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Practical Farm Bookkeeping By C. P. REED

MANY farmers start in keeping books on January 1, and then forget it along with other equally commendable New Year's resolutions. We are prone to think of these things more strongly at the close of the year than at any other season. The calendar year is not the natural fiscal year for the farmer and should seldom be used as such. The great objection to starting accounts January 1 is that a large part of the crops are marketed between November and April and the season's business cannot easily be closed up until these are marketed. The farmers who are wintering a barn full of stock necessarily have a large amount of grain and fodder on hand and find it difficult to make a satisfactory inventory in January.

The best time to start farm accounts is just before the work on a new season's crops can begin, as the feeding supplies are low and the winter sales of crops and animals have been made. There is less possibility of error in an inventory taken at that time and it can be done more quickly. This is the beginning of the natural fiscal year for the Michigan farmer, and in most cases should be March 31 or a few days earlier. Some who have fattening stock to turn off may want to wait a little longer, especially if spring is late, but in most cases it is better to take the annual inventory and start the account of the new year in time to have it done before the earliest date of starting the spring work.

Many account books are on the market, but most of these are devised by office book-keepers who do not realize that farm accounts are simple and must be simply handled. Each author of these feels that his system will meet the long-felt want and will immediately become popular, but such does not prove to be the case. The book that will meet the needs of all classes of farmers on all kinds of farms is an impossibility and never will be invented. The loose leaf system was thought by some to be sufficiently adaptable, but even that has not met with favor.

The only practical way is for each farmer to decide for himself the accounts he wishes to keep, then get a day-book such as is commonly sold for twenty-five to thirty-five cents each, and fix it up to meet his own needs. If he has clearly in mind at the start what he wants his books to tell him at the end of the year, he will have no difficulty in doing this. If he wants simply a memorandum of cash and other transactions it is a very simple matter, but something more than this is needed. An account that can serve as a memorandum and still be in shape to be easily summarized at the end of the year is worth three times as much as the daily memorandum and takes no more time if properly started. To properly start a system of this kind, all that is necessary is to classify at

the start the accounts to be kept and make a heading at the top of each page indicating the account to be kept on that page. When this is done, thumb stickers purchased at the drug store for ten cents can be attached at the margin of the page as a dog-ear index, or an index can be made at the beginning of the book if the pages are numbered. When the accounts are thus classified it is easy to record from day to day each transaction in its proper place. If this is done, the summary at the end of the year can be made very quickly. This summary and the conclusions that can be drawn from it, which will aid in determining the future policy of managing the farm, are the really worth while things that come from book-keeping.

Anyone who has not kept accounts in this manner will find it very interesting and profitable. For the first year or two he had better follow the classification recommended by the Agricultural College. After he has used this system for a year or more he may be able to work out something which will exactly suit his needs. Until he has done this, he will be well repaid if he follows out the suggestions of the College. Their system provides for the

following summary at the end of the year:

Capital Invested at Beginning of Fiscal Year.	
Value of live stock.....	\$....
Value of machinery.....	....
Value of feeding stuffs.....	....
Value of other supplies.....	....
Value of real estate.....	....
Ready money.....	....
Total.....	....
Current Receipts.	
Sales of crops.....	\$....
Sales of fruit and vegetables.....	....
Cattle net receipts.....	....
Horses net receipts.....	....
Sheep net receipts.....	....
Hogs net receipts.....	....
Poultry net receipts.....	....
Miscellaneous.....	....
Increase in supplies.....	....
Total.....	....
Current Farm Expenses.	
Labor costs.....	\$....
Repairs (all kinds).....	....
Feeds.....	....
Threshing, etc.....	....
Seeds.....	....
Miscellaneous.....	....
Decrease in supplies.....	....
Total.....	....
Farm income (receipts-expenses).....	\$....
Five per cent on investment.....	....
Labor income.....	....

This summary shows the net income of the farm from which is subtracted five per cent interest on the total investment, and the result is the labor income or the pay the farmer gets for his own work. In addition to this he has received what living the farm has furnished his family in the way of food, fuel and shelter.

In keeping a record of expenses, it is a common mistake among farm people to charge their household expenses in as part of the farm expenses. It is just as wrong for the farmer to do this as it is for the druggist to charge his family expenses in as part of his store expenses. The College recommends that all household accounts be so classified at the end of the year as follows:

Household Expenses.	
Dry goods and clothing.....	\$....
Groceries and provisions.....	....
Education and amusement.....	....
Light and fuel.....	....
Miscellaneous.....	....
Total.....	\$....

People often think that some record should be kept of the living the farm furnishes the family. If this is done, the total amount can be added to the farm receipts and also to the household expenses. The result will then make the farmer's labor income comparable to the wages of the job holder who takes his entire living out of his salary or labor income. The Agricultural College or the United States Department of Agriculture does not recommend this as it requires a great deal more work; so much work indeed that the busy, hard-working individual finds it more bother than it is worth. The Department has collected information which shows that the farm contributes over \$500 worth of fuel, food and shelter to the average farm family, computed at farm values and not Detroit or Chicago retail prices. The summary presented above computes the farmer's labor on a basis which makes it comparable with the wages of the man who is hired by the year and furnished a house with such portion of living as the farm can provide.

Space does not permit a complete discussion of all the points involved in keeping the records necessary to make the above summary, and anyone wishing for further information should write to the Extension Department of the Michigan Agricultural College. Only a few points can be mentioned here. Net receipts from cattle are figured by subtracting the cost of any cattle purchased from the total cattle sales of the year, and to this added any increase in the value of the herd during the year. In case there is a decreased value of the herd as shown by the annual inventory, that amount should be subtracted from the sales. The net receipts from other stock may also be figured in the same way. Depreciation charges on work horses, milch cows, tools and buildings must be based on the present condition of the animal, tool or building, and probable future (Continued on page 388).



A Memorandum of Each Operation in Growing a Crop is Easily Kept.



It Will Enable the Farmer to Estimate the Cost of the Crop when Harvested.

An approximate knowledge of the cost of producing any farm product is invaluable to any farmer. Cost records are an important factor of accounting in practically all successful commercial enterprises. A simple memorandum of labor and other crop costs will be a proper beginning of cost accounting on the farm.

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CURRENT COMMENT.

The Season's Plans. Too much consideration can not be given to the season's plans by the farmer who would make the most of his opportunity this year. In this connection there is no more important phase of farm management to be considered than that of making the available labor yield the greatest possible results in marketable product. To this end it is essential that every farmer plan his season's campaign to avoid conflicting demands for labor by the crops grown so far as that may be possible. This will be difficult of accomplishment if the area of cash crops is greatly increased, as seems desirable under existing conditions of high prices and shortage of food stuffs of all kinds, hence the necessity of careful planning, since it will be difficult to increase the available labor in most cases.

At the outset it should be remembered by the farmer who makes dairying or live stock production a considerable factor in his business, as most farmers in Michigan should, that grain feeds are certain to be high in price, as well as other marketable products, and that hay, as well as other forage feeds, will probably be much higher next year than has been the case this season, so that it will be doubtful economy to cut down the area of these crops to devote a larger area to cash crops. The oat crop, when it can be put in without plowing, will prove a labor saver, and may prove exceptionally profitable this year. Corn, at present values, can be more cheaply grown than purchased for feed, and will return good profits when marketed in the form of live stock or live stock products at present and prospective values. The farmer who cuts down on these crops this year is likely to make a serious mistake, but in growing and utilizing them short cut methods should be used wherever practical. To illustrate: Very many live stock feeders have for years fed the corn crop from the shock, thus eliminating the labor of husking the grain. Where silos are unavailable for the preservation of this feed, this method has been a labor saver, and of late years the plan of permitting the fattening stock to harvest the corn themselves has grown in favor. Details of this kind are a proper subject of consideration in planning the season's work, since where such methods are followed, a larger area of corn can be grown than would be the case if old methods of harvesting were contemplated with a limited amount of labor available. This is only one illustration of the fact that if the best results are to be secured under present conditions, precedent must be abandoned as a guide for the

future, and future plans be made wholly with regard to present rather than past conditions.

This is, of course, an individual problem for every farmer. No general plan of campaign can be successfully outlined which will apply to even a fair percentage of cases. For best results each individual farmer should give careful consideration to the problems involved in the conduct of a successful farm campaign during the coming season, and have his plans well in hand before the first furrow is turned for the season's crop.

The Good Roads Problem. While much progress has been made toward the solution of the highway problem in recent years, yet many details remain to be worked out before the satisfactory solution of the problem can be said to have been reached. Working under the county and township systems a rapidly increasing mileage of permanent roads have been built in Michigan in recent years.

Some of these roads which were considered permanent under traffic conditions which existed at the time they were built have since proven to be insufficient to withstand the heavy and rapidly moving traffic which they have been called upon to bear. There is no question but that with the increase of permanent road mileage in this state, the farmers over a very wide territory will market their crops over these highways by the use of automobile trucks. Roads which are sufficient and satisfactory for light traffic cannot be expected to successfully carry heavy commercial traffic of this kind, and on trunk line roads leading into our commercial centers it is becoming evident that more permanent construction than gravel or macadam roads will be necessary. Either the surface of these roads will have to be protected with an efficient binder, or concrete or other form of paving construction will have to be adopted.

The difficulties in railroad transportation which have made it necessary for many automobile manufacturers to deliver machines under their own power have increased the traffic over many trunk line roads to an extent which is calling for the solution of a similar problem on many of these highways. It is probable that the co-operation of the government with the states in permanent highway improvement, while covering but a small portion of the improved road mileage, will aid materially in the solution of these problems, since the engineering resources of the government will be brought to bear in the solution of these important road problems.

