick, heavy sod of clover and timothy than to plow under the clover crop after one crop has been harvested. The exclusive growing of clover and the three-year rotation advocated by so many agricultural authorities is undoubtedly preferable on the fruit or truck farm, but it is not so well adapted to conditions on the dairy or stock farm where large crops of hay are needed every year to supply roughage for the stock.

Management of New Seedings.

Usually the best way to treat newly seeded clover, or mixed seeding the first year is to top-dress the thin spots with manure and allow the clover and grass to grow undisturbed, though if weeds are gaining a foothold it will be well to clip them back with a mowing machine. Preventing the weeds from going to seed is a large part of the

battle in destroying such weeds as rag-weed, fox tail, etc.

The practice of turning stock onto new seeding in the fall is seldom profitable. In wet seasons the top growth may seem to justify this practice, but the sod is likely to be injured by the trampling of the stock, and many of the young plants will be pulled out by the roots. If the season is dry the leaves are needed to protect the tender roots from the sun and wind. As a rule, it is better to cut the forage

and leave it on the ground to serve as a mulch than to subject it to trampling and grazing. Occasionally, when an older meadow has made a good growth, and the feed is needed, it may prove profitable to allow the stock to graze a few hours each day when the ground is not likely to be made rough by trampling. It is a situation where one must weigh the value of the feed obtained by the stock against the damages they will do the clover and grass crops while obtaining it.

Growing Maximum Potato Crops

By J. W. HENCEROTH

THE nineteen-sixteen potato crop of Michigan averaged about thirty-seven bushels to the acre but there were a number of potato growers in Van Buren county who grew from 175 to 200 bushels to the acre. These same men have been averaging up around 300 to 400, and as high as 454 bushels to the acre of marketable potatoes for a number of years. At the present time when potatoes are selling at such unheard of prices and when every farmer who can secure seed is planning to increase his potato acreage it may be well worth our while to look into the methods used by men who, in spite of bad weather, disease and other unfavorable conditions, continue to get large crops. On February 12-13, at Paw Paw, Michigan, these men were loading potatoes by the earload at \$2.25 per bushel.

These men do not trust to chance or luck—they do not believe in planting in the moon—but they do believe and practice thorough seed preparation, in fact, they begin the preparation of their land at least a year ahead and generally plan it several years ahead. A number of them cover their potato land from eight months to a year ahead of the time it is to be planted with manure at the rate of from ten to twenty loads to the acre. When the clover sod is to be put to potatoes they begin covering as soon as the first crop of hay is off. This method allows the plant food of the manure to work down into the soil. Large amounts of vegetable matter cover the ground which keeps the ground warm during the winter. This permits and promotes bacterial action because the ground is kept warm and moist, thus enabling the bacteria to work all through the winter. But little fall plowing is practiced by these potato men, instead they plow in the spring and thoroughly fit the seed bed after allowing it to be covered with the manure and vegetable growth during the winter.

Hon. Jason Woodman, the best known of these successful potato men says that he likes to have the grass and clover make a slight growth in the spring, as he believes by this method more plant food is rendered available to the potato plants than if they plowed early in the spring before vegetation started.

These men do not count the number of times they go over the land to thoroughly fit it. They simply keep on until the seed bed suits them. Some of them plant their seed by hand, others use planters. Those who use the planters, however, are extremely careful and place a reliable man on the seat to watch that a potato is dropped when it should be. Vacant places cut down yields. They do not have them in the Van Buren county fields. They are extremely careful to cultivate shallow to hold moisture in the soil and to cut off no roots.

Most of these men have manure pits or covered barnyards where every bit of nitrogen, phosphoric acid and potash in the manure is saved. In addition to the use of large quantities of manure most of them use considerable commercial fertilizers. This was especially true before fertilizer prices had advanced, even yet, many of them

are using large quantities of fertilizers. They have found that applying fertilizers, especially one high in potash has given them best results. Their soils are somewhat lower in potash than other Michigan potato soils. Where they have large quantities of manure some of them have secured excellent results from the use of straight acid phosphate.

Mr. Woodman has found on his farm that best results were secured from the fertilizers where lime had been used to sweeten the soil. They are not troubled with scabby potatoes from the use of lime because every potato that is planted is dipped in either formalin or corrosive sublimate. Only the best seed is planted. Some of the men have been growing high-grade seed potatoes for the rest of the community. They also spray in order to keep down all blight.

No, it is not luck nor planting in the proper moon that gives Van Buren county farmers 210 bushels to the acre when other Michigan farmers are getting thirty-seven bushels. Their yields are due to the fact that they thoroughly prepare the ground, supply the plants with plenty of available plant food near to hand, plant only the best seed from high-yielding varieties, thoroughly cultivate the soil to hold the moisture supply, spray to prevent all diseases and blight and stay in the game year after year, thus reaping the harvest when prices are high.

THE NEED OF LIME.

The necessity of treating the soils of the middle west with lime is pressing more and more urgently upon the farmers every year. The reason for this is quite evident. Calcium is a soil element which is being washed away or cropped away every year from our cultivated fields. Calcium carbonate, or ordinary limestone, which is one of the most common of the calcium-bearing soil minerals, is highly insoluble in pure water; but when carbon dioxide is present in solution, as is the case in all soils where decomposition of organic matter in large amounts is taking place, it becomes quite readily soluble. Thus, cultivated fields experience this loss very much more than do pastures, woodlands, and lands which are not highly fertilized with organic substances.

We are told by soil experts that from 500 to 1000 pounds of lime are washed each year from the average acre of corn belt land simply through rainfall and drainage. In addition to this some crops make exceedingly heavy demands upon this soil element. Alfalfa, clover, cabbage and tobacco all require a great deal of lime. Corn, oats and wheat demand only about a tenth as much as clover and a twentieth as much as alfalfa. However, the result in the long run means depletion of this element wherever fields are cropped and wherever the rainfall approaches the average. In the dry and semi-arid regions of the west the soil presents no lime problem.

With the depletion of lime from our cultivated fields the matter of soil acidity begins to intrude and demands attention. Soil acidity is never present when there is enough lime to neutral-

ize the acids which result from the action of the bacteria in the soil. But when an excess of such acid occurs, then these bacteria themselves are either killed or rendered inactive. Consequently, the growth of crops in which these organisms play an important part is seriously menaced if not rendered impossible. This is the reason alfalfa so often fails to grow. Some clovers suffer in the same way although there is a difference in this regard in the behavior of various species. When sufficient lime is applied nature re-establishes the proper balance and these crops will again do well.

The amount of lime which should be applied varies from one to four tons per acre. In a section in eastern Illinois where sweet corn is grown extensively the latter amount has been used of late years, largely to aid in the growing of clover during the seasons in which certain acreage is not cropped to sugar corn.

Ingham Co. G. O. STEWART.

ROAD BUILDING IN MICHIGAN.

Calhoun county has bought another stone crusher and will double the amount of its road work this year. The territorial road between Marshall and Albion will be improved, either with cement or brick, and will probably be widened to eighteen feet.

Prisoners working on Genesee county roads this year will be paid fifty cents a day, with meals, an advance over previous years, the money coming from the county road fund instead of the general fund as formerly.

Muskegon county spent \$60,886 on its highways in 1916.

Contracts have been let to build \$81,300 worth of new roads in Berrien county this year. Benton township recently authorized a bond issue of \$100,000 for good roads and Bainbridge township has voted \$70,000, while Pipestone and Sodus townships will probably take similar action soon. It is planned to make Berrien the model good roads county of Michigan.

Saginaw has issued a booklet showing improved roads, roads under construction and new roads as planned.

Ottawa county will place sign posts at principal road crossings. They will be of angle steel, rust proof, with black letters on a white background.

The Jackson County Good Roads Association has been formed, with Mr. George King, of Parma, as president, and the chief purpose is to boost for a county bond issue of \$90,000 for better roads.

Wexford county will continue its road building activity in Cherry Grove, Colfax, Springville, Liberty and other townships.

Rundell and Leroy townships in Osceola county have voted bond issues of \$10,000 and \$13,000 respectively for building their portions of the Mackinaw Trail, which connects with the Dixie Highway in Indiana, and runs north to Mackinaw City, via Kalamazoo, Grand Rapids and Cadillac.

Shiawassee county plans to build twenty-five miles of gravel road as connecting links with roads already constructed.

The Michigan Detroit-Chicago Highway Association held its second annual meeting in Kalamazoo, with 400 men in attendance. A. B. Williams, of Battle Creek, was re-elected as president, and the list of officers and directors includes boosters from Kalamazoo, Covert, Dowagiac, St. Joseph, Jackson, Chelsea, Marshall, Ypsilanti, Parma, Paw Paw, Niles, Detroit and Chicago.

Kalamazoo county will vote on a million dollar bond issue for good roads in April.

State Commissioner Rogers says that prospects point to the construction of 1000 miles of good roads in Michigan this year, or about 500 miles more than was built in 1916.

Farm Notes

Growing Barley on Muck Soil.

I want all the information I can get regarding raising barley on fall plowed, well drained muck land. How much seed should I sow to the acre and what kind, two or four-rowed? Should seed be raised in Michigan or in states farther north and west? Is it best to use part oats for seed? Will barley stand more frost than oats? What is the best fertilizer to use, how much per acre and how should it be applied? What would be a fair yield per acre on this ground?

Eaton Co.

C. M. B.

Barley is not as well adapted to muck soils as oats, for the reason that the young plants are more sensitive to frost and cold, wet weather as well as to drouth, than is the case with oats, also the tendency to produce a rank growth of straw on soil rich in nitrogen as cultivated muck will aggravate the characteristic softness and weakness of the straw. On the other hand, barley grown on soils rich in nitrogen, particularly if a supplementary application of phosphorous is made, will produce a barley more than ordinarily rich in protein and thus a more valuable feed for live stock.

The result of many experiments made to determine the proper amount of seed to use indicates that about two bushels per acre is a normal seeding for maximum results. Fairly deep sowing should be practiced on a well-prepared seed bed for best results. While it is usual to get barley in early in the spring, as is the case with oats on upland soils, it would be advisable to delay sowing until a little later date on muck soil, especially if susceptible to late spring frosts.

Of the improved types of barley, the Oderbrucker is perhaps the most popular in this state, and there is plenty of Michigan grown seed of this and other improved varieties on the market. There would be little if any advantage in sowing oats with barley on this soil, since the barley has a shorter growing season, and will be ready to harvest before the oats would reach maturity.

As above noted, it will pay to use a phosphate fertilizer such as acid phosphate or a prepared bone fertilizer sown broadcast or with a fertilizer drill at the time the barley is sown. The usual amount used for this crop is about 250 pounds per acre, although on muck soil which is somewhat deficient in this element of fertility, a heavier application might be profitable.

It is impossible to prophesy the yield which one might expect from barley on this soil. Average yields on good uplands range around thirty-five to forty bushels per acre, with occasional yields running fifty per cent larger.

Seeding Sweet Clover on Thin Land.

I have taken the Michigan Farmer for several years and like it very much. I would like some advice in regard to sweet clover. Can it be sown in wheat, rye or oats in the spring? How much seed is sown to the acre? Does it do well on thin land? If sown in the spring will it make a crop of hay the same summer? Should it be cut before it blossoms to make hay? What time should it be sown? Does it require a mellow or a compact seed bed? Will it stand more than one year?

Cass Co.

C. O. W.

Sweet clover can be seeded in the spring on fall sown grain or with oats as preferred. It requires a firm seed bed for best results, and if sown in oats it is better to fit the ground without plowing if practical. About ten pounds of good hulled seed should be used per acre, and better results will be secured if it is soaked in warm water for a short time before sowing, since many of the seeds are not easily penetrated by moisture. If sown in the spring on fall sown grain, it should be put in with a disk drill, or the surface should be thoroughly harrowed so as to get the seed well covered.

Under ordinary conditions, it will not make a heavy growth the first summer, although last year the writer cut

a portion of a field seeded in the spring, as an experiment. Sweet clover is usually grown as a soil improver, and is more often pastured in the fall or spring before being plowed down, but will make one liberal cutting of hay the spring after sowing, if it is desired to utilize it for this purpose.

Mixing Ashes with Fertilizer.

How would it do to mix unleached ashes with fertilizer, say half-and-half by bulk, and drill in with wheat?

Hillsdale Co.

H. D.

Ashes should not be mixed with a fertilizer containing nitrogen, for the reason that the lime in the ashes will set up a chemical action which tends to release the valuable nitrogen in the fertilizer in the form of ammonia gas. It will be more profitable to apply ashes and the fertilizer separately.

Ashes contain about thirty per cent lime, from four to seven per cent of potash in one of the best forms for plant use. They also contain about two per cent of phosphorus, and are a valuable fertilizer and soil amendment, especially on land which is in a more or less acid condition, and does not grow clover well. They should not, however, be mixed with a nitrogenous fertilizer or stable manure for the reason above mentioned.

Preparing the Soil for Alfalfa.

I intend to sow five acres to alfalfa this spring. This field is slightly rolling, with a slope to the northwest. It is sand and gravel loam, with now and then a clay spot. This field grew a very large crop of clover last year and this year a crop of corn. Will have some manure to put on it. When would you advise plowing and how deep? When would you sow and how?

Jackson Co.

E. B. M.

If this field was kept clean last year, it would be just as well if not better, to disk same thoroughly in preparation for alfalfa as to plow the land before sowing the crop. Alfalfa needs a good firm seed bed, and there would probably be less trouble from weeds by this surface fitting than if this soil were plowed in preparation for the alfalfa crop. If the soil is thoroughly disked and sown with a light nurse crop of oats quite early in the spring, the manure used as a top-dressing, satisfactory results should be secured, provided the soil is not in an acid condition, and the bacteria for which the alfalfa plant is the host is present in the soil.

The fact that this soil grew a large crop of clover recently would indicate that it is not very acid. It would be well to test same with litmus paper, however, and if an acid reaction is secured, it would be profitable to give a liberal application of lime before seeding to alfalfa.

It would also be advisable to inoculate the soil or the seed at the time of sowing. The seed can be inoculated by the use of a pure culture, or with a little soil from an alfalfa field by the so-called glue method, or some inoculated soil can be sown on the land and worked in when preparing it for the alfalfa crop.

There is no best time to sow alfalfa, and if midsummer seeding is preferred, it is better to sow without a nurse crop, but where sown in early spring the weeds are likely to be less troublesome where a light nurse crop is used.

Sowing Sweet Clover on Fall or Spring Sown Grain.

I want to sow some sweet clover this spring, would like to know which would be the best to sow on fall rye or sow with spring grain on fall plow that has been top-dressed with manure?

Huron Co.

L. H. W.

Practical experience with sweet clover in this state is not sufficiently extensive to permit the expression of positive opinions as to the comparative advantages of different methods of seeding. The writer has seen excellent stands of sweet clover secured under each of the methods suggested in this inquiry. Sweet clover demands particularly a firm seed bed, but this would be provided on the fall plowed

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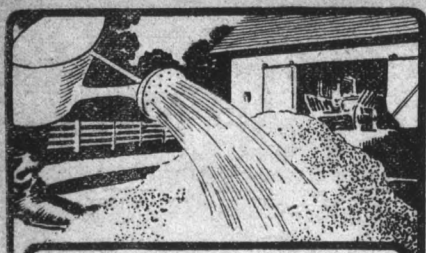
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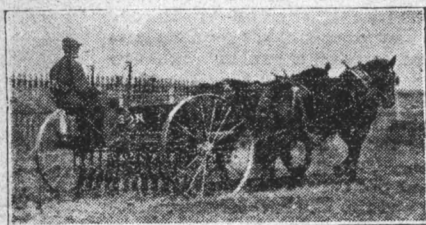
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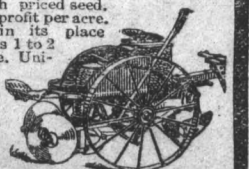
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ground to be sown to spring grain, as well as on the fall sown rye, in fact, the cultural conditions for the young plants would probably be better in this case than on the fall sown rye, unless the latter is thoroughly worked over with a harrow to insure a covering for the seed if same is sown broadcast. A still better method would be to sow the seed with a disk drill which would plant it at the proper depth. Of course, on a heavy soil the seed might be sown early as clover seed usually is, with beneficial results, since there are a considerable proportion of hard seed in sweet clover seed which do not readily permit the entrance of moisture, and thus reduce the germination average.

On this class of soils, however, the use of sweet clover is of doubtful advantage, and where it is sown later as by one of the methods above noted, this handicap may be overcome by securing scarified seed, or by soaking the seed for a few hours in tepid water, then spreading to dry before sowing.

SUGAR SAND.

Maple sap as it is taken from the tree consists of approximately ninety-six parts water and about four parts of solid matter of which over half is sugar and the remainder nitrogenous matter, lime salts, and dirt that has found entrance during the handling of the sap. Concentrating the sap to syrup brings about changes in the solution other than that of merely eliminating the surplus water. When the sap is boiled the nitrogenous matter becomes insoluble and separates from the liquid as a kind of curd similar to the manner in which the white of a raw egg will act if it is put into hot water. This curd comes to the surface of the boiling liquid and must be skimmed off continuously or, as the syrup becomes thicker, the curd in a finely granular condition will be found suspended all through the syrup, making the color bad. During the process of coagulating the nitrogenous matter gathers a portion of the suspended syrup and brings them to the surface. It is thus that the nitrogenous matters act as a sort of cleanser but only in a small way.

Continued boiling makes the lime salts of the sap grow more and more concentrated until the solution contains so much mineral matter in proportion to the amount of liquid that the liquid can not hold the mineral salts in solution. Precipitation follows. The sides and bottom of the evaporator become coated with a deposit of this mineral matter which is chiefly a lime salt and which is known as "Sugar Sand," "Silica," or "Niter." Not all of the sugar sand drops to the bottom. Some of it remains suspended as a finely divided sediment and must be filtered out through felt or cloth if the color of the syrup is to be up to the standard.

"Sugar sand" on the surface of the evaporator forms a sort of scale that hinders the work of boiling and increases the cost of producing syrup because more fuel is necessary to get the same result that a clean evaporator would give with less fuel. The best producers make it a practice to remove this scale after each boiling. Several methods are employed. Hydrochloric acid or vinegar will do the work but the drawback to the use of acids is that they will work on the metal of the evaporator as well as on the scale. If the acid is not entirely removed from the pan it will work on the sugar that is made at the next boiling and so alter its nature that the flavor of it will be changed. Scraping to remove the scale is too strenuous for the continued welfare of the pan although the method is used by some workmen. Boiling water and a fine wire scrub brush together with plenty of elbow grease gets rid of the scale

in good shape as well as give the pan a good cleansing. Sugar sand is sometimes collected and used for scouring. Ingham Co. VERNE VERNET.

THE OBJECT OF FARMERS' INSTITUTES.

Will Mr. Lillie give me a little information regarding farmers' institutes and the objects, purposes, etc.? Livingston Co. Mrs. D. L. H.

Farmers' Institutes originated for the purpose of extending the work of the Agricultural College to the average farmer. It was realized that only a comparatively few farmers and farmers' boys and girls could attend the agricultural college and get the benefit of the knowledge to be attained there and at the experiment station. Such wonderful strides were being made in the sciences pertaining to agriculture that leading agricultural educators conceived the idea of carrying this knowledge to the farmer who could not attend the college, by means of the institute. It has been a wonderful success. Professors from the college, graduates of the college, and practical farmers who had absorbed those up-to-date ideas of science pertaining to agriculture, have lectured at these institutes and the farmers have had the scientific knowledge brought to them by word of mouth. They have had the benefit of the teachings of the college without the expense of attending.

But the institute has done much more than furnish scientific information pertaining to agriculture. It has been an open forum where the farmer has had a chance to discuss not only the business of farming but every other question of interest to him.

The institute has been a sort of literary society to the farmer and his wife and family. Many a farmer and farmer's wife has written their first essay and read it before the institute. Many a farmer has given his first extemporaneous talk before the institute. And this is one of the most helpful phases of the institute. If anything can be done to stimulate the farmer to express his ideas, either on paper or in a talk, it is very helpful to that person and may, many times, be very beneficial to the institute. I think the farmers' institute has done and is doing a wonderful work for the farmer. This work will be appreciated more and more as time goes on. It is a work that is cumulative in effect. At first the results may not be so noticeable, but with time the results produced in better farming, better organization among farmers, greater sociability, and greater respect for themselves and their business will be beyond measure. COLON C. LILLIE.

FEEDERS' PROBLEMS.

Feeding Pigs on Pasture.

I am short of corn and will be until the next crop is grown. I expect to raise quite a number of pigs if I have good luck with them. I have plenty of clover pasture for them, unless some unforeseen element interferes. Would it be necessary to have tankage before them while on pasture, or would it be profitable? Would it pay to feed corn with the pasture and pay \$1 a bushel for the corn, or is there a feed on the market that would be better for growing pigs than corn? My experience in the past has been in waiting for new corn that the market goes down on the hogs before they are well finished. What variety of soy beans had one ought to grow in this part of the country and expect them to mature with the corn, and what proportion had the corn and soy beans ought to be mixed when one expects to turn the hogs in and let them harvest the crop? Barry Co. D. W. G.

It has been very clearly demonstrated by the extensive experiments conducted at the Iowa Station, that it not only pays to feed pigs grain on pasture, but that it pays to feed them liberally, in fact the most economical gains were made with pigs fed under the so-called free-choice system in which they were given a variety of grain feeds in separate compartments

of self-feeders on pasture, permitting them to balance their own ration.

An interesting phase of these experiments was the demonstrated fact that not only was more profit made from the pigs in this way, but that the pasture was better utilized and also paid bigger profits than where only a small amount of grain was used in connection with the pasture, since the hogs made very much more rapid gains, and consequently had greater capacity for consuming the forage of the pasture than was the case where but little grain was fed.

As to the relative profit of feeding tankage or other protein concentrate with corn on pasture, something, of course, will depend upon the relative cost of the different feeds, but at present prices it would probably be profitable, it having been demonstrated that the pigs will not make the tankage over ten per cent of the grain ration under the free-choice system. Without question it will be profitable to feed \$1.00 corn to thrifty pigs on clover pasture. In these experiments conducted at the Iowa Station, it was found that where corn was fed in a self-feeder on alfalfa pasture, that with hogs at \$7.00 per hundred, after paying for the alfalfa and crediting all profits to the corn, the net return per bushel was 98.5. At present prices of hogs, this would leave a handsome profit in the feeding operation.

Soy Beans for Hog Pasture.

While considerable has been written advocating soy beans as a grain crop to be hogged down with corn, the writer's experience in the season of 1915 does not corroborate this idea. About four acres each of corn and soy beans were planted separately in the same field, with the idea of permitting the hogs to harvest the crop in the fall. About thirty spring pigs were turned in this field when the corn was sufficiently matured. The soy beans did not make a very good crop, but were in about the right stage of maturity for hogging down when the pigs were turned in. The pigs proceeded to harvest the corn and neglected the soy beans altogether. The corn being entirely cleaned up and the soy beans hardly touched, the pigs were turned into another field for finishing, and sheep were permitted to harvest the soy beans, which they did with relish.

If other Farmer readers have tried this combination for hog feed, their experience would be welcomed by readers who are interested in this method of finishing hogs. Hogging down corn is becoming increasingly profitable in Michigan and if soy beans could be successfully grown and hogged down with it this would be an advantage.

Grain with Skim-milk for Pigs.

I have some pigs that will average about 60 lbs. They are drinking about 60 lbs. of skim-milk a day. What proportion of middlings and corn should they be fed and should they be fed more corn as they grow older? Ottawa Co. SUBSCRIBER.

The greatest feeding value is gotten from skim-milk when it is fed at the rate of from one to three pounds of milk with one pound of corn meal. Fed within these limits with middlings added in any quantity desired for variety in the ration, an excellent ration is provided for growing pigs, using the larger amount of milk when they are small and increasing the corn within the proportions named as the pigs attain more age.

John G. Imboden, of Illinois, an authority on cattle feeding, advises putting corn into cattle at the smallest possible expense. He buys all his feed as well as all his cattle, and operates a feeding plant. With the average farmer who has sufficient roughage and grows his hogs, with plenty of swine to follow the cattle, he advises putting corn into them scientifically. He uses shelled corn or ear corn and grinds all his feed, grinding corn and cob, adding a highly concentrated feed such as linseed meal, feeding it through self-feeders. He says from 90 to 120 days is about as long as a steer can usually be fed profitably.



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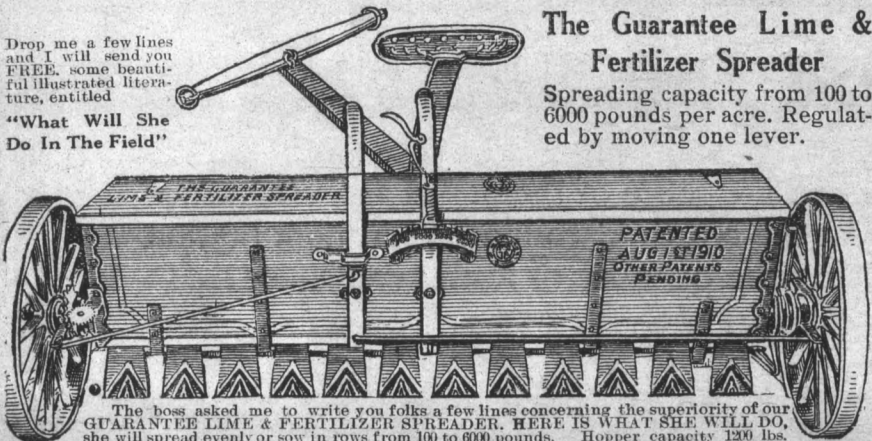
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Controlling Psylla

By J. H. CARMODY

FOR the past year or so this old enemy of the pear grower has been causing a great deal of trouble. This is by no means a new trouble as it has long been known in the east, and some ten or twelve years back, it caused considerable trouble in Michigan. While psylla and its work is well known to the large grower, many of the smaller growers outside of the regular pear belt are unacquainted with its habits and hence fail to recognize it until considerable damage has been done.

In advanced cases, the trees take on a blackened, smoky appearance, due to a sooty fungus which grows on the honey dew secreted by the insects. Very often the fruit falls to the ground

too heavily as there is a danger of going in too deep and thereby injuring the inner bark and perhaps spread blight. The bark is removed in order that the spray which we use later may more effectively reach the insects, since each insect must be hit to be killed. In extremely bad cases, the fallen leaves and rubbish on the ground adjacent to the trees should be raked up while dry during a cold period and burned. While late plowing is not generally recommended in pear orchards, late plowing in cases where psylla is bad would undoubtedly prove beneficial.

The Time for Spraying.

After cleaning the orchard as directed, comes the next important operation. Bear in mind that the psylla passes the winter on the trunk and branches and further that it becomes active during the warm days in November and December or in March and early April. During the extremely cold weather the insects are not active hence spraying would not be effective nor advisable on account of the danger of injury to the tree by freezing of the liquid.

Formerly kerosene emulsion was used for spraying at a time when the insects were in an immature condition. Recently kerosene emulsion has been supplanted by the nicotine sprays on account of the many superior advantages of the latter. At present nothing better is known than nicotine sulphate (black leaf 40), using it at the rate of one pint of the forty per cent nicotine to 100 gallons of water, adding about five pounds of soap to make the spray spread better.

Aim to spray at a time when the pests are exposed and while it is cool enough so that they will not move about freely. The bright clear days following the cool nights during the months mentioned liven the sluggish insects so that they leave their hiding places and crawl to the sunny side of the tree to take advantage of the warm sun. Both sides of the tree should be



Proper Condition of Buds for Spraying.

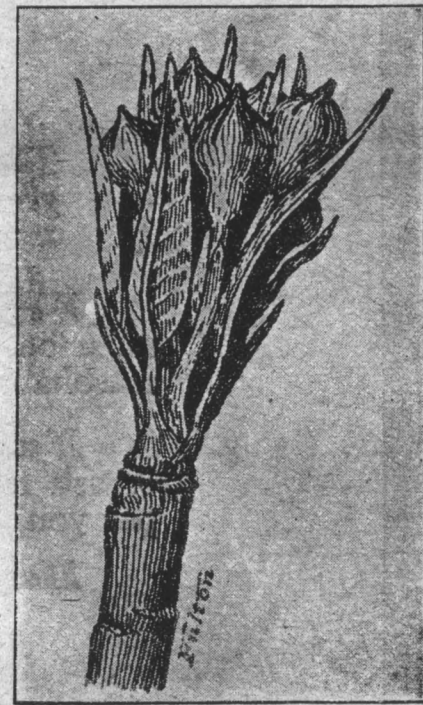
long before ripening time and if the trouble is unchecked, the tree finally dies. Often times winter killing is thought to cause pear trees to die when, upon a careful study of conditions, it is found that death was due to a weakening the previous summer by the psylla. Hence growers cannot be too careful in making preparations to control this troublesome pest.

Life History of Insect.

In order to control this insect to the best advantage it is necessary to know its life history and habits. The adult or mature psylla is an active four-winged, orange colored insect measuring about one-tenth of an inch in length. More common than the adults are the nymphs, which are queer looking creatures with wide, flat bodies and large heads. The mature psylla passes the winter under the loose bark on the trunks of the trees and in crevices wherever it can hide under rubbish and fallen leaves. With the first warm days of spring, the adults emerge from their hiding places and soon commence to lay eggs. The eggs are deposited in the creases of the bark, in the old leaf scars and about the base of the terminal buds. The eggs hatch in a few days and the little nymphs, as the young are called, begin to suck the juices from the leaves and twigs. Within two or three days after hatching, they cover themselves with honey dew, which finally turns black and colors the leaves. About a month is required for a complete life cycle and there are at least four broods in a season.

Pest Hard to Control.

This is a hard pest to control and many pear growers make little headway against it. However, this should not discourage anyone for with plenty of hard work properly directed, psylla can be practically eradicated. The first step that should be taken in fighting the pest is to scrape off the loose bark. Care should be taken to do this after a rain as the bark is easily removed then by means of an ordinary tree scraper. Do not bear down



Too Early for Bud Application.

sprayed before going to the next because the flies may dodge around and escape. It is a good plan to use two lines of hose and spray the whole tree at once so as to prevent the escape of the insects.

Since most pear growers have to combat scale and since psylla eggs are usually laid before the buds open it is further recommended that an application of lime-sulphur at winter strength (one to eight) be applied just about the time the cluster buds are ready to separate. This treatment effectively takes care of the scale and

is also very destructive to the psylla eggs and newly emerged nymphs. In most seasons the majority, if not all of the eggs of the psylla have been deposited by this time. There is a chance however, that some eggs may have escaped.

In a case of this kind it is a good plan to spray when the petals are dropping, with three-quarters of a pint of nicotine solution (forty per cent) to one hundred gallons of spray mixture. If it is so desired one may add the usual amount of arsenate of lead to this combination. Special stress should be laid on the importance of both of these applications since they not only take care of the important pests of the pear orchard but with no extra outlay, they will also greatly help in preventing further damages by this pest.

COMPANION CROPPING.

Where one has but a small piece of ground that can be utilized for garden he must make the most of what he has. By good arrangement and companion cropping, crops which mature quickly may be interplanted with later maturing crops and both crops grown on the same piece of ground.

Lettuce and early cabbage or cauliflower are excellent crops to grow in this manner. By setting the cabbage or cauliflower plants at the customary distances apart a lettuce plant may be set midway between each cabbage or cauliflower and its nearest neighbor in the row. The lettuce will mature and be out of the way within a few weeks and before the other crop has any need for the space which it had occupied.