While it was inevitable that in a new development of this kind many mistakes would be made in the solution of new and difficult problems, yet the results are perhaps more satisfactory than might have been expected in the permanent road improvement which has been accomplished in Michigan since the inception of this movement. This fact is attested by the marked change in public sentiment which is everywhere noticeable. While there are occasional communities in which a consensus of opinion among farmers would favor a return to the old system, yet these communities are the exception rather than the rule. It is everywhere recognized that the community gets more results for the dollars expended for permanent road improvement under the present system than was the case under the old road district plan. Notwithstanding the fact that road taxes are higher, yet actual results of consequence are secured for the expenditure of the money. Our roads are rapidly improving in character, whereas under the old system they were barely maintained in a very indifferent condition. With increased experience in road building, and the adoption of methods which time proves to be most practical, these

results are certain to become more satisfactory.

The Arrival of Russia. In staging a successful and almost blood-revolution at a time when their country is

involved in the greatest of the world's wars, the people of Russia have surprised the world as no other historical event has recently surprised it. That the Russian people will be warmly welcomed into the great brotherhood of democratic peoples is everywhere evident. Traditionally phlegmatic and deemed firmly bound by the precedent of centuries of repression, if not oppression, they have suddenly demonstrated their latent possibilities by a boldness and unity of action which is without precedent in the world's history.

Undoubtedly under the new order, Russia will become a greater factor in world affairs. Incidentally, this great country's possibilities in the way of agricultural production will doubtless be more quickly realized. At the same time, standards of living will be raised as they have been raised by the common people of other democracies in a manner which will largely absorb increased production.

But their task is only well begun. The people of Russia will indeed be fortunate if the task of building a new government commensurate with the needs of the people of that great country is accomplished with a fraction of the ease with which the old government was deposed from power. In this struggle, the people of the United States will wish them God speed.

Constitutional Amendments. At the general election to be held on Monday, April 2, there will be submitted to the electors three proposed amendments to the constitution of the state. Two of these amendments are of a nature to be easily understood by the average voter. The first of these is a proposed addition to Article VIII of a new section to be known as section 15a providing that any drainage district established under provision of law may issue bonds for drainage purposes within such district.

The second proposed amendment is to Section 1 of Article III of the constitution, and its effect if adopted would be to give any regularly enrolled members of any citizens' or naval training camp held under the authority of the government of the United States by the state of Michigan, or any qualified elector employed upon or in the operation of railroad trains in this state, or any sailor engaged or employed on the great lakes or coastwise trade the right to vote although absent from the township, ward or state in which he resides. This proposed amendment would also give to the legislature power to pass laws covering qualified electors who may be absent from other causes than above specified.

The third amendment is of a more important and far-reaching character. This is a proposed amendment to Article X of the constitution by adding a section thereto to stand as Section 20 and to read as follows:

"Section 20. It shall be competent for the state to acquire, purchase, take, hold and operate any railroad or railroad property, belonging to any railroad or railway company in this state, heretofore organized under a special charter still in force and effect and constituting a contract between the state and said company, wherein the right to purchase or acquire has been reserved to the state, whenever in the judgment of the legislature such acquisition or purchasing is necessary to protect and conserve the rights and interests of the state under such charter or contract. Any and all debts or obligations of such company constituting a lien upon such railroad, or railroad property, may be assumed by the state; and such road or property may be leased, sold or disposed of in such manner as may be provided by law."

The effect of this section if adopted is plainly stated in its wording. The reason for its submission at this time

is in effect to provide a method for the abrogation of a special charter granted by the state under which the Detroit, Grand Haven & Milwaukee Railroad, of the Grand Trunk system, is operated, which has been a legal obstacle to the collection of taxes assessed against that road by the state, concerning which litigation has been in progress for a number of years, rather than as an entering wedge to the policy of railroad ownership in this state, since it does not apply to railroads operating under the general law.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—This last week the British and French armies in France have made remarkable inroads into the Kaiser's lines along the Somme front. For a distance of 100 miles and to a depth of twelve miles, the Teutons have retreated before the Allies. Over sixty cities and villages are included in the territory left by the Germans. The strategic military positions around Bapaume, Peronne, Noyon, Chaumes and Nesle are among the positions captured.—Further successes are attending the efforts of the British and Russian troops in Asia Minor. A wedge formed by the British crowding north from Bagdad and the Russians advancing through northern Persia to the southwest is forcing the Turks to rapidly retreat to the westward in the direction of Samara. Russians have taken Baneh, Persia, which lies within ten miles of the Turkish border.—Attempts of the entente troops to gain advantage north of Monastir in Macedonia have failed, according to Berlin reports. On the Austro-Italian front a number of attacks have been made by the Austrians, but none of them have been successful.—While several engagements in the Russian theatre of war have taken place, no important changes in the positions of the several armies operating there have occurred.

Russia is entering a new political era. The old government has been ended, and a new government under the direction of the Duma, Russia's legislative body, is now controlling affairs until an election can be held. The Duma is being supported by the army and so far as can be ascertained has the general backing of the people. Czar Nicholas has abdicated, as have also his son and Grand Duke Michael, in whose favor the Czar reposed the governmental authority. This brings the Romanoff dynasty to an end. The new government bases its policy on the following principles: An immediate general amnesty for all political and religious offenses; liberty of speech and of the press; freedom for alliances, unions and strikes; the abolition of all social, religious and national restrictions; the establishment of a constitutional assembly based on universal suffrage; the substitution of a national militia with chiefs elected by and responsible to the government, for the present police organization; communal elections, and the abrogation of all restrictions for soldiers in the enjoyment of social rights except when in active service. The former Czar is now enroute to his personal estate on the south shore of Crimea.

National.

The big railroad strike which threatened to tie up practically every industry did not materialize. Both sides have agreed to terms for the settlement of the issues existing between them. The conference committee of railroad managers early Monday morning announced it had given authority to the government's mediators to make any arrangements necessary with the railroad brotherhoods to end the threatened strike. As a result, the eight-hour day will become effective regardless of the decision of the Federal Supreme Court on the Adamson law. A joint committee is working out the details which will provide for paying the men the concessions on the part of the ten hours' pay for eight hours' work. managers are virtually what the employees contended they would gain under the Adamson law if it were declared unconstitutional.

What in all probability will amount to the overt act on the part of Germany which will bring that government and the United States into a state of war, was the submarining of three United States ships with the loss of twenty-two Americans. One of the ships was torpedoed without warning. Two of the ships were in the war zone homeward bound and were not carrying cargoes. Congress will meet on April 16 for a special session unless President Wilson now deems it wise, because of the above mentioned act on the part of Germany, to call the members together immediately.

The Oat Crop By N. A. CLAPP.

As the balmy breezes from the south begin to sweep across the ice-bound portions of the country, we begin to realize that spring-time is at hand and we should begin to plan to sow the seed for that very important farm crop, the oats. It seems that it is more than usually important this year as the amount of grain available for use is limited and the oat crop of 1917 will not only be needed to take its usual place, but the oats will be needed as soon as they can be raised, to tide over and meet the necessities of farmers until the season's corn crop can be matured.

The oat crop ranks second in number of bushels raised, and third in acreage of grains grown in the United States. It is the hardiest of the cultivated cereals grown. It is not generally appreciated at its full value and consequently it is not given the attention which it deserves and the preparation of the ground for the crop is too often done in a very indifferent manner.

Formerly the oats were looked upon as merely feed for farm horses and the horses used to carry on business in the cities. But now we know that oat meal, properly prepared, is one of the best foods we can select for use in the family, and oats as a grain can be very properly and beneficially used for all the animals kept on the farm. The oats not only give life, strength and endurance to the farm horses, but they can be used with great benefit for the dairy cows and all the growing young stock, from the colts, calves, lambs and pigs down to the chickens. While farmers are often seen looking for specially prepared feeds for their young stock and hens, they can raise right on the farm oats which are among the very best muscle and growth producers known. An enthusiast used to say that "oats will make the horses trot, the cows give milk, the young stock grow and the hens lay at less expense than any other feed known."

The Oat Crop's Requirements.

The oat crop is produced in about one hundred days from time of sowing, consequently the plant food required must be at once available. Therefore the ground must be well prepared and contain all the fertility needed in order that the crop may be well fed from the time the seed sprouts to the time that the grain is matured. A field on which corn has been raised the previous year, if it was sod ground, and well manured, furnishes excellent conditions with which to begin to prepare for the oat crop.

Oats require a large amount of moisture. Prof. King, of the Wisconsin station, found that for each pound of dry matter produced oats require 501 pounds of water. To meet the requirements of moisture should be the study of the one who is preparing the ground for the crop. We know that ground that was plowed in the fall and is soaked by water from melting snow and early spring rains, is well saturated with water. If such ground is worked down, well pulverized and the seed sown early in the spring, the conditions are favorable for a supply of moisture throughout the entire period of growth.

Next to the fall-plowed ground is the ground plowed early in the spring before the moisture accumulated early in the spring has had a chance to evaporate. It is a mistake to delay plowing oat ground in the spring. The plowing should be done as soon as the ground is in suitable condition to be plowed and then well worked before the seed is sown.

Working the ground well will have much to do toward retaining the moisture that is already in the soil. And farther, if the ground is worked to a fine tilth the small rootlets can per-

meate the mass and secure the plant food necessary to give the young plants a vigorous start.

If the ground is not too wet and soggy, it is a good plan to run the roller ahead of the drill. The roller serves a triple purpose, it mashes the lumps, compacts the soil and makes it possible to have all the seed sown at a uniform depth.

Preparing the Seed.

If one has the variety of oats he desires to sow it is an unwise plan to neglect to screen the seed well before sowing. There are small kernels, light and chaffy material that should be cleaned out in order to secure a stand of stalks of uniform size. From the small kernels will grow spindling stalks on which will be small heads, thereby lessening the possibilities of a heavy yield of grain.

Amount of Seed to Sow.

It has been found that where all of the small kernels are taken out of the seed oats, that one bushel and a half of all heavy kernels, evenly distributed and well covered, will be all that can properly stand and produce heavy heads. If the amount of seed is increased there will be a diminishing of the size of the stools and heads, and consequently a diminishing of the yield of grain.

Treating the Seed for Smut.