It is seldom advisable to plant the middles between the rows with anything as this interferes with the proper cultivation and the keeping down of weeds. Exceptions to this rule are crops planted just before the companion crop is ready to harvest and horseradish planted between the rows of early maturing crops.

Horseradish sets may be planted several inches beneath the surface of the soil and in rows. English peas or early radishes may then be planted down the middles and cultivated without regard for the horseradish plants that are making their growth beneath the surface of the ground. As soon as the early crop is gone, however, the crop residue or debris from that crop is cleared from the land and the middles cultivated for the horseradish.

Crops that are planted down the middles of other crops that are about ready for gathering assume the nature of succession more than or companion crops and are grown as companion crops for a comparatively short length of time only. This practice is not to be discouraged as the seed of the second crop is not sown until the first crop has been made and its cultivation stopped. As with the peas or radishes grown down the middles of the horseradish rows, the debris of the old crop is at once cleared away and the space which it occupied cultivated as soon as possible.

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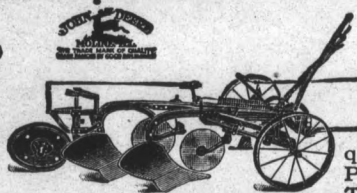
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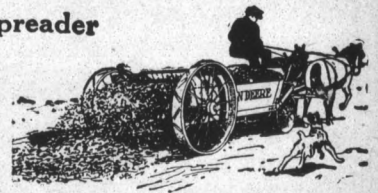
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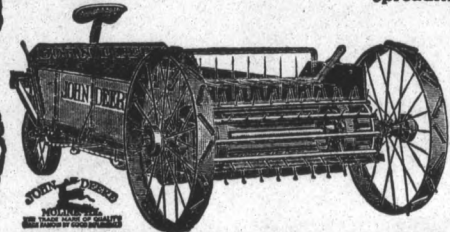
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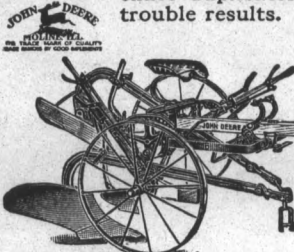
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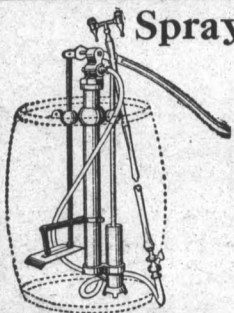
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Winter Meeting of State Fruit Growers

(Continued from last week).

DR. G. H. COONS, of the Agricultural College, gave a most interesting talk on "Pear Blight and Other Bacterial Diseases." Dr. Coons has the happy faculty of making scientific matter very interesting to the layman. He said that the bacterial diseases of the plant are similar to those of the mind except that the germs of animal diseases live in a temperature of 98 degrees while the plant germs exist in much colder temperatures. Bacteria need suitable conditions for development. They grow in sticky substances and therefore are not spread about by the wind, but are carried by insects. Crown gall is a plant disease similar to the cancer of the animal kingdom. It attacks a large variety of plants and may be found on most any part of a plant. When planting young trees a careful examination should be made and trees with nobby swellings of any sore, or excessive growth of five roots in abnormal places should be discarded. On old trees, if the tree continues productive, leave it alone but do not cut into the gall, as that will spread the disease to other trees by means of the pruning tools.

Common Bacterial Diseases.

The black spot on the peach and plum is also a bacterial disease. On the peach it makes an angular shot hole effect on the foliage. This must not be confused with the shot hole fungus which makes roundish holes surrounded by reddish discolorations. The means of control are to stimulate the trees to greater vigor by proper pruning, cultivation and fertilization. Dr. Coons, after giving a brief review of the work with fire blight, said that it has been proven without doubt that blight of the apple, pear and quince is caused by a germ which is spread about by insects. The first infection is usually at blossoming time. The disease gradually spreads back into the twigs and if not properly cut out it will get into the larger limbs. It passes the winter in hold-over cankers in some of the larger limbs. The chief means of control is to cut out the hold-over cankers. These can be distinguished by the blighted and withered

limbs above them. Black rot canker and bark canker are often confused with blight cankers.

During the growing season blighted limbs should be cut out as they develop. In cutting out limbs it should be done according to the principles of good pruning, and one should never fail to sterilize the wound. Persistence is the chief requisite in blight control and one need not have any fear of losing the orchard if he will get to work instead of stopping to bemoan the fact that blight has struck the orchard.

Some Spraying Experiments.

In a brief talk J. H. Carmody, Horticultural Extension Specialist of the Agricultural College, gave the results of several dust spraying experiments his department carried on. In general the results were not favorable to dusting but Mr. Carmody was not ready to condemn dust spraying as he thought that it might prove of value in the future. In grape spraying experiments, Mr. Carmody tried formulas with less than the amount of copper sulphate in the regular 4-4-50 formula, but none proved as efficient, and even considering the cost of the material, the old standard formula proved the most economical one to use.

Mr. George Low, who has had considerable experience with orchard heating in his orchards in Van Buren county, gave a talk on the practicability of orchard heating in Michigan. Experience showed Mr. Low that frost played considerable havoc with his Duchess orchard and that the interest on the investment in the heating outfit was cheap crop insurance. He uses oil heaters, placing them in every other space between tree rows. A frost indicator shows at sundown whether there will be frost that night or not. This gives time to get men and make other necessary preparations. If there is any wind, more heaters are put on the windward side of the orchard.

Transportation Losses.

"Transportational Diseases" was the title of a discussion by Dr. Coons on the relation of disease to transportation losses in perishable products, such as fruit and vegetables. Molds which commonly attack storage fruit are not active as long as the fruit is growing, but attacks the fruit when it stops the process of growth and begins to deteriorate. One of the chief causes of the development of diseases which cause loss in transit is the overcrowding of cars. This prevents the proper circulation of air and as a result as much as 15 degrees difference in temperature between the top and bottom of the car has been found. Under such conditions the fruit on top rots and is a serious loss. One large railroad has arrangements with a neutral inspection bureau which examines the car upon arrival and reports the condition. This bureau also sends men to shipping points to instruct shippers in proper field and shipping methods to insure arrival of fruit at destination in good condition. Fruit which has been sprayed will keep in much better condition than unsprayed fruit because brown rot and other diseases which cause losses in transit are kept in check. Diseased fruit is sick when shipped and will never get any better, but will likely get much worse in transit. Michigan fruit arrives in very poor shape and it would be a convincing lesson to every fruit grower to go to the large markets and inspect the incoming shipments.

The Cost of Carelessness.

The program was closed with a talk on "Loss and Gain in the Fruit Growing Business," by W. W. Farnsworth. Most of the losses come about by carelessness in the cultural methods and in preparing the fruit for the market. Careless spraying causes a great deal of loss through insect and disease damage to the fruit. Careless grading of

the fruit, and improper packing do not result in good prices, but if the fruit is properly grown and packed, and then backed by a reputation for doing this in the past, the result will be much greater profits.

The New Apple Grading Bill.

Among the things other than the regular program which came up was a discussion of the apple grading laws. At present the legislature is considering a law similar to the New York law. This law contains no provision for enforcement and therefore will be of little value. The U. S. Department of Markets has drafted a law which is now under consideration by eight states. It is superior to the New York law because it provides for enforcement, and also provides for grades as to quality. The minimum size, grade, mark, name of variety and name of one under whose authority the fruit was packed must be placed on the package.

The Horticultural Society passed the following resolutions favoring this law:

Whereas, the future of the apple growing industry in Michigan is largely dependent upon successful marketing and this in turn upon uniform and honest grading and packing customs, and

Whereas, the fruit interests in the several apple producing states are endeavoring to get uniform laws upon this point and have prepared a suggested bill which bill has been modified to meet Michigan conditions, be it therefore

Resolved, that the Michigan State Horticultural Society herewith endorse the proposed bill and urge, to its full strength, the enactment of said bill into law by the present legislature as a substitute to the bill now before said legislature, and be it further

Resolved, that the president of this society appoint a committee of five charged with the specific duty of laying before the proper legislative committees the proposed bill and urging its enactment. Be it further

Resolved, that the members of this society write their respective legislators, urging favorable action on the proposed bill.

The president appointed the following committee to lay before the proper legislative committee the proposed bill and urge enactment: James Jakway, Benton Harbor; George Friday, Colma; J. P. Munson, Grand Rapids; A. L. Hopkins, Bear Lake; George Low, Bangor.

Numerous questions were discussed when the question box was opened immediately after the noon hour on both days. The question box was in charge of Mr. T. A. Farrand, county agent of Van Buren county, who through his extensive experience in fruit growing, was able to give much valuable information to those seeking information.

Pruning Frosted Peach Trees.

Many growers reported injury to peach buds by the recent low temperatures. Reports varied from 50 to 90 per cent of the buds injured. Mr. Farrand brought up the question of pruning trees so injured. The consensus of opinion was to wait with pruning until one could tell definitely about what the crop prospects would be and then prune severely if there was no crop. Mr. Farrand said that many good buds would undoubtedly be found toward the ends of the limbs and if pruning was done before one could tell what the probable crop was going to be, many good buds might be cut off.

During the meeting a conference of officers of co-operative associations was called and the Michigan Fruit Packing Association was organized to promote co-operation between co-operative associations. It is to encourage uniformity among organizations as regards grading, packing and shipping and will also take up the advertising of Michigan fruits. The following officers were elected: James Nicol, South Haven, president; John Crane, Fennville, vice-president; George L. Post, Colma, secretary. An advisory board consisting of one representative from each of thirteen associations was also selected.

Old Fashioned Ideas

are being supplanted daily by newer and better things. This is particularly true where health and efficiency are concerned.

In hundreds of thousands of homes where coffee was formerly the table drink, you will now find

POSTUM

It promotes health and efficiency, and the old time nerve-frazzled coffee drinker soon gives place to the alert, clear-thinker who drinks delicious Postum and knows.

"There's a Reason"

No change in price, quality, or size of package.

The Meaning of this Mark 1866 CURTIS on Woodwork

This mark means to your woodwork what your name means to you. Without your name you'd be a person—nothing more. Without this CURTIS trademark, woodwork is merely machined lumber.

And just as you constantly strive to make your name stand for more to your friends, so we strive to make CURTIS stand for more to home-builders.

Remember, it is our family name, and the date 1866 shows how long ago we started out to make CURTIS Woodwork stand first in the choice of careful builders of good homes.

In design, in material, in workmanship, in shipping on time—at each stage, no detail of excellence is overlooked.

Go to your dealer's and see some CURTIS Woodwork. Look through his big Curtis Catalog with its hundreds of designs. Consult with him on the plans for your home. Arrange with him the dates on which you want your CURTIS Woodwork delivered. Our On-Time Service will save you the disappointment and the cost that often comes from waiting for material. Look for

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This mark is on every piece. It is your guarantee of a lasting, inherent value in your woodwork. It signifies a character in both materials and workmanship that rises above even the petty defects of woodwork "just as good."

To help you with your plans, we will send, free, your choice of these new, beautiful plan books, containing floor plans, exterior and interior views. They are "Better Built Homes," Vol. II—\$2700 and under; Vol. III—\$2700 to \$4500. Which shall we send you?

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1576-1676 S. Second Street, Clinton, Iowa

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The makers of CURTIS Woodwork guarantee complete satisfaction to its users.

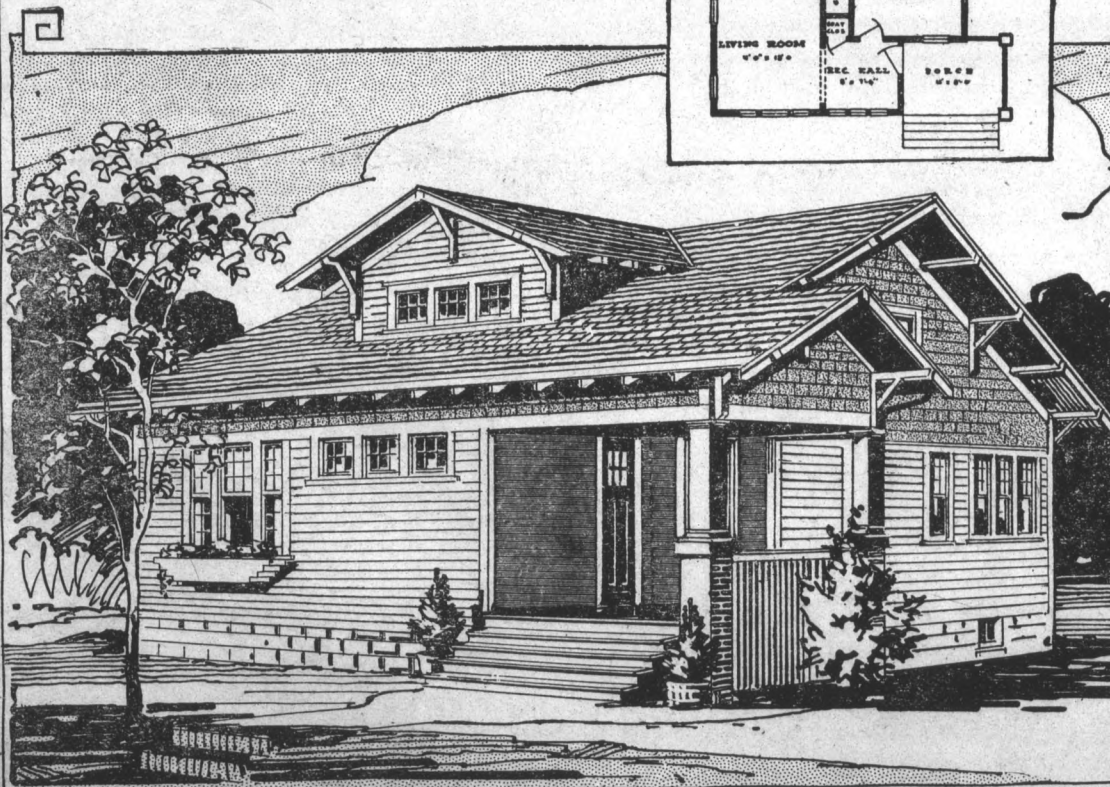
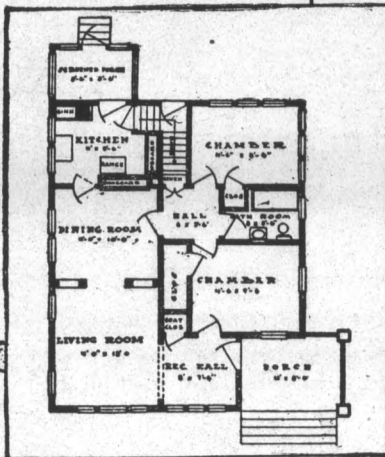
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Doors	Screen Doors	Window Seats
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Build Once For All Time

a silo that will stand without a flaw, a permanent ornament to the farm. Natco glazed hollow tile is the ideal material for the silo and for all farm buildings. The dead-air spaces make the walls frost-resisting. The smooth glassy surface is absolutely impervious to air and moisture. Never a bit of spoiled silage—good clear to the wall and way to the bottom of the pit. The cattle will eat every scrap. The sweet, juicy silage, free from mold will hold the cows to full milk flow and put flesh on the fattening stock. Your profits will be greater than ever before. Join the "Silo on Every Farm" movement. Build a

Natco Imperishable Silo

"The Silo That Lasts for Generations"

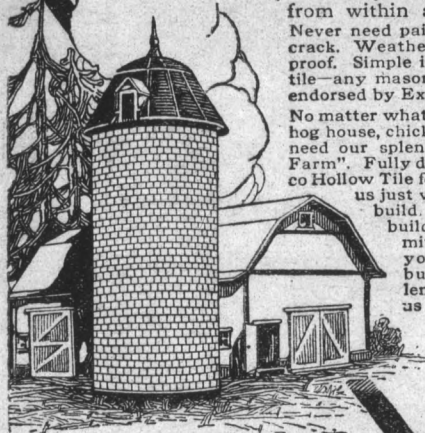
You can fill a Natco to the limit of the hip-roof. Sturdy steel bands bind the walls so firmly that they are **guaranteed** to withstand pressure from within and storms from without.

Never need painting, cannot warp, shrink, or crack. Weather-proof, vermin-proof and age-proof. Simple in design—only two shapes of tile—any mason can erect a Natco. Used and endorsed by Experiment Stations.

No matter what you plan to build, dairy barn, hog house, chicken house, or garage—you need our splendid book, "Natco on the Farm". Fully describes the uses of Natco Hollow Tile for farm buildings. Tell us just what you are going to build. We have many farm building plans to submit, and will help you solve your building problems, free. Write us today.



Natco Silo Wall: Note perforated shell providing firm anchorage for mortar joints.



The Natco Imperishable Silo
Fireproof your farm by erecting a Natco Imperishable Silo and Natco Hollow Tile Barns.

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1115 Fulton Building
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23 Factories—Short Hauls—
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A Better, Quicker Locking Device

Far better—far quicker—yet you pay no more for West Bend Automatic Stanchions equipped with this wonderful locking-releasing lever than you pay for ordinary stanchions that must be opened and closed singly by hand. The West Bend lever controls from 2 to 50 West Bend Automatic Swinging Stanchions. The entire row of cows can be locked up or released instantly by one throw of the lever. Cow stops are operated at same time, and when set guide the cow into the stanchion. Think of the time and labor this will save you—think of the risk it avoids. You certainly want this valuable new exclusive West Bend feature in your barn.



Write today for free catalog showing entire West Bend line of sanitary, modern barn equipment including Steel and Wood Automatic Stanchions, Feed and Litter Carriers, Watering Systems, etc. You can't afford to spend a dollar for barn equipment before you get this book. Write today.
WEST BEND BARN EQUIPMENT CO., 280 So. Water St., West Bend, Wis.



Bad-Tempered and Why?

Cows are sensitive animals and form habits easily. Many a good cow has become "mean" through some irritating under sore left to heal itself. Save the cows' disposition and serious danger by using Bag Balm, the great healing ointment, at the first sign of caked bag, inflammation, chafing, sore, chapped or injured teats. A great antiseptic healer for any scratch, bruise or cut.

Sold in generous 50c packages by feed dealers and druggists. Write for useful free booklet, "DAIRY WRINKLES."

BAG BALM
MADE BY THE KOW-KURE PEOPLE

FOR SALE In live manufacturing town stock of groceries to invoice \$1000. Can reduce lower. Fixtures \$500. Doing a daily cash business of \$75. Will stand close investigation. Address Box M-33, Michigan Farmer, Detroit, Mich.

DOGS

Fox Hounds of all ages, Skunk and Rabbit dogs
W. E. LECKY. Send 2c stamp.
Holmesville, Ohio

Sturges Milk Cans

Guaranteed Capacity



Easy to Keep Clean

MADE of highest grade steel plate—tinned and retinned after rivet holes are punched. Pure solder sweated into all inside seams, making surface smooth as glass. Sanitary to the finest degree. Guaranteed capacity—each Sturges Can is built to measure. Saves work in shipping—insures accuracy. Sturges Cans are built with the experience of 50 years in making milk cans. Ask your dealer for them. Write for catalog No. 46.

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Established 1865
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LEARN AUCTIONEERING at World's Original and Greatest School and become independent with no capital invested. Every branch of the business taught in 5 weeks. Write today for free catalog.
JONES' NAT'L SCHOOL OF AUCTIONEERING,
28 N. Sacramento Blvd., Chicago, Ill. Carey M. Jones, Pres.

Profitable Pork Production

By N. A. CLAPP

AS in any other kind of business the profit in producing pork on the farm is simply what is left after the expenses are paid. In figuring expenses, not only the cost of feed should be considered, but the value of labor bestowed and the interest on the money invested in the animals and the feed consumed. It is also proper to add something for risks or insurance.

A great many who fed hogs a few years ago with corn worth fifty cents per bushel, and sold their hogs on foot for five and six cents per pound, thought they were making money, but hesitate now to buy corn at one dollar per bushel to feed their hogs when they can sell their hogs on foot at twelve and thirteen cents per pound.

It is a quite general custom to raise the pigs, feed them and sell them for the prevailing price at the time of selling, jump at conclusions, as to profits, and never really know whether they have made or lost by the transaction. In fact, very few farmers really know how much pork they ought to expect from a given amount of feed.

"How much pork will a bushel of corn make?" is a question that has not been definitely answered, even by any of our experiment stations. Conditions vary greatly, and the amount secured in one case might not be gained in another. Some of our forefathers, who made it a practice to feed corn whole, on the cob, to their hogs, quite generally estimated that under favorable conditions during summer and fall months they could make ten pounds of gain from a bushel of corn. That estimate has been quite generally accepted as a rule to govern in a rough estimate as to whether it paid to raise and feed hogs for market when the price for corn is given and the market price for hogs is known.

Some Factors to be Considered.

Before breeds of hogs were developed up to the point of excellence which has been achieved during the last quarter of a century, one hog was looked upon as capable of producing as much from a given amount of feed as another. But by careful selection of individual pigs with superior merit, and breeding from them, selecting the best for breeders for each succeeding generation, conformation has been greatly improved, and the important characteristics of thriftiness and early maturity have been established. Now it is a fact, well known and appreciated, that a thrifty pig, which has what is called good ancestral backing, will make much greater gains on a given amount of feed, than a pig ordinarily bred. And farther, the quality of the meat from well-bred pigs, is superior to that from the ordinarily bred pigs.

In one of our leading markets, a report of the transactions during the week ending February 17 says that one man raising pigs of an improved breed, was obliged to take in and feed some of the grade hogs in the community in which he lives in order to make up the desired number to take to market, and was obliged to take a cent a pound less for the grade hogs than he was allowed for the hogs of his own breeding. It must be seen that the cost of producing pork and the profits secured, depend considerably on the characteristics of the hogs fed.

Fecundity an Important Factor.

Another characteristic which aids in keeping the herd, is that of fecundity or productiveness. It does not cost any more to winter a sow that will farrow eight or ten pigs than it will one that will farrow four or five pigs. In my own experience I have not found pigs from small litters any better feeders or more rapid growers than those from large litters. In all litters of pigs there are some that will grow faster than the rest of the litter.

Those are the most profitable feeders and it is a wise plan to select the breeders from among the most thrifty and well formed ones for the breeding herd.

Mingling Feeds.

It is a fact well known, that if an animal is confined to one kind of feed it will not make as rapid growth as when given a variety of feeds. The pigs enjoy an opportunity to eat fresh and green grasses and clovers. While the grasses and clovers, if fed alone, would only supply about a maintenance ration, yet, when given in addition to the grain feeds much better results are obtained than when the grain is fed alone. Some enthusiasts go as far as to say that if hogs can have a run at clover and alfalfa they will make twice the amount of gain in pounds that they would on the grain alone. Excellent results are obtained by chaffing clover and alfalfa in the winter and steaming or cooking it and adding the mixture of grain feeds. Such mixtures when fed to growing pigs while warm, are not only palatable, but help to expand the stomach and increase the possibilities of rapid growth and cheap production later in life. The lime contained in the clover and alfalfa helps to make larger and better bones than would the grain alone.

When pigs are confined quite closely to grain feeds, they do much better if given a variety than if compelled to subsist on one kind of grain alone. Our forefathers made a mistake when they fed their hogs corn and nothing else. They reduced the size and quality of the bones and lowered the vitality of their animals. As strong as the old style hogs were, they could not endure such treatment and for several reasons had to give way to animals that were raised under conditions which enable them to more closely meet modern requirements.

Experiments made at different stations have shown that it costs much more to make gains in weight when only corn is fed than when it is mixed with other feeds. If I remember correctly, at the M. A. C. in 1904, when corn meal was fed alone, and the market price was \$1.50 per hundred, it cost \$6.00 to make a gain of 100 pounds. When mixed with an equal amount of wheat middlings which were worth \$1.50 per hundred, which did not increase the cost of the feed, it cost but \$3.50 to make a gain in growth of 100 pounds.

According to results obtained by still more modern experiments more kinds of feed can be added and better proportionate results can be obtained. A ration to which from six to ten per cent of tankage is added gives better results than is secured with a variety of grains without the tankage. The tankage, like linseed oil meal, not only makes the feed more palatable, but adds to the digestibility of the ration.

Promoting Growth.

Any feed that aids in promoting the growth of the pigs from birth to market day, is desirable. It seems to be nature's way to grow both bone and muscle while the animal is young, and it is during the growing period that the gains in weight are made at the least cost of production.

As soon as the pigs have reached the point in growth so that they can use more feed than the mother's milk furnishes them, some means should be devised to supply them with dainty feeds that are not only palatable but rich in nutrients. The pigs can utilize a good deal of protein—considerably more than the feeding standards indicate. Only a small percentage of farmers fully realize the possibilities of growth and development during the

(Continued on page 318).

What Delco-Light Has Done For My Farm

By SIDNEY A. SMITH, Wixom, Michigan



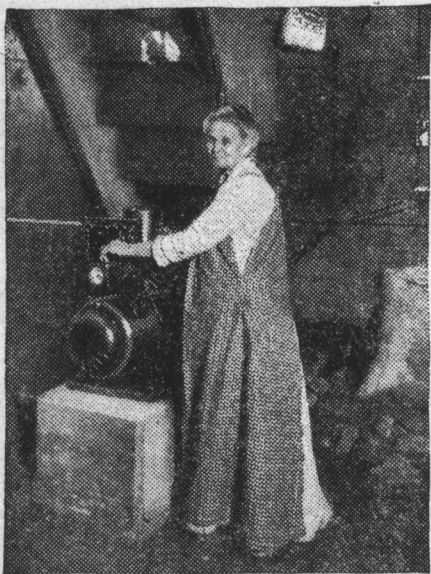
FARM life isn't what it used to be.

When I was a boy we lived in a little one room and attic log house.

We used tallow candles for light—and we made them ourselves.

A great stone fireplace served for both heating the house and for cooking.

Our farm work was all done by hand and with the crudest kind of tools.



Mrs. Smith looks after Delco-Light, and it is simply good fun for her

If we wanted to go to Detroit, thirty-five miles away, we hitched up the team and made our plans to be away from home at least three days.

We knew almost nothing about the outside world—rarely saw a newspaper and were limited in our associations to a very few neighbors.

We never saw a play—never heard good music and rarely got hold of a good book to read.

It isn't much wonder that the young folks were eager to break away from the farm and get into the cities and towns.

Farm life meant isolation and drudgery.

Contrast that with my farm today—the farm adjoining the one on which I was born.



Delco-Light separates the cream and churns the butter



Mr. Smith's house, near Wixom, Michigan—in which Delco-Light enables him to enjoy every advantage that the city can offer, with the added joy of life in the country.

When we want to go to Detroit now, Today we touch a button and the we jump into our automobile and are there in less than two hours. house or barn or cellar is flooded with light.

Our neighbors do not live any We turn a switch and electricity nearer to us—but we live nearer to pumps water for us, making possible



The big living room in Mr. Smith's house. Contrast the artistic electric fixture with the old kerosene lamp displayed on the table at the right.

them because it is so much easier to get around, a modern bath room and running water in various parts of the house.

Then there is the telephone—instant communication with friends and neighbors everywhere. Electricity also separates the cream and churns the butter.

Newspapers and magazines come to us by rural free delivery every day.

The phonograph has brought the best music in the world into our home—the Grand Opera stars sing for us, and if the young folks are here and want to dance, the finest orchestras in the land play for them.

But greatest of all wonders of modern farm life are the advantages that came to us when we installed Delco-Light.

Heretofore the farm has been deprived of the advantages of electricity because of the great expense of extending the wires.

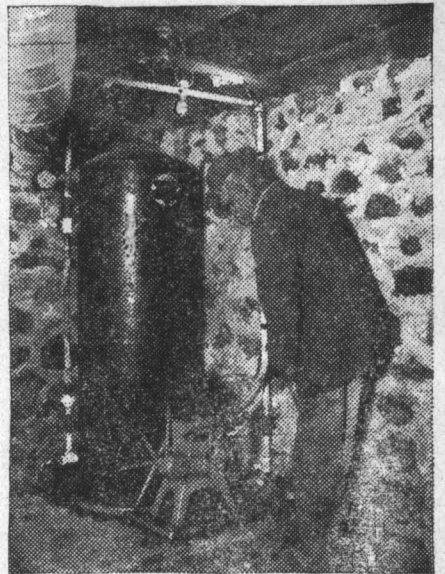
Delco-Light changed all that by making it possible for us to produce our own electric current just as we want it.

Delco-Light started right off when it was installed as though it had always been on the job—and it hasn't caused a minute of trouble since.

My wife looks after it almost entirely and it is simply good fun for her.

Delco-Light has not only brightened our home and made it more attractive—but it has lightened the labors of the women folks in a truly wonderful fashion.

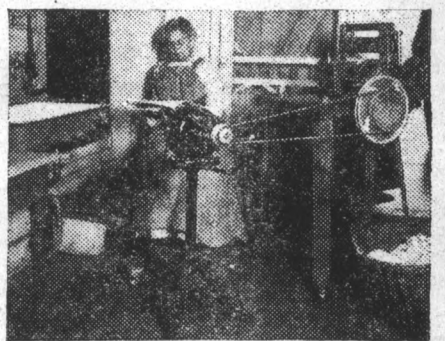
We now have in our farm home every advantage that our city friends enjoy—and we have in addition the health and freedom and joy of life in the open.



One of the best things Delco-Light does is to pump the water

The telephone, the automobile, the phonograph—all have contributed splendidly to the convenience and enjoyment of farm life. But greater than any of them in its far-reaching influence is the little machine that gives to the farmer all the electricity he needs for light and power.

And the best part of it is that it not only better living conditions—but it does so much of the farm work and saves so much time that it is actually a profitable investment from a dollars and cents point of view.



Delco-Light takes the drudgery out of wash day

Delco-Light is a complete electric power plant—gas engine and dynamo in one compact unit. It is so simple that a child can operate it—starts on touching a switch and stops automatically when batteries are fully charged. It furnishes ample current to light house and barn—also to operate small machines. The price complete is \$275 f. o. b. Dayton. Detailed information concerning Delco-Light can be obtained by addressing the Domestic Engineering Co., Dayton, Ohio.—Advertisement.

GET Your Cream NOW!

ONLY \$2 Down
A Year to Pay

on This Easy Self-Earning Plan

You won't feel the cost at all. The machine itself will save its own cost and more before you pay. We ship any size separator you need direct from our factory and give you a whole year to pay our low price of only \$24 and up. Read what Alfred Geatches, No. Jackson, O., says: "We are getting more than twice the cream we were before. The separator is very easy to clean and runs very easy." Why not get a lifetime guaranteed New Butterfly separator for your farm and let it earn its own cost by what it saves?

(31)

NEW BUTTERFLY \$24 and up

Cream Separators have these exclusive high grade features—frictionless pivot ball bearings bathed in oil, self-draining bowl, self-draining milk tank, easy cleaning one piece aluminum skimming device, closed drip proof bottom, light running cut steel gears, oil bathed. Guaranteed highest skimming efficiency and durability. We give

30 Days FREE Trial — Lifetime Guarantee

against all defects in material and workmanship. We ship you the size machine you need, let you use it for 30 days. Then if pleased you can make the rest of the small monthly payments out of the extra cream profits the separator saves and makes for you. If you are not pleased, just ship the machine back at our expense and we will refund what you paid. You take no risk. Write for FREE Catalog now.

ALBAUGH-DOVER CO., 2165 Marshall Boulevard, CHICAGO
Also Manufacturers of Albaugh-Dover "Square Turn" Farm Tractors



More than 100,000 New Butterfly Separators now in use

KALAMAZOO SILOS

Will Solve Your Silo Problems

They're built to meet the exacting farmers' needs and are the best in design, material and workmanship—combining every desirable feature a silo should have and embodying the "know how" acquired through more than twenty years experience in silo building.

Glazed Tile Silos

This construction is fire-proof, frost-proof, storm-proof, decay-proof, vermin-proof. Galvanized reinforcing. Requires no paint, no upkeep expense or repairs. First cost is the last cost—a written guarantee goes with every one.

Wood Stave Silos

Your choice of four time-defying woods. The Kalamazoo is the only factory where this outfit is manufactured complete from the raw material to the finished product. Our silos are quickly and easily erected by inexperienced home labor.

All Kalamazoo Silos are made with Galvanized Steel Door Frames, continuous doors, forming safe ladder entire height of silo.

Write today for our free descriptive booklet, and early sales plan.

KALAMAZOO TANK & SILO COMPANY, Dept. 100 Kalamazoo, Mich.



Build a Stronger, Better Looking Silo

HERE is the quality construction in the durable silo material. Twisted reinforcing gives you a wall of terrific strength—good for generations of use with no upkeep expense. Steel rods get a tight grip in the cement—can't slip. A twisted steel rod between every row of blocks and up both sides of continuous doorway. Blocks made from best quality clay—all are uniform in shade and are set with thin mortar line exposed. Ends are lap-jointed with fluted edges. Write for Catalog and Prices.

J. M. Preston Company, Dept. 309, Lansing, Michigan
Also get our offer on Climax Silo Fillers and Bidwell Threshers

THE INDIANA SILO

Thousands of farmers in all parts of the United States have put the Indiana Silo to the test of service during the past fourteen years. Fifty thousand are now in use. The first Indiana Silos ever erected are still standing, still in excellent condition and still apparently good for indefinite years to come.

A large per cent of our 1916 sales were made to farmers who were already using Indiana Silos. Many of these repeat orders came from the owners of the finest farms in America—from the largest and most successful breeders and feeders everywhere.

These men could have bought any silo at any price—they buy the best of everything—that's why they continue to buy Indiana Silos.

If you are going to buy a silo—this satisfactory service rendered everywhere—should be of special interest to you.

The cost of all materials is advancing like the price of wheat and corn.

Why not save money by contracting for your silo now. It undoubtedly will cost you more next spring or summer.

Let us send you our proposition—to contract now for your silo and deliver it later. We still have openings for a limited number of farmer agents.

INDIANA SILO CO.

582 Union Building, ANDERSON, IND.
582 Exchange Bldg., KANSAS CITY, MO.

582 Indiana Building, DES MOINES, IOWA
582 Live Stock Exch. Bldg., FT. WORTH, TEXAS

"ROUGH ON RATS" ends RATS, MICE, BUGS, Don't Die in the House. Unbeatable Extremator, Ends Prairie Dogs, Gophers, Ground Eggs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Extremator at Drug & Country Stores. Economy Sizes 25c, 50c, Small 11c. Used the World Over. Used by U.S. Gov't. Rough on Rats never Fails. Refuse ALL Substitutes.

FARM DYNAMITE and accomplish more work in removing stumps, rocks, also plating trees, digging ditches, etc., than twenty men. It's effective, safe and easily used; guaranteed Standard Brand; shipped DIRECT from Mill in this state; lowest prices. No salesmen. Established over 30 years. Write for full particulars. **BRUNS POWDER CO.** TERRE HAUTE, INDIANA.

When writing to advertiser please mention The Michigan Farmer.

second and third months of the pig's life. A variety of rich feeds that are palatable, mixed with skim-milk in addition to the mother's milk, if given at regular intervals in such quantities as will enable them to eat it up clean each and every time, will bring excellent results.

Let the growth be constant from the beginning to the end of life, for a check in growth at any time means loss, not only in time, but in feed. Under present market requirements pigs kept constantly growing are ready for market at any time the price is satisfactory.

By selecting such members of the breed chosen as are thrifty and prolific, and utilizing forage feeds and a variety of grains properly combined, beginning at an early age and keeping up a constant and rapid growth, there are great possibilities for liberal profits in pork production.

AMERICAN BERKSHIRE CONGRESS.

The eleventh annual meeting of the American Berkshire Congress, held at Purdue University, Lafayette, Ind., on February 20-22, 1917, was the most successful meeting yet held by this unique organization of Berkshire breeders. Nineteen states were represented. It was a real Congress, and the numbers present brought out in the discussions about all the knowledge possessed by the speakers on the topics assigned them.

In the opening evening Dean J. H. Skinner told of the points of interest in or near Lafayette, and gave the congress a most cordial welcome.

On Wednesday evening occurred the annual congress banquet, which was held at the Fowler Hotel. Mr. C. C. Pierce, of Boston, proved himself a toastmaster supreme. Addresses were made by President Stone of Purdue University; Mr. H. W. Gossard, Chicago, Ill.; Dean C. F. Curtiss, Ames, Iowa, and Mr. Zed L. Williams, of Columbia, S. C. Dean Curtiss spoke on the topic, "Size in Berkshires," and demonstrated that while there may be Berkshires that are comparatively small, the breed ranks as one of sufficient size, that it is an easy feeder and that Berkshires weigh more than they look.

Mr. Williams spoke on "Decorations for the Show." He declared that the exhibit of the breeder at the fairs was his show window and as such it should be trimmed and decorated for the proper setting of his goods, with the same care and taste as the merchant uses in dressing his show window.

Mr. F. A. Burkhart, Lima, Ohio, was the hit of the evening, coming upon the scene unannounced and unknown, in a typical rube costume, he stopped proceedings to tell the assembly how he had been imposed upon in big deals by such well known Berkshire salesmen as Dean Curtiss, N. H. Gentry and J. E. Dodge.

On Thursday morning was held the demonstration in judging. This was in charge of Dean Skinner, with such well known judges of Berkshires as N. H. Gentry, Dean Curtiss, Wyman N. Lovejoy, J. E. Dodge and W. E. Spicer placing and criticising the animals on display. This proved one of the most interesting and profitable sessions of the congress.

On Thursday afternoon was held the Congress Sale. Fifty Berkshires, consigned by forty odd breeders, from all sections of the country, sold for \$6,035, an average of \$120.70 per head.

The highest priced animal was Overlook Glenside Duchess 231962, consigned by Harry W. Knights, Littleton, Mass., and bought by Colt Farm, Bristol, R. I. The next highest price was paid by Purdue University for Maggie Overlook 4th 216328, also consigned by Mr. Knights.

Gossard Breeding Estates, Martins-

ville, Ind., had during the congress, an exhibit of English-American Berkshires, and made a number of notable sales. Their sale of a four-months boar pig to Hurdcroft Farm, Monticello, Minn., for \$1,000 is a record price for a pig of that age. This pig was sired by Imported Epochal 323232, and out of an English-American dam.

Officers were elected as follows: President, Harry W. Knights, Littleton, Mass.; vice-president, J. T. Hogsett, New London, Ohio; secretary-treasurer, F. S. Springer, Springfield, Ill.; executive committee, president, vice-president and secretary, together with C. F. Curtiss, Ames, Iowa; N. H. Gentry, Sedalia, Mo.; J. E. Dodge, Lowell, Mass.; J. L. Thatcher, Riverside Cal.; C. H. Carter, West Chester, Pa., and W. S. Corsa, Whitehall, Ill.

MAKING A RAPE PASTURE.

My first experience with rape was by way of a catch crop. This first acquaintance proved so satisfactory that I now consider it worthy of a place in the regular rotation. The fact that it furnishes an abundance of succulent food when other crops are not available and in so short a time—usually in from six to eight weeks—makes it especially valuable for fattening cattle, sheep and hogs. Fed to milch cows it produces a taint in the milk similar to turnips and for that reason is not popular as a food for cows.

Fairly moist loams rich in vegetable matter are the most suitable soils on which to grow rape. If the land is deficient in humus it should be given a coating of stable manure and if this is supplemented with a dressing of eighty pounds of nitrate of soda per acre, when the rape is about two inches high, it will aid very materially in securing a big yield. For this purpose, the Dwarf Essex is the only variety that will prove satisfactory. It may be sown any time during June and I have had good results by sowing late in July, but, of course, there is an element of risk in the later sowings. The seed is often sown broadcast, but this will mean considerable waste when stock is pastured on it. I find that a more luxuriant growth is obtained by sowing in rows about thirty inches apart. The leaves of the plant will practically cover the intervening spaces, still they will afford a means for the animals to move about without undue trampling of the crop. Sown in this way only one and a half pounds of seed to the acre is required and should be covered to a depth of one-half to one inch. Some advocate sowing on ridges, but everything considered, I prefer flat cultivation. A thorough stirring between the rows every ten days or so will increase the growth wonderfully.

Stock should never be turned on rape when hungry or when it is wet or frosted. There is little danger of bloating, however, if they are turned on gradually at first, allowing free access to other pasture and furnished with plenty of salt.

Canada. J. H. MCKENNEY.

To handle the feet of a horse that will not stand still, or that kicks, a halter twitch is a great aid. This twitch is easily applied and needs only the ordinary halter and tie rope. Pass the rope over the horse's head just behind the ears; raise the upper lip and put the rope across the gums above the teeth; run the rope through the loop made by passing the rope over the horse's head. The rope should be tight from the halter ring, over the head, under the loop, and through the loop. A few good pulls on this rope should make the horse stand quietly.

A Profitable Investment.

Mr. J. Robert Hicks, of St. Johns, Mich., advertising Duroc Jersey swine, writes: "I have sold over \$800 worth of Durocs since October, all through my Michigan Farmer advertisement."



Wizards of Transportation

George Stephenson is rightly called the father of the steam railway. He ran the first successful steam engine on the 25th of July, 1814. In September, 1825, he opened the first railway over which passengers and goods were carried by a locomotive.

The Human Interest In Progress

THE man who is responsible for a system by which the world enjoys safer, easier, quicker and cheaper transportation, is a determining factor in progress.

When George Stephenson started the first locomotive on its way he pushed the world forward centuries. Today we see the automobile with all its possibilities made practical and its energy made effective by the rubber tire.

The leading example of highly specialized and efficient tire service is found in Firestone Non-Skid Tires.

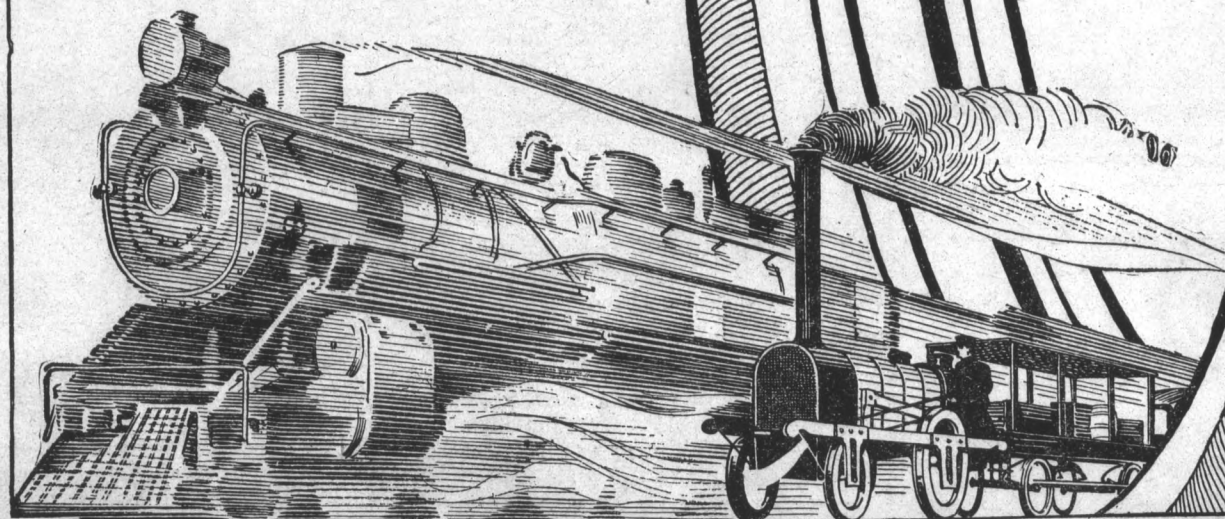
The miles of reliable wear on any road at all seasons, the car-protection and easy-riding, make Firestone Tires a world-wonder in transportation.

And as there is a man-power behind every big work, so this service is vitalized and given the personal element by the name on every tire of the founder and present head of the business, Mr. Firestone. That name on the tire is your assurance of quality.

Your dealer can get Firestones for you, and this quality will cost you no more than ordinary tires. Because Firestone Tires are widespread in use and the output is tremendous and efficiently handled by the Firestone Organization. Your dealer will serve you.

Send for free book, "Mileage Talks," No. 25.

FIRESTONE TIRE AND RUBBER COMPANY
Akron, Ohio Branches and Dealers Everywhere



Firestone



Buy CAPACITY when you buy a Separator

Capacity to skim milk is what you are paying out good money for when you buy a separator—not just so much iron and steel.

If you pay \$66.00 for a separator which will skim 600 pounds of milk an hour, you are paying for that skimming 11 cents a pound.

If you pay \$75.00 for a 450-pound machine, you are paying over 16 cents a pound for identically the same thing.

That isn't good business—is it? That excess of 5 cents on every pound runs into big money in the course of a year.

Compare capacities when you buy a separator

Buy on this basis and you'll buy a Viking because the Viking gives you positively the greatest capacity for every dollar you pay. Capacities and prices of other standard separators prove it.

The Viking skims down to three one-hundredths of one per cent or better—mostly better. It is without doubt the closest skimming separator offered today; does better work; lasts longer; saves you money on the first cost—saves on repairs; and gives you the most for your money.

You should know more about the Viking

No dairy farmer should invest a penny in any separator until he finds out all about the Viking, the popular separator built by the Swedish Separator Company—factory in Sweden, and American offices in Chicago. Large supplies of spare parts on hand.

FREE BOOK

Morley Brothers, Saginaw, Mich.

SWEDISH SEPARATOR CO.

Dept. E 515 S. FIFTH AVE. CHICAGO



"JAMES" Sanitary Barn Equipment

enables you to do your present work in half the time—keeps hired help contented—improves cow comfort, therefore increases milk yield—makes sanitation possible about the barn. Why not get acquainted with the equipment that

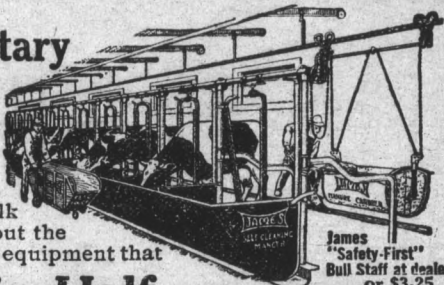
Cuts Work in Half

The JAMES line includes stalls, stanchions, pens, carriers, watering buckets, horse stable equipment, etc.—all JAMES quality and backed by JAMES service.



If thinking of building, remodeling or equipping a barn, tell us when you expect to do it and for how many cows. Then a copy of "The Jamesway" containing much valuable barn-building information, etc., will be sent you free.

James Mfg. Co., DT31 Cane St., Ft. Atkinson, Wis., Elmira, N. Y.



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"Safety-First"
Bull Staff at dealers
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\$3.30
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How Wm. Pollow Added to Profits

The Cost of One Hired Man

Mr. Pollow finds it an easy task now to milk his 22 cows alone since installing

HINMAN MILKERS

Produces 500 pounds of milk a day. Mr. Pollow stated that if it was not for the Hinman Milker, he would be compelled to hire another man.

The Hinman Will Increase Your Dairy Profits.

You can't save on feed without losing milk yield. You must save on hand labor.

Big Illustrated Catalog FREE

Ask about operating the HINMAN on any small gas engine power or electric house lighting current.

HINMAN MILKING MACHINE CO.

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Service Dealers Everywhere



"9 years' success"
HINMAN
Valve Chamber
MILKER
Built by
practical
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Ear Tags FOR STOCK

Tag your stock—the best and cheapest means of identification for Hogs, Sheep and Cattle. Name, address and number stamped on tags. Catalog mailed free on request.

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THE CORRUGATED CREAM SEPARATOR

The Standard for years. Has greatest cream gathering power. Operates itself, saving your time and labor. More cream and more and better butter. Greatest labor saver ever used on the farm. Guaranteed. Write for catalog.

Ed. S. Cushman Co., Dept. 20, Centerville, Iowa, U. S. A.

Developing the Dairy Calf

THE future prosperity of the dairy farm depends upon the development of the dairy calf. As the seed is mother of the farm crop, so the calf is mother of the future business interests of the farmer. The responsibility placed upon the herdsman in feeding and caring for his future generations of stock is greater than is usually appreciated. If the dams have been properly nourished the value of the calves at birth depends largely, if not entirely, upon the intelligence and skill exercised in their breeding.

Future possibilities may be great or small, in proportion to the thought and skill employed by the owner, and the amount of the same he puts into feed, care, and management. Mistakes at this period of the calf's life may have a lifelong influence one way or the other, while an error in feeding and caring for the mature animal may be only temporary in its effects. Therefore, calf feeding requires good horse sense, for there are no hard, fast rules to be laid down.

The First Feeding.

Always allow the calf to the first, or colostrum, milk of the cow and allow the calf to nurse until the eighth or ninth milking, when the milk is suitable for human food. Young calves

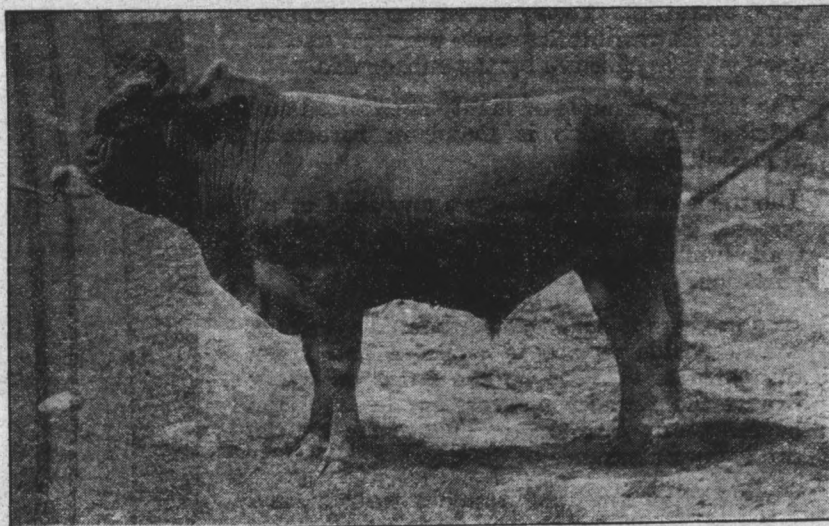
milk sweet and at blood temperature. Until the calf is seven weeks of age not over ten or twelve pounds of skim-milk should be fed each day. But the amount may be gradually increased to fourteen or sixteen pounds at three months, sometimes up to twenty pounds. The amount fed must be carefully regulated by the ability of the calf to handle it without scouring.

Feed the grains first while the calf is quite small, with a little to aid him in learning to eat. High-priced concentrates are unnecessary and give no better results than do corn meal, oats and bran, ground barley, etc., when fed in proper combination. It is a great advantage to feed a variety of feeds, for best results are secured from mixtures.

Feed Roughage.

Start feeding roughage at two or three weeks when the calf begins to eat grain. Good clean hay, either timothy, blue grass, clover, or alfalfa may be used. Corn silage is an excellent calf feed when fed in moderate amounts. Good pasture is an essential after four to six months of age, and if the calf is turned out for only a few hours each day scours will be avoided.

Remember that the calf gets just as thirsty as the other farm animals, ev-



The Value of a Calf Depends Greatly Upon its Sire.

need whole milk for the first few days. Feed often with small amounts to avoid overfeeding. Teach the calf to drink and feed whole milk for at least three weeks, making the change to skim-milk slowly. By good care or by lack of it, it is very easy to make a variation of one to five dollars, or even ten dollars per head in the value of the calf the first year.

Skim-milk is a cheap feed for calves but should be fed carefully in limited quantities and only while it is warm and sweet. Skim-milk may form the principal diet of the calf for eight months to a year. Factory skim-milk should be pasteurized to avoid the spread of tuberculosis. But the best skim-milk is that fresh from the separator in its natural warmth. Experiments go to show that it is only one-fourth as expensive to raise a calf on skim-milk as on whole milk. Ten pounds of grain with the proper amount of skim-milk equals one pound of butter-fat. Buttermilk or whey may profitably be fed to calves.

Change Feeding Gradually.

Serious troubles have resulted in scours from feeding too rich milk. Use care to give limited amounts of this in proper temperature. The feeding of whole milk should be continued for about three or four weeks, when the number of meals may be reduced to two a day. From one-half to a pint of skim-milk may now be substituted for an equal quantity of whole milk. The amount of skim-milk may be gradually increased and the amount of whole milk correspondingly decreased until, at the end of a week or ten days, the calf is getting all skim milk. Feed the

enough milk forms a large part of its ration. A three-month calf should drink about five quarts of water a day. They like to drink often, sipping a little at a time. A half barrel, cleaned and replenished twice each day, morning and afternoon, will serve nicely as a water trough. Salt is as essential to the development of the calf as of other animals, and should always be kept continually available.

Always avoid sudden changes in the diet and practice regular feeding. Provide warm, dry quarters in damp weather. Give plenty of roughage and not too much grain so as to develop a large capacity for handling food that is desirable in dairy animals. When the calf is six months to a year old milk may be omitted from its ration and a full roughage and grain diet substituted.

A Full Grain Feed.

In stopping the skim-milk diet at any time between six and twelve months, the calf is deprived of a nitrogenous feed and its place must be taken by a grain or roughage of like quality. The tendency of the dairy calf to get too fat depends not only upon its temperament but also upon its feed. Avoid too much corn. For grain, oats and barley are good; for roughage, bright clover or alfalfa hay with corn silage to give succulence and variety.

Feed the calf according to the breed, which gauges the size of the body, determines the amount and kind of feed needed for best development. It is impossible to starve good dairy qualities into a growing heifer but many a promising heifer has been so starved that she became a poor cow.

New York.

EARL W. GAGE.

DAIRY PROBLEMS.

Buckwheat for Silage.

Would like to know if buckwheat would be all right to put in a silo. I notice the cattle eat it when cut green. Gladwin Co. SUBSCRIBER.

When you come right down to the last analysis there is nothing that will take the place of corn for silage. Many plants can be substituted but none are quite as good. I would not recommend buckwheat. It would be difficult to pack well enough in the silo to prevent dry mould. But it will nevertheless make silage, any green plant put into the silage makes silage.

But if you can grow buckwheat for silage why can't you grow corn? Buckwheat must be sown by July 1 to get a crop and you can plant corn as late as that and get a crop sufficiently mature for fairly good silage.

Soy Beans and Corn for Silage.

I would like some information on soy beans as follows: Their food value to dairy cows in conjunction with corn silage, in other words, I wish to soy the soy beans with corn for the silo. Will a corn harvester cut the bean stalk and get it all? I want to sow the beans at the same time I plant the corn; will the beans ripen about the time the corn should be cut for silo? Will the bean take from the soil moisture, etc., at the expense of the growing corn? What variety of bean is best to plant? Will the soy bean take the place of cottonseed meal?

Wayne Co.

L. C. H.

The soy bean is a leguminous plant, containing much protein in comparison with corn, hence is a splendid plant to feed with corn. As a food it is much more of the nature of alfalfa than corn, and could best be compared with it.

A corn harvested will get nearly all the soy beans when planted with the corn.

For silage plant a late variety of beans, then they will be ready for the silo with the corn. You don't want the beans ripe no more than you do the corn for the silo.

Of course, the beans will take some moisture from the soil but if properly cultivated there should be enough for both plants.

If you would ripen a crop of soy beans and grind the grain it would be every bit as good as cottonseed meal, but you must not expect that soy beans put in the silo, stalks and all, will take the place of cottonseed meal.

You will need about half as much bean seed as you do seed corn per acre. Ten quarts of corn and four or five quarts of beans will be sufficient.

The Art of Milking.

I note you state in your reply to a subscriber that falling off in milk production might be due to poor milking. I have only been milking a few months and perhaps you can give me some pointers along this line, or what you consider poor milking. A. E. M.

A poor milker will gradually dry up a cow, while a good milker will cause an increased flow of milk.

To be a good milker one must have a reasonably strong hand. It is good hard work on the hands. Children can not milk successfully because they have not the strength in their hands and they haven't the necessary judgment. A boy ought to be sixteen years old before he is allowed to milk if you want the best results.

If possible get a full hand hold on the teat; don't milk by stripping with thumb and fingers. Pull down gently when you force the milk out of the teat and then press the hand or fist up against the udder every time you allow the teat to fill with milk. This action stimulates milk secretion.

Milk as rapidly as possible, as a reasonably fast milker always gets more milk than a slow milker.

Milk regularly; don't milk at five o'clock one morning and nine o'clock the next, if it can be avoided.

Don't change milkers any more than possible, have the same man milk the same cows as much as possible.

COLON C. LILLIE.

Champion Toledo



Dependable Spark Plugs

All Overland and Willys-Knight cars are factory equipped with Champion Dependable Spark Plugs.

For no other plug meets the needs of these motors so efficiently—so unfailingly.

Champions are most carefully and scientifically built. Their construction is guided by the most exhaustive laboratory tests.

Champion porcelains are protected against the constant hammering of the cylinder explosions by patented asbestos cushioned copper gaskets. The extremes of heat and cold do not weaken or crack them.

There is a Champion Spark Plug especially designed for every type of automobile, tractor and stationary gas engine.

The name "CHAMPION" is on the porcelain. Look for it.

Champion Spark Plug Company
Toledo, Ohio



Willys-Knight Cars

are equipped with the Champion Heavy Stone Plug.

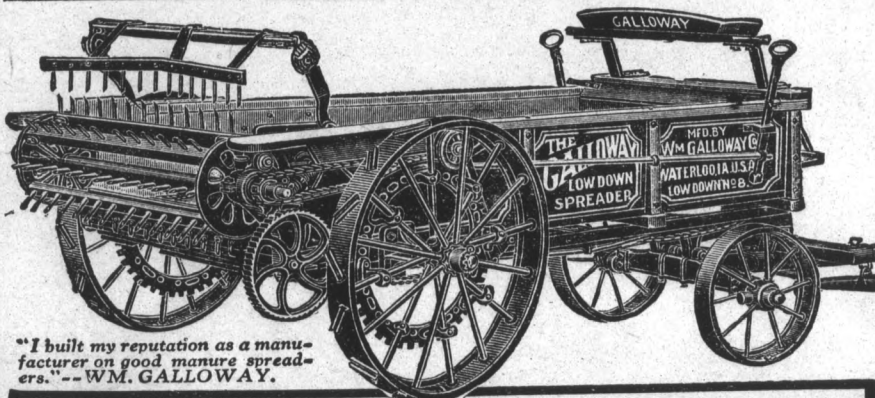
Price, \$1.25



Overland Cars

are equipped with the Champion Special Overland "O" Plug.

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"I built my reputation as a manufacturer on good manure spreaders."—WM. GALLOWAY.

JUDGE SPREADERS BY THIS NO. 8

Compare big, clumsy, ponderous, old-fashioned spreaders, which sell for more money, to this modern, down-to-date, patent covered Galloway 1917 Model low down No. 8 spreader (or to my popular No. 1A and No. 5 machines) with its double chain drive, roller feed, endless apron, and, above all, its light draft, and it will prove to you that its down-to-the-minute scientific construction, patented, exclusive improvements and features put it in a class by itself. And remember that it is sold to you guaranteed to give you satisfaction by Galloway himself—that it is not a horse-killer, that it does the same amount of spreading with two horses that others do with three and even four, and that the Galloway takes less actual horse power than any other so-called two-horse spreader on the market. My book tells the whole story. I want you to get it.

BACKED BY A \$25,000 BOND which absolutely protects you and proves that I will do what I say I will. I want you to try a Galloway spreader. I take all the risk. I want you to fully investigate every claim I make about Galloway spreaders, because I build them so good right here in Waterloo in my own chain of factories and sell them on.

SIX SELLING PLANS cash or time, that themselves will back up every statement I make. Pay for this spreader on your terms. Buy it now—use it all winter and spring. Pay for it next fall. Complete particulars of these six easy selling plans in my new book which tells all about engines, spreaders, separators, tractors, farm implements.

GET THIS BOOK NOW! It tells the whole story. It tells the secrets and facts about manure spreaders, how they are manufactured and gives you other valuable information on the handling of the manure crop on the farm. Remember we are MANURE SPREADER MANUFACTURING SPECIALISTS. The new 1917 book tells the whole story. A postal gets it. **ASK FOR IT TODAY.**

WM. GALLOWAY, Pres., WM. GALLOWAY COMPANY
Manure Spreader Manufacturing Specialists
189 Galloway Station WATERLOO, IOWA

GROW BIGGER CROPS than ever in 1917. My book tells how to increase your corn crop, increase your wheat crop, increase your small grain crops, and by the judicious use of the manure crop on your farm add money to your bank account next fall that you otherwise would not get. You can increase your corn crop from 15 to 20 bu. per acre with the Galloway spreader. My book will tell you how a Galloway spreader will pay for itself in one year by INCREASING CROP PROFITS. Remember I give you

THIRTY DAYS' FIELD TRIAL and save you from \$25 to \$50 on a modern, scientifically constructed spreader that has taken me years and years to perfect. Don't buy a spreader of any make or kind until you have tried a genuine Galloway 1917 model No. 8, No. 5 or No. 1A. AT OUR RISK without obligating yourself in any way.

SEND FOR 36-PAGE BIRDS-EYE ON HANDLING SILAGE—a chapter from "Modern Silage Methods." 1917 edition of this book 25c. 264 pages. Answers all silage or silo questions. Ohio Silo Filler Catalog FREE.

Superior Silos

BUY DIRECT—MARCH PRICES.

10x30 Oregon Fir One piece Stave.....	\$162.00
10x30 Yellow Pine.....	\$132.00
10x24 Yellow Pine.....	\$108.00
10x30 Redwood.....	\$185.00

Place your order in March and have silo shipped later. Oregon Fir or Redwood Silos are absolutely clear of knots. (No better material). Write for delivered prices at once.

Silo Supply Company
Dayton, Ohio.