It has been estimated by careful observers that the annual yield of the oat crop of the country is reduced at least ten per cent by smut. That means an enormous loss. If it is not more than one-half that amount the loss is much greater than ought to be

Some precautions should be taken to prevent the treated seed from coming in contact with the smut again. Handle the seed only in clean bags or in bags that have been saturated with the formalin solution.

As a second precaution, spray the hopper of the drill with the formalin solution to make sure that none of the seed will come in contact with smut that may have adhered to the hopper when smutty grain had been sown with it.

The increase in the yield of grain and the added comfort in threshing and handling grain free from smut, will more than repay the trouble required to treat the seed.

CROP AND FERTILIZER QUESTIONS.

Acid Phosphate for Oats.

I want to sow 200 pounds of acid phosphate to the acre in oats this spring. Will it injure the germination of the oats to drill right in the drills with the seed? I have a fertilizer attachment on my drill. What kind of fertilizer would you advise to drill with corn and beans on clover sod and how much per acre? I have 500 pounds of hardwood ashes; how would you advise me to apply this to oats, corn and beans, sow it broadcast or drill it right in the drills with the seed? Would it injure the germination of the seed to have it in the drills?

Montcalm Co.

W. W.

No. 200 pounds of acid phosphate will not in any way injure the seed. If you were to use a large amount, say 1000 pounds per acre, the greater part of it should be drilled before sowing the crop but 200 pounds is all right and even more. I have used as much as 500 pounds in this way.

I would screen the ashes and mix

but more the nature of wheat than corn. I did not succeed in growing as much per acre of emmer as oats or barley. Two bushels of seed per acre is about right.

Soy Beans with Corn.

Where can I buy soy beans for seed, Hollybrooks preferred? How much seed does it take to the acre in connection with corn, mixed half-and-half? How do you inoculate the seed and where can I get the soil? This will be my first experience with soy beans. I wanted to plant them in connection with corn for ensilage.

Wayne Co.

A. B.

You can buy soy beans from any reliable seed house. Any medium variety will do. For ensilage corn eight to ten quarts is about right and the same amount of beans will be none too many.

Several people advertise inoculated soil, but if you can't get the soil you can buy the commercial culture and inoculate the seed before planting.

Seeding Alfalfa in Corn.

I have a field of about four acres, handy to the silo, upon which corn was grown for the silo last season. We plowed down a June grass and white clover sod which had been pastured for years. The soil is a gravelly loam. Now we wish to plant ensilage corn here again and follow that with alfalfa. Would it be the better plan to sow sweet clover in corn at the last cultivation and thus inoculate soil for alfalfa or would you advise sowing alfalfa in the corn, using pure culture to inoculate? Tested land for acidity last autumn and found a trace of acid. I expect to top-dress with stable manure before planting corn. I also have a field of gravelly loam, running more to clay than above, that has been cleared for five years and has produced crops as follows: Potatoes, beans, corn, idle one year, rye and sand vetch. This year it has a splendid stand of sweet clover which was sown in the rye and vetch but which smothered except when vetch was light. I want to cut this crop for hay as soon as fit, about June 1 to 10. Then I would like, if feasible, to plow, fit and sow to field peas to put in silo with corn in fall. Would this be practical? Do you think that the pea vines would grow large enough to pay in that time? If so, what varieties would you advise? Also would this leave ground in proper condition for potato crop in 1918? There is a wealth of humus in soil now and could use plenty of manure before planting potatoes.

Oceana Co.

J. J. C.

I would not advise seeding alfalfa in corn at the last cultivation. In the first place it does not give the alfalfa a fair chance. The corn takes all the moisture from the alfalfa. And again the land will be too rough or uneven for a meadow. I would prefer to seed to oats, or better, barley, the next spring, at the rate of one bushel per acre and seed to alfalfa at the same time, and I would inoculate the alfalfa by using pure culture or earth from another field. If you found even a trace of acid I would use two tons of ground limestone per acre. You can use the lime this season or next spring before you sow the oats and alfalfa, preferably this spring.

Soy Beans Better than Peas.

It will be too late in the season for peas. They should be sown early, but soy beans will come just right and will come just right and will be quite as satisfactory. The soy beans would leave the land in good condition for potatoes the next year, fully as good as peas, and I think either crop would be all right to follow with potatoes.

Best Way to Apply Fertilizer.

Kindly advise me in regard to sowing fertilizer with beans, as some think the fertilizer rusts the beans. Is sowing seed in drill with the fertilizer as good practice as sowing fertilizer with a distributor made for sowing fertilizer only?

Iosco Co.

G. B.

The very best tool we have to apply fertilizer is a grain drill with fertilizer attachment. This tool distributes the fertilizer evenly and at the same time mixes it with the soil. The fertilizer distributor is all right but it does not mix the fertilizer with the soil like the drill. And the land should be harrowed at once.

If the weather is dry sometimes fertilizer seems to injure the germinating



Good Seed and Good Culture Make for Crops Like This.

tolerated. The loss can be prevented by treating the seed before sowing. The formalin treatment seems to be the popular one of late years.

One method of treating the seed is to select a clean place on the barn floor, put the oats in a pile and sprinkle with a solution made of one pound of formaldehyde (slightly less than one pint) to forty gallons of water. It will take about one gallon of the solution to a bushel of the grain. The grain should be thoroughly mixed by shoveling until all is saturated with the solution. Immediately after shoveling and mixing, shovel into a pile and cover it with sacks wet with the solution. Allow the grain to remain covered at least two hours before spreading it out to dry.

Another method of treating the seed is to take an open topped barrel or large tub, put forty gallons of water into it, and put into the water a pint of the formalin, and stir thoroughly. Put the oats into loose gunny sacks and suspend sack and all in the solution, kneading the sacks to be sure that all the grain is saturated with the solution. The grain should be left in the solution only long enough to make sure that all has been wet. As soon as treated in this manner the grain can be spread out to dry before sowing if it is to be sown with a drill. If it is to be sown by hand it can be sown while yet moist.

them with the acid phosphate, one-third ashes and two-thirds acid phosphate and put them on when I sowed the crop.

This would be a good fitting for corn or beans on a clover sod. The clover sod ought to furnish enough nitrogen for the crop.

Growing Emmer in Michigan.

After having missed a year of the Michigan Farmer, I am on the roll again, this time for three years, and glad to be back. I wonder if you can give me a little advice about the grain called speltz or emmer? Will it grow in this part of Michigan, (Grand Traverse county)? Also is the feeding value anywhere near that of corn? Both grain and straw. I have been told that it is better than corn and being a small grain it surely can be raised with less labor. I usually grow six to eight acres of corn. If advisable to do so, how much speltz ought I raise to take the place of the corn? How early should one sow it and how much seed per acre?

Benzie Co.

J. S., Jr.

I have grown emmer, both the winter and the spring varieties, but I do not believe they are in any way superior to our oats or barley for us here in Michigan. I would prefer barley for hog feed any time. One trouble in growing a new plant is that we do not know how. We haven't the machinery to sow it or handle it, etc.

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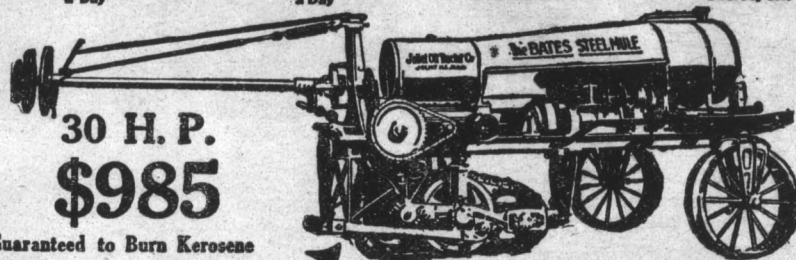


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power of the seed. This can be entirely remedied by cutting off the fertilizer in the row with the beans and sowing it through the other hoes. If you use more than 200 pounds of fertilizer per acre it is a good plan, in fact, the best plan, to drill the fertilizer before planting the beans and harrow the land, thus getting a better distribution of the fertilizer. Then plant the beans, using no fertilizer at time of planting.

COLON C. LILLIE.

THE USE OF CEMENT WITH OLD PIPE.

I have been a subscriber to your valuable paper for over fifteen years and I now have a question I would like to see answered in its columns. A few years ago I put in a water system with a storage tank on a hill. Part of the pipe used was not of the best grade but was the only grade obtainable and so I used it. Since, the pipe has sprung several leaks. Now my question is this: Would it be practicable to make a small trough or sand ditch under the pipe and then fill it with cement covering the pipe? I have thought that would make a permanent job of it. About fifteen rods would have to be treated in this manner.

Antrim Co.

E. B.

If concrete is to be used to repair a leaky system of piping it will be necessary that the cement be water-tight and that it be continuous for the entire length of the pipe which it is to protect.

Figuring on the cost of such protection, using concrete it requires a section of concrete six inches in width and depth and will therefore require about one-fourth cubic foot for each foot of length of pipe. The cost of concrete placed in this manner would probably not be less than forty cents per cubic foot, counting the cost of cement, sand and labor. This would be in addition to the cost of making the necessary excavation and forms for this work, one-quarter cubic foot would therefore cost about ten cents, which would be the cost per running foot of the pipe repaired. If this pipe is less than one and a half inches in diameter, it will be seen that the cost of new pipe would not greatly exceed the cost of the concrete. It will also be seen that it will require considerably more labor to put this in properly than pipe as it will be necessary that it be made continuous so that no cracks will be found in it. There is one more difficulty which is apt to come out after the cement has been laid for some time. Any slight heaving or settling of the pipe line will cause breaks or cracks in the cement which may cause trouble. It will also be noted that it will be difficult to put in the cement 6x6 inches in section. The probabilities are that under practical conditions much more cement would be put in than this so the cost on which we have figured is the minimum which could be expected. The probabilities are that it would be much higher as the time required to put this in would be much more than that required to lay a line of new pipe. However, if the work is to be done, a total of about three yards of gravel, four to five barrels of cement would be required for the fifteen rods of pipe. It would be necessary to mix the concrete in the proportion of about one part of cement to four parts of gravel and to place it wet so that it could be puddled in place around the pipe.