FARMER Agents Wanted

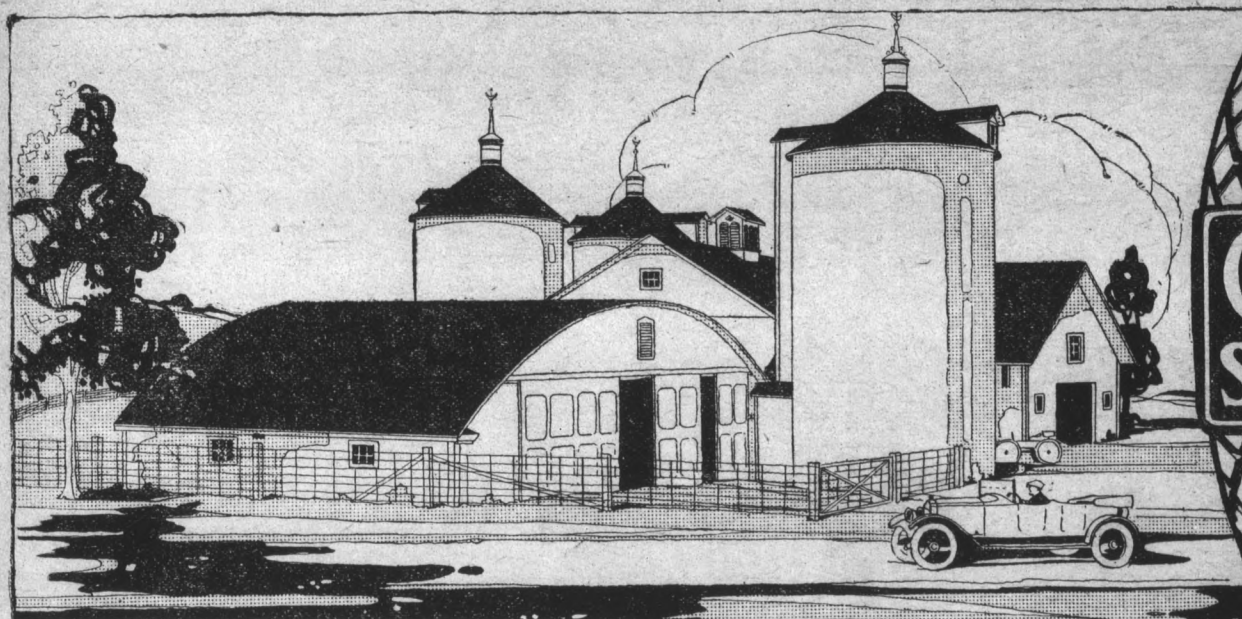
Well Guernsey Silos (glazed and vitrified tile) in your territory. If planning to build, write for special new agency terms that will save money on your silo and earn good profits.

GUERNSEY CLAY CO.
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"How To Feed Silage" FREE

Send for 36-page birds-eye on handling silage—a chapter from "Modern Silage Methods." 1917 edition of this book 25c. 264 pages. Answers all silage or silo questions. Ohio Silo Filler Catalog FREE.

The Silver Mfg. Co., Box 390 Salem, Ohio



Dairy Barns and Wooden Stave Silo, Spring Valley Farm, Dundee, Illinois



Better Tires for Average Roads

The boulevard is the tire-maker's paradise. Broad, ballasted, crowned for drainage and clear of obstruction—generous mileage and untroubled comfort over its smooth surface are simple attainments.

But the average road too often is his undoing. Varied in surface, speared with rock, scarred with ruts and choked with sand—it takes inevitable toll of the slightest tire fault or weakness.

We can not always ride on boulevards—too much of the work of the world is done in the open places reached by average roads; but we can build to the grim exactions of the average road, and be sure the boulevard will not find us wanting.

Goodyear has done just that—built its tires to the average road—built them strong and sound and lasting—safe and sure.

Goodyear Tires are thick of tread and large of girth. Goodyear Tires are powerful of structure and munificent of mileage. Goodyear Tires are generous of comfort and grudging of wear.

They serve, they satisfy, they endure—on any car, in any season, on any road.

It is not a month's task, or a year's, to build tires such as Goodyear builds. It is a

long, laborious process of experiment and effort, of test and try, of search and selection, ceaselessly carried on and conscientiously brought to success.

And the result of it all is the Goodyear Tire as you buy it today from your dealer—a better tire, built to the average road and able to serve well there, a tire unsurpassed in quality and brimming with value.

If you have not yet come to Goodyear Tires, you will. The trend of public preference is too pronounced, too positive, to admit of any other conclusion.

And when you do come to them, buy them of the Goodyear Service Station Dealer. There's one in your neighborhood, on the ground where you can meet him face-to-face.

He has in stock other things than Goodyear Tires—Goodyear Tubes and Goodyear Tire-Saver Kits, both of which embody the same high merit as the tires themselves.

He will be glad to serve you, and to help you, after the purchase, to get the final mile of service from Goodyear Tires. Which is service far beyond that you have commonly known.

The Goodyear Tire & Rubber Company
Akron, Ohio

GOODYEAR
AKRON

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND **LIVE STOCK**
PUBLISHED WEEKLY
JOURNAL
ESTABLISHED 1843

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere

INTO the establishment of a haberdasher who was conducting a modest little store walked a man who said:

"I would like to buy a collar."

"Yes, sir," was the haberdasher's ready reply, as his hand went up to a shelf and pulled down a box. "A C—fourteen and one-half?"

"That's it," said the customer, "but how did you know?"

"I believe that I sold you a collar of that type about a year ago."

That same haberdasher is now running a store in a building that was erected for his use by the man who bought the C—collars.

In Los Angeles a young woman nam-

Energy Intelligently Directed

By HOWARD C. KEGLEY

ed Dewey manages a little laundry agency. Those who leave their laundry with her this week will probably leave their bundles in Spokane or Albuquerque next week. A large percentage of the people who leave their laundry bundles at agencies along the street are tourists who are there today and gone tomorrow, so why should she worry her mind with learning their names?

One day W. J. Blakemore and Char-

ley Doolin left their bundles at her office. Blakemore was a stranger to her; Doolin an occasional customer.

"When you go back to get your wash that girl will hand you your bundle without asking your name," said Doolin.

"Go on; she'll do nothing of the sort," replied Blakemore.

"Wait and see," cautioned Doolin.

Blakemore went for his bundle, two days later. Stepping to the window, he

said: "Well, is my washing ready?"

"Certainly," replied Miss Dewey, and she handed it out without a question.

The following week Blakemore took her another bundle of soiled linen. The bundle wasn't marked.

"Write my name upon the wrapper, will you?" he said.

The girl reached for her pencil, and then, after stopping to concentrate her thoughts for a moment, she wrote his name down, supplying the initials a moment later.

The faculty of remembering names and faces brings her a great deal of the business which turns away disgustedly from other laundry agency girls who can never remember a cus-

WORLD EVENTS IN PICTURES



Topping a Day of Festivities with a Luncheon on the Ice.



Women of New York Tenement District Protest Against High Cost of Food.



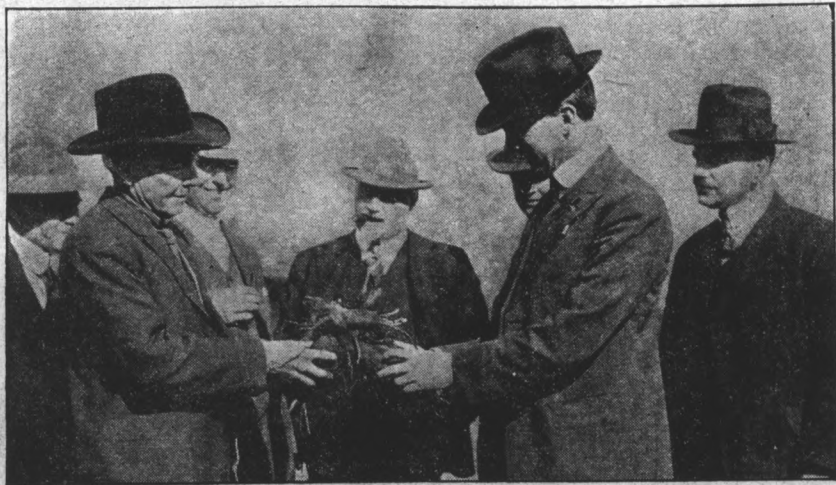
Germany's Destiny Largely Rests upon the Shoulders of Two Men.



Society Children Enjoying Party in Coconut Grove at Palm Beach.



New York Girl who Mysteriously Disappeared on February 12.



Burbank, Plant Wizard, Presents Oakland with Largest White Dahlia.



Monster Italian Gun Now in the Hands of the Austrians.

Copyright by Underwood & Underwood, New York

tomers' name and are everlastingly getting the bundles mixed.

Smith was stopping for a few weeks in a western city of four thousand inhabitants. A youth named Carey was a clerk in the post office. Smith rented a combination mail box.

One morning he mailed a letter to Lyman Jones, of Chicago, Ill., but forgot to write Chicago, Ill., on the envelope. A few hours later, upon returning to the office, he found the letter in his mail box, marked "insufficient address."

Going to the delivery window, he said to Carey: "Young man, why did you chuck this letter into my box?"

"Why," said Carey, "I supposed that it was mailed by you. I am sorry if I was mistaken."

"What made you think that I wrote it?" said Smith. "The envelope is a plain white one, with no return card, and it was addressed on a standard typewriter."

"I know," said Carey, "but I'll tell you why I thought that you mailed it. The other day I picked up some letters which I had seen you drop into the office, and I noticed that the capital L was out of alignment on your typewriter. The letter you have in your hand had a capital L out of line, and it looks to me as though it had been addressed on your typewriter."

"It was," admitted Smith. "I simply had a curiosity to find out how you knew it was my letter. If you were working for me I'd raise your salary."

Efficiency is the commodity upon which the world is placing the highest premium. Honesty goes a long way, but a man may be as honest as the day is long and yet not be worth his salt, for if he lack energy he is unworthy of his hire at any price. Efficiency is energy intelligently directed.

Doing to the very best of their ability the tasks which they have to do is the thing that ultimately lifts people out of the realm of the commonplace.

with their pets. The children love to fondle their pets and tenderly handle them just as they in turn have been handled by their loving parents. Their expressions of love for, and appreciation of, the pets, are sometimes amusing to older people, but it is the budding of a beautiful flower in the character of the individual. Such manifestations of feelings are the first signs of the making of agreeable people and they should be encouraged, but never blighted by harsh and cutting remarks.

No doubt the most of us have listened to the earnest appeals of children for kind treatment of their pets when they have come in contact with those who did not appreciate the worth of a kitten, puppy, or lamb, as a pet, and companion. Such scenes are illustrative of the wide difference in feeling developed with or without pets or little animal friends.

Many men retain, as long as they live, pleasant memories of the days when they were given a puppy and allowed to play with it. Then when it grew up and became a companion and friend wherever they roamed, it was their faithful servant that never betrayed them. Later in life they have awakened to the fact that no matter if misfortune overtakes them, there are two friends that will remain true to them and always manifest an unyielding love for, and faithfulness to them—they are the dog and the mother.

Fidelity is often manifested by our animal friends in a greater degree. The faithfulness of the dog and the horse has become proverbial. Their attachment for their master, in some cases, seems to surpass the love of the human. Alexander Pope who wrote the celebrated Essay on Man, in speaking of the ungrateful feelings of men and of the tender loving lambs says "he will lick the hand that is raised to shed his blood."

It is very evident that many men are better men than they would have been if they had not been associated with animal pets when young. They have a more kind, sympathetic way of treating their fellowmen, and are more considerate in regard to their actions on the feelings of others.

Having had the privilege of associating with pet animals while young has helped to develop better mothers. The kindly feelings toward innocent and helpless creatures in the shape of kids has added to the growth of parental love, and the mothers who were raised on the farm have displayed great strength of noble character that has not only made them a "helpmeet" in the home but they have breathed into the ears of the children a spirit of kindly feeling and loving sympathy which has produced a better type of manhood and womanhood as a result of their early experiences in childhood.

While we bestow labor and treasure in our efforts to improve our domestic animals, let us appreciate the fact that our animals have played an important part in molding and improving the character of the men and women raised on the farm. The animals on the farms represent an enormous value as contributors to the necessities and happiness of the people, but the ameliorating influences on the character of the men and women brought in contact with them, represent a great value not generally considered.

It is generally conceded that live stock farming is the highest type of farming known and at the same time the high types of manhood and womanhood are found in those portions of the world where domestic animals are kept in considerable numbers, but the highest types of human development, physical, intellectually and morally, is where improved animals are kept and the improvement is still being carried on.

Trapping the Skunk

By G. F. DeLaMATER

OF all the fur bearers, the skunk is probably the easiest to catch; but catching him is not all there is to it; like the muskrat, when caught by a front foot he will often gnaw, or twist, off the foot and escape. To obviate this trouble I use the double-jaw style of trap; the Oneida jump trap No. 91, corresponding to the regular No. 1 is too light for anything except muskrat; the Newhouse double-jaw is my favorite. The web jaw is said to be good, though I have never used them on skunk. The Stop Thief, Sabo and Tree traps are good skunk catchers; conditions usually determine what style to use.

As for making sets; there is no special procedure, a skunk will go out of his way to get into a trap. My theory is that they are naturally inquisitive and examine every new object with which they meet. Of course, the trapper who will be the most successful in catching skunk is the one who knows best the habits of this animal; in this connection I might do well to give some of my observations.

I find that the skunk is in the habit of following a given route; and he covers the ground with a regularity that is really surprising. He stops and investigates holes, hollow logs, houses, etc., every time he comes along; also, I have observed that more than one skunk will often cover portions of the same route. Take for instance an old building; there are often half a dozen skunks that will visit it every week. Where one has been caught is a good place to catch another.

Having determined on the place to set the trap, the rest is easy, just place the trap where Mr. Skunk will step into it. It isn't necessary to cover traps for skunk, or conceal them in any way; however, it is well to use a light covering of leaves or grass as there is always the chance of catching some other animal. When no other place is handy to make a set, I have taken a shovel and dug a trench five or six feet long and a foot deep, in the bottom of this I set my trap and I

nearly always get my skunk; he sees the fresh earth thrown up and stops to investigate.

What is more important to most trappers than methods of trapping, is the successful avoidance of the disagreeable odor which is the skunk's defence. I have solved this problem to my own satisfaction, and have picked up some easy money by its use.

First, I try to avoid the odor by killing the skunk without his throwing it. There are several ways of accomplishing this. The usual procedure is to fasten the trap to the end of a pole and when Mr. Skunk is caught carry him to water and drown him. I have carried a skunk half a mile on an eight-foot stick without trouble—a longer stick is preferable. When drowning is out of the question, the trick can be done by breaking his back. This is done by a shot through the back bone, or a blow on the back with a club; while these methods are often successful, they don't always work.

Next, when a skunk is loaded with scent and unfit to handle, I take him and sprinkle a tablespoon of formalin on him and place him under a box for several hours—usually over night—and then take him out and hang him up where the wind will strike him. After the smell of the formalin blows off he is as clean as a rabbit to handle; the first thing I do is to remove the scent glands; then there is no danger of a recurrence of the odor. For the benefit of those who are not familiar with the anatomy of a skunk, the glands are located just under the skin on each side of the vent; great care must be used in skinning around them; when the skin is peeled back a large piece of meat can be cut out containing the glands.

Many trappers avoid skunks because of their scent; I have bought many of them for half what they were worth, or less, from people who dreaded the job of skinning them; then by disinfecting them with formalin, I could skin them in comfort.

Influence of Pets on Children

By N. A. CLAPP

THERE seems to be but a few people who realize the modifying influence of pets on the character of children. If we stop to consider the desirable characteristics which children possess and trace out the methods and means by which those characteristics have been developed and established, we will find that the family pets have had much to do in fixing those traits in the minds of the children and making them a part

of what the individual is as their actions will show in after life.

Among the strongest inclinations and sentiments which we admire and highly esteem in men and women, is love, sympathy and a kindly feeling toward others. Those feelings are breathed into the lives of the children by the mothers, while the children are very young, and the first opportunity offered for the expression of those feelings, is when they come in contact

"Mister 44" By E. J. RATH

"Tell me exactly what she did after I left the island this morning," he commanded.

"She came to camp one hour, maybe two, after you go away," said John carefully. "She sit around. I get some lunch, but she done eat much. Then she get some paper and write. She write a long time. After she write she cry."

"Cried!"

"Sure. Then she put um letter in the tent. Then she tell me she had to get train. She tell me to take her there. That's all."

"You went by the portage?"

"Yes."

"How long did you have to wait for the train?"

"Bout half hour. I didn't wait. She tell me not to."

"How do you know she caught the train?"

"Heard it stop while I paddle across the bay. I set signal."

"Didn't she leave any message for me?"

The Indian pointed to the letter, which was still in Stoddard's hand.

"That's all," he said.

"And you're positive she didn't say where she was going?"

She said she go home. She didn't talk much."

Stoddard read the letter a third time. Now it had the effect of working him into a state of impotent rage. He turned upon the Indian savagely.

"How dared you take her away from this island?" he demanded.

"She say she had to go," answered John.

"But what business did you have to help her?"

"You tell me to take lady's orders. You don't tell me to keep her here."

That John had acted within his orders even Stoddard could not gainsay. He was furious at himself now.

"You say take good care of her," added John in defense. "I do. She catch train plenty time."

Stoddard suddenly remembered a phrase in the letter.

"She says something about Mr. Livingston here," he said. "Did she talk with him today?"

"This morning, down that way," answered John, pointing toward the other end of the island.

"After I had come back to camp."

"Yes."

"Did you hear any of it?"

"No; too far away."

Stoddard looked grim. Larry had something to do with this—Larry the meddler. What did Sadie mean when she wrote that Livingston might tell him some time—and that Livingston was right? His fingers yearned for a grip on Larry's throat—for a chance to shake the truth from him.

"What a stupid coward I was!" he muttered. "To let him scare me away! Just as if anything else in the world existed—then! And what must she think of me!"

He turned again to the Indian, who had resumed the interrupted examination of his canoe. John, innocent instrument of Stoddard's despair, suddenly appeared to remember something.

"I forgot," he said, and began fumbling in a pocket.

Presently he withdrew from it a crumpled roll of paper and offered it to Stoddard.

"She say to give you this," he explained.

Stoddard unfolded the paper and found, lying in the palm of his hand, a strand of golden-bronze hair. He felt a tightness in his throat as he looked at it. Gently he passed the silken skein through his fingers, marveling at the softness and smoothness of it. Then he put it into the pocket of his shirt—the same pocket as that into which Sadie had pinned a letter.

"You're sure this is all, John?" he asked. "You haven't forgotten anything more?"

"No."

Twilight had deepened into early evening darkness when Stoddard wandered a little distance along the shore and sat heavily upon a boulder. The anger had left him, but his face was very grave. In his heart was the soreness of bitter disappointment. For a time he had no will to do anything save brood over his misfortune.

Then he roused himself impatiently. "I'm acting like a child," he said aloud. "I've done enough crying. Now what's to be done?"

Did he want Sadie Hicks, the factory girl?

He asked himself this question frankly as a beginning, although the answer was already written in his heart. But Stoddard had determined to restore his mind to a state of discipline, as a necessary step to the accomplishment of anything whatever.

Sadie was unlearned of books and of speech; her knowledge of things beyond her immediate little world was small and imperfect; there were times when he could not listen to her without an involuntary shudder; she was uneducated, untaught in the graces of the women who people his own world; he would be unable to take her among them. All these things were true, he told himself; he must be careful not to lose sight of them.

What else?

Well, Sadie was brave and true-hearted and tender. Her speech stumbled, but her mind traveled straight. She looked upward and steadfastly toward her ideals. She had warmth and sympathy. She did not lie nor evade, but spoke with the simplicity of a child. She was a woman, unspoiled.

She was beautiful, beyond all question; he had never seen her like. She stirred his imagination strangely. She awakened in him a curious mingling of respect and pity. Yet the pity seemed evanescent; he was conscious that it was slowly fading. Something clothed her about with an atmosphere of simple dignity and nobility, and this despite her speech and the unlettered mind from which it sprang.

He loved her. He would always love her. That he told himself, calmly. This woman was his mate.

Thus Stoddard answered his first question. He loved her; therefore it followed that he wanted her.

Wanting her, he must seek. Where?

The Indian told him she talked of going home. Her letter contained the pathetic conclusion that the place for a girl to work was in the city. Buffalo then. He could think of no other place. Sadie herself knew none, save the little Ohio town that was her birthplace.

Therefore she must have returned to Buffalo. He would first seek her there. If he failed there circumstances would lead him elsewhere. But the search would end only when he had found her.

When would he seek her? That was simple. Once Stoddard had planned a course, he went upon it without delay. He would start tonight.

The night mail, south-bound, would reach the Lower Station at eleven-fifty. There was ample time for it. True, it went only to North Bay, but it would set him on his journey. It was better than waiting for morning.

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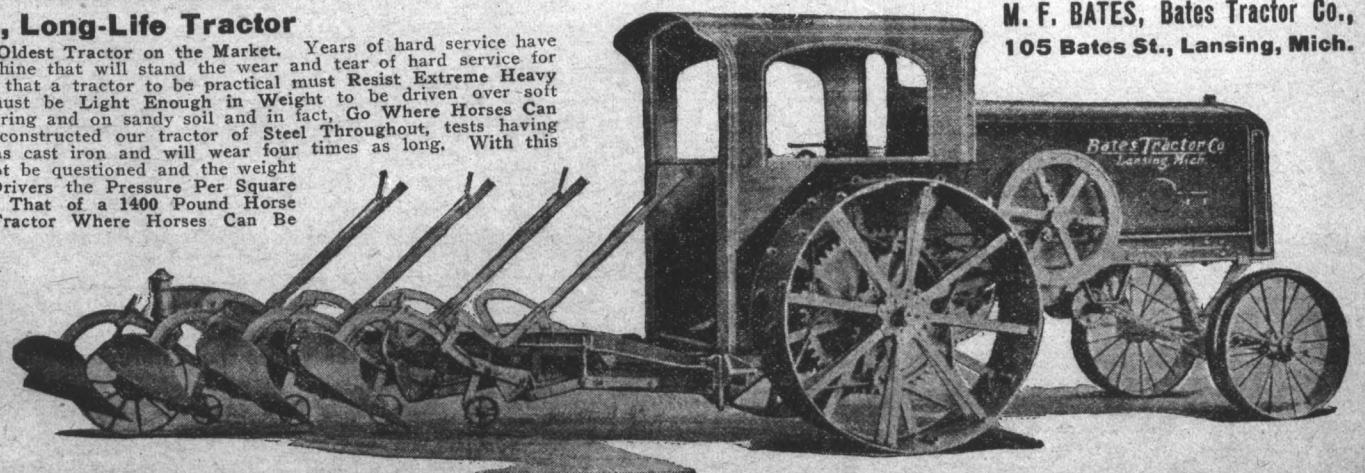
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on a definite purpose, Stoddard went briskly back to camp, where he found John with his supper ready. He ate heartily.

"I take the night train, John," he said when the meal was over. The Indian merely nodded.

"I don't know when I'll be back. You can pack up my stuff and take it to Deepwater Station. I'll send word what to do with it later. My city clothes are there, too. I haven't time to get them now. I'll send you some money later; I need what I have with me."

John indicated that he understood. "I'll catch the train at the Lower Station," added Stoddard. "And I guess I'll start now."

"How about the canoe?" asked the Indian.

"I'll leave it at the landing-place and you can pick it up later, unless you want to come along now."

John evinced no desire to make another trip to the Lower Station. He felt sleepy, and the tent and blankets were alluring. He said he would get the canoe tomorrow.

A minute later Stoddard was crossing the Northeast Arm, headed for the entrance to the portage that crossed the neck of the peninsula. He did not hesitate to try conclusions with it again, even though it had used him hardly a few nights before. He imagined he would have little trouble; various sore spots upon his person still existed as reminders of every pitfall in the treacherous path.

A young moon was shining as he drew his canoe from the water on the opposite side of the Northeast Arm and made it ready for the carry. No moose, tarrying late for a nocturnal supper, greeted him tonight. The forest was in deep slumber.

The crossing of the portage exacted a toll of heavy labor, but he escaped the punishment of ignorance and stumbling feet. He remembered the trees that had tripped him, the rocks that lay in wait for a misstep, and he profited thereby. When he dropped his canoe into the waters of Island Bay he sighed comfortably and triumphantly.

"It was almost too tame this time," he said.

There was a slender streak of moonlight on the water. Into this he headed the canoe, for it was almost exactly marking the path to the Lower Station. Presently he was among the still islands, where the course became winding and apparently aimless and where there were numerous channels, any one of which would lead toward his goal. He chose that which was most direct.

As he slid the canoe through a narrow passage between two of the islands a sound of voices reached his ears. Automatically he rested his paddle and listened. Men were talking somewhere off to the right.

"I don't see that it's any use to hang around here," growled one voice. "We've tried it two nights now and nothing doing."

"Well, it was your tip," came the answer. "I didn't bring you here."

"Jim said he found a track over here. That's what brought us."

"I don't believe he found anything,"

"Well, I showed you some tracks myself."

"Anything might have made 'em," retorted the second voice in disgust.

Stoddard dipped his paddle again and smiled. Somebody was getting ready to violate the game-laws of the Deepwater. It was none of his concern; beside, he had no time to waste investigating.

The canoe passed the narrows and shot out into a broader sheet of water, where the moonlight played again.

"Listen!"

One of the voices spoke abruptly.

"What is it?"

"Somebody in a canoe. I heard the paddle."

"Has he got one?"

"I don't know. I suppose so."

Stoddard was puzzled. He halted again for a moment; then remembered the south-bound train and resumed his course.

As he did so he heard the noise of running feet on a rocky shore, then a splashing, followed by a sound of hasty paddling behind him. He paused for a third time and looked back. Now he made out the dim bulk of a moving canoe. It was headed directly in his wake.

"Funny!" he muttered. "But I've no time to wait."

He had taken less than a dozen strokes when a voice hailed from the darkness.

"Halt!"

Stoddard hesitated involuntarily.

"What's the trouble?" he called.

"We want a look at you!" said the voice sharply.

Although his curiosity was aroused to the keenest pitch, Stoddard could not risk the missing of the night mail.

"Can't wait. I'm in a hurry," he answered, laying to his paddle once more.

"Halt!" The command this time was more peremptory.

"Cut out the melodrama," advised Stoddard over his shoulder as he turned the point of an island and bore away for another channel ahead.

"We'll fire!"

This time Stoddard laughed and kept steadily on his way. The very absurdity of the thing appealed to him. Piracy was unknown in the Deepwater. This was some crude joke—astonishing it was true, yet surely a joke, although it would have been an uncomfortable one for a timid man.

A rifle cracked and somewhere off to his left a bullet cut the surface of Island Bay.

Stoddard stopped laughing. This was carrying a joke too far. He was minded to stop and demand an explanation. Then a picture of Sadie flashed into his mind. Every minute was taking her farther away from him. He could not stop.

"I warn you to stop shooting!" he called as he put forth all his strength, so that the shaft of the paddle bent ominously.

The answer was a second shot, equally wide of the mark. Stoddard's canoe was flying now. Then he heard the voices again.

"Stop shooting and get to work," exclaimed one.

"But he won't halt."

"Take your paddle. We'll catch him. There's no reward for dead men."

A great light dawned upon Stoddard's puzzled mind. So they were hunting the "lunatic"—the wild man who had dashed up to the incoming train at the Deepwater station that day, seized Mrs. Westfall, without explanation or apology, snatched her across the platform and literally thrown her into the south-bound train just as it was moving out of the station. But how could Stoddard explain that there was no "lunatic" to hunt for—that he had only mistaken Mrs. Westfall for someone else, and that in the hurry and confusion there had been no chance for either to put the other right.

Stoddard was both amused and alarmed. The whole affair, and especially this present episode, was to ridiculous not to be laughed at; yet it bade fair to cause him annoyance, embarrassing explanations and above all disastrous delay. He, John Stoddard, C. E., of old and distinguished family, hunted down for a madman. He chuckled. Simultaneously he thought of Sadie again and became grim.

As he could now hear a furious paddling astern of him he assumed that the rifle had been laid aside in favor of pursuit. He felt more comfortable. Although by no means nervous, Stoddard had no relish for serving as a target for pot-shots in the dark. He

had been under fire in semi-civilized countries, whither his profession had called him, and he did not regard the sensation as a pastime nor one to be courted when it could be avoided.

A race he did not mind. He judged he had a lead of perhaps a hundred yards, and, although two men can drive a canoe faster than one, he was willing to take the chances of keeping the lead. So he settled himself firmly on his knees, determined to give this pair of lunatic-hunters a contest worthy of their desperate, if foolish, purpose.

Five minutes later he was clear of the islands, with a mile of open water ahead, at the end of which lay the rotting wharf of the Lower Station. Had there been time to spare Stoddard would have enjoyed a hide-and-seek chase among the islands, where he was confident he could easily elude pursuit. But he could not afford that.

That they saw him clearly as he started across this broad reach of Island Bay he knew readily from their shouts. It did not take him long, either, to become aware of the fact that the second canoe was gaining, but he consoled himself with the thought that this was to be expected. The important question was, how rapidly would they gain and would he reach the shore ahead of them?

No sound came from either craft now, save those of heavy breathing and rapidly wielded paddles. It was no time for talk in the craft of the pursuers. The pair who manned the paddles were awake to the size of their task, for the man ahead was driving his canoe at a furious pace.

Half a mile farther found the two craft separated by not more than a hundred feet. Stoddard was breathing heavily, but his arms and body worked with the same machine-like precision and power. He even had a final spurt stored within him, if he needed it. Once he glanced back, only to return to his work with fresh determination.

"The fools!" he muttered.

Behind him two toiling men were now calling encouragement to each other as the distance that separated them from their quarry lessened, despite the fact that to call cost precious breath.

"He's nearly in!" gasped one. "Hang to it!"

Stoddard caught the words and flung back a mocking laugh. He would show them how nearly in he was.

But now another and different sound reached his ears. It was the faint whistle of a train.

"Good Lord!" he thought. "Less time than I figured! I'd have missed it sure if I hadn't had somebody to chase me!"

The dock was less than two hundred yards ahead when he began his spurt. The quickening of pace was barely perceptible, yet it was a little. The canoe behind responded to the challenge. But twenty yards now, it was cleaving the water like a power boat.

Again came the long droning of a locomotive-whistle, clearer this time and obviously nearer.

Stoddard was putting the last ounce of his strength into his blade, but he was losing ground. Ten yards separated the canoes, and the landing was still fifty yards away. He was thinking rapidly, but did not falter in his stroke.

One of the men had a gun, perhaps both. They would reach the station platform almost as soon as he. There would be no time to set a signal. Already he could hear the rumbling of the cars. Whatever was to be done must be done at the landing.

As his canoe ran alongside the rotten platform he rose to his feet and sprang out, still clinging to his paddle. Then he faced swiftly about.

(Continued next week.)

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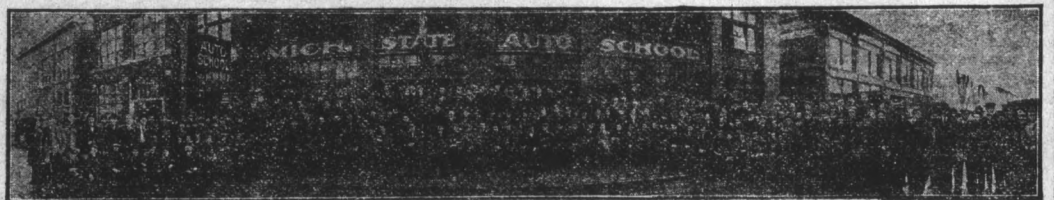
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2, dc 1 in same place, ch 2, dc 1 into next ch of 2, ch 2, dc 1 over same chain, etc., to end of row.

The work alternates thus for the 12 rows needed to complete each scallop, the only variation being the addition of two double crochet stitches each row in the double crochets placed where the work widens. This will make 26 double crochet stitches in the widest section and lower half of the scallop, the upper part being more in the nature of insertion.

CONCERNING GOOD MANNERS.

BY EMMA GARY WALLACE.

There is no reason why the boy or girl on the farm should not be as gently mannered as young people anywhere. Sometimes they may not know the why of some of the customs they see their town friends use, so they may hesitate to do the same, but once having understood these things, they will readily see the common sense of it all. First, let us remember that good manners are simply a consideration for the rights of others. In other words, bad manners are selfishness and ignorance, while good manners are thoughtfulness and knowing why.

When you are at a friend's table as a guest, you will notice that no one sits down until the hostess herself has been seated. This is as it should be. The hostess knows when everything is ready and when each person has been assigned a seat. Naturally, it is her privilege to give the signal for all to be seated. She does it by taking her place herself.

When an older person comes into the room, the others all rise and remain standing until the last comer has chosen a seat. This is again perfectly right. To remain seated would be as if the young people said, "I got here first. Get a seat if you can," while rising indicates that any seat is at the command of the older person.

Bread is never cut at the table. The slice is broken instead. Neither is a whole slice or a half slice buttered and eaten from. It is much preferable to break a smaller piece, butter it, and eat it than to prepare food wholesale in this manner.

Soup should be eaten from the soup spoon quietly. To make a noise is an indication of ill-breeding and very annoying to others. Food should be chewed at all times with closed lips, for again the sound of crunching or of smacking of lips is very nerve-trying. The mouth is wiped with a napkin before taking a drink from a glass, so that an unsightly smear may not be left upon the glass.

Food passed at the table is handed to the next person for they, too, may wish to eat. This would seem an unnecessary precaution to mention but people are often met who help themselves and then set the dish down without considering that others, too, may wish to be helped.

A gentleman always stands back for a lady to go ahead of him except in passing up a flight of stairs, when he goes first. He again precedes her in going into a public place or dining-room so that he may find a seat for her.

When it is necessary to use a handkerchief in public, it is done unostentatiously and without noise. Any person guilty of examining the handkerchief so used is not fit to be allowed in polite society.

No young man of good training is ever guilty of putting his feet upon the rail of a piazza when sitting with a lady, or of putting his feet upon another chair. If he wishes to lounge, he should go off by himself.

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Burn It By HILDA RICHMOND

A DRAWER full of large and small pieces of old cotton goods is one of the greatest blessings a housekeeper can have. The pieces should be washed clean and neatly ironed for various uses. Once when a member of our family had a troublesome abscess we were able to get through the whole painful period without washing a single cloth used for the wrappings and poultices. Every article used was burned at once and the relief of it was more than words can express. That was years ago and from that time to this the emergency drawer is stocked with soft, clean, smooth cotton goods.

In cases of grippe and severe colds when quantities of offensive matter are discharged from the nose and coughed up we always use soft paper or soft cloths and immediately burn them. The disgusting habit of using an open cuspidor is as dangerous as it is revolting. The cloth or paper covers the mouth and keeps the germs from being distributed everywhere, and the hot fire in the kitchen range soon reduces them to harmlessness. Even little children can be taught to observe sanitary rules in cases of severe colds.

In dressing sores or cancers there is but one rule to be observed in disposing of the dressing. Burn it! And burn it at once. Never permit a cloth used on a cancer to be placed with the ordinary washing. Pick it up with a square of paper and burn it at once. If there is furnace or a range capable of taking in the dressings, all the better, but a fire outdoors is better than nothing. All gauze, poultices and other dressings for sores should go through the cleansing fire as soon as they are needed no longer.

Equally important is it that all oil rags should be burned. Many a mysterious fire loses all its mystery when it becomes known that oiled rags used for cleaning were "saved" in a garret or other place where the air becomes overheated in summer. If the rag is clean enough to be used again drop it in a tin can and put the can where it will be out of harm's way.

From childhood I was taught never to sweep dust out of doors but to take it up and burn it. Of course then I did not know why, but I am thankful for that training. When we open the vacuum cleaner it is never in a draught but in a quiet place where all the dust can be gathered into a large newspaper. Then the dust and lint are quickly destroyed by fire. In this way germs never have a chance to get in their deadly work. The dust that accumulates on top of windows and doors is wiped down with a damp old rag and the rag burned. We can not shut out of our homes the deadly germs of tuberculosis when visitors come who are afflicted with the disease, but we can take extra precautions.

Old millinery, old shoes, old rags, old pasteboard boxes and other waste should be consigned to the flames the instant their usefulness is past. Such things only furnish hiding places for rats if kept long and are worse than worthless. The toys used by children when getting well of contagious diseases should be promptly placed in the fire as they may carry contagion to many, many other children. Last winter a family in a country school district had smallpox and did not burn up the school books as directed to do. As a result the disease broke out again this winter when those books were used in school. It may seem a hardship to the children to burn their dolls and toys and books, but one can not be too careful.

The purifying fire will keep the home sweet and clean if allowed to do so, and also help to keep down contagious diseases. Every worthless article should be promptly burned up. And

particularly should personal letters be destroyed that might chance to fall into strangers' hands. It once was the thing to hang on to every old letter and old garment, but now we are learning that sanitary conditions rank higher than sentiment and the average of life and health are slowly rising in consequence.

THE DINNER PROPER.

BY M. A. L.

When the soup course is finished the soup plates and service plates are removed and the fish course served. This may be trout, white fish, anything in season. With the fish is served a salad vegetable, cucumbers, endive or lettuce hearts. Or it may be served with a sauce and the salad omitted. On the removal of the fish the entree is brought in, and this in turn is followed by the roast, the ice, the fowl or game. Then if two desserts are served the hot one is served first, to be followed by the frozen dainty, fruits and bonbons, and last of all black coffee. Cheese may be served just before the coffee, or a cheese souffle may replace the ice or sherbet.

Who shall be served first is a question which bothers, not only the hostess but those "having authority," for two methods of procedure are followed. Some insist that the lady at the right of the host should be served first, then the guest at his left, and so on, alternating right and left down the table to the hostess. Others decree that the hostess shall be first served, then the ladies, right and left in turn, and lastly the gentlemen. The latter method is gaining favor, since, if there is a new dish passed, it is served first to the hostess who, of course, is expected to know the correct method of procedure.

If, as is often the case, there is no paid help and no daughter old enough to be pressed into service as waitress, the dinner must be served from the table.

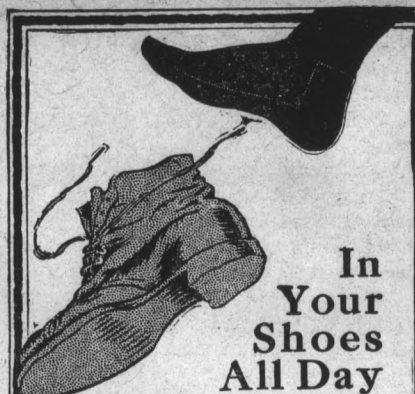
Where the number of helpers is limited, as is usually the case nowadays, the soup, salad and dessert may be served at the table by the hostess, the host carving the roast and serving the fish. The waitress passes the vegetables in the serving dish to the left of each guest, offering them the dish from which to help themselves. Individual portions of food, which are to be set down in front of the guest are always put in place from the right, but the serving dish from which one is to help oneself is passed at the left.

The success of the dinner depends upon skill in cooking as much as in serving and decorating. Do not attempt a dish unless you are sure you can make it perfectly. Two or three plain dishes perfectly cooked are far better than a half dozen elaborate attempts which are failures. Most important of all, see that things are not lukewarm. Have the hot dishes piping hot, the cold dishes as cold as possible. Heat the plates for the roasts, fish and fowl, and chill those for the ice cream. Plates with gravy and fat congealed by cold rob all but the most valiant trenchermen of appetite, and a plate of melted ice cream, coming at the close of a hearty dinner is certainly anything but a delightful close.

Last of all, have the coffee strong and hot. And whatever may be the emotion inside the breast of the hostess, see that the guests look upon an unflushed and smiling countenance.

HOUSEHOLD HINTS.

I saw a request a few weeks ago for a fluffy cake. This has always proved good. Take one and one-half cups of flour, one cup of sugar and two round- ing teaspoonfuls of baking powder. Sift together three or four times. Put the



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yolk of an egg in a teacup with two tablespoons of melted butter and fill cup very full with sweet milk. Pour into sifted flour, stir rapidly and beat up good. Flavor and bake in three layers or a loaf. As the flour varies some it may take a little more. It may look like quite a chore to sift the flour so many times, but you will not mind that when you are sure of a good cake made so cheaply.—A. A.

THE NEW RANGE IS A LABOR SAVER.

"We can live without poetry, music and art,
We can live without conscience, we can live without heart,
We can live without faith, we can live without books,
But civilized man cannot live without cooks."

So we are informed on the front page of a cook-book.

And most necessary to the "civilized cook" is a satisfactory stove to cook with. The days of dropping hot stones in the kettle of soup have passed, and those of the old-fashioned iron stove with low oven to which the tired cook must stoop and open heavy doors, are numbered.

Modern stove makers have joined other manufacturers in studying woman's needs, and the stove of today, whether for coal, oil, gasoline or gas, seems to be the last word in convenience.

The ovens are raised, and at the sides, so the cook need not bend across a fiery stove to view her baking, or get down on her knees either. Glass doors allow her to watch cakes, bread or biscuit without opening the door and running the risk of having a delicate cake injured by a draft—and oven thermometers assure her of proper temperatures. She can know absolutely that the oven is just right, and need not guess or rack her mind to remember whether to hold her hand in while she counts ten for cake and twenty-five for pie, or vice versa.

Perhaps the greatest labor saver, though, is the extensive use of white enamel, or porcelain, about the new ranges. No one likes a dirty, greasy range, and no one ever enjoyed washing and polishing the old style, all black iron and steel ones. The newer designs make use of white enamel wherever possible, and a second or two at dish-washing time serves to remove all grease and traces of cooking.

KEEPING CORN MEAL.

The increased, and increasing, price of flour is bringing corn meal into great favor. Grocers in large cities claim they have sold more corn meal in the past three months than is usual in the entire year. Corn meal, however, is harder to keep than flour, especially in hot weather. The department of agriculture gives the following advice as to how to care for it:

Stone-ground meal which, on account of its rich oily flavor is so desired, spoils much more quickly than meal made in the modern mill by the roller process. For this reason the stoneground meal should be eaten as soon as possible after milling. In those sections of the country where it is customary to take corn to the mill and carry back the meal, frequent trips should be made to the mill and only small quantities of corn taken at each trip so that the meal can be used up in a short time after being milled.

The keeping quality of corn meal is also greatly affected by the heat and moisture. Other things being equal, the drier the meal the longer it will keep. It is the custom in larger mills and in some smaller ones, to artificially dry the meal after milling. In wet sections of the country, or in wet weather anywhere, dried meal will very quickly absorb moisture from the atmosphere. Any kind of corn meal will keep much longer in cold weather than in warm weather. It should, therefore, be stored in a dry, cool place.

You Women Did This

Which proves the men folks are not responsible for all the good things. Of course they would like to take the credit. That's natural.

Anyway we thank you for this splendid service. You have greatly encouraged us in our efforts to please by showing a keen appreciation of a high class article. You women of Michigan have given to

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We will make it better, if possible.

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EXPLANATION.—Wk. means the paper comes each week; mo. means each month; S-mo. semi-monthly. Dailies on R. F. D. only.

Publishers of other papers will not allow us to quote their paper single at less than their regular prices, but Subscribers to the Michigan Farmer whose term does not expire for one year or more will be allowed reduced prices on other papers at any time if they will write us the ones wanted. This also applies when other papers are wanted not in the clubs they select. If the Michigan Farmer is wanted for but one year deduct \$1.00. If wanted for five years add 50 cents.

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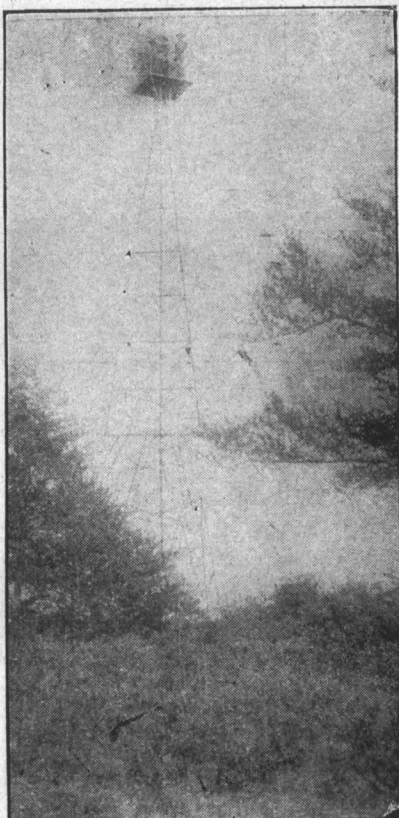
Michigan's Forest Reserve

By MYRON A. COBB

THE people of Michigan should know of the constructive work done in reforesting certain parts of the state by the Public Domain Commission. The story of how the attitude of the people in these localities is changing from antagonism to support, how hundreds of acres of light land at this time unprofitable for farming are being planted and will soon be yielding a crop of lumber is fascinating and interesting.

All know how the land of Michigan was stripped of its valuable timber and how forest fires burned over certain areas again and again, leaving an exhausted soil that has been a problem to handle properly. One can find a partial solution if he visits the Forest Reserve near Houghton and Higgin's Lakes in Roscommon county, where he can see a demonstration beyond the experimental stage showing what can be done with our lighter soil. Acres of thrifty trees show the possibilities of a valuable crop in the future. Michigan should now be harvesting a second crop of timber if she had done her duty in the past.

In Fig. 1, (see first page), are millions of trees growing in beds. Note the type of soil as shown by the bare spots—blow-sand—and consider the excellent stand of timber in the background—the result of just a little care.



An Observation Tower for Fire Patrol.

How much would our thousands of acres of light land be worth with a similar crop of timber growing on it? These beds are three feet by six feet, and are so thickly dotted with young trees that the mass effect is that of a beautiful lawn with a network of walks. The trees are grown from seeds and left from one to three years in these beds. They are then transplanted in rows as shown in Fig. 2.

Fig. 2 shows the actual work of transplanting. Local people find plenty of work in this operation. The transplanting develops a vigorous, compact root system and a more symmetrical top. They are also placed farther apart, giving greater chance for development. The trees are left from one to five years in these rows and are then transplanted to their final home. This and other necessary work has been the factor that has won the local people to the support of reforesting. Young men are being trained as assistant foresters—a profitable employment.

In Fig. 3 one sees the long plow furrows four feet apart like ditches

stretching away in the distance. In on the land and it reverted to the state. Some of the land was sold for these the little trees are planted four state. Some of the land was sold for

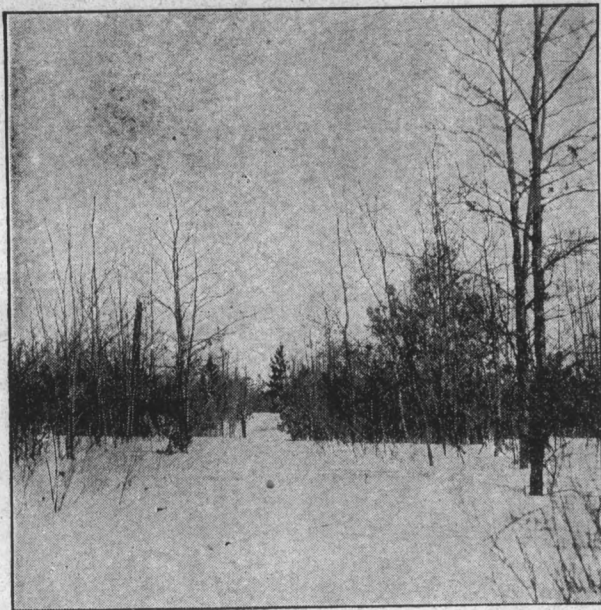


Fig. 5. A Fire Line Through the Young Timber.

feet apart, leaving them four feet each way. The cheapness of this plan is evident and there is value in it as well. The trees are placed at the bottom of the furrows where they are closer to the water and where the dirt falls around them and acts as a mulch.

That this method gives results is shown in Fig. 4, which shows a strip seven years after the transplanting. This presents much better appearance than a sand heap or a growth of weeds and a few scattering trees. Can you imagine how this will look twenty years from now? The trees are so close that they must grow tall and straight, making valuable timber.

In driving through the reforested area, "roads" will be noticed at frequent intervals, (see Fig. 5). A close glance will show that the "roads" are often only plowed strips about ten feet wide, and are cultivated during the summer so that the dirt area may stop forest fires. These are fire lines. They extend around each section and sometimes around each quarter-section. The greatest enemy of the forest is fire. The annual loss in the United States is appallingly estimated to be \$50,000,000. Michigan has a share in this loss, as in 1881 forty-eight townships were burned over—more than 1,000,000 acres, and 135 people destroyed. There are 200 miles of fire lines on the reserves. This is the most important factor in preventing losses by fire.

On the highest portions a windmill-like structure may be seen, a "look-out," where a man is stationed in dry weather to watch for fires and to notify by 'phone other men so they can stop its progress by quick action.

Michigan has six large State Forest Reserves. The original timber was cut by firms controlled by men prominent in political and industrial circles. These companies never paid any taxes

only to be abandoned in many instances, because of the lightness of the soil and again passed to the state. The first tangible effort to use this land as forest reserves was in 1903 when 34,000 acres near Higgin's Lake was set aside for forestry purposes. Other lands were added to this and other state reserves established until there are 101,468 acres in six groups. The location and areas of these are as follows:

Houghton Lake, 38,578 acres; Lake Superior (Luce Co.), 38,607 acres; Higgin's Lake, 13,580 acres; Fife Lake, (Grand Traverse Co.), 7,102 acres; Ogemaw County, 4,198 acres.

In addition to the above areas the Public Domain Commission controls about 400,000 acres in various counties. There are forest reserves of varying sizes in fifty-six counties of the state. This is land that reverted to the state because the taxes were not paid. The policy is to withdraw all land that will not bring \$6 an acre and use it for forestry purposes.

"Who is this Public Domain Commission?" you ask. The six members are as follows: The Auditor General, The Commissioner of Immigration, one member from the Board of Regents, one from the Board of Agriculture, and a member of the Board of Control of the College of Mines.

This board has care of all public lands and forest reserves, absorbing the work of the old forestry commission. Trees are not only grown for the state reserves but for distribution at cost throughout the state. Over a million trees have been sent out to private citizens and corporations. Two and one-half million trees have been set out on the reserves, over 1400 acres planted. It would take too much space to tell about the equipment, such as the 200 miles of fire lines, twenty miles of 'phone lines, a half dozen lookout towers, teams, wagons, headquarters, barn, etc.

What is the expense of this work? Is this an important factor in the high taxes? Up to a few years ago the appropriations for this work had been meager and the work handicapped. Recently the legislature has been more liberal, granting \$60,000 a year for the work.

As patriotic citizens of a great state, we should know of this constructive work—a beneficial work that renders our lighter soils valuable.



Boys Should Plan Early for their Summer Outings.

Poultry Farm Labor

IN the producing of poultry on the farm the chances for profits under proper management are no longer doubted. The farmer is frequently urged to increase his flock and the advice is often good. However, the owner of a general farm now paying a good profit knows that his present business is safe and he hesitates to speculate in the poultry business. It has generally been considered that one man will find all the work he can manage in the proper care of 1000 laying hens. I have heard W. H. Card, a poultry authority, state that a man and his wife can care for 2000 laying hens except in the spring during brooding time. He mentioned a theoretical plan he had worked out by which such a farm could be managed without any incubation and brooding. Every year the plan was to sell a certain number of old hens and buy the same number of pullets. Such a farm would be an egg producing proposition without the troubles and discouragements attending the incubation work and the brooding of young chicks. He said, however, that his plan had never been tried and a lot of Michigan poultrymen would claim that such a scheme would never work. It is too difficult to purchase pullets of quality and so the average poultryman must continue the patience demanding task of raising young stock.

In a recent talk with a poultryman who is using a new type of house he states that one man can care for 3000 hens with his form of equipment. The house is built in the form of a gable-roofed barn and the second floor is used for the roosting quarters and feed supply room. The fowls have their scratching and laying quarters on the first floor where it is warm in winter and cool in summer. At least the house will not be affected by changes in temperature in the same measure as the ground floor poultry house. Such a house enables the breeder to keep a large number of fowls in one house and care for them with a minimum of labor. However, three thousand fowls in any type of house is a large job for one man and a skilled manager would be required to achieve success by such a method.

Sources of Labor.

Generally speaking, I believe that the farmer desiring to enter into the poultry business on a commercial scale will find it easier to procure labor for that work than for any other line of farming. In the first place, poultry raising is popular and interesting and the schools teaching agriculture are constantly turning out young men well equipped to work on a practical farm and many of them are willing to begin their work at comparatively small wages, due to the fact that the experience is valuable. The short courses are steadily turning practical young farmers into enthusiastic young poultrymen and a great number of these men are not lacking in the rudiments of farm training necessary to make a practical poultryman. A short course man in any poultry department may be willing to take care of a farmer's poultry business and accept a moderate income if he is the right sort of a worker. It follows that a farmer will be willing to increase his wages accordingly if he is the right kind of a farmer, hiring the right kind of a man to make the business profitable.

Poultry farming gives the employee a steady job throughout the year. The general farmer may only need his hired man until the end of the harvest season. The dairy farmer offers a steady job to his hired man but the work is much harder than caring for poultry, although the hours are scarcely less confining. It appears that there are many young men anxious to learn the poultry business who would hesitate at hiring out on a dairy farm and

for this reason the poultry farmers do not seem to suffer for labor whenever they can afford to hire assistance.

The Cost of Help.

Buying man power on a poultry farm is an economic proposition. It is said that hired labor ruins poultry profits. It is true that one man earning fifty dollars per month will take approximately the return from 500 hens to pay his salary, and if board, room and washing are included, as is often the case, it may take more than 500 hens to equal the cost of maintaining the man. However, there is another phase to the situation. Poultry farming is confining work and one man must always be on the job to insure the best results. If there are two men on the farm one of them can be absent at intervals and it makes poultry raising more enjoyable. At the same time the extra man can perform considerable work on the farm aside from the raising of poultry. During incubation and brooding time it may take the entire time of two men. Later in the year there may be many hours that can be used for the general work of the farm. In a case of this kind it is not neces-



Vigorous, Well-bred Stock is an Essential for Poultry Profits.

sary to charge up the man's entire cost of maintenance to the poultry end of the business.

An ideal way of handling labor on the poultry farm is to give the man his own home so that he will be on the place with his family. In this way there will always be someone on the farm and the man in his own home can be paid less money and the opportunity of reducing living expenses by means of a garden, family cow and a small private flock of hens will make his yearly bank account about the same. Slowly building up a poultry business along safe lines will eventually enable the farmer to hire this extra man even if it does take 500 hens to keep him on the place. Otherwise poultry raising may sometimes become irksome as the business is confining and requires attention seven days of the week. An extra man means every other Sunday free for the owner of the farm, and holidays and vacation periods can be divided up on a fair basis. If the farm owner or the hire man wish to visit the state fair or a poultry show in a nearby city it is possible, and without the extra assistance the shortest trips only can be enjoyed and an absence of more than five hours from the poultry plant may result in serious neglect, with the resulting losses.

Two Men Necessary.

Not every farmer can hire a man, although it seems that nearly every phase of agricultural production requires at least two men to carry on the business to the best advantage. However, the supply of poultry workers who enjoy the business of producing market eggs is increasing and some farmers might make more money on their land by carrying enough stock to warrant the addition of at least one as-

sistant. It takes some time and experience to build the business up to a point where the extra man's time can be profitably employed but when that end is reached it makes poultry keeping a far more enjoyable and less confining business.

Ingham Co.

R. G. KIRBY.

LEG WEAKNESS.

I have a nice flock of young chickens, all looked healthy, but after the first cold spell we had, some started to drop their wings and in a few days they get so weak in the legs that they fall over and often have to be helped up. This does not bother the old hens only the young flock. Three have died of it. They have a warm pen and plenty to eat and drink. Kindly advise as to the trouble.

Newaygo Co.

H. G.

Your young chickens have either leg weakness or rheumatism. Undoubtedly leg weakness is the trouble, because it is something which very often attacks growing chickens.

It is usually brought about by the chickens making too rapid growth and taking on weight faster than strength. The chief causes of this trouble is the over-feeding of fat-producing foods and the lack of exercise.

I would advise that you substitute

Biggest Hatches Strongest Chicks

That's what you will get with my Hatching Outfit—and I can prove it.

Order direct from this advertisement—test the machines 90 days. Then

If you are not thoroughly satisfied, I will order them back and refund your money. If you keep them—as you surely will—I guarantee them for 10 years more. Over 524,000 satisfied users, all bought on this plan. With this outfit you can make a big income—and



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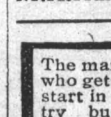
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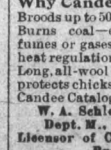
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Broods up to 500 chicks in one flock. Burns coal—economical. No oil fumes or gases. Positive automatic heat regulation. Large 12-in. grate. Long, all-wool curtain stops drafts, protects chicks. Write for Big Free Candee Catalog.

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Of course the original brooder of this type, the

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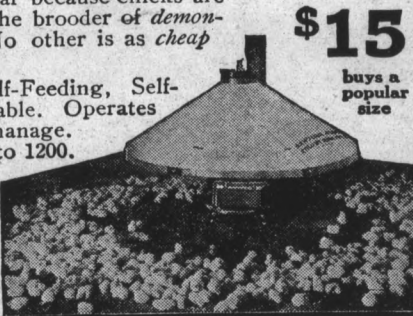
is still years ahead of the imitations. It is the favorite of the world's most successful poultrymen because it "grows the most chicks, the best chicks, with least labor and at lowest cost." Has done this for years—will do it in 1917.

You can't afford to experiment this year because chicks are too valuable. So use the Newtown, the brooder of demonstrated efficiency and superiority. No other is as cheap when judged by results.

The Newtown is Coal-Burning, Self-Feeding, Self-Regulating, Safe, Economical, Dependable. Operates in any building. Simple and easy to manage. RAISES THE CHICKS in flocks up to 1200.

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180 Egg Incubator and 180 Chick Brooder both for only \$12.75

Wisconsins have hot water

heat, double walls, air space between double glass doors, copper tanks and boilers, self regulating. Nursery under egg tray. Made of finest, select, clear CALIFORNIA REDWOOD, not pine, paper or other flimsy material. Incubator finished in natural color—not painted to cover up cheap, shoddy material. Incubator and Brooder shipped complete with thermometers, egg tester, lamps, everything but the oil. This is the best outfit you can buy. If you don't find it satisfactory after 30 days' trial, send it back. Don't buy until you get our new 1917 catalog, fully describing this prize winning outfit. WRITE FOR IT TODAY. You can't make a mistake in buying a Wisconsin. On the market 15 years.

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Feed your chicks properly at the start and you will raise them. Millions of baby chicks die each season because they are not fed "baby food" especially suited to their needs. We guarantee that

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will safely carry your baby chicks through the critical first three weeks and make them big and strong. Then you can bring them to maturity.

Pratts Baby Chick Food is a correctly-proportioned, balanced ration for baby chicks. It contains cereals, animal food and mineral matter to build flesh, feathers and bone. It completely nourishes the chicks—gives them a strong start—prevents chick troubles due to improper food and digestive disturbances.

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

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Take Off One Hatch BEFORE You PAY

ORDER DIRECT From This Ad—SEND NO MONEY

To prove that Unito Incubators are easiest to understand and operate, most economical to run and most successful in hatching big litters of strong, healthy chicks, we will send you one of these splendid hatching outfits on 30 days' free trial without a cent of money in advance.

This will give you ample time to take off your first hatch before you pay. You can test the outfit and see for yourself that it will positively do what we claim. You take no risk whatsoever, as we pay return freight charges if you are not satisfied. In ordering mention your Bank.

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R. F. NEUBERT CO., Box 817, Mankato, Minn.

Get your Mankato Incubator now at the old price. Redwood case—pure copper tank—combination hot water and hot air. Free Book. Write now. Save money.
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The Mankato

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MARCH IN THE POULTRY YARD.

March is the most important month of the entire year from the poultryman's standpoint. This is the time when the hatching must be done if we are to get eggs next winter when the prices are soaring skyward. Of the largest fowls, such as the Brahmas and Langshans, chicks must be gotten out this month, while birds like the Plymouth Rocks and Wyandottes may be hatched in April and still give us a fair proportion of winter eggs. The breeding pens of Leghorns and similar breeds may be made up now for May chicks.

Those who depend upon the hen to incubate the eggs will seldom get many chicks out in March, still we have had a flock of Rhode Island Reds that laid well during the winter and furnished us a nice lot of broody hens during the month. It is a little early, however, to expect the hens to settle down to hatching. Of late we have become converted to the incubator almost entirely. Now we get the breeding pens mated up in January or the first of February and fill the hatching machine by the middle of the latter month.

Broilers Bring Good Prices.

Chicks hatched out in early March should be sold at good prices for broilers. If they are kept growing in good shape, the cockerels may be shipped to market about the first of May. Here is where many farm poultrymen make a mistake. They keep the cockerels too long and the birds eat their heads off two or three times. If they are kept it will pay to caponize. When this is done, practically all the feed given them goes toward making meat that will bring a good price in the fall. With us the March-hatched cockerels are usually sold for broilers and a later hatching made to get a few male birds for the breeding pens next year.

Look after the incubator carefully and the same advice may be given in regard to the brooder. The coal-burning style of colony brooder is the most economical machine to use. It is the safest and keeps the temperature more uniform than anything else yet devised. However, those who have no building suitable for the colony brooder can do very well with the other styles. It is absolutely necessary to provide some kind of heat for March chicks. Later chicks can get along very well with the fireless brooder.

Time to Hatch Ducks.

At this season the Indian Runner ducks are laying at their best. As a general thing it is best not to save any eggs for hatching until the first of April. The latter part of April or the first of May is quite early enough for the ducklings. The same may also be said of turkeys. Do not hatch the young birds before May, except in the warmer sections of the country. Many poults are killed by too early hatching. If the ground is warm when they come out they will grow much faster and be less liable to disease.

There are usually many cold days during this month. The hens and ducks may be allowed a little free range on warm days but when the wind blows the birds are much better off in the house. Colds are often contracted at this season.

New Hamp. C. H. CHESLEY.

CARE OF YOUNG CHICKS.

During the first two days of the chick's life it should rest and be kept warm. It is better without having food until it is forty-eight hours old. Then the following mixture should be fed in dry litter and also in a shallow tray: Three parts of finely cracked wheat, three parts of finely cracked corn, one part steel-cut oats. Keep some of this in the litter all the time.

Chicks should have access to a clean drinking fountain which should be so constructed that they cannot get them-

selves wet. It is also desirable to give them access to sour skim-milk or buttermilk. Twice daily the chicks should receive rolled oats or the following mixture: Three parts bread crumbs, three parts corn bread, one part boiled egg. This mixture may be fed dry or it may be moistened with sour milk. A very small amount of charcoal and finely cut green food should also be fed.

Continue the mixture of wheat, corn and oats until chicks are four weeks old, changing gradually from the finer to more coarsely ground feed. Keep the following mixture in a box where chicks may run to it at all times: Thirty parts wheat bran, thirty parts corn meal, thirty parts wheat middlings, ten parts beef scrap, sifted fine and one part bone meal.

Feed Often.

Keep fine charcoal and grit where chicks may have free access to it. Feed four times daily. Continue the green feed and give the chicks milk. It may be advisable to feed a wet mash once a day at 4:00 p. m. Feed only what the chicks will eat up clean before going to roost. Change gradually from chick food to cracked corn and wheat. Chickens that are not yarded should be fed corn and wheat in litter as a scratch food and should also have access to a dry mash in a hopper where they can help themselves.

Raise chickens with the simplest rations possible. Clean food, consisting of cracked and ground grains; animal food, such as sour milk, buttermilk, commercial meat scrap, and bone meal; clean water, plenty of shade, comfortable and dry quarters, freedom from lice and access to clean fresh earth are essentials for successful brooding.

Mo. Ag. Col. H. L. KEMPSTER.

SPRING CARE OF DUCKS.