Mich. Ag. Col. H. H. MUSSELMAN.

FIELD STONES.

When I bought this farm several years ago, one of the fields close to the bay shore was in clover sod, and it looked pretty smooth with the exception of a few large stones jutting up above the surface of the land. I did not break that field until two years ago when I plowed for corn. Great was my distress and chagrin then I found many more large-sized stones lying beneath the sod. But as I was in the

midst of the spring work, I did not stop to dig them out, but went on plowing what I could, leaving the large stones alone.

When in corn, I cultivated it as best I could. Where I found large stones which were not visible before and which were located with the aid of the cultivator, I marked them with a few good-sized cobbles or one large one. In the fall after harvest I hauled the loose stones to one end of the field, but did nothing with the large ones until the following spring.

As soon as the frost was out of the ground I dug holes larger than the size of the stones, at one side of the stones and deep enough so that when buried, the stones would be one foot and a half or more below the level of the ground. Then with a pole I upset the stones into their "graves" for once and all. Here and there I found it necessary to dig until the top of the hole came up to my chin.

Instead of filling the holes up at once I left them open and when time came, I began to plow. Here more loose stones showed up that had escaped my eye the year before. Where any one of the uncovered holes was nearby, I stopped the team to rest, and gathered the loose stones and dumped them into the hole until it was full up to two feet below the level and then covered it with earth. In case the hole was not that full when I came to it with the plow I just filled it up with earth at once. Here again, the plow discovered for me a few more large stones underneath and I marked them with corn stubbles and, when the horses stopped to rest a few furrows away from the marked stones, I dug their "graves" but left them uncovered for other purposes, as you will soon see. Besides, I threw some more loose stones into them.

After the plowing came the spring-toothed drag. Of two pieces of board I made a trough which fitted between the two rear rows of teeth. As I dragged the field still more stones were exposed. I picked them up and piled them in the trough until I came to the nearest uncovered hole and dumped the stones there. In case no hole was nearby I piled them on the ground in as few places as I could. After a little practice I was able to pick the stones without stopping the horses. Of course I passed the drag around the holes and dragged the rest of the field. Then I filled the holes and dragged them and sowed the field to oats and clover. At cutting time I hired a neighbor to cut it with his binder. He declared it was in perfect condition. Now I rest easy with the knowledge that when I cut the clover this summer or plow the field it will be smooth sailing.

Grand Traverse Co.

A. A. S.

PRACTICAL FARM BOOK-KEEPING.

(Continued from first page).

life of service. In this way no positive rule can be laid down, but ten per cent of the first cost of the machinery and two per cent of the first cost of a well constructed building is not unreasonable. With the present advance in cost of materials, there may be cases where it is unnecessary to charge any depreciation.

Members of the Extension Department of the College have presented this method of summarizing farm business at a large number of institutes and other meetings and in every case it has appealed to the good judgment of the audience. Many of the farmers present become interested and receive assistance in starting their accounts from their county agricultural agent. Several of the agents report starting in their county over one hundred farmers with this system.

Editor's Note.—Mr. Reed's conclusions are based on his experience in farm management demonstration work, in which he has made a specialty of the study of farm accounting for several years.

Farm Notes

When to Apply Lime.

When is the best time to apply slaked lime or builders' lime to the land? Would it be best to apply on sod after same is plowed and work it in when fitting the land for corn? Would it help the corn? Would the lime hurt the manure which has been applied to this field and will be plowed under? Would it be better to apply the lime when fitting the land for oats next fall? Would the lime hurt the manure which is turned to the surface when plowing for oats? What is the best way to put it on, and how much should be sown to the acre?

Hillsdale Co.

H. D.

If carbonate of lime, either air-slaked lime, ground limestone or marl, is used, the best time to apply same would undoubtedly be after the land is plowed for corn this year, working the lime into the soil when it is fitted. As this is the cheapest form in which to use lime and also the best adapted to the purposes in view, it will be a better plan to apply the ground limestone this spring than caustic lime next year. Some benefit will probably be derived by the corn crop from this application, but this benefit will not be as marked as it will be with the clover crop which follows the grain crop in the rotation.

Carbonate of lime in the form of ground limestone does not attack the manure and permit the escape of nitrogen through chemical action. Caustic lime applied to the surface after the manure is plowed down would not produce any marked effect of this kind, for the reason that the lime will become carbonated before it reaches the manure which has been plowed down.

The amount of limestone which should be applied varies with different degrees of soil acidity. Under normal conditions in the writer's community two tons per acre will produce satisfactory results for at least one period in the crop rotation and perhaps for longer.

It is best applied with a lime distributor, but can be applied with a manure spreader, shovel or any other way by which it can be spread, but it should be borne in mind that good distribution is an important factor in the efficiency of the application.

Seeding Clover and Timothy without a Nurse Crop.

I have two acres of potato ground which I wish to seed to timothy and clover. If I seed it in the early spring without other grain would I get a cutting of hay this coming summer, and would it be a paying crop of hay? It is clay loam soil.

Mackinac Co.

S. B. T.

Only under exceptional weather conditions would a profitable crop of hay be secured by seeding clover and timothy in the early spring without a nurse crop. It would be more profitable to seed same with a thin seeding of oats, since the crop secured would ordinarily be more valuable than would the forage secured from the hay crop alone.

Treating Seed Potatoes for Scab.

How do you treat potatoes with formaldehyde and how long before planting them? Are potatoes liable to be scabby where there is a lot of fresh manure plowed under? Will treating them make them smooth?

Livingston Co.

M. J. M.

The most commonly used method of treating seed potatoes for scab is what is known as the formalin method. The method of application is to soak the potatoes for two hours in a solution made of one pound of formalin or forty per cent commercial formaldehyde in thirty gallons of water. This treatment should not be given until just before the potatoes are to be planted, and care should be taken that the sacks are disinfected if the tubers are to be handled in them, to prevent reinfection of the seed with the scab spores.

Potatoes are more likely to be scabby in a sweet soil which is favorable to the development of any kind of bacteria. Bacterial growth will be stimulated somewhat by the use of stable

manure, also by applications of lime, but the potato crop is ordinarily improved by such amendment in the soil, consequently it is better to treat the seed thoroughly, thus reducing this difficulty to the minimum rather than to avoid proper fertilization with this idea in view.

Seeding Sweet Clover.

I would like to ask a few questions in regard to starting sweet clover. I have ten acres of light land that had a good June grass sod on two years ago this spring, which I planted to corn the last two years. Most of it has had one application of manure and the corn has been good both seasons. Now I want to seed this field to sweet clover, a little timothy and alsike clover, to be used for pasture. Would it do to seed with a bushel of oats to the acre or would it be best to seed in April without any nurse crop? This field has never had any clover sown on it. Will it be necessary to inoculate seed?

Oceana Co.

J. B. P.

Under the conditions described, there is probably no doubt that a successful seeding of sweet clover with the other grasses mentioned could be secured on this land by seeding with oats sown at the rate of one bushel per acre. As a precaution, it would be well to test this soil for acidity, since if an acid condition is found, it will pay to apply lime before seeding it to the clover.

A great deal of our light and open soils which have been cultivated for any considerable period of time require an application of lime before the bacteria peculiar to sweet clover or alfalfa, and often those who make a host of the common clover, will thrive in the soil, and without the presence of these bacteria maximum success with these leguminous crops cannot be secured. Having provided the proper conditions, it will pay to inoculate the seed with a pure culture or the soil with some earth taken from a successful alfalfa or sweet clover field.

TAKING IN A PARTNER WITHOUT CAPITAL.

How can I take a young married man in as partner on a dairy farm of 150 acres? He to furnish no money the first year, but will do all the work. I have on the farm at the present time twelve head of dairy cows and four calves, also forty breeding ewes, six work horses and four colts.

Oakland Co.

P. E.

This must be largely a mutual agreement between the parties. There is no established rule about such things. The young man should have a chance to make more than ordinary wages because he takes chances with you. His earnings depend on the season as well as you. This makes it different from the ordinary hired man who assumes no risk whatever.

Ordinarily the land draws one-third, the tenant finding all the stock and tools. If each furnishes equally the stock and tools kept in good shape, the farmer ought to have three-fifths to the tenant's two-fifths. If the farmer furnishes everything but labor, the stock and tools should be kept of equal value, all expenses paid and each get one-half of the net proceeds.

If the farmer gives general supervision then this should be taken into consideration. The best way is to have the tenant furnish all stock and tools, he will take better care of them, but of course this can not always be done. In such cases it should be fixed up some way so as to give the young man a chance.

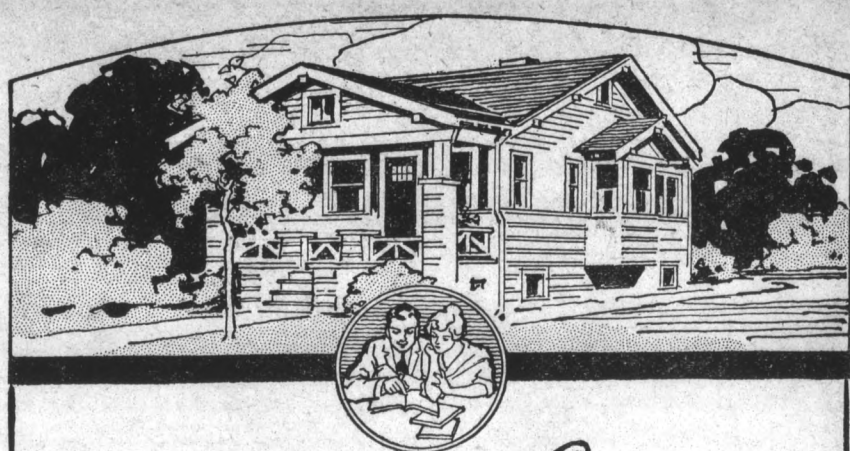
COLON C. LILLIE.