With most breeds of ducks early in March marks the beginning of the laying season. The yearling ducks will begin to lay a few weeks earlier than two-year-old birds, but the eggs are small and ducklings are sometimes small and lacking in vigor. The eggs from older ducks, as a rule, produce larger, more vigorous ducklings. The drakes should be strong and vigorous, and not related to the females. No inbreeding should be practiced with ducks. When too many ducks are kept some of them are sure to be killed by over-activity of the males.

We begin setting eggs about the middle of March and continue up to the first of June, using both incubator and hens. Duck eggs are usually strongly fertile when breeding stock is rightly managed. It is better to set eggs while fresh, i. e., not over a week old. When ten days old a duck egg will rarely hatch. Some say duck eggs will not hatch well if washed, but this is a mistaken notion. They are usually dirty when gathered from houses and yards and we always wash them in cool water. And while saving them to put in incubator or under hens we turn them each day.

Best Temperature for Eggs.

We have best success hatching the ducklings in incubator when machine registers 102 degrees the first three weeks, and right around 103 the fourth week up to the time of hatching. When they begin to pip the shell, a temperature of 104 or 105 helps to get them out of the shell with less effort. They do not pop right out of the shell like chickens. If they do not free themselves of the shell the second day after pipping we gently break the shell and help them out. The machine should have more ventilation for ducks than chickens during the hatching period. And more moisture must be applied to duck eggs than chicken eggs during the period of incubation.

Indiana. FRANCES WOOD.

RAISING BROILER CHICKENS.

There is no other branch of the poultry business that pays as well as that of raising first-class broilers and selling them to the better class of customers in our large cities. The prices are always high and the returns come early in the season. Those who feed their chicks to the end of the season to make them weigh more, expend a good deal of costly feed, wait a good while for returns, and the profits are not large. The broilers usually sell for from twenty-five to thirty cents per pound in June and July, while the prices for the from six to eight months old chicks are from ten to thirteen cents per pound. The broilers furnish the dainty meat for the fashionable luncheon at high-class hotels, restaurants and summer resorts.

When raising broiler chicks on the farm, set the hens that have finished their first course of eggs during the latter part of March and the first of April. If one has an incubator he can control the time when the eggs are started on their course of incubation much better than when hens are used. Another advantage is in having a larger number of chicks hatch at the same time.

If one is raising chicks to keep the flock hens good, they can set two or more hens at the same time, and then select out the young cockerels and fit them for market and sell early, thereby realizing better profits from them than can be done if fed until fall and selling at the low prices that prevail in the fall or at near holiday time.

The young broiler chicks do not require any different treatment than if they are intended to be raised for breeders, until a little before they attain to the popular broiler weights, which is from one and a half to two pounds each.

When fitting for market, put those sorted out for market in a clean, dry enclosure and confine them to grain feeds for about ten days. They should have plenty of fresh water to drink, and a comfortable place in which to roost. The feed generally used is ground corn meal with a little fine middlings to make it more palatable. It is moistened, as the chicks will eat more of the doughy meal than when fed dry. Do not feed any more at any one time than will be readily eaten up clean. If any feed is left after a feeding, take it away until next feeding. The object should be to keep the appetite good throughout the course.

It is a well known fact that cows' milk added to the soft feed hastens the growth and improves the flavor of the meat. If one has the skim-milk and can get in touch with a first-class caterer at some fashionable hotel or restaurant, they can get an extra price for their broilers if they mix their feed with milk. It is a well known fact that if one can find the right customers, that milk-fed broilers sell for from five to ten cents per pound more than those where the feed is mixed with water.

The breeds of hens from which the highest priced broilers are raised, are the White Leghorns, White Plymouth Rocks and White Wyandottes. The flesh from these breeds is no better than from the other rapid growing these breeds, but the delicate white skin of these breeds meets the popular demand.

Wayne Co. N. A. CLAPP.

OVERCOMING THE NUISANCE OF A DUST BATH.

For a good many years I was bothered, as many others are, with the dust in my hen house resulting from the use of the dust bath.

I couldn't see any way to do away with this necessity for my hens, so I had to devise a plan to overcome the nuisance.

I built a small addition to the south

of my coop four feet wide, six feet long and three feet high in front. The front was made from a window sash. The back was the board wall of the coop, except that an opening one foot square was cut in one end near the floor. Over this a heavy piece of canvas was hung. The canvas was cut about half an inch larger than the hole all around.

The hens can easily shove it back when entering or leaving the bath. And it doesn't take long for them to find out how to get in or out.

The glass front is removable to make it and the bath easily cleaned.

In the feeder near the front, holes six inches square were cut at the top for ventilation.

This bath ended the dust "fogging" around in my hen house and made my hens more comfortable and more profitable.

G. H. LONG.

TURKEYS HAVE COUGH.

Can you tell me what is the matter with my turkeys? They have a cough that seems to be worse at night when they are at roost, than it is in the daytime. At first one hen had it and now the gobbler seems to be coughing too. They eat all right, but the hen acts rather dumpy. I keep them in a good shed and feed them whole corn. Is permanganate of potash good to put in the drinking water for turkeys and geese?

Montcalm Co.

E. M.

The cough your turkeys have contracted is undoubtedly due to the condition of the shed in which they roost. Possibly this shed is damp and lacks ventilation, and such a condition will usually cause coughs and colds or more serious trouble.

Improper housing conditions for poultry of all kinds cause nine cases out of ten of such diseases as roup, catarrh and colds. Turkeys are very rugged and can stand staying outside practically all winter.

Undoubtedly it would be advisable for you to allow yours to roost outdoors, or if you desire to keep them in at night, alter the roosting quarters so that they will have plenty of ventilation without draft, and be free from dampness.

Permanganate of potash is a good disinfectant for the drinking water for all kinds of poultry. One or two teaspoonfuls of a stock solution is sufficient for ten quarts of water.

COLD FLOOR IN CEMENT COOP.

I have a cement block poultry house and cement floor. I keep straw on the floor for litter, several inches deep, but chickens' feet are always cold. They stand on first one foot and then the other to warm them. My own feet get very cold if I stand very long on the same floor. It doesn't seem damp. What would you advise?

Van Buren Co.

J. H. T.

A probable reason for the floor in your coop being cold is that in laying it you perhaps did not use enough cinders or like material to prevent the dampness of the ground from going through.

Cement floors, when compared with wooden floors, are usually much colder, and on that account it is advisable to have the litter at least six inches thick. Even though you may have the floor properly constructed, and have plenty of litter on it, you may have trouble in keeping the coop warm, because cement poultry house walls, unless constructed so that they have sufficient dead air space in the walls are very likely to be damp and cold. The cement absorbs cold and dampness and will retain it for some time after the weather has moderated.

The writer knows of several cement coops that have been faulty in this respect, and on that account would not advise the use of cement or cement blocks in poultry house construction. Stucco, however, makes a very good poultry house.

To rectify this condition, I would advise you to provide plenty of ventilation and frequently change the litter as soon as it absorbs moisture.

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Yes, send only \$1 and we will ship to you, at once, any size or style Majestic Incubator or Brooder you select. We want you to prove by your own experience that the Majestic is absolutely the most reliable incubator, that it hatches every fertile egg, hatches strong, sturdy chicks and that it is the easiest to operate. If not satisfied send it back within 14 days and we will refund your money. Otherwise, pay balance in five monthly payments. Only \$2 brings both the incubator and the brooder.

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Proof against draughts. Metal top and waterproof; elevated an inch to insure dryness; two large glass panes insure ample sunshine. Comes complete with lamp, thermometer and directions.
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Buckeye Incubators Express prepaid. 200 egg \$19.50; 110 egg \$15; 60 egg \$8.50. Standard Coal Brooder Stoves, Egg and Chick boxes, other poultry supplies. Ionia Poultry Supply Co., Ionia, Mich.

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Anconas Good stock; fine layers. 30 eggs, \$2.50; 50, \$3.50; 100, \$5.00. Order now. T. Z. RICHY, CANNELTON, INDIANA

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Day-old chicks and eggs for hatching from thoroughbred S. C. White Leghorns selected with great care for vigor and egg production at the following prices: Day-old chicks \$20 per 100 in March and April. \$17 per 100 in May and \$15 per 100 in June. Eggs \$8 per 100 in March; \$6 per 100 in April and May, \$1.50 per setting of 15. Also about 250 selected pullets, April hatched and now in laying for \$1.50 each. These birds are exceptional value for the money. References given on all purchases. Write Krentel Bros. Box 624, East Lansing, Mich.

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Did You Write to If you did, you will receive announcement of Utility-Strain Single Comb White Leghorns, Barred Plymouth Rocks, and Rhode Island Reds. Perhaps you have not written but still may be interested in what Homestead Farms has to say about "The Practical Hen for the Farmer." Eggs and Chicks from Hens that, with natural and convenient farmer care, have been producing eggs all winter—a hen bred to practical results the year around. If you want Eggs or Chicks this Spring, write to Homestead Farms, Bloomingdale, Mich.

Baby Chicks: 50,000 S. C. White and Brown Leghorns at \$10.00 per 100, \$90.00 per 1,000. Safe arrival guaranteed. Also Hovers and Brooders. Catalogue free. Wolverine Hatchery, Box 221, Zeeland, Mich.

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BRED to lay. S. C. White Leghorns, from best pens in Mich. Eggs, Baby Chicks, Cocks, prices low considering quality. Also other breeds. Leon C. Wheeler, Barryton, Mich.

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Great layers Pullets, hens, breeding males; eggs for hatching; day old chicks; from hens laying 200 to 264 eggs. Prices low, quality guaranteed. Free catalog and price list explains all. Write for it. Geo. B. Ferris, 934 Union, Grand Rapids, Mich.

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Eggs for hatching. \$1.00 per 15, \$5.00 per 100. EGGADAY WHITE Wyandottes, Marshall, Mich.

Improve Your Poultry My Young's Strain S. C. White Leghorns are great money makers. Strong, vigorous, bred-to-lay stock. Baby chicks \$3 to \$11 per 100. Satisfaction guaranteed. Large orders filled. Free catalogue. W. Van Appledorn, Holland, Mich., R. 7, Box 141.

LAYBILT S. C. W. LEGHORNS, large, great layers, pure white. No more chicks. Selected hatching eggs. Strong day-old chicks. Everfresh Egg Farm, Ionia, Michigan

Pine Crest S. C. White Orpingtons cock-erels, pullets, eggs \$5 and 3 per 15, utility \$8.00 per 100. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.

RHODE ISLAND REDS and PLYMOUTH ROCKS Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs., eggs 15 for \$1.00; 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys, 8 to 8 lbs. according to age \$5 to \$25, 10 eggs \$5. A. E. Cramton, Vassar, Mich.

R. I. Red Chicks and Eggs. Both Combs. Dark Red. more Michigan farmers than any other strain Catalog. Free. Interlakes Farm, Box 39, Lawrence, Mich.

Rose Comb Rhode Island Reds, Rose and Single Combs. Eggs, \$1.50 per 15 after Feb. 15. Jennie Buell, Ann Arbor, R. 8., Mich.

R. and S. C. Reds. Eggs and Chicks. Pure bred stock. Also good Scotch Collie Pups. O. E. Hawley, Ludin, ton, Mich.

RODE I. Whites win in the egg laying contest. Best Regg and market fowl. Eggs \$2 per 15, \$5 per 45. Baby chicks. H. H. Jump, Jackson, Michigan.

S. C. W. Leghorn Eggs for Hatching, also breeding stock. If you want Leghorns that will lay and win write us. "Hill-Crest Poultry Farm," Ypsilanti, Mich.

ROSE Comb Rhode Island Red. Eggs for hatching. Special dark cherry red mating \$1.50 and exhibition mating \$2 per 15 eggs. Ridgman Red Farm, Vassar, Mich. R. 4

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SILVER, Golden, White Wyandottes. A few good Golden cockerels left. Eggs from farm Rock Whites \$1.50 per 15; others \$3 per 15, \$5 per 30. C. W. Browning, R. 2 Portland, Mich.

White Wyandottes cocks and cockerels snow white from fine stock and A 1 layers. \$2, \$3, and \$5 each. DAVID RAY, 202 Forest Ave., Ypsilanti, Michigan

BETTER PRICES BROADER MARKETS

Part Played in Problem by
Transportation — National
Treatment for a National
Enterprise.

IN every part of the country the farmers are turning their attention to questions relating to the handling of their products after they leave the farm. Transportation is a part of this problem. The cost of reaching their markets and the ability to reach them promptly at the right time are important factors in determining the returns from their crops.

Low Freight Rates

Fortunately the American farmer has at his command the lowest freight rates in the world. It costs no more to move a load of wheat 500 miles by rail than it does to haul it five miles from farm to station by team. A ton of farm produce of any kind can travel almost twice as far for the same charge on American railroads as on the government-owned roads of other lands.

The cheapness of transportation is not the whole issue. To meet the needs of the farmer transportation facilities must be ample. There must be plenty of tracks and cars and locomotives and sufficient terminals.

Billion a Year Needed

The railroads are anxious to provide means to take care of all the business they can obtain. But a vast outlay of money is required. A billion and a quarter dollars a year for the next ten years or more must go into railroads to provide the necessary transportation facilities.

During the past few years it has become more and more difficult to obtain even in part, the money required for this purpose. This has been due partly to the poor promise of a satisfactory return on the investment; partly to the uncertainty created by numerous and conflicting regulations.

Regulate for all the People

Nobody seriously proposes that the public regulation of railroads shall be weakened. Certainly the railroads themselves do not. But it is a reasonable proposal that the regulation of this great national business should be handled by national agencies, on national lines, in the interest of all the people, and not by local agencies to serve local or sectional ends.

Regulation at cross purposes by 49 masters—48 states and the federal government—now imposes upon the railroads an annual burden of many millions of dollars of wasteful expense, from which the public derives no benefit. It is of primary importance to the farmer to cut down this waste in order that his products may be moved to market at the least expense and with the greatest possible expedition.

The farmer's interest demands free trade among the states.

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—Advertisement—

Farm Commerce.

Observations on Marketing Fruit

ALL students of marketing agree that the best system for the fruit grower to dispose of his products is the co-operative method. Experience in our own state and elsewhere has corroborated the conclusions of these students.

Yet the plan of selling has not as yet been generally adopted by fruit men. Only a very small portion of the fruit grown in Michigan is handled by co-operative associations. Ignorance and suspicion have been real obstacles in the road of extending the idea. Interests that promised to be affected by the change have also done much to stem the awakening. But recent successes of the plan are commanding the attention of a large circle of growers and there is promise of greater things in the near future.

Important among the services rendered by the associations is the central packing house work. This is of great value because it leaves the grower his time to harvest, standardizes the grades, supplies fruit in large quantities, guarantees the product to the public, finds markets and looks after the details of selling, shipping and collecting and does this all at actual cost.

Many farmers feel they can do this work better on the farm, forgetting that they will lose out in selling, even where grading and packing are done as perfectly as in the packing house; for buyers appreciate the service of the association, give more heed to its guarantee, and offer better figures to one who, with the service, can supply a large volume of fruit.

The great bulk of the fruit consumed is delivered to consumers in different packages than those in which the producers sold it. Only about ten per cent gets to the final user in original packages. Now we cannot force people to take fruit as we pack it if they do not want it that way. We had bet-

ter put it up so it will appeal to them. Fruit exhibited in a small package that consumer can purchase intact is far more compelling than the same grade in a half-empty barrel.

While many wholesalers favor barrels because they are easily handled, retailers show their disrespect by not exhibiting the fruit in these receptacles. It is certain that as the years go by we are going to sell more and more of our apples, pears and peaches in smaller packages. Few men are doing this now, while the great majority are neither doing it, nor getting the advantages. Consequently the middlemen take advantage of the situation. They buy from growers in barrels at nominal figures and then pack in small receptacles and resell on wide margins. The central packing house is in a position to take care of this matter for the grower.

The greatest good will follow the general federation of local associations. Such an organization will tend to eliminate the bulk of inferior goods going onto the market, will concentrate the distribution of large quantities under a single head, which will do away with many evils now hampering the trade and institute a number of advantages. Having large quantities of fruit to offer insures buyers that their wants can be cared for, keeps the consumer supplied whenever the fruit is wanted and prevents over and under supplying of markets.

Growers in out-of-the-way places could avail themselves of the advantages of the central packing house under the federation plan. Their fruit as it is picked, could be placed in open barrels and shipped to the nearest packing house where grading and packing would be done the same as with other fruit received.

(Synopsis of paper given by James Nicol, Secretary of the South Haven Fruit Exchange at the recent meeting of the State Horticultural Society).

About the Farm Scales

Every farm, where produce is bought and sold, should have a standard scales. In determining the profits and losses in farming, nothing will figure so largely as a good set of farm scales properly installed. A set of scales is an absolute necessity to the stock raiser and to the dairy farmer. They are just as important to the average farmer who has more or less live stock, produce, etc., to sell. They also come in handy to check up goods bought. The farmer who lets his land for a grain rent basis will find a pair of scales invaluable and the scales will weigh all grain equally and in this way many a dispute will be avoided. I have heard men say that their scales paid for themselves in even a single season. I have reason to believe that this is true, especially if much produce and stock are sold direct at the farm, or again, if the produce is delivered to the city or home market one can soon tell if there is a difference in the weight and if the buyer is honest or not.

A scale of about five tons capacity with an 8x12 or 14-foot platform, will answer about every requirement on the average farm. A scale of this size and capacity will permit the weighing of different materials, such as grain, hay, stock, etc. A short coupled or a long-coupled wagon can be weighed with equal accuracy. This is an advantage over a small scale since on many farms much hay and grain are

titles over the scales, which in time will fill up around the beams under the platform and will sometimes throw the scale out of balance or out of working order entirely until the dirt has been removed. Good drainage beneath and all around the scale is necessary and very important if they are to stay in good working order for a reasonable length of time. Live stock should not be allowed to run over the scales at all times. A gate system about the barn or scales will prevent this.

Pennsylvania.

H. W. Swope.

To Get a Square Deal

FOUR co-operative peach-packing associations in Michigan have been using a blacklist to protect them from local dealers who have been in the habit of giving the farmers dishonest treatment on peach deals. Now, if a dealer is not square with one association he cannot obtain a car of peaches from any of the four, and by this method of co-operation the farmers producing peaches are receiving a measure of protection which they have not enjoyed in the past.

Some local dealers have frequently received first-class consignments of peaches and then complained that many of them were in poor condition. These dealers planned to dispose of the car as rapidly as possible and then send the farmer a small price because of the alleged inferior condition of the fruit. One large producer has been selling peaches through an association on a 15 per cent basis. The local dealer receiving the consignment receives 15 per cent of the sale price and delivers them to the consumer at the best price he can obtain. This peach grower maintains that the 15 per cent basis is the most satisfactory method of selling peaches which he has discovered and hopes to maintain such a selling system in the future exclusively. When an association can sell the bulk of their fruit to local dealers through such an arrangement, they have solved their most serious marketing problem, providing they can deal with honest buyers. The blacklist is very valuable in eliminating the local dealers who handle peaches strictly for their own personal benefit without regard to the producer.

There are many honest and conscientious local dealers who will do all in their power to give the producer a square deal and often in the past two years it has been difficult to handle peaches to the best advantage. The peach farm turning out a first-class product can only safeguard its output by co-operation and the honest local grocer is the farmer's best friend, while the dishonest dealer can be practically eliminated.

Ingham Co.

R. G. Kirby.

GRIMM ALFALFA SEED PRODUCERS' CO-OPERATE.

The growers of Grimm alfalfa seed in North Dakota are co-operating in marketing their seed. The seed is now being sent to Fargo where it is being cleaned and scarified. No seed is taken that contains seeds of noxious weeds. One member has fifty bushels of seed but when tested at the seed laboratory at the Agricultural College it was found to contain mustard so it had to be rejected. The result is that this member will have to sell his seed for about half what it would sell for through the association.

B. Byron Bobb, president, and W. R. Porter, secretary of the Grimm Alfalfa Producers' Association of North Dakota, have worked out a system for having the Grimm alfalfa fields registered a good deal the same as is done for pure-bred live stock and they are further insisting that no seed will be sold by the association that has any noxious weed seed in it.

LIVE STOCK SHIPPING ASSOCIATIONS MULTIPLYING.

With very little noise the live stock shipping associations of the northwest have been multiplying very rapidly during the past few years. Minnesota seems to be the location of the greatest activities in this development. At a conference recently held, S. S. Beach, director of a Minnesota Live Stock Shipping Association, told how the work had begun and developed there.

Previous to the organization of his association, the marketing of live stock was both difficult and unsatisfactory. It was mostly sold to local buyers; as most of the farmers did not have enough stock to make up a carload at any one time. There were seven buyers making their headquarters in his town and each of these was driving a team through the country seven days in the week. Mr. Beach figured that any one of these buyers would have to drive 1070 miles to make up a carload of stock. Of course, the expenses of these trips had to be gotten out of the margins on the stock traded in. The seven buyers were supposed to be competing one with another in the prices they paid the farmer.

The shipping association was not organized but grew up itself. One man did not have enough cattle to make a car so he asked his neighbors to help fill the car. The sale was so satisfactory that the next time cattle were shipped by those men, other farmers asked the privilege of putting in some cattle. The idea caught, and in a little while several cars were required to carry the cattle to market. Soon they had to organize to take care of the business. The first year the farmers that had thus drifted together shipped 179 cars. They estimate that the number of cars they will ship this year will be 300. There are now 2,500 members in this single association, and it embraces several townships.

The state afterwards employed Mr. Beach to go out and organize like associations. There are now 300 such associations in the state, sixty of which were organized by him.

It had been found that some of the practices of the trade had been not entirely justified. There was the shrinkage problem. Formerly many of their bills had shown large shrinkage when the sales were reported from the stock yards. But the co-operative shipping associations adopted the practice of weighing their animals before shipment. These weights were compared with the weights at the stock yards, and they had been surprised to find that there was very little difference. Sometimes the shipping weights were less than those recorded at the stock yards. In this matter also the farmers figure they have made a considerable saving.

His association carries the co-operation into the buying of feed, most of which they secure from the farmers' elevators. The Hutchinson association owns its own feed store.

Illinois. H. F. THURSTON.

MILK PRODUCERS UNITE.

The Grand Rapids Milk Producers' Association held its annual meeting March 1, at the court house, Grand Rapids, with a large attendance. Steps were taken to form the Grand Rapids Dairy Company, with \$75,000 capital, to operate a central distributing plant and take care of the dairy products of its members. The board of directors of the new company is composed of Thomas Boylon, Louis Ohler, M. W. Willard, Cyrus Hunsberger, James Carmody, John Buth and A. N. Hyser. It is planned to dispose of 500 shares of stock at \$100 each before June 1, and ninety-one of the farmers present at this first meeting agreed to take one or more shares.

About 400 producers are supplying milk in Grand Rapids through the retail dealers and they have been dissat-

isfied for some time over prices and uncertain market conditions. The city passed a stringent milk ordinance requiring tuberculin tests along with other exactions that cut off the already slender profits. But the soaring prices of dairy feeds, labor and almost all incidentals in the business have put many dairymen out of business and have made it absolutely necessary for the ones who kept their cows to get more money for their milk. It was only last fall that the price of milk to producers did not average over seventeen cents per gallon. The farmers organized and held out for twenty cents a gallon. It has been a stiff fight but this price for the most part has prevailed. Figuring conservatively that 4,000 cows on the farms around Grand Rapids are supplying consumers with 8,000 gallons of milk daily, this increase of three cents means \$240 daily, or \$87,600 a year, which is a tidy sum that has been saved to the farmers through co-operation.

Spring is approaching and pressure is being brought to bear to get cheaper milk. At this meeting the producers unanimously voted to hold out for twenty-cent milk, or otherwise they will use it at home or ship it to the condensary at Wayland. They feel that milk will go higher and that the peddlers who refused to sign contracts at twenty cents will be sorry.

A number of interesting talks were given. G. P. Wirt, treasurer of the Battle Creek Milk Producers' Association, told of the stiff battle that has been fought and won there by the Calhoun farmers. W. B. Liverance, field manager of the State Association of Creameries, read a tentative draft of articles of association and by-laws for use by the new organization. R. H. Elsworth, field agent for the United States Department of Agriculture, gave helpful advice, urging the importance of good management and of the absolute loyalty of members in all co-operative work. Kent county agriculturist, H. C. Smith, spoke briefly in commendation of the plan.

Milk producers strongly favor the opening of a central distributing depot in Grand Rapids. Details will be worked out later but it looks as though the new dairy company would retail its own products and that a hundred or more of the peddlers will be out of jobs. It is figured that the peddler's profit averages 100 per cent and that he has been getting the lion's share of the returns for many years.

The Grand Rapids Milk Producers' Association will be continued, in affiliation with the new company, and officers were elected as follows: President, Thomas Boylon; vice-president, M. W. Willard; secretary-treasurer, C. Hunsberger; business committee, M. W. Willard, L. P. Ohler, James Carmody, C. Hunsberger; executive committee, John Buth, C. Sproat, W. S. Lamoreaux, G. A. Baker and H. D. Perkins.

Kent Co. ALMOND GRIFFEN.

MICHIGAN FARMERS' CO-OPERATE.

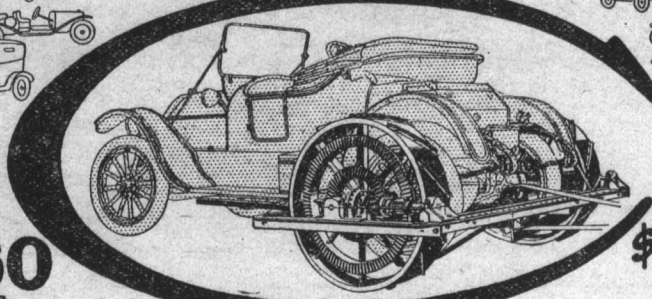
The Saginaw Valley Farmers' Co-operative Association, with \$50,000 capital, has been formed, with George J. Hicks as president and L. C. Foote as secretary. It is an outgrowth of the Saginaw County Milk Producers' Association, and it is planned to retail milk as well as to manufacture ice cream, cheese and butter.

The Allen Co-operative Shippers' Association in Hillsdale county, has elected J. J. Graham as president and John Duryea as secretary. The organization is thriving.

The Nashville "Coops" in Barry county have made a fine showing during their first year. New officers are: President, Edward Liebhauser; vice-president, L. D. Gardner; secretary-treasurer, B. Hayes Tieche; manager, A. A. Olmstead. It was voted to increase the membership from 100 to 200 members.

Alger county farmers have organized and bought the creamery at Chat-ham, paying \$1,750 for same.

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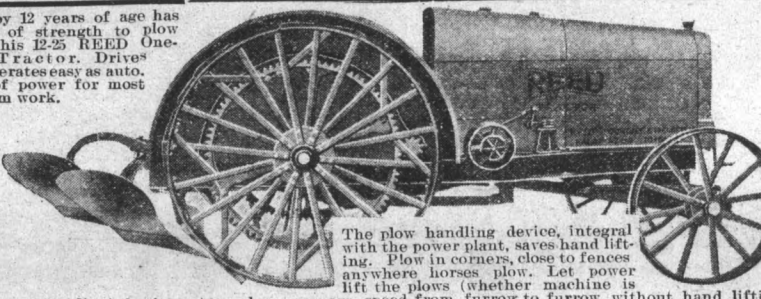
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M. A. C. Worthy and New Victory Seed Oats. Big yields, good seed, well cleaned. Your order will be given careful attention. The Jennings Farms, Bailey, Mich.

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Seed Corn High quality and Germination. Also SENSATION OATS. Samples and catalog free. Theo. Burt & Sons, Melrose, O.

Markets.

GRAINS AND SEEDS.

March 6, 1917.

Wheat.—During the past week the wheat market has shown a general tendency upward, the price for the best grades of cash wheat passing the \$2 mark. National politics was a bearish factor on Monday, however, resulting in a small decline from Saturday's closing. This was due to the failure of congress to sanction the administration bill providing for the arming of merchant vessels. It is generally believed that exports from this country would have been greatly encouraged had this measure become law. Despite the difficulties of exporting, foreigners were active on American markets, as Belgium, France and other western European countries are in great need of this cereal. In the winter wheat fields of this country conditions appear to favor the bulls as over large sections moisture is needed, and in other parts the plant is exposed to the elements. One year ago No. 3 red wheat was quoted at \$1.16 per bushel. Last week's Detroit quotations were:

	No. 2	No. 1	Red. White. May
Wednesday	1.94½	1.89½	1.98
Thursday	1.96	1.91	1.99½
Friday	1.97½	1.92½	2.01
Saturday	2.02	1.97	2.05
Monday	2.01	1.96	2.04
Tuesday	2.02½	1.97½	2.05½

Chicago.—May wheat \$1.90½; July \$1.59½; September \$1.46½.

Corn.—Further advances have been recorded in this market and prices are now making new records for American trade. The cereal is in active demand while stocks are limited. The visible supply shows an increase of only 99,000 bushels, which is small for this season of the year. One year ago No. 3 corn was quoted at 70c per bu. Last week's Detroit quotations were as follows:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	1.06	1.07
Thursday	1.06	1.07
Friday	1.07½	1.08½
Saturday	1.08½	1.09½
Monday	1.10½	1.11½
Tuesday	1.11	1.12

Chicago.—May corn \$1.08½; July \$1.07½; Sept. \$1.06½.

Oats.—The oat deal has been following corn and wheat, and the trade continues firm at the new figure. The visible supply decreased 1,687,000 bu. during the week. Demand is active. A year ago standard oats were quoted at 45c per bushel. Last week's Detroit prices were:

	Standard.	No. 3
		White.
Wednesday	64½	64
Thursday	64½	64
Friday	64½	64
Saturday	65	64½
Monday	66½	66
Tuesday	67½	67

Chicago.—May oats 60c; July 57½c

Rye.—This cereal has made further advances. Offerings are small and the market firm with Cash No. 2 quoted at \$1.53 per bushel.

Beans.—Prices in this department keep climbing to higher levels with stocks limited and the demand active. Cash beans are now quoted at \$7.50. On the Chicago market values are firmly held with the supply small and demand good. Michigan pea beans, hand-picked, \$7.35@7.50; red kidneys \$6.75@7.15. At Greenville farmers are offered \$7.10.

Peas.—Field peas are firm in Chicago with stocks in small supply, quoted at \$3.60@3.75, sacks included.

Seeds.—Prime red clover \$11.70; March \$11.20; alsike \$11.50; timothy \$2.55 per bushel.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$10; seconds \$9.70; straight \$9.40; spring patent \$10.60; rye flour \$9.00 per bbl.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$40; standard middlings \$39@40; fine middlings \$41@42; cracked corn \$44@45; coarse corn meal \$43@44; corn and oat chop \$39@40 per ton.

Hay.—In carlots at Detroit: No. 1 timothy \$14.50@15; standard timothy \$13.50@14; No. 2 timothy \$10@11; light mixed \$13.50@14; No. 1 mixed \$13.50@14; No. 1 clover \$12@12.50.

Pittsburg.—No. 1 timothy \$16@16.50; No. 2 timothy \$14@15; No. 1 light mixed \$14.50@15; No. 1 clover, mixed \$15.75@16.25; No. 1 clover \$16@16.50.

DAIRY AND POULTRY PRODUCTS.

Butter.—This product continues in good demand at prices 1c lower than last week. Quotations are as follows: Creamery extras 39c; do firsts 37c; packing stock 24½c.

Elgin.—Market is steady at unchanged prices. The price, based on sales, is 40c.

Chicago.—Market continues steady at unchanged prices. The supply is moderate and demand fair. Extra creameries 40c; extra firsts 38@39c; packing stock 26@26½c.

Poultry.—The market is quiet and easy at unchanged prices except for spring chickens which are 1c lower. No. 1 spring chickens 21@22c; No. 2 do 20c; No. 1 hens 22@23c; No. 2 do 20c; small do 17@19c; ducks 23@24c; geese 22@23c; turkeys 25@26c.

Chicago.—Prices are higher for good weight springers and fowls. The market is firm at present prices. Fowls 15@20c; spring chickens 17@21c; ducks 17@22c; geese 22@23c; turkeys 12@20c.

Eggs.—Increased receipts caused a weakening of the market and lower prices. Firsts 31½c; current receipts 30½c per dozen.

Chicago.—The liberal receipts have caused lower prices. The demand, however, is good at present levels. At this time of the year wide variations in prices are to be expected. Fresh firsts 29½c; ordinary firsts 28@28½c; miscellaneous lots, cases included, 28@29½c per dozen.

FRUITS AND VEGETABLES.

Apples.—Market firm with prices higher. Baldwins \$5@6; Spy \$6@6.50; King \$5.75@6. At Chicago prices are slightly higher than last week but the feeling is easy on account of increased receipts. No. 1 stock sells at \$4@7 per bbl; No. 2 at \$2.25@3; orchard run \$3.50@4.

Potatoes.—In carlots at Detroit in sacks, Michigan long white \$2.85; Wisconsin \$2.79@2.80. At Chicago no Michigan stock was reported. Market is steady but quiet and prices are lower on account of increased receipts. Prices range from \$2.25@2.60 per bu. At Greenville the market is unsettled with practically nothing to quote.

WOOL.

There is no cessation in the advance of this market. Prices keep right on going up and the end does not yet appear in sight. Out west the buyers are working the territory hard and prices to the farmers have advanced several cents in the past few weeks. This trend of affairs is keeping the producers optimistic and encouraging men who are in need of wools, and speculators, to go the limit in meeting the figures asked. Last season's good wools are practically cleaned out and already manufacturers have had to do some substituting of lower grades, a practice which will be general later on.

GRAND RAPIDS.

Potato prices have fluctuated greatly during the past week, sales being reported at \$2.75@3 at Traverse City, Cadillac and other points, then prices suddenly dropping off 50 to 75c. At present \$2.75 is the top price here, while \$2.40@2.50 would probably be a fair quotation at outside loading stations. The bean market is also erratic and while Grand Rapids buyers quote at \$6.50@7, quotations at Charlotte, which is in a bean district, are \$7.25 and sales are reported elsewhere at \$7. Red kidney beans are quoted here at \$6. The egg market is lower. One local retail dealer has been selling fresh eggs from Iowa and other western states at 36c during the past week and local quotations this week are down to 28@30c. No. 1 dairy butter is worth 28@30c; grain quotations at the mills are as follows: No. 2 red wheat \$1.87; corn \$1.05; oats 65c; rye \$1.25; barley \$1.10; buckwheat 95c. Live fowls are worth 18½c; dressed hogs 15½c.

DETROIT EASTERN MARKET.

The trading at the Eastern Market Tuesday morning was on a relatively small scale, although for this reason the quantity of apples offered was fairly large. The range of prices on this fruit was from 75c@2.25 with a few going a little better; potatoes \$3 for average run; parsnips \$2.00; carrots \$1.50; lettuce \$1; eggs 50c.

LIVE STOCK MARKETS.

Buffalo.

March 5, 1917.

Receipts here today as follows: Cattle 112 cars; hogs 35 d. d.; sheep 40 d. d.; calves 800 head.

With 112 cars of cattle today the demand was strong, with the bulk sell-

ing 10@15c higher and in some cases some of the shipping cattle looked 25c a hundred higher. The best shipping cattle here sold at \$11.50, with several loads landing from \$10.50@11.50. There was a good call for all fat cows and heifers and they sold at strong prices. There were very few stockers here and they sold at steady prices. Good butcher and shipping bulls sold about steady, but the common light bulls were slow and 15@25c lower. We look for a fair run of cattle next Monday and a good trade.

Our receipts of hogs were very light today, consequently a sharp advance in prices was the result. One or two loads of fancy hogs sold at \$14.85, with the bulk from \$14.50@14.75; pigs and lights \$13@13.50; roughs generally at \$13.50; stags \$10.50@11.50. Everything sold at the close and looks like a fairly good market for the next few days.

With a moderate run of lambs today our market opened active on handy lambs but dull on heavy, with prices steady with the close of last week. We look for about steady prices balance of the week, depending chiefly on the receipts.

We quote: Lambs \$14.50@14.75; cull to common \$13@14; yearlings \$13@13.75; wethers \$12.25@12.50; ewes \$11@11.50; bucks \$10@10.50; best calves \$14.25@14.50; common and light \$10@12.50; heavy \$8.50@11; grassers \$6@6.50.

Chicago.

March 5, 1917.

Cattle. Hogs. Sheep.
Receipts today..13,000 40,000 16,000
Same day 1916..16,841 48,437 17,427
Last week.....45,659 166,196 59,928
Same wk 1916..44,550 181,191 65,748

With meager Monday cattle receipts, the demand is singularly slow, but prices will rule, it is generally believed, at least 10@15c higher. It is a wonderful hog market with prices 30@40c higher, and the best selling at \$14.30. Hogs received last week averaged 204 lbs. Lambs of the best grade brought today \$14.75, an advance of 25c, the supply being very small, and sheep and yearlings developed firmness.

Cattle have continued to sell at far higher prices for another week than in former years, although during the last half of the week prices were very largely 10@15c lower on decreased buying orders for various descriptions. The greater part of the beef steers have been selling at a range of \$9.60@11.25, with the extreme range of transactions from \$6.75@7.50 for a limited number of inferior little steers up to \$11.60@12.15 for choice to extra cattle of heavy weights. There was but a small showing of strictly prime cattle, whether heavies or yearlings, and more could have been used advantageously than arrived on the market. Steers grading as good found-buyers readily as a general rule at \$10.80@11.50, while a medium grade of steers brought \$9.65@10.75, these cattle being short-feds. There were plenty of light weight steers of only fair quality selling at \$8@9.60, while yearlings of desirable quality sold freely at \$10@11.90, the choicer class fetching \$11 and upward and sales all the way down to \$8.50@9.50 for common to fair lots. Butchering cattle were plentiful and in good demand at extremely high prices, cows going at \$6.50@9.85 and heifers at \$6.25@10.50. Cutters were good sellers at \$5.90@6.45, while canners sold at \$5@5.85 and bulls at \$6@9.75. Calves sold actively most of the time, with buyers paying \$6@12.25 per 100 lbs., the late top being \$11.50. There was a fairly large trade in stockers and feeders, with the former selling at \$6.50@9.10, buyers paying the higher prices for prime little yearlings, while feeders brought \$8.35@9.50, although very few went anywhere near the top figures. A larger outlet for these cattle in the near future and higher prices seem probable, and the spring-like weather and competition from the packers will make a marked difference in feeder values. The week's cattle receipts were much smaller in number than a week earlier.

Hogs were in as strong local and eastern shipping demand as ever during the past week, and further sharp advances in prices took place, with prime heavy butcher weights selling at top figures and prime selected light weight "singeing" lots going near the highest figures. On Monday prices were marked up 15@25c, although the receipts on that day amounted to 60,502 hogs. The price of dead hogs has been marked up one-quarter of a cent a pound, making the price two and a quarter cents. Chicago stocks of provisions amount to 139,024,175 pounds, comparing with 120,731,340 pounds a month ago and 132,825,563 pounds a year ago. Provisions are headed the same way as hogs, and further advances in both are quite probable. The eastern shipping demand for choice

heavy and light hogs is extremely large, and on last Monday 16,761 hogs were shipped from Chicago. The closing day of the week saw the highest prices for hogs ever paid, with light bacon lots selling at \$13.05@13.65; heavy packers at \$13.40@13.80; heavy shippers at \$13.80@13.90; light shippers at \$13.70@13.80 and pigs at \$10.25@13.25, pigs weighing around 135 pounds selling highest. The week's hog receipts were materially reduced. The sheep market was active last week, but buyers were more exacting than usual, and prime fat lambs had to be sold well below the high time a few weeks ago, when the top stood at \$15 per 100 pounds. Colorado flockmasters have been furnishing a good many lambs, and these were apt to be too heavy for the popular taste, so that owners were forced to accept much lower prices than were paid for the best lambs of medium weight. Shippers took a good share of the offerings, feeders comprising a large part. Prices closed as follows: Lambs \$12.25@14.50; feeding lambs \$12.50@14.10; yearlings \$11.25@13.75; wethers \$11.25@12.50; ewes \$7.50@12; bucks \$8.75@11; shorn lambs brought \$11@13.

Horses were in smaller supply last week than a year ago, and prices were mostly maintained, with a fair demand for army horses, which sold at \$125@150 for riders and \$150@160 for gunners. The city and shipping demand proved very good, and not enough good drafters were on sale. Drafters were quotable at \$185@285, and common horses sold down to \$60@75, with a fair class purchased at \$100@200.

LIVE STOCK NEWS.

It is difficult to realize what fancy prices are paid for cattle until comparisons are made with other years, but when it is recalled that the best steers were selling a year ago for \$9@9.90 per 100 pounds on the Chicago market, while within a short time the best beefs of heavy weight have brought \$11.75@12.25, the trader will begin to understand the actual condition of the industry. Beef dressing weights are mostly very unsatisfactory to slaughterers, with the best killers coming from west of the Missouri river and an increasing proportion arriving from that region. This is because Chicago market prices have been much higher than those paid in the river markets. Cattle which have been fed for periods ranging from 60 to 75 days make up the great bulk of the daily offerings, and they may be expected to do so for some time ahead, as many cattle which went out late last December and early in the following month will be marketed in the near future. The market for stockers and feeders is extremely high, though not relatively higher than beef cattle, and the packers are outbidding country buyers for the best weighty feeders requiring only a short feed. In some instances as high as \$9.50 is paid for prime feeders, and prime yearling stockers have brought \$9.10. With beef cattle selling from \$2@2.50 per 100 pounds higher than a year ago, it is not unlikely that as grass approaches prime feeders will sell as high as \$10 per 100 pounds. In parts of Iowa and South Dakota stockmen have had to carry their cattle longer than they had intended to because no cars could be had.



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THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.
Thursday's Market,
March 8, 1917.
Cattle.

Receipts 2134. The market at the local yards this week, especially on Wednesday when bulk of receipts were received, was conducted under unfavorable conditions, it rained hard all day and it was hard work to handle stock, especially sheep and lambs, fair service was given by the railroads, most of the receipts arriving on time.

In the cattle division the market opened very active and fully 25c higher than at the close a week ago on all grades, on Wednesday they were hardly as active but on the whole prices averaged about the same. On Thursday the run was light and prices ruled about steady. Milch cows were very dull at last week's prices. The close in this department was steady with Tuesday's opening, selling as follows: Best heavy steers \$10.50; best handy weight butcher steers \$8.50@9.75; mixed steers and heifers \$8@9; handy light butchers \$7@8; light butchers \$6@7.50; best cows \$7.50@8; butcher cows \$6@7; common cows \$5.50@6; canners \$4.50@5.65; best heavy bulls \$3@8.50; bologna bulls \$6.50@7.25; stock bulls \$6@7; milkers and springers \$5@8.50.

Sandel, S. B. & G. sold Newton P. Co. 2 cows av 1115 at \$6.50, 3 do av \$40 at \$5.50, 1 do wgh 780 at \$5.25, 28 steers av 889 at \$8.35, 1 bull wgh 1080 at \$7.75, 1 do wgh 1510 at \$7, 1 steer wgh 1280 at \$9, 10 do av 909 at \$8, 2 do av 1050 at \$8, 2 do av 884 at \$8, 4 butchers av 742 at \$7, 3 do av 514 at \$5.75, 2 cows av 835 at \$5.75, 1 do wgh 1180 at \$7.50, 1 do wgh 860 at \$7, 1 do wgh 970 at \$6, 1 do wgh 960 at \$5, 4 do av 1110 at \$6.50, 4 do av 925 at \$5.50, 6 steers av 1045 at \$9, 2 do av 725 at \$7.50, 3 bulls av 1100 at \$8, 3 cows av 877 at \$6.50, 3 do av 977 at \$5.60, 4 do av 1040 at \$6.50, 3 butchers av 713 at \$6.50, 7 do av 824 at \$8.25; to Mich. B. Co. 2 do av 785 at \$7.25, 1 bull wgh 600 at \$6.50, 1 do wgh 1210 at \$7.60; to Mason B. Co. 8 butchers av 527 at \$6.50, 4 do av 762 at \$8, 4 cows av 892 at \$6.50; to Breitenbeck 2 butchers av 715 at \$7, 8 do av 850 at \$8, 6 do av 750 at \$8; to Nagle P. Co. 12 do av 876 at \$8.60; to Mason B. Co. 11 steers av 1000 at \$9.50, 2 cows av 1225 at \$8.25.

McMullen, K. & J. sold Mich. B. Co. 11 cows av 911 at \$6.85, 3 do av 1090 at \$5.50, 2 heifers av 735 at \$7.25, 13 do av 650 at \$7.50; to Nagle P. Co. 1 bull wgh 1260 at \$8; to Kamman B. Co. 5 steers av 888 at \$8.75; to Breitenbeck 10 do av 734 at \$8.10; to Sullivan P. Co. 19 do av 950 at \$9.15; to Kamman B. Co. 3 do av 870 at \$8; Heinrich 6 do av 736 at \$8.75, 12 do av 916 at \$8.80; to Hammond, S. & Co. 12 do av 940 at \$8.40; to Newton B. Co. 2 cows av 825 at \$6, 6 butchers av \$40 at \$6.75; to Bernfeldt 3 do av 583 at \$6.35.

Veal Calves.
Receipts 644. The veal calf trade was much more active than at the same period a week ago and prices averaged 50c higher on anything good, the best grades selling at \$12@13; mediums \$9@11; heavy \$5@8.

McMullen, K. & J. sold Nagle P. Co. 2 av 190 at \$8.50, 1 wgh 180 at \$13, 8 av 140 at \$12.50, 1 wgh 190 at \$11, 7 av 150 at \$12.50, 3 av 165 at \$9.

Erwin, S. & J. sold Nagle P. Co. 15 av 140 at \$12.50, 4 av 135 at \$12; to Hammond, S. & Co. 3 av 140 at \$10, 2 av 135 at \$12, 2 av 145 at \$10, 9 av 140 at \$12.50; to Nagle P. Co. 11 av 145 at \$12.50; to McGuire 2 av 160 at \$13, 8 av 150 at \$13, 2 av 165 at \$12.75.

Sheep and Lambs.

Receipts 1941.
Bishop, B. & H. sold Nagle P. Co. 193 lambs av 75 at \$14, 103 do av 70 at \$14, 134 do av 80 at \$14.15, 22 do av 90 at \$14, 20 do av 85 at \$14.15, 21 do av 110 at \$10.65; to Sullivan P. Co. 193 do av 78 at \$14.25; to Parker, W. & Co. 76 do av 85 at \$14.35, 4 sheep av 170 at \$10.25; to Thompson 28 lambs av 90 at \$14.30; to Sullivan P. Co. 85 do av 80 at \$14.

McMullen, K. & J. sold Nagle P. Co. 1 sheep wgh 140 at \$10, 3 lambs av 65 at \$13.75, 13 do av 50 at \$11.50.

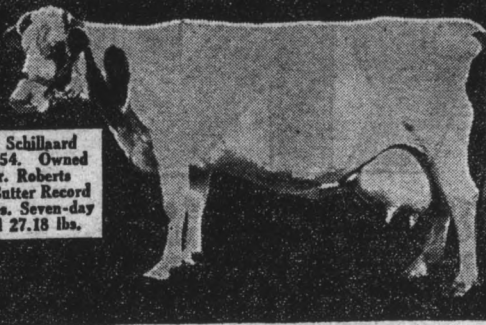
Erwin, S. & J. sold Thompson 57 lambs av 70 at \$14.25; to Sullivan P. Co. 27 do av 75 at \$14.25, 9 sheep av 90 at \$9.

Hogs.

Receipts 4248. Hogs never sold so high on this or any market as they did this week; on Wednesday one load of extra good ones that averaged 190 lbs. were bought by the Newton B. Co. for \$14.75 per cwt. The large packers, however, bought the bulk of their hogs at \$14.50 with a few fancy at \$14.60@14.65; pigs brought \$12.75 for the best.

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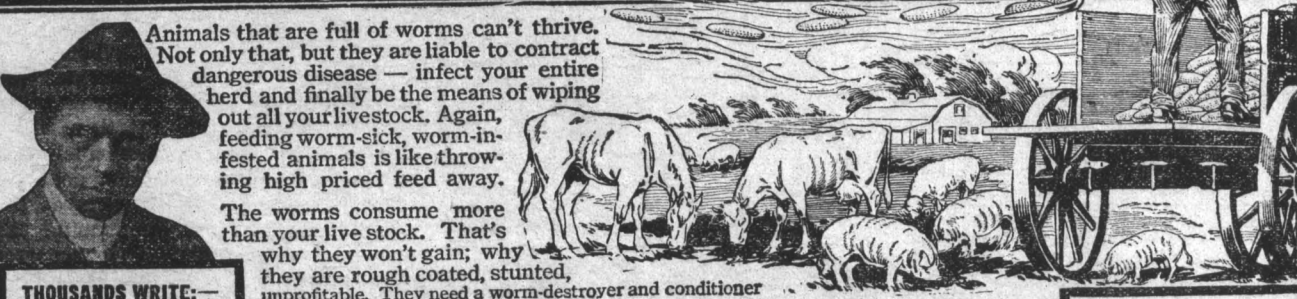
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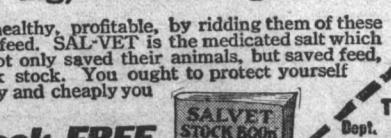
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Grange.

A MODEL GRANGE REPORT

Before me is what I consider a model Grange report. This report is in the "Grange Department" of an enterprising local paper and occupies nearly a column of space. There are other Grange reports, not so long, also in the same department; and another paper of the same town maintains a special Grange department. This assuredly speaks well for the press that recognizes in the Grange one of the constructive forces of the locality.

I have referred to this particular Grange report as a "model," and now let me tell why it appeals to me as such. There is a wide difference between some Grange reports and a "model report," often because the press reporter does not understand what features to enlarge upon and which to touch lightly. Again, sometimes a press report does not amount to much, simply because there has not been much in the meeting to chronicle.

This report of Charlotte Grange—for why neglect to name so good a report—which I have before me, is a good one, first of all, because there was plenty of material for the reporter to put into a write-up; and then, secondly, the reporter caught the salient facts and set them down. This Grange did things, apparently, from start to finish. Moreover, the report shows that the Grange has equipment so that several activities may be conducted at one time, reaching different ages and tastes. Thus the report states that, after the opening business the girls went to the kitchen and, under supervision of two women, prepared tea and light refreshments which later they served to the entire Grange, and at the same time the boys retired to another room where they planned for club work under direction of the teacher of agriculture of the city schools. Meanwhile, led by the officers, the older members of the Grange laid plans for the ensuing year, and discussed matters concerning rural school improvement. The reporter goes somewhat into detail as to these discussions, and that is one of the "model" features of the report.

In the business session was discussed the exceedingly momentous matter of forming a co-operative elevator company, somewhat along the lines of the stock shipping association promoted by this same Grange a year ago. Announcement was made of a special meeting to further consider the co-operative project, and of a Grange social, both events showing how the Grange keeps something before its members all the time. Besides the considerable quantity of heavy work accomplished at this meeting, there was some particularly fine music and readings, features which appeal to some whom the heavier parts of the program do not. In announcing the co-operative meeting, the reporter gave the menu for the dinner—a very excellent idea as such announcement wards off the hodge podge type of dinner.

At this meeting the master announced committee appointments for the year and the report gives the names of members on each committee, so that members have them listed for reference and those not present may read them in the paper. A noticeable fact about these committees is their unusual number, showing how the officers divide responsibility and enlist as many as possible of their membership in special activities undertaken by the Grange. Besides the usual committees, there is a "kitchen committee," changing each quarter, and a "dining-room committee," also changing quarterly;

then there are captains of each of four degree teams, and committees upon "Good of Order," "Women's Work," "Dances," "Entertainments," and "Educational."

A press reporter who sifts out the st of a meeting, in like fashion as this one, is one of the "leaders" in that Grange, whether recognized as such or not. And a Grange that furnishes its reporter with such substantial material to report is one that has rare leadership—men and women in its membership who keep "seein' things" in the best sense of the words, and who can execute as well as dream. Such officers plan their Grange work, but they also work their plan. They see visions and are willing to work to materialize them. Perhaps they do not always recall that the old prophet said, "Without vision, the people perish;" but, whether or no, they work on the prophet's principle in conducting their Grange.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

First Grange Reorganized.—On January 17, Deputy Earl Stone reorganized a Grange that must ever retain a certain sentimental attraction for Michigan patrons—that of Burnside No. 1, Lapeer county. When we remember that this was the first outpost where the Order was planted in our state, we recall it with peculiar affection. Burnside has had a checkered career, having organized first in 1872; thirty-one years later it rebuilt and dedicated its hall and started upon a period of great promise but it later lapsed into dormancy and has now been reorganized. Its officers look forward hopefully to prosperity and good Grange progress; these officers are as follows: Master, Abram Vandewalker; lecturer, Miss Florence Smith; secretary, George E. Scott. The hall stands beside a church and a school-house, thus bringing together those three ideal rural forces—the church, school and Grange.—J. B.

Gratiot County Pomona met with Ithaca Grange on February 3, at the I. O. O. F. Hall. About forty enjoyed a pot-luck dinner with hot coffee. Jas. Helme gave a very interesting talk on organization. He said in part: "The farming class is the producing class, the class on which all people must depend. The high cost of living is because less is produced, the city sucking the labor from the farm and the cities must awaken to the fact and come to the rescue. It is not the farmer that makes the price of food stuffs, it is the middlemen, and it is they who are getting the cream of the land. The farmer gets 35 cents, the consumer pays \$1. The 65 cents goes to the middleman and he grows wealthy from the labor of others."

"The population of the United States has increased 21 per cent, the meat supply has decreased 20 per cent on account of high cost of feed for the growing of beef cattle is unprofitable. The result, the packers control 75 per cent of all meat, there are five packers in Chicago that do this."

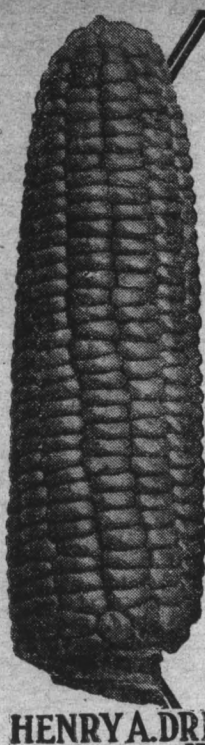
"Why don't farmers organize, and take part of this profit and make the cost less to the consumer?"

"Why don't the farmers have a co-operative sugar factory? Instead of the \$6 beet they would get nearer \$13 beets, as the factory gets about \$24 from every ton. Saginaw pays a man \$20,000 a year to run that factory, could not the farmers get just as good a man for less price?"

The capitalists are looking after themselves, the packers are looking after themselves, the producer must look after himself or he will be left in the mud, as he always has been.

Many questions were discussed. The Grange had a self-serve supper and all departed for their homes feeling they had been well paid for coming even though the day was a bad one.

The Keene Grange Birthday program was given on Friday, February 16. This celebration was in honor of the forty-third anniversary of the organization and started at 10:00 a. m. with a social, patterns, crochet, cards and music. A picnic dinner was served by the brothers. Lecturer's Program, 1:30 p. m.; song by Grange; roll call, quotations from Abraham Lincoln; song by Grange; paper, "Birth of Our Lodge," Loveda Hunter; reading, Maxine Cahoon; paper, "Interesting things from Grandfather's Diary," Carrie Cahoon. Discussion on the proposed changing of the width of sleighs and wagons, led by Ernest Pinckney. Presentation of gifts, and the grand march.—Carrie Cahoon, Lecturer.



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Farmers' Clubs

BENEFITS OF THE STATE ASSOCIATION.

(Continued from last week.)

Another means for this organization to benefit the local Clubs lies in just such discussions as we have heard here this afternoon. The time has arrived when co-operative action if you please, when the working together, one with another in a spirit of community betterment is necessary if agriculture is to come to its own—if our industries and our people are to prosper as they merit. I believe that by listening to and participating in discussions of this kind, the delegates at these annual meetings will carry home enthusiasm which will be imparted to their local Clubs at such times as they make their report. The opportunities open to an organization of this kind to benefit its membership are so great that if one had the whole afternoon to enumerate them it would be impossible to do so, to say nothing about dwelling upon each one.

I have touched upon a very few what might be called the high spots, presented by the subject, but I do hope that the older members of this state organization, that the men and women whose faces I see here not the first, nor the second nor the third, but perhaps a dozen or more times, may contribute something to the subject and that every delegate here will go back to his own Club without any doubt that it has been good for him to be here, that it has been profitable for the local Club to be affiliated with this organization.

CLUB DISCUSSIONS.

Will Buy Co-operatively.—The Arbor Farmers' Club, of Washtenaw county, met Wednesday, February 14 at the beautiful home of Mr. and Mrs. Fred Fishbeck. After all had partaken of a bountiful dinner the meeting was called to order by President Martin and an excellent program was rendered, opened by music by the Club orchestra. Mr. George Gid gave a very interesting and instructive talk on co-operation of farmers. Mr. A. C. Stein also gave a well prepared paper on the same subject. Miss Winifred Fishbeck sang a very appropriate solo, followed by Mr. A. F. Smith on county farm agents. He said in part that the farmer was not protected on the selling side as was other business. The Club decided to buy fence posts, twine, lime, ocal and other necessary things. The Club adjourned to meet March 14 with Mr. and Mrs. John Zee.—Mrs. W. S. Bibbie, Sec.

Hold Evening Meetings.—The East Nankin Farmers' Club, of Wayne county, met at the home of Joseph McGarvey on Tuesday evening, February 6. After being called to order by the president, Henry Lathers, about 30 members responded to the roll call by the recording secretary, Cyrus Lathers. The officers of the Club, as now elected are: President, Henry Lathers; vice-president, E. M. Stewart; recording secretary, Cyrus Lathers; corresponding secretary, W. S. Lathers; treasurer, Mark Lathers. After the completion of the election the Club listened to a fine literary program, including a very interesting paper by E. M. Stewart on "A Bird's-eye View of East Nankin Farmers' Club for the Two Years of its Existence." This was followed by a little general talk by Rev. Sterling, of East Nankin Presbyterian Church. After this lunch was served by the ladies, and after having an interesting and general good time the Club adjourned to meet at the home of Chris Jorgensen, on the first Tuesday evening in March.—Wm. S. Lathers, Cor. Sec.

Favor Moving Industrial School.—It takes more than a cold winter's day with snow drifts as high or higher than the fences to keep people at home when it is time for the monthly meeting of the Ingham County Farmers' Club. More than eighty members and friends gathered at the hospitable home of Mr. and Mrs. E. G. Spink in Aurelius for the February meeting and it was surely good to be there. One stepped inside the house and found summer heat radiated by a steam heating plant and everything comfortable and "no matter how the north wind raved." Mr. Spink has lived upon this place some fourteen years, having purchased it of L. C. Smith and has kept pace with the times, having commodious barns, a silo, milking machine, complete water system, and other improved helps to do the work easily and economically. Hon. C. W. Clark was prevented from coming to

discuss "The Legislative Measures in which Country People are Interested," so President Allen told of the influence of the farmers in Dakota. Some time ago the farmers went to some of the legislators, telling what they wanted, and were told to go home and stop their noise. The farmers went home, got busy, and the result of the last election showed a majority of the legislators came from the farm. Frank Seely had had a recent conversation with Mr. Clark and said one of the things he wanted to talk about today was the Industrial School. Located as it is, almost in the heart of Lansing, there is a move on foot to sell the property and buy 700 or 800 acres in the township of Delhi convenient to the car line. He referred to the Newberry asylum, having the buildings around a ten-acre plot and that plot a beautiful park, and thought if the Industrial School was moved, it would be a good plan not to have the buildings congested, but also to surround a place of beauty. He also called the various bills to increase the salaries as vicious bills, speaking especially of the proposed increase of the circuit judges from \$3,500 to \$5,000 and the supreme court judges from \$7,000 to \$10,000, and the dairy and food commissioner from \$2,500 to \$3,500. While perhaps some of the clerks were underpaid, most of them were getting a thousand dollars, more than teachers were getting of the same education. There was no law to make them stay there, if they could do better elsewhere. Mrs. Eames, in referring to the Industrial School, said most of the boys came from the crowded condition of the cities without having the benefit of "God's Open," and one could make better citizens of them to be in a rural community. The following resolution was passed unanimously: Resolved, that we, members of the Ingham County Farmers' Club, favor the sale of the property now occupied and used by the Industrial School in Lansing, and that we favor the purchase of suitable land, outside of the city and conveniently located for said school. Resolved further, that a copy of this resolution be transmitted to our state senator, Hon. Chas. W. Foster, and our representative in the legislature, Chas. W. Clark.

After a recitation by Lee Vaughn, the Club adjourned to meet with Mr. and Mrs. Fletcher at Hillside Farm on March 11. Year books were ready for distribution and as they contain both the program and the table committee for each meeting, let each member keep it handy for reference.—Mrs. Tanswell, Cor. Sec.

Discuss Milk Problem.—The last meeting of the Genoa Farmers' Club met February 3 at the pleasant home of Mr. and Mrs. Latson. After everyone had partaken of the bountiful dinner they lent their ears to the following program, which was instructive as well as interesting: The meeting was called to order by the president and was opened with a selection on the victrola. After the secretary's report the business of the meeting was taken up. The chairman of the program committee gave the program outline for the following year. Then came the live topic most discussed by the milk producers of the present day, "Where Shall we Sell Our Milk and Why?" by Robert Wright. He came forth with solid facts on the proposition and demonstrated with full reports on prices we are getting for milk, and showed how we stand today along these lines. The address was fully discussed from all points of view. Then followed the question box, in charge of H. M. Haller, and many important questions were well discussed by members of the Club.

BOOK NOTICES.

"The Torrens System," a manual of the Uniform Land Registration Act in Virginia, to which is appended the annotated act, proposed rules of court, and a complete system of forms. Eugene E. Massie, Richmond, Va. Everett Wattey Co., 1916." The above is the title page of a little book of 206 pages that is of especial interest to every citizen of Michigan; not only because of its contents, and the fact that Virginia is the first state to pass the Uniform Land Registration Act recently presented to the legislature of this state by the Uniform Legislation Commission; but also because the struggle of seventeen years for such a law in Virginia, under the able and persistent leadership of the author of this book, and their recent triumph over all opposition, are a lesson and an inspiration that cannot fail to hearten the workers in the cause in Michigan. In separate chapters the author goes on to show how a registered title will help the farmer, the banker, the business man, the land agent, the land buyer, and the state.



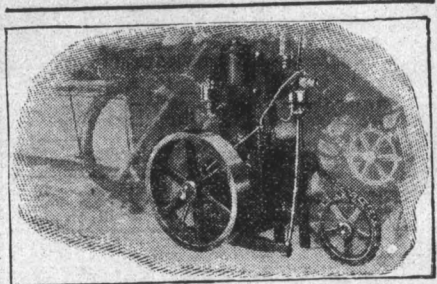
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Johanna McKinley Segis 3d. 7 nearest dams aver-
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OAK LEAF FARM
Herd Sire

Ypsiland Sir Pletertie De Kol
Service bulls all sold. Buy a calf and raise it. Fine
individuals 4 and 5 months old. E. H. Gearhart &
Son, Marcellus, Mich., R. No. 4.