EXPERIENCE WITH CONCRETE GRANARY FLOOR.

In answer to question about concrete granary floor, would say that I put in a concrete granary floor in 1912. I used stones to fill in with, about two feet, and used four inches of seven to one concrete, and two inches of three to one concrete for surface. I would say that there has never been any seepage of moisture and I never have had grain spoil in the four years of use.

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The Spraying Equipment

THE effectiveness of spraying depends to a considerable extent on the character of the rig and appliances. The amount of work done is often governed by the size of the rig, and the thoroughness on the kind of nozzle used. The most work is not always done with the largest rig, or are the highest trees reached with the longest spray rods. In the earlier days of the power sprayer it was found that there was yet considerable work that the old hand-pump would do to good advantage. In spraying the peach orchards in the early spring when the ground is soft it is possible at times to go over as much as twelve acres, and sometimes with younger trees twenty acres in a day. It is also found more convenient in spraying pear and plum orchards at that time.

A good hand-pump in a 100-gallon tank was mounted on a substantial platform truck and two men operated the outfit, one driving the team and working the pump and the other handled the spray rod. It was not always convenient to put two men on the rig, however, so after a time a small gas engine designed for operating a well-pump was mounted by the side of the spray tank and hitched to the pump by means of a clamp fastened to the handle, and one man could operate the rig as well as the two formerly did. This outfit has since probably put in more days' work than either of the power rigs. It has done all of the work in the peach orchards and considerable in others where the trees were not too large, and has been put in the apple orchards at times when one of the larger rigs were out of order.

Power Rigs Most Economical.

Of course, where the orchards consist largely of the larger trees the large power rig is the logical machine, but with orchards of the smaller trees, or with small orchards of large trees the lighter rig will be economical to buy. It can be made to reach the tops of the large trees but will not do so rapid work.

A matter of recognized importance

in effective spraying is the pressure carried by the pump. There are three factors governing this, the power, the pump and the capacity of the nozzles. Needless to say, the power must be adequate, and I think it is agreed that not less than a gas engine of two and a half to three horse power is called for. Then the pump must be kept in good working order. The plunger is subject to a good deal of wear and the packing must be watched. In the old style of pumps with a single solid plunger the packing soon becomes worn so that the liquid flows past it and the pressure goes down without one's discovering what is the matter. The pumps now put out by all the leading manufacturers have two upright cylinders with the packing around the outside, which can be tightened by giving a turn or two to a collar around the top of the plunger. There is a decided advantage in these, as it can readily be seen when the leak begins and can be stopped without taking the pump apart. Occasionally, too, a valve becomes stuck or obstructed and only one side of the pump works. This is always an obscure difficulty but can be detected by the needle in the gauge. This usually moves with each stroke of the cylinders, and if one side is clogged the gauge needle will only advance with the pressure stroke of the side that is working.

Convenience Necessary for Good Work.

If the screen in the suction hose becomes broken it may allow a twig to be drawn in and lodge under one of the valves and put that side of the pump out of commission. Only last spring we had a pump do this and the man ran it two or three days, doing only half the work that should have been done, and of poor quality. In buying a pump it is very safe to require tools for removing the valves, and keep them ready for use.

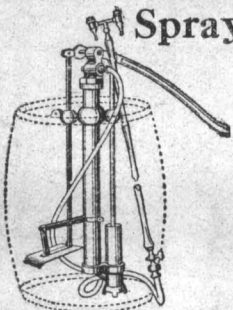
The extension rods are another most important accessory to the spraying outfit. Very long ones will not be found very practical. It is hard work to carry these long poles reaching out full length all day and few will be found doing it. The hands will be found somewhere along on the rod some distance from the end in order to balance it and only one part of its length is used very much. It is bungling to get around among the limbs as well, especially where the trees spread so as to nearly or quite meet. Dependence must be made on the nozzles to carry the spray rather than on the length of the rods. Mr. T. A. Farrand, who does a large amount of spraying in large apple orchards, has come to use a rod only four feet long. In our own practice, where we spray the peach orchards early in the spring, where we only spray one side of the trees at a time and have to depend on the wind to carry the liquid through the trees we have a brass rod four feet long that we always use. This is plenty long enough and is much easier to handle than a longer rod.

Fixing Leaking Valves.

For large apple trees a man on the ground sometimes uses a ten-foot rod, but spraying from the top of the tank we never use anything longer than eight feet. These rods should always be equipped with good shut-off valves that shut tight. They seem to wear rapidly and soon commence drizzling when shut off. If a person is ingenious they can often be ground in with fine emery dust, but it is better to throw them away and buy new when they begin to leak badly, as they will soon waste more costly spray dope than they are worth. If the rod and hose connections leak they can be made tight with gaskets cut out of a piece of leather or old rubber—and may save some unpleasant experiences with the hands.

Allegan Co.

EDW. HUTCHINS.



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A sure and easy way out of coffee and tea troubles is to shift to

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Postum has put thousands of former tea and coffee drinkers on the Road to Wellville.

"There's a Reason"

HOW TO PLANT OUR TREES.

Young trees rather than old, large ones, should be selected for planting. One-year-old fruit trees are for the most part preferable to two-year-olds. They transplant more readily and more safely. The proper depth to plant is the depth at which the tree stood in the nursery.

Young trees frequently have a tendency to subsequently tilt toward the northeast and stand crooked. This is due to the fact that our prevailing winds during the growing season are from the south and southwest, and to the partial sunscald of the south or west sides of the tree which results from heating up of the sunny side of the trunk during sunny days in late winter and subsequent sudden freezing at night. The tree should be set so that its heavier side is toward the southwest and so any sway in the trunk will bend toward the southwest. In this position the tree is much more resistant of bending away from the southwest wind, is shaded by the heavier branches on the southeast side so it is less liable to sunscald. In order quickly to determine which side is the stronger, better developed, stiffer side to set to the southwest, balance the tree across the hand as it is caught up for planting. The tree will roll over in the hand until it comes at rest with the heavy side toward the palm of the hand. Plant this side to the southwest.

Before setting, trim any ragged wounds on the roots and shorten very long roots so they will not be cramped in planting. Tramp the soil firmly from the bottom of the hole up, in setting. When the hole is filled, spread an inch of loose soil over the tramped surface so as to prevent baking and drying out.

Peach trees should be pruned back most severely of any of our orchard fruits when set. All the side branches should be cut off close to, thus trimming the tree to a single whip. This which should then be shortened to about two and a half feet in height.

Cherry trees should be pruned least severely of any of our orchard fruits. If well branched, cut out the central stem of the tree so as to leave an open center. Leave three to five main outward spreading limbs well distributed around the trunk.

The reason for pruning the peach so severely is because it readily puts out strong new limbs from the main trunk. On the other hand, the reason why the branches of the sour cherry should not be shortened is because they start growth readily from the active buds near the tip of the limb but will not produce vigorous growth from the dormant buds of the main stem or base of the limbs.

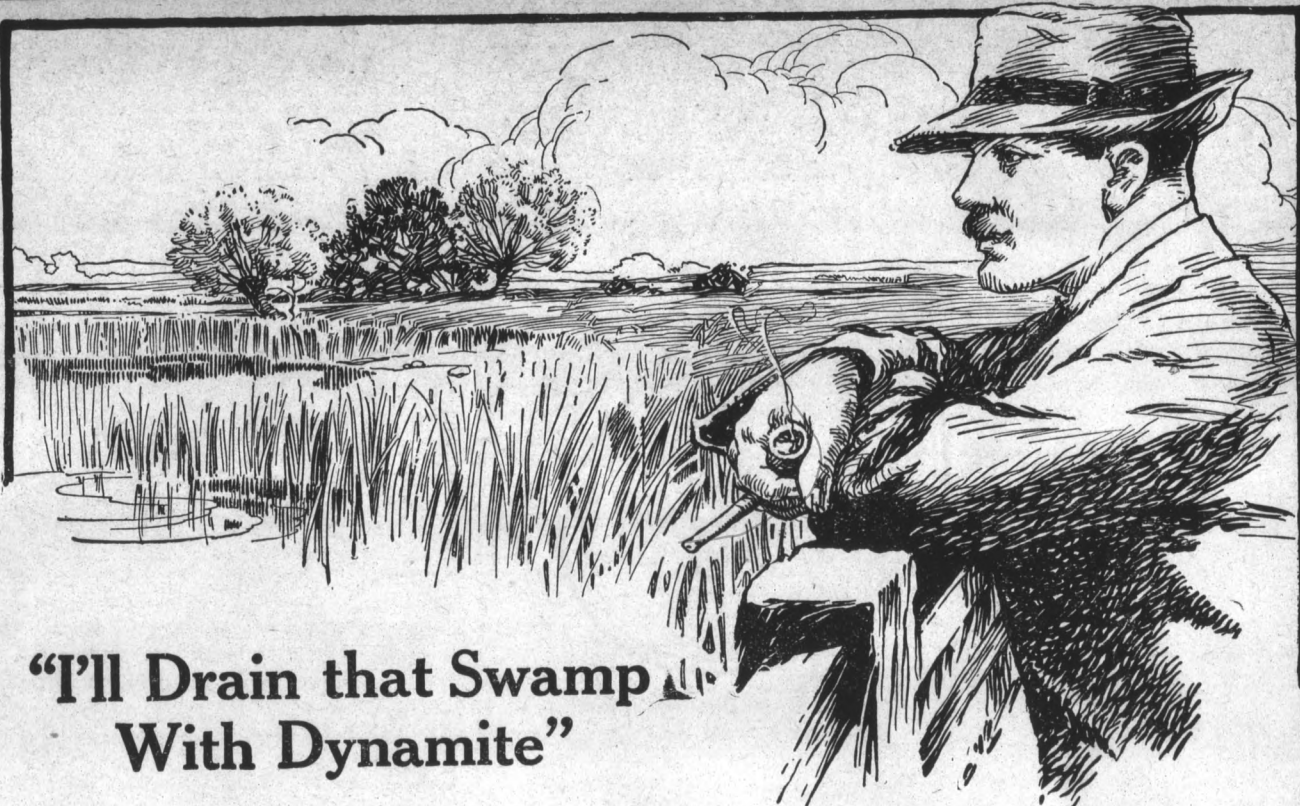
The Japanese plum tree should be shaped like the peach. Other plums, apples, and pears should be formed as follows: If the tree is an unbranched one-year-old, having a single whip, simply shorten the whip to two and a half or three feet in height. If the tree is well branched, cut out its central leader above the branching system to give an open center. Shorten back the branches which remain, one-third to one-half their former length.

Mo. Ag. Col. J. C. WHITTEN.

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The garden is the quickest and best means of reducing the cost of living. Present food prices can best be reduced by growing a new supply of food. It will take several months to produce a surplus of many food products, such as meat, potatoes, and flour. Furthermore, the effect of this surplus on the price which the consumer has to pay is doubtful.

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If there is any low, wet land on your place, land that heretofore has been unproductive, drain it with Hercules Dynamite and make it pay its way. You will find that by using dynamite you can do the work more quickly, more thoroughly, and at less expense than by any other method.

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naturally gives as good results when used for running irrigation ditches as when used in drainage work. Until you have tried it yourself or seen it done it is impossible to imagine how quickly a ditch can be run with dynamite. There is no dig-dig-dig about it. A line of charges is planted—exploded by means of a blasting machine—and there's the ditch. Or if the land is very wet no blasting machine is necessary; simply fire the center charge with cap and fuse; it will fire the next one, and so on down the line.

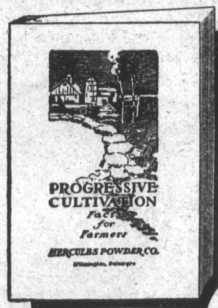
Oftentimes wet places can be drained with one charge

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If you have never used Hercules Dynamite in agricultural work write for our 64 page book "Progressive Cultivation". It is sent free on request. It tells in detail how to drain land; remove rocks, trees and stumps; subsoil; plant trees, etc., by the use of Hercules Dynamite. It is fully illustrated and is well worth reading. When you write please use the coupon below.

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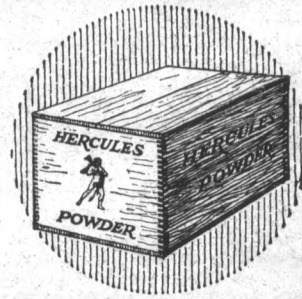
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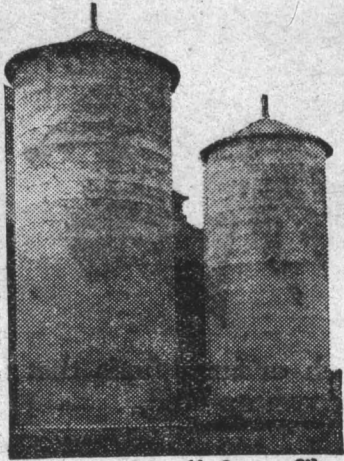
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CONCRETE FOR PERMANENCE

The Self-Feeder For Pigs

By H. E. MERN

IN the feeding of hogs there are three things to be kept in mind as the functions of the feed. These are (1) the maintenance of the animals; (2) their growth; and (3) the laying on of fat. The relative importance of these varies according to the use to which the animal is being put; but the first is always present, while either or both of the others may be absent wholly or in part. The feed which goes to supply the demand for maintenance is always to be considered a fixed expense, and where growth or fattening is the primary result sought the portion of the ration which goes for maintenance should be made as small as possible in proportion to the rest. Or it would perhaps be better to state the point the other way about and say that the portion of the ration which goes for growth or fat should be made as large as possible in proportion to that for maintenance. With such a statement of the case it follows that so long as the ration is used efficiently and the pig's digestion does not break down the heavier the ration fed the greater will be the gains made and the less will be their cost. Greater care must be exercised to prevent the break down of a pig's digestion if he is to be used for breeding purposes than if he is to be fattened and butchered because in the first case he must remain healthy for a number of years while in the second case it is only necessary that he stand up under the strain until he is fat.

Scientific Hog Feeding.

In that part of the country, the corn belt, where most of our hogs are raised and fed these facts are pretty closely observed. Animals which are being merely maintained from one period to another for breeding or other purposes are fed a limited ration just sufficient to keep them in good order. Pigs which are being grown for breeding purposes are fed a much more liberal ration, which, however, is designed in character and abundance to stimulate rapid growth but not extreme fattening. Finally, when it comes to fattening hogs for slaughter they are fed all they will clean up of a fat-producing feed, and everything practicable is done to keep the appetite constantly keen.

The usual feed for this purpose is corn, and some farmers use it to the exclusion of other feeds. As suggested above, the only limit to the amount fed is the appetite of the pig. It has been found, however, that if some protein concentrate be fed in connection with the corn the appetite is stimulated and in addition the larger amount of feed eaten is more thoroughly assimilated so that the result is cheaper and more rapid gains. A good deal of the experimental work in the feeding of animals in the last twenty or thirty years has been directed toward a determination of the best feed combinations until now a good feeder can put very rapid and cheap gains on a pig. The protein concentrate usually used for this purpose is tankage.

Scientific Selection by the Pigs.

But after all this work, it has been learned that although this knowledge is of great theoretical importance it is not of great importance in practical feeding operations, for it has been shown that if pigs are allowed free access to both corn and a protein concentrate they will balance their own ration and make better gains than under the old methods with very skillful feeders. It is because of this condition that self-feeders pay in pig feeding. A neighbor last summer fed out a bunch of pigs to weigh over 200 lbs. at six months of age. This was done by feeding tankage, corn and some milk. The tankage was fed from a feeder, and the corn, while not being fed from a feeder, was kept before the pigs all the

time. Another neighbor made a bunch of pigs weigh 226 lbs. at six months. The writer does not know that the owner used a self-feeder. He did make the significant remark, though, that from the time they were born the pigs had never been hungry. These results, although not establishing any record for rapidity of gains, are certainly very much above the average for hog feeding on ordinary farms and compare very favorably with those of expert feeders. In fact, experiment station results, as suggested in the first part of this paragraph, have demonstrated that the self-feeding method, by means of which pigs balance their own rations and eat to the limit of their appetite, gives better results than are produced by feeding according to any of the established feeding standards. These results speak for themselves, and they certainly make it important for the hog feeder to look into the cost of self-feeders with a view to installing them in his lots.

The matter of feeders to handle tankage is fairly simple. Tankage is a concentrated feed which is eaten in comparatively small quantities and it works readily in a feeder. A small feeder can therefore be used and it need not embody any unusual features of construction. There are a number of such feeders on the market. When it comes to feeding corn, however, a feeder must be constructed to handle ear corn, or the corn must be shelled. The construction of a feeder to handle shelled corn is but little more difficult of course, than that of one to handle tankage. There are also feeders on the market guaranteed to handle ear corn, and the farmer can easily make one for himself. This is done by storing the corn in a rail pen. When it is to be fed out, two or three rails are taken out at the bottom on one side of the pen, and the pigs work the corn out as fast as they need it. Of course, with the feeding of ear corn there is inevitably some waste—more than occurs with the feeding of shelled corn. There seem to have been no experiments carried out as yet, however, to determine whether or not this waste is great enough to make shelling pay. Shelling does not ordinarily pay when the hand-feeding method is followed and its value with the new system is at least doubtful.

In conclusion, then, the writer would like to urge upon hog raisers a careful consideration of the merits of the self-feeding system as a means of saving labor and of getting the largest returns from the pigs and from the feed.

THE PRICE OF HAY.

An acquaintance asked me if I thought hay would bring a better price later. I think it is quite liable to. Of course, one judges other people by himself in a large way, and despite the fact that we had a large amount of hay last fall it looks now as if we would need the whole of it to get us through to pasture. Grain has been so high that we have skimped somewhat on grain and been very liberal with the hay. I think we will have enough but little or none to spare. If hay has been used liberally to any considerable extent it will not be so plentiful this spring as many reasoned it would be. Hence in May and later, hay may bring a better price. It is the only stock food that has been cheap this winter and to give a proper closing to the year it ought to advance in price.

COLON C. LILLIE.

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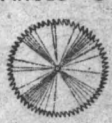


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Order saws from this Price List direct to
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ST. JOHNS, MICHIGAN

SUPPLEMENTAL FEEDS.

For several years past reliance has been placed on ensilage, stored in the silo, to tide the dairy and other stock over that portion of the summer season, when pasture feeds are not sufficient to meet the needs of the stock, and supplemental feeds have been but rarely used, and not much talked about. At the present time conditions are such that it will be necessary to devise some means by which the feeds required by the stock can be supplied. It is a rare thing to hear farmers say that they have ensilage enough to feed their stock through the spring and have any left to tide the stock over those portions of the summer when the pasture feeds will be insufficient to meet the needs of their stock. In other words, there is a general shortage of ensilage on account of the very poor corn crop of 1916.

Among the crops suggested with which to supply the summer needs of the stock, are such as can be sown very early in the spring and can be relied on to produce abundantly of palatable, succulent and nutritious feed. Oats and peas have been used in the past with great success and can be recommended at the present time. Both the oats and peas thrive during cool weather and can be sown as soon as the ground can be safely plowed and prepared.

As it requires more time for the peas to come up it has been found that to sow Canada field peas, a bushel to the acre, about four inches deep is a good plan. A few days later sow two bushels of oats to the acre the ordinary depth. The delay in sowing the oats gives the peas a chance to start and allows the two crops to come along together. A very common practice has been to mix a bushel of the Canada field peas with two bushels of oats and sow them together with a wheat drill. Satisfactory results seem to be obtained either way. If the ground is rich and moist a large amount of succulent feed is obtained. If necessary the feeding can begin very soon after the pods begin to form on the pea vines. The cutting and feeding can continue until both the peas and oats ripen. If all is not needed for summer feeding the crop can be harvested and threshed. The pea vines and the oat straw make a good quality of hay and the grain can be ground as feed for all kinds of farm stock. The combination makes an excellent feed for the horses, dairy cows and will promote a rapid growth if fed to all kinds of young stock.

Another summer crop that will furnish a large amount of feed and is relished by all kinds of stock, is sweet corn. Select a patch of ground that is very fertile. Plow as soon as the weather and ground are suitable, and fit it well. Stowell's Evergreen is a good variety to plant. Mark the ground with the bean marker twenty-eight inches apart each way and plant in hills the same as beans, using a liberal amount of seed. Cultivate frequently to keep the weeds in check. One can begin to use the fodder soon after it has tasseled out, but better results are obtained after the ears have reached the roasting stage. It is relished by the stock after it ripens. It can be cut and saved for feeding in shocks, but if piled in stacks or in the mow it will spoil.

Alfalfa and June clover are excellent soiling feeds. During the summer of 1902 conditions were such with me that I had a scant supply of pasture feeds all summer. I commenced feeding alfalfa in May and we fed the cows and young stock all summer. We also had an abundance of June clover which was kept green by frequent rains and we fed from it, between the cuttings of alfalfa. My summer crop of calves were fed inside the shed and yard and not turned to grass at all. The results were satisfactory.

Wayne Co.

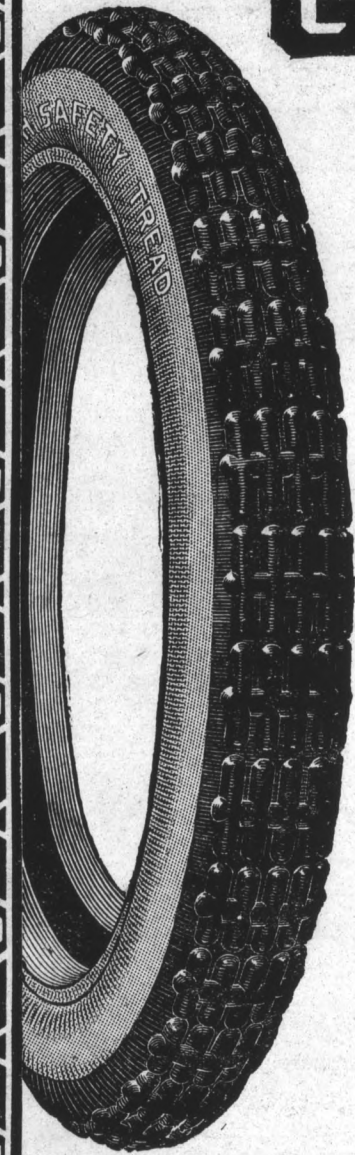
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VALVE CHAMBER
MILKER

One Throw Of The Lever Operates 2 to 50 Swinging Stanchions And Cowstops



West Bend
BARN
EQUIPMENT

WEST BEND BARN EQUIPMENT CO.
280 South Water Street West Bend, Wis.

BAG!

Goes the Milk Pail

The slightest udder sore or congestion will make a cow restless and irritable during milking, and a reduced milk-flow results. Keep the udder healthy by applying Bag Balm, the great healing ointment, to cuts, chaps, bruises, sore, cracked or injured teats. Quickly removes caked bag and a valuable aid in treating bunches and stricture.

Sold in big 50-cent packages by feed dealers and druggists. Write for free booklet, "Dairy Wrinkles."

DAIRY ASSOCIATION CO.
Lyndonville, Vt.

BAG BALM

Build But Once



Lansing Vitrified Tile Silo

Get Our Catalog

No upkeep expense—no painting—no hoops to tighten—first cost only cost—good for lifetime service—fireproof. Lap jointed blocks—twisted steel reinforcing—blocks uniform in color—continuous doorway.

Write for catalog and prices.
J. M. PRESTON COMPANY
Dept. 309 Lansing, Mich.
Also get offer on Climax Silage Cutters and Bidwell Threshers.

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.
907 Fletcher Trust Bldg.
Indianapolis, Ind.

ZYRO Metal Silos

Keep silage sweetest and better tasting. ZYRO Pure-Galvanized Iron or Black-Enamelled Silos are proof against wind, fire, shrinking, swelling, collapse and repair. Anti-corrosive, rust-resisting.

Cost less to erect

Flanged metal sheets fit easily and are fastened in place by two men. Positively air and moisture-tight. FREE BOOKLET tells whole story why ZYRO Metal Silos give best results. Write today for your copy.

The Canton Culvert & Silo Co.
Box 106, Canton, Ohio, Makers of ZYRO Corn Crib and Grain Bin.

Culling Out the Poor Cows

If we are aiming at high marks of production there is but one thing to do with the poor cow, and that is to get rid of her. But, says one, "We do not need to feed the poor cow as much as we feed the better ones. If we feed her according to what she produces, may we not get a profit from her?" Yes, we may sometimes get a fair profit out of a low-producing animal by intelligent and careful feeding. In fact, this may often be done, but after all, it remains true that the low-producing cows almost always produce at greater cost, and the most economical producers are those that give us butter-fat in largest quantity.

The worst thing about a poor cow is that there is little hope in her posterity. If we continue to keep her and raise heifer calves from her, we have with us always the problem of the poor cow. True, it sometimes happens that we may have the use of a very prepotent sire whose get will prove much better than their mothers were, but those cases are rare. Taking even our pure-bred bulls as they run the country over, dairy improvement so far as the cows are concerned will be very slow unless we weed out the poor ones, or stop raising their calves.

Good Cows Hard to Tell.

But how are we to discover our poor cows? Oh, anybody can tell a poor cow. I have told people again and again about some of mine. I have confidently stated which one of my cows was the best one over and over again, and as have you, kind reader. But I have gotten the conceit taken out of me.

Mr. Helmer Rabild, who was instrumental in organizing the first cow-testing association in America, used to like to tell how his father taught the boys to pick out the yood cows. The unfortunate thing about it was, that when the government of Denmark began testing the cows and the Rabild herd was put to the test, the cow that the old man thought was the best, was number nine down the line.

The Value of the Testing Associations.

My guessing has not been a bit better, and I doubt if any of us have much on Mr. Rabild, Sr., when it comes to picking out cows by simply looking at them.

If, then, we need to discover our poor cows and weed them out, and if the only way to do it is to test them, how shall we go about it? In the minds of some, the cow-testing association solves the problem. But does it? How many such associations have we in Michigan, and how many of all the cows in the state are tested in them? But, you say, "The cow-testing association is a new thing. Just give us a little time."

The cow-testing association offers the most practical, and the most accurate method possible for discovering what each cow in the herd is worth to her owner. If the right individual has been secured to do the testing, he will carry from man to man in the association information about feeds and feeding, and also suggestions regarding the care of the herds that will be worth very much.

This is not all. The great business of dairying will receive an impetus through such a union of dairy people as it can hardly get in any other way. The co-operative spirit is fostered, and once aroused and stimulated, it will extend to other lines of useful service.

But there are only a few communities where cow-testing associations can be organized and maintained. Right here is the difficulty—the tester can handle one herd each day, or perhaps two small ones, if they are close together. He will probably test from twenty to twenty-six herds in the entire association. No man who is competent to do this work, will consent to do it for less than six hundred dollars a year. These twenty- or twenty-six,

people, as the case may be, must pay this amount. If a man is milking from fifteen to twenty-five cows he does not object to the price, but if the community is made up of people who milk from fifteen down to four or five, then the expense is the great obstacle.

What is the Small Dairyman Going To Do?

But, do you say that the man who milks less than fifteen cows ought not to be called a dairyman? Well, we have a local creamery here that makes about 190,000 pounds of butter a year, and there were only a few creameries in the state that paid their patrons as much last year for fat as ours, and the majority of our patrons milk less than ten cows. We know one man who milks but six, and yet we call him one of the very best dairymen. There are thousands of men in Michigan who milk five or six times as many cows as he, who might learn valuable lessons from him.

Michigan is full of small dairymen, and the cow-testing association is not adapted to their needs, and yet it is important that they should weed out their poor cows. We must find some other way to do it.

It has always seemed to me that if a part of the energy that is used up in other channels could be employed in organizing the people in the community who keep but few cows, and in providing for regular and accurate samples of their milk, and the testing of it at the local creamery, or the station where cream is delivered, much might be accomplished at a cost that would be only nominal.

Home Testing Practical.

We would use our very best efforts to induce people to do their own testing. I truly believe that this is the way in which most of this work will finally be done.

I am ready at any time to unite with my neighbors in a cow-testing association. But I realize fully that we can do the testing right at home for a tenth part of what it would cost us otherwise. Last night while two of us did the chores, the other made the test. It was all done by the time the writer had gotten his part of the chores out of the way, done just as accurately as it could be done, and it did not cost us more than thirty-five cents in time and money. A pretty small sum to invest for the knowledge that so many men want, but never get because they can not seem to wake up.

As a class, we shall never get very far in the improvement of our herds until we discover our poor cows and realize the truth about the probable future of their calves. It is just as necessary that we should know the value of the exceptionally good cow coming from a good family of cows. We shall not dispose of all our average cows at once, even if we know them to be such, for if we were to do so it would mean that many of us would have no cows left, but we shall all endeavor to obtain a few good ones indeed and shall raise their daughters from good sires.

And those average cows which we keep because we have nothing better, after we know what they are, we shall be able to feed more intelligently. No man can feed to the greatest advantage to himself until he knows what each cow is doing. As we stated in the beginning, the high-producing animal almost always produces at lower cost and the poor cow nearly always makes us pay dearly for the little she does, but if we know her, we can greatly modify conditions in our favor. Again and again people in cow-testing associations have found that certain cows were fed at a loss, and by changing the ration adapting the amount of feed to the work performed they have put the balance on the right side.

Oceana Co. W. F. TAYLOR.

DAIRY PROBLEMS.

How to Test Milk for Butter-fat.

Please give me a correct way of testing milk and cream and tell me where I can get a tester.

Montcalm Co.

W. S.

The per cent of fat in milk is ascertained by the Babcock test. There is no other practical way. You can get a tester of any dairy supply company.

A sample of milk is taken and sulphuric acid added to destroy the casein or separate it from the fat. In other words, the fat is released or partially separated from the casein and other solids. Then, by centrifugal force the fat is forced free from the casein and collected into the neck of a graduated bottle where the per cent can be read.

The Butter Won't Come.

I have one cow which used to make nice butter, but of late I can not get butter from the cream. I have been feeding bread, cornstalks and hay. Perhaps you can tell me the cause of it; it generally looks like foam.

Wayne Co.

J. B., Sr.

I think the trouble is that the cream is not ripened and you are churning, or trying to churn, the cream too cold.

When you get enough cream for a churning, warm it up gradually to 70 degrees. Stir occasionally, so cream will be warmed uniformly throughout. Let the cream stand in a temperature of 70 degrees for 24 hours. This will sour or ripen it. Then cool it to about 62 degrees and churn. This usually brings the butter and takes the responsibility from the cow.

The Best Cottonseed Meal.

Which would be the cheapest brand of cottonseed meal to feed with silage, clover hay and corn fodder? I can get one brand that analyzes as follows: Protein, 38.55 to 41; fat 6 to 8; crude fibre 8 to 12; carbohydrates 24 to 28, at \$2.40 per 100 lbs. I can get another brand at \$2.50 per 100 lbs. that analyzes: Protein 41 to 48; fat 7 to 12; crude fibre 4 to 9; carbohydrates 20 to 30. I can get another brand for \$1.25 that analyzes: Protein 38.6; fat 6; crude fibre 12; carbohydrates 22.

Calhoun Co.

C. J. H.

You buy cottonseed meal for the protein it contains. Now, the brand containing the largest per cent of protein is nearly, in fact, always the cheapest. I should buy the \$2.50 brand.

Price of Milk for Cheese Making.

Please give us some information on the cheese question. We sell our milk on the butter-fat test. How many pounds of standard cheese will 100 lbs. of three per cent and four per cent milk make? Also what is a fair price for the making and marketing of cheese for the making and marketing of cheese? In other words, about how much per pound should we receive for butter-fat sold in the whole milk at the present time?

Osceola Co.

C. S. C.

I can not tell you just how much cheese 100 pounds of three and four per cent milk will make; four per cent milk will make more cheese than three per cent, because milk contains casein and other milk solids in proportion to the butter-fat content. Much depends on the skill of the cheese maker in being able to save all the fat and incorporate it into the cheese.

Cheese is bringing a splendid price at present and milk should be worth as much for cheese making as for butter making, or more. Creameries are now paying 40 to 42 cents, or more, for butter-fat.

How to Prevent a Heifer from Jumping.

Have any of your subscribers got an arrangement that you can put on a cow to keep her from jumping fences? I have a two-year-old heifer that will jump my 48-in. woven-wire fence with a barbed wire on top.

Kalamazoo Co.

H. S. W.

Poor pastures usually make unruly cattle. A cow seldom tries, or has any desire, to jump out of good feed. That is usually the way to stop this work. Sometimes it won't. Fix her with an old-fashioned poke. Tie her head down to her front feet.

If she seems to jump for the fun of the thing, I would sell her to the butcher. Don't sell her to a neighbor unless he is a mean fellow and you want to get even with him. COLON C. LILLIE.

DUNHAM

CULTI-PACKER

TRADE MARK REG.

10 Jobs for a Culti-Packer

Mulches Surface

The front wheels make ridges and the back wheels split these ridges and stir them over and over.

Firms Loose Soil

Wheels cut through top soil firming out air spaces in soil below. Moisture stays better in firm soil.

Crushes Lumps

Curved wheels crush the hardest lumps. Back wheels come half way between front wheels—no lumps missed.

Saves Moisture

Packs new furrows and stirs top soil to prevent evaporation.

Stops Winter Killing

In early spring it settles down the heaved soil, resets the plant and fills up frost cracks.

Cultivates Crops

Firms soil about roots, stirs surface, breaks crusts. Wheels detachable for straddling corn.

Starts Seed

Firms soil around seeds to attract moisture and make them sprout quickly.

Retards Blowing

Ridges at right angles to prevailing winds retard wind from blowing the soil.

Hinders Weeds

In newly seeded fields will set back little weeds, giving crops a good start.

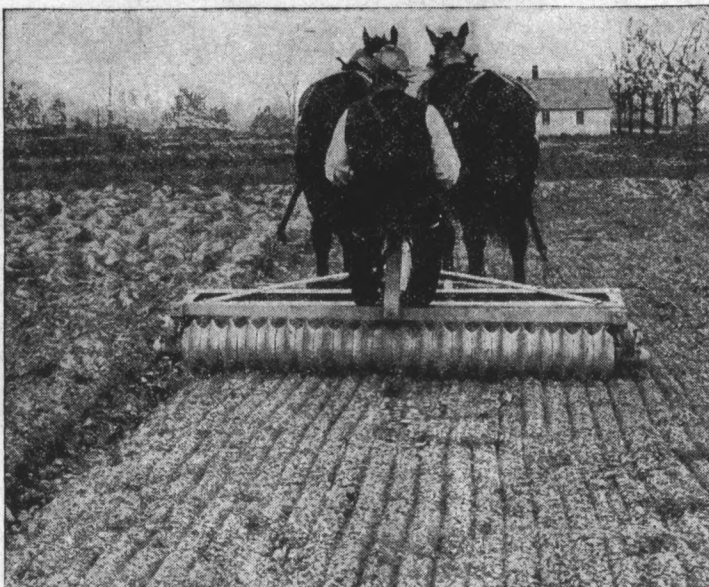
Levels Soil

Tears down high spots, builds up low places, making field smooth for harvest.

"SOIL SENSE" FREE BOOK

48 pages of fine soil photos and information on Root Growth, Seed Beds, Soil Moisture, Crop Cultivation, and special hints on many different crops.

Ask your dealer or write us direct.



More Than A Clod Buster

The Culti-Packer with its two rows of heavy semi-steel wheels crushes the worst lumps into a fine mellow seed bed, but that is only one of ten farm jobs that it will do equally well.

The farmer who uses it right will have it in the field from early spring till late in fall for one purpose or another. He will use it on every crop he grows—for preparing the seed bed, starting the seed, cultivating the growing crop, breaking crusts, saving moisture.

Read this list of Culti-Packer jobs and see what noted farm authorities have to say about it—then go to your dealer and get acquainted with this tool.

Be Sure It's A Culti-Packer

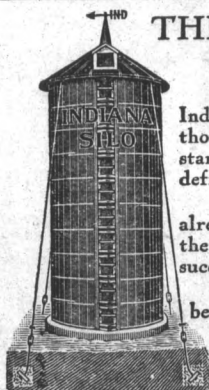
The genuine Culti-Packer has the three features listed below:

- 1 Quick Detachable Wheels
can be removed from axle in one minute, leaving a gap for straddling corn rows.
- 2 Wheels Always Split
Ridges; an arm keeps the wheels of back gang in position to split ridges left by front gang.
- 3 Dunham Roller Bearings.
The axle turns in steel roller bearings making the Culti-Packer pull easily with the average two horse team.

FOR SALE BY ALL
John Deere Dealers

The Dunham Co.

305-333 First Avenue
Berea, Ohio



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 Indiana Building, DES MOINES, IOWA
582 Exchange Bldg., KANSAS CITY, MO. 582 Live Stock Exch. Bldg., FT. WORTH, TEXAS

Send for Catalog

FARM WAGONS



High or low wheels—steel or wood—wide or narrow tires. Wagon parts of all kinds. Wheels to fit any running gear. Catalog illustrated in colors free. Electric Wheel Co., 35 Elm St., Quincy, Ill.

FOR SALE

Agricultural Limestone

running 98% pure. This lime is in ideal condition for applying to the soil, either mechanically or by hand. Write for prices in car lots or in small quantities. E. I. du Pont de Nemours & Co., Bay City, Michigan.

LIME

Pulverized limelock for "sour" soils. Write for LOW PRICES DIRECT TO YOU and we will send sample and full particulars. Write to office nearest you. LAKE SHORE STONE COMPANY, Muskegon, Mich., and South Haven, Mich.

AGRICULTURAL LIME—Northern Hydrated Limestone, also pulverized burned lime, all made from high calcium limestone. Guaranteed to be the best on the market. Your inquiries solicited. Samples furnished on request. Northern Lime Co., Petoskey, Mich.

Treated and air dried. SEED CORN With 95% Germination.

Guaranteed upon arrival. Stock complete, nine varieties. Price \$2.50 per bushel. Big Four, Silver Mine, and Swedish select seed oats, stock fine, price \$1.00 per bushel. Also Barley and Buckwheat seeds. Write for samples and circular.

The Horn Bros., Co., Seedsmen, Monroeville, O.

CLOVER SEED

Write us and we will send free sample envelopes. Then send us a sample of your clover seed and let us make you an offer either machine run or after cleaning. W. L. IRELAND & CO., Grand Lodge, Mich.

CLOVER AND TIMOTHY 4.00

46 LBS., BAGS EXTRA 25C EACH, 20 PER CENT CLOVER YOUNG-RANDOLPH SEED CO., Owosso, Mich.

For Sale Good Northern Grown, clean, disease free. Seed Potatoes, JOHN V. HARRISON, Sec'y., Manton Potato Growers' Assn., Manton, Mich.

BLUE RIDGE SILO CORN \$2.25 per bushel with sacks. Also Sweet Clover Seed. Everett Barton, Box 129, Falmouth, Pendleton Co., Ky.

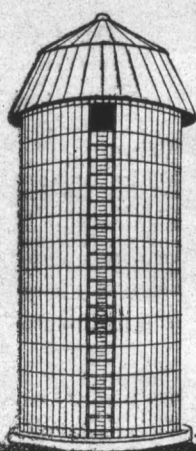
Saginaw

Buy your Saginaw Silo early because you will save money, and