Registered Holsteins. Young bull ready for service.
30 lb. breeding. Satisfaction
guaranteed. W. B. Jones and J. F. Lutz, Cohasset, Mich.

REG. Holsteins. Place your order now for a bull calf.
R. I have cows due to freshen soon, bred to the best
bull in Mich. Elmer E. Smith, Redford, Michigan

BULLS FOR SALE
CALLAM STOCK FARM, SAGINAW, MICH.

BREEDERS OF CHOICE

REGISTERED HOLSTEIN CATTLE

(1) ALBAN FAYNE CALLAM, born November 14, 1916. More white than black. Large,
straight and handsome. Official record of dam 18.57 lbs. butter, 414.7 lbs. milk 7 days. Dam has 3
A. R. O. daughters and is granddaughter of Lord Netherland De Kol.

(2) NIG PONTIAC CALLAM, born September 26, 1916. More white than black. Royally
bred, and perfect conformation. Dam is in the Advanced Registry and is one of our best cows.

(3) KEKA DE KOL CALLAM, born December 10, 1916. More white than black. Very hand-
some youngster, choicely bred, and perfect in every way. Dam has not been tested, but is the
daughter of Pet Fairmont De Kol, official record over 19 lbs. butter in 7 days.

(4) PAUL DE KOL CALLAM, born December 23, 1916. About half white and half black. He
is a splendid calf. His dam has an official record of 20.47 lbs. butter and 503.8 lbs. milk in 7 days.
This calf is good enough to head any herd.

These calves are all pure bred Holsteins, registered and of the choicest breeding and sired by
the great King Keka Fayne, grandson of King Segis, Grace Fayne 2nd's Homestead, great grandson
of Pontiac Korndyke, and sired by King Fayne Segis, sire of Segis Fayne Johanna, official record
50 lbs. of butter in 7 days, now champion cow of the world.

Select one, and write for pedigree and price
CALLAM STOCK FARM, Room 204 Bearinger Bldg., Saginaw, Michigan

844.8 lbs. of BUTTER FAT in ONE
YEAR or 985 lbs. of butter is the record of

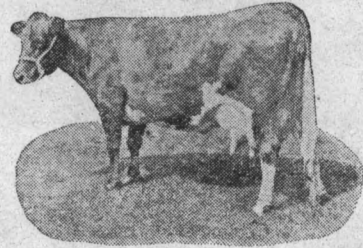
This Grade Guernsey Cow

Her milk production for the year was 16286.1 lbs.

GUERNSEY PRODUCTS HAVE THE HIGHEST
NATURAL YELLOW COLOR OF ANY BREED

Write for our free booklet "GRADE GUERNSEYS"

THE AMERICAN GUERNSEY CATTLE CLUB
BOX W.M. PETERBORO, N. H.



R. of M. JERSEY BULLS—THIS TIME! R. of M.

You keep cows for profit. Brookwater Farm breeds bulls that will increase value of every calf you raise.
The following are sired by Benedictine King who will enter R. of M. this year on his record as a sire of R. of M.
cows. Not one of his daughters ever failed to make the Register of Merit. Calved June 5, 1916. Solid color:
dam, Brookwater Veda 258796, now on test, has made in 5 months and 21 days, 309.97 pounds of butter. Calved
July 3, 1916. Solid color: dam, Brookwater Loretta 271985, now on test, has made in 4 months and 25 days, 350.72
pounds of butter. Also three other bull calves, one of which is of unusual promise by Majesty's Intense and out
of a tested (will make 70 pounds fat during January) granddaughter of Loretta D., champion cow for produc-
tion at the St. Louis World's Fair. One of these bulls we will sell at \$75. Others higher. Extended pedigrees
and production records furnished on application. Let us know what kind of a bull you need. Visit the farm
and see the calves, their dams and sires. BROOKWATER FARM, ANN ARBOR, MICHIGAN.
H. W. Mumford, Owner. F. Foster, Manager.

10 HOLSTEIN BULLS at FARMERS' PRICES

Sired by Long Beach DeKol Korndyke. His sire Friend Hengerold DeKol Butter Boy. Dam a daughter of
Pontiac Aggie Korndyke. She has a 120 lb. record, 11-30 lb. sisters, 3-120 lb. sisters. Her dam, a daughter of
Friend Hengerold DeKol Butter Boy has 1000 lb. year record. Has 4-30 lb. sisters, 3 sisters above 1200 in year.
LONG BEACH FARM, AUGUSTA, (Kalamazoo, Co.,) MICH.

A 26 LB. JR. 4-YR.-OLD

A 20 lb. Sr. 2-yr.-old and a 15 lb. Jr. 2-yr.-old were
among the records recently made in our herd. All
cows in the herd have creditable A. R. O. records and
are tuberculin tested.

PEACELAND STOCK FARM, Three Rivers, Mich.
Chas. Peters, Herdsman, C. L. Brody, Owner, Port Huron Mich.

Parham's Pedigree Stock Farm Offers reg. A. R. O.
Holstein Cows,
Male Calves, Show Bull, ready for service no akin to
cows, priced \$125. R. B. PARHAM, Bronson, Mich.

WINNWOOD HERD

John H. Winn, Inc., Holton, Mich.

Reference: Old State Bank, Fremont, Mich.

Have for sale 6 Maplecrest Korndyke Hengerveld
Holstein bulls. One 12 months; one 6 months; one 2
months, all out of A. R. O. dams. One made 19 lbs.
butter in 7 days as a Jr. 2 year old. Another 21 lbs. in
7 days as a Jr. 3 year old. Also have five others, same
breed from 2 to 6 months. Must sell at once, need the
room. Our prices will surprise you. John H. Winn,
Holton, Michigan.

Holstein Bull calf nearly white. Sire: Colantha
Johanna Creamella Lad. Dam: Segis
Aggie Hengerveld De Kol. Write GEO. D. CLARKE,
Vassar, Mich., for photo and price.

FOR SALE—Registered Holstein bull calves, 1 to 6
months old from a 30 lb. sire and good A. R. O.
dams. Wm. Griffin, Howell, Mich., R. No. 5.

Holstein and Guernsey Heifer and Bull Calves
Choice selected promising dairy calves, practically pure
Holstein and pure Guernsey, but not registered, nice
color. \$20.00 each, all express paid to any point.
MEADOW GLEN Whitewater, Wis.

2 Choicely Bred—Yearling registered
Holstein Heifers,
from 20-lb. dams, 30-lb. sire \$100 each if taken at once.
Riverview Farm, R. 2, Box 10, Vassar, Michigan.

HOLSTEIN COWS: bred yearlings and calves for
sale. Every cow has produced a vigorous calf dur-
ing year. C. L. Hulett & Son, Okemos, Mich.

\$175 Buys your choice of two Reg. cows bred to a 30
lb. grandson of "King of the Pontiacs." Calf
contracted at \$100 if heifer. B. B. Reavey, Akron, Mich.

HEREFORDS

Both sexes and all ages for sale, our herd com-
prises about 100 head representing the blood of
such sires as Prime Lad 9th, Perfection Fair-
fax, Bonnie Brae 3d and Dale. Write us your
wants.

ALLEN BROS., PAW PAW, MICH.

20 Herefords BOTH SEXES
ALL AGES
EARL C. McCARTY, Bad Axe, Michigan

FOR SALE Twenty-five Jersey cows,
two to eight years old.
Eight registered, balance high grades. Excellent pro-
ducers, guaranteed right. Also some bred yearling heif-
ers, registered and high grades. Also some fall heifer
calves from above stock. Good reasons for selling. Bell Phone—
Hadley, P. O. Metamora, Mich. R. 1, C. E. Hodgson, L. H. Riley.

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

The Wildwood Farm
Jersey Cattle, Majesty Blood. We have Bulls for sale
from Register of Merit cows of good type. Write your
wants. Alvin Balder, Capac, Michigan.

Jerseys for Sale Pure bred Jersey cows, some
registered. Majesty breed-
ing, one or a car load. All young, in good condition.
All giving milk. Delivery any time before April 1st.
W. E. DAY, Armada, Michigan

Veterinary.

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

Opacity of Cornea.—I have a five-
year-old mare that has a film growing
over each eye. This eye trouble made
its appearance about two weeks ago.
J. W. S., Jerome, Mich.—Blow a small
quantity of equal parts calomel and
boric acid into eyes once a day. Give
2 drs. Donovan's solution of arsenic
at a dose twice a day.

Weakness.—I have a ten-year-old
horse that seems to be weak and ex-
hausts easily. After going some dis-
tance on the road he becomes dull,
lags and drops back in harness. He
seems to have a good appetite, inclined
to eat anything within reach, and I
have been thinking that he is troubled
with worms. S. McL., Mancelona,
Mich.—Perhaps you had better exam-
ine his grinder teeth, they may require
floating. Mix together one part pow-
dered sulphate iron, one part ground
nux vomica, two parts salt and four
parts ground gentian, give him a table-
spoonful at a dose in feed three times
a day. Perhaps you should increase
his grain ration.

Obstructed Teat.—I have a cow with
one obstructed teat which makes it
very difficult to draw milk through it.
Do you think I require a milking tube
to use when milking? D. V. R., Grand
Rapids, Mich.—Milking such a cow is
always made more easy by using a
milking tube, but remember the milking
tube should be boiled for at least
ten minutes each time before it is used
or else dip it in a solution of carbolic
acid and water, one part acid to 20 of
clean water. This is perhaps all that
will be required in order to dilate the
strictured teat canal; however, it is
always good practice to use a dull-
pointed, smooth hard rubber or highly
polished steel sound somewhat larger
than the canal, in order to break up
adhesions.

Muscular Cramp.—I am anxious to
know what is wrong with my 12-year
old mare; when I take her into the
stable from work and feed her, she
seems to be affected with a stiffness of
neck and is hardly able to raise her
head. The harder I work her, the
worse this trouble seems to be. I am
quite sure that the collar is properly
fitted and I forgot to say that she has
been troubled more or less with this
ailment for the past 18 months. So
far as I can tell, she suffers very little
pain, unless the head is suddenly raised
by hand. E. C., Prescott, Mich.—
Doubtless she met with an injury some
18 months ago and has never fully re-
covered, and it is doubtful if she ever
will get well. I would suggest that
you raise her manger in order that she
can reach her feed without stretching
muscles of neck. Rub muscles of neck
with camphorated oil occasionally, is
about all you can do for her.

Partially Paralyzed by Lightning.—
I have a horse four years old that was
shocked by lightning in September,
1916, and since that time she has been
in a crippled condition. She has lost
partial control of her hind quarters,
eats well, but will not gain in flesh.
Please advise me what can be done
for her. A. T., Fostoria, Mich.—Give
her 40 grs. of ground nux vomica, 30
grs. of potassium iodide and 2 drs. of
Fowler's solution at a dose in feed
three times a day.

Pigs Cough.—Have a bunch of five
pigs three of them are in fine shape,
but the other two cough and appear
to be weak in their joints. While walk-
ing they frequently fall on their knees.
I feed middlings for slop, and corn. T.
W., Pontiac, Mich.—Discontinue feed-
ing corn, feed tankage, a few oats and
roots. Give each pig five or 10 grs. of
powdered nitrate of potash in their
swill two or three times a day. This
is dose enough for a hog weighing
from 40 to 100 pounds.

Capricious Appetite.—Have some
cows that chew boards, old sticks,
bones, other rubbish, and I would like
to know what to do for them. S. A.,
Central Lake, Mich.—Change their
feed and give each cow two teaspoon-
fuls of dilute hydrochloric acid in a
quart of water as a drench or in feed
or drinking water three times a day.

Rheumatism.—What can I do for
my six-month-old pigs? Have a bunch
of eight in a good pen, are on plank
floor, plenty of straw bedding, but
three of them appear to be stiff in all
four legs. After walking a short dis-
tance they tire and lie down. H. L.
F., Mt. Pleasant, Mich.—Give each pig
5 grs. of sodium salicylate in feed
three times a day. Instead of feeding
so much corn, feed tankage, some oats,
oil meal and roots. Perhaps they
should have a little more exercise.

The All-Around
Jersey

is the farmer's cow. She's his
friend and pride—the beauti-
ful, gentle, ever-paying milk machine that lifts
the mortgage, builds up the fertility of the
farm, and puts the whole business on a sound,
paying, permanent basis. She adapts herself
to all climates and all feeds and does not
need fancy care. She matures early and
lives long. And she's so sleek, clean cut and
handsome, as to be the family pet and
pride. She produces well
and sells well. Learn
about her in our fine, free
book, "About Jersey Cattle."
Write for it now.

THE AMERICAN JERSEY
CATTLE CLUB
346 West 23d St., N. Y. City

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

Jersey Bulls for sale, ready for service. Out of
good producing dams. Prices right.
R. B. FOWLER, Hartford, Mich.

JERSEYS FOR SALE Young bulls
for sale from R. of M. ancestors. Meadowland Farm,
Waterman & Waterman, Packard Road, Ann Arbor, Mich.

FOR SALE REGISTERED JERSEY BULLS
Ready for service. Write your wants.
SMITH & PARKER, R. D. No. 4, Howell, Michigan

Hillside Farm Jerseys For sale, seven mos. old bull
calf, fine, large, individual
whose combined butter
production of four nearest
dams is 2878 lbs. butter. C. & O. Deake, Ypsilanti, Mich.

Maple Hill Farm Registered Jersey Cattle
Stock under 2 1/2 years all sold.
J. R. Worthington, R. No. 7, Lansing, Michigan

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

Jersey Cow registered, fresh, also bull calf, 4 months
old, Majesty blood. Write for pedigree and
price. C. A. Taggett, R. R. 2, Fairgrove, Michigan

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

**Francisco Farm Shorthorns
and Large Type Poland Chinas**
We offer bulls & boars ready for service;
Bred sows & gilts & young cows.
P. P. POPE, R. R. 3, Mt. Pleasant, Mich.

Bidwell Shorthorns

"For Beef and Milk"

This heifer at 6 months has bone,
size and quality—our own breeding.
The blood of Scotch bulls, Imp.
Shenstone Albino and Imp. Villager
Registered stock always for sale.

BIDWELL STOCK FARM,
Box B, Tecumseh, Michigan.

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

Shorthorns for Sale. Young bulls \$100. Bred cows,
and heifers \$150 for quick sale.
Write W. J. BELL, ROSE CITY, MICHIGAN.

FOR Sale—Reg. Short Horn Bulls by Maxwalton
Monarch 2nd, a son of Avondale, from 11 to 13 mos.
old. John Schmidt, Reed City, R. No. 5, Michigan

LIVE STOCK NEWS.

Impure Blood.—I have a four-year-old cow with bare patches on both hips but she does not appear to be sick. Showed this trouble soon after calving; but I might add that her appetite is good. J. B. Chassell, Mich.—Give her a teaspoonful of hyposulphite of soda and a tablespoonful of cooking soda at a dose in feed twice a day. Apply one part coal tar disinfectant and 14 parts petrolatum to bald parts of skin every day or two.

Diseased Frog.—I have a horse that has a diseased frog and the longer I doctor it the worse it gets. In fact, none of the remedies I have applied seem to help effect a cure. S. K. McL., Highland Park, Mich.—Keep the foot clean and apply equal parts of calomel and powdered charcoal once a day. Remember the foot should be kept clean and dry, as filth and too much moisture is usually the cause of this thrush-like condition of frog.

Rough Warty Skin on Lower Part of Udder and Teats.—I have a cow which, for the past two years, has had a rough warty condition of the skin on teats and lower portion of udder. B. J. P., Stanton, Mich.—Apply a saturated solution of salicylic acid in alcohol twice a week, and apply olive oil twice a day. The free use of olive oil might overcome this trouble without the use of the other medicine. However, it is doubtful.

Open Joint.—My ten-year-old horse was kicked in the hock joint by a sharp-shod horse; this accident happened ten miles from home and the horse was driven home the next day, then treated by our local Vet., who said the joint was open. This first Vet. advised us to call another Vet., which we did, and he thought the case curable, but later advised us to destroy the horse. We kept the horse for several days, then killed him. One surprising thing was the difference of opinion between the Vets., and I would like to know if you think the case one that could have been cured. J. I. B., Addison, Mich.—Open joint, especially in the hock, resulting from a kick and not treated promptly and efficiently, immediately after the accident, the horse kept perfectly quiet in a clean, sanitary place, seldom recovers. And I should say in this kind of a case, they scarcely ever recover.

Periodic Ophthalmia.—I bought a horse last fall; eyes soon became sore, later on they cleared up. Our local Vet. thought it only a cold, now the eyes are sore again and I am somewhat alarmed, thinking perhaps that the case will terminate in blindness. J. R. B., Hillsdale, Mich.—I am inclined to believe that your horse suffers from periodic ophthalmia, an incurable ailment. However, by proper care, loss of vision can perhaps be postponed. Give him 2 drs. of Donovan's solution of arsenic at a dose in feed or drinking water three times a day for thirty days. Dissolve 40 grs. of borate of soda, 40 grs. of boric acid, quarter pint of cleaned boiled water and apply to sore eyes with a dropper or small syringe twice a day. Remember, a bright light always irritates a sore eye, and furthermore, the bowels should be kept open and the barn free from foul gas.

Chronic Stocking.—I have a three-year-old colt with swollen hock and hind legs. U. M., Mio, Mich.—Give her 30 grs. of potassium iodide at a dose in feed or drinking water three times a day for thirty days. Apply one part tincture iodine and two parts spirits of camphor to swollen hock and leg daily. Remember, an animal in this condition should have daily exercise and the bowels kept open.

Heifers Fail to Come in Heat.—I have two heifers that came fresh in December. Since then neither of them have been in heat. D. D. Grand Rapids, Mich.—Give each heifer 30 grs. of ground nux vomica and 60 grs. of ground capsicum at a dose in feed three times a day. As soon as warm weather sets in, they will perhaps both come in heat.

Chronic Indigestion.—I have a horse that has a fondness for chewing leather, and I would like to know what to give him. L. D., Hudsonville, Mich.—Give him a dessertspoonful of dilute hydrochloric acid in a bucket of drinking water three times a day, or put it in a quart of water and mix it with feed, three doses a day.

Garget.—I have a cow which came fresh last September and was neglected, being in the woods. When she was found the calf was only getting milk from one-half of udder; since then the milk flow has almost ceased from the two diseased quarters. P. W., Meseck, Mich.—Apply one part iodine and nine parts fresh lard to blocked portion of udder three times a week. Give her 1 dr. of potassium iodide in feed or water three times a day. Her recovery is doubtful.

The continued remarkable boom in hog prices is taking the trade by surprise, with up-turns on some days of from 15 to 25 cents per 100 pounds, and no indications apparent that the advance is nearing an end. It is a case of an enormous demand from the packers of Chicago and other western and eastern packing points to secure as many hogs as possible, in order to be able to manufacture sufficient provisions for filling the huge orders placed months ago, at which time both hogs and provisions were selling at far lower prices than prevail now in the markets of the United States. Recent weeks have witnessed lively upward movements in lard and all descriptions of cured hog meats in sympathy with the boom in the raw material, and the price of pork has soared to above \$32.50 a barrel, comparing with \$20.75 a year ago, with lard and short ribs showing similar advances. There was never in the history of the market a stronger incentive for making hogs' fat and heavy, but very few owners are following this course of action, having their eyes on dollar corn. It is true there has been a little increase in the recent average weight of the hogs reaching the Chicago market, yet the average per hog is only 206 pounds, comparing with 208 pounds a year ago, 221 pounds two years ago and 224 pounds three years ago. Extremely few really heavy hogs are offered for sale, and 300-pounders are a novelty. But several days ago there was a consignment of three carloads of swine on the Chicago market which averaged in weight 342 pounds. The eastern packers have been unusually liberal purchasers of prime heavy and light hogs in the Chicago market in recent weeks, and their operations have made competition lively and helped greatly to boom prices, especially for the more desirable offerings. With by far the largest demand for hog products ever known, the combined receipts of hogs in the 11 principal markets of this country this year have been nearly a million hogs less than a year ago.

A four-year-old Berkshire boar, sired by an English hog, was sold for \$1,000 at the recent annual sale in connection with the American Berkshire congress held at Purdue University.

Jesse Ayers, a successful farmer and stockman of Hancock county, Illinois, was in the Chicago market recently with a shipment of cattle which showed good results for their board and good care. They were purchased in Kansas City for \$7.40 per 100 pounds, fed for a period of ninety days, and sold when finished for \$11.40. The owner said steer feeding in his locality is much below the usual average.

The farmers of Brown county, Minn., are increasing their cattle production, and it is learned that fully 60 per cent of them are saving their heifer calves for breeding purposes.

The wool market has been unusually strong in recent weeks, with rapid advances in prices, followed by large western contracting. Especial strength is shown in Merino wools, now that it is impossible to make exportations from Australia. Within a short time sales of fleeces of wool taken off at feeding stations near Chicago have taken place at 44 cents per pound, and 43 cents has been refused by owners of Montana wool in the Billings market.

C. D. Ayers, one of the successful farmers and stock feeders of Basco, Ill., was on the Chicago market recently with a shipment of two carloads of cattle. He remarked that the dollar corn which farmers are feeding to stock does not appeal to them as a good policy, and there will not be as many cattle or hogs fed in that locality as usual.

Word comes from Iowa county, Wisconsin, that as many cattle are being fed as usual, while the farmers are saving their heifer calves very generally. They are not raising steer calves, however, as they believe it pays out better to buy stockers.

Everything in the sheep and lamb line sell far higher than in any past year, even if the top figures are at times lower than a few weeks ago. Within a short time the car scarcity has played a highly important part, and big flocks of lambs which had been bought by the big packing interests for immediate slaughter in the Missouri river markets were reshipped to Chicago, because it was impossible to get the refrigerator cars necessary to ship the dressed products. Colorado flock masters have been shipping large numbers of lambs to the Chicago market, and a big share had to go at a large discount from prices paid readily for prime light weights. Feeding lambs are in strong demand at the unparalleled prices now ruling, and a demand for breeders has begun, with a scarcity of high-grade breeding ewes and bucks.

CATTLE

Shorthorns For Sale Young bulls ready for service, also cows and heifers. W. B. McQuillan, Howell, Michigan.

Cattle For Sale

2 Loads feeders and two loads yearling steers. Also can show you any number 1, 2 and 3 years old from 600 to 1200 lbs. Isaac Shanstun, Fairfield, Iowa, R-8.

SHORTHORNS Maple Ridge Herd, Established 1867. Young bulls for sale. J. E. Tanswell, Mason, Michigan.

Young Shorthorn Bulls For Sale BEDELL & WHEATLAKE, Big Rapids, Mich.

Bates Shorthorns only one bull left for sale. No females for sale at any price. J. B. Hummel, Mason, Michigan.

Polled Durham young bulls, heifers, few cows, good red ones, bred right for farmers. Frank Bartlett, Dryden, Michigan.

HOGS.

Durocs and Victorias

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

Swigartdale Farm Berkshires Home of the greatest show herd in the State. Stock of all ages and both sex for sale, including some of the winners at the State Fair. Write us for particulars and let us tell you about them and our

HOLSTEIN BULLS

some of them old enough for service, sired by "Maplecrest Korndyke Hengerveld" (the Bull with the best yearly record backing of any sire in the world) and "G. & B. Segis Ulrica Pledge 108790," all from A. R. O. Dams with good records and the best of breeding, one very fine Grandson of the

FIFTY THOUSAND DOLLAR BULL out of a 27.39-lb. dam, all stock guaranteed to be just as represented and a credit of six months will be given to responsible parties.

SWIGARTDALE FARM, Petersburg, Mich.

BERKSHIRES: Gilts and mature sows that will farrow in April and May. Mammoth Toulouse Geese. Pekin Ducks \$2 each. Chase Stock Farm, R. 1, Mariette, Mich.

Berkshires, Boars, serviceable age, best blood lines, Registered. E. L. MURPHY STOCK FARM, Almont, Mich.

Auction Sale, Mar. 12, '17, at 1 P. M. 20 head of high class Duroc Jersey Hogs, also head of Horses, including the registered Percheron Sire Inogmar 30947. M. A. Bray Estate, Okemos, (Ingham Co.) Mich.

Fall Boars, best of breeding, one 35 summer and fall gilts open, or bred to Jo. Orion 14th and held until safe in pig. Visitors welcome and satisfaction guaranteed on mail orders. Sold 3000 sows during Feb. Newton Barnhart, St. Johns, Mich.

Duroc Jerseys 18 bred gilts for sale priced to sell. Carey U. Edmonds, Hastings, Mich.

DUROC Sows, Spring gilts, Aug. Boar Pigs, Sept. Pigs either sex. Percheron Stud Colt six months old. E. J. Aldrich, Tekonsha, Mich.

Durocs, pigs of Sept. farrow. (Dams) by Joe Orion 2nd Defender C, Superba, Highland King (Sires) Superba King and Hoosier J. O. C. Either sex. H. G. Kessler, Cassopolis, Mich.

Duroc Jersey Gilts We have a choice lot of good rugged heavy boned Gilts, registered. All bred to our Herd Boar, Jennings Pilot Wounder No. 13773. Bred for Apr. and May farrow. Best for pedigree. Prices reasonable. THE JENNINGS FARMS, R. F. D. 1, Bailey, Mich.

Duroc Sows and gilts bred to Eureka Cherry King and Crimson Critic son of Critic Model 1915 champion Iowa Fair. W. C. Taylor, Milan, Mich.

FOR SALE: Duroc Jersey swine, choice breeding good quality (either sex). S. C. W. Leghorn cockerels \$1.50-\$3. Buff Rock cockerels \$2-\$3. John McNicoll, Station A, R. 4, Bay City, Mich.

Duroc Sows and gilts bred for Mar. & Apr. farrow. King The Col. Defender and Oakland Fancy families. E. D. Heydenberk, Bell Phone, Wayland, Mich.

PINEHURST DUROCS. Choice fall boars. One great yearling boar. Choice Yellow Dent Seed Corn for sale. Orlo L. Dobson, Quincy, Michigan.

Duroc Jersey Boars Aug. and Sept. farrow 18 and 20 Reg. and Del. Good ones. J. R. Hicks, St. Johns, Mich.

Duroc Jersey Boars, Gilts bred for April pigs. Summer and fall gilts. J. H. Banghart, East Lansing, Mich.

Duroc Jerseys Fall boars ready for service, sired by a son of Orion Cherry King and a Volunteer also book orders for spring pigs, pairs not akin. F. J. DRODT, Monroe, Mich., R. 1.

RAISE CHESTER WHITES Like This the original big producers

I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, R. F. D. 10, Portland, Michigan.

CHESTER WHITES Gilts bred to farrow in Feb. or March. Fall pigs, either sex. F. W. ALEXANDER, Vassar, Mich.

CHOICE BRED GILTS Bred to Big Prince 56002, sired by Wildwood Prince 1110 lb. 3 yr. Grand Champion at Iowa, sold for \$50. Ship C. O. D. J. Carl Jewett, Mason, Mich.

O. I. C. and Chester White Swine, all ages. A few either sex, sired by Crandell's Wonder, Grand Champion at Ohio State Fair, Schoolmaster the champion of champions and highest price paid for the breed and others. Get a sow bred to Gallaway Ted Grand Champion Mo. State fair, we are booking orders. We had the undefeated breeders age herd at six state fairs. Get our catalogue, buy the best it pays, we have them. We ship on approval. Rolling View Stock Farm, Cass City, Mich. R. 2

O. I. C. & Chester White Swine

Strictly Big Type. Five gilts bred for Apr. & May farrow. Bred to good boars as there are in the breed. Have a fine lot of fall pigs that I can furnish, in pairs not akin. Newman's Stock Farm, Marlette, Mich. R. 1.

O. I. C. Yearold boar 2nd prize winner at Grand Rapids fair also spring gilts and boars ready for service. A. J. Barker, Belmont, Mich. R. R. 1.

O. I. C's. One extra good big last Sept. yearling sow bred for spring farrow, last spring sows bred and some extra good last fall pigs, also service boars. 1/2 mile west of depot. Otto B. Schulze, Nashville, Mich.

O. I. C. SWINE: Bred gilts are all sold. Order a pair or a trio not akin to breed in the spring. Rush in your order before they are sold. Satisfaction guaranteed. A. J. GORDEN, R. No. 3, Dorrr, Mich.

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

O. I. C. Gilts bred for June and July farrow. Also boars of September farrow. H. W. MANN, Dansville, Mich.

O. I. C'S. All sold. Booking orders for the best of our winter and spring pigs. C. J. THOMPSON, Rockford, Michigan

O. I. C. Choice gilts all sold. Choice fall pigs out of White Write winning stock. A. V. HATT, Grass Lake, Mich.

O. I. C's. Buy the best and breed them better. Fall Gilts and Boars. O. I. C. OVER LEAF STOCK FARM, R. 1, Monroe, Mich.

O. I. C. bred sows and gilts all sold. A few long bodied heavy boned fall boars to offer. G. P. ANDREWS, Dansville, Michigan

NOW IS THE TIME TO BUY Big Type Poland China brood sows bred to Hillcrest's big massive herd sires for March & April farrow. Also a few choice Spring and Fall boars for sale.

Hillcrest Farm, Kalamazoo, Mich.

Big Type Poland China Fall boars and gilts, two gilts bred for May farrow. G. W. HOLTON, R. 11, Kalamazoo, Michigan

LARGE STRAIN P. C. One extra good fall yearling and a few choice spring boars. A nice lot of gilts being bred for April farrow. H. O. SWARTZ, SCHOOLCRAFT, MICH.

Large Type P. C. Gilts bred for March and April farrow all sold. A few good ones to be bred for June farrow. Also some good fall pigs either sex. W. E. LIVINGSTON, PARMA, MICH.

Poland Chinas. As big, as good, as grow in Iowa. Herd headed by Gollath farrower. I can please you. Robert Martin, R. 7, Hastings, Michigan

Large Type Poland China Bred Sow Sale, Feb. 20, '17 Write for catalog. W. J. Hagelshaw, Augusta, Mich.

Big Type Poland China Gilts, bred for April farrow, with size and quality. A. A. WOOD & SON, Saline, Michigan

BIG Type Poland Chinas. Choice April boars, fall pigs in pairs. Chance to get started for a little money. Big Minora Cockerels. Satisfaction guaranteed. R. W. Mills, Saline, Mich.

Large Stiled Poland China sow bred, fall pigs, either sex. Young Shorthorn cow and four month bull calf. Robert Neve, Pierson, Michigan

POLAND CHINAS bred gilts all sold, still have some choice fall pigs of large and medium type, at farm prices. P. D. LONG, R. 8, Grand Rapids, Mich.

10 Yorkshire Gilts, 2 Boars one mature; Red Polled cattle. E. S. CARR, Homer, Michigan

HALLADAYS' HAMPSHIRE 5 tried sows, 2 yearling boars, for immediate sale. Fall pigs. O. H. Halladay & Son, Clinton, Michigan

Hampshire Swine. Bred Sows and gilts for August and September farrow. Spring pigs, sex both. FLOYD MYERS, R. No. 9, Decatur, Ind.

HAMPSHIRE HOGS all sold out. would sell one herd boar and book orders for spring boar pigs. John W. Snyder, St. Johns, Michigan, R. 4.

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Additional Stock Ads. on Page 339



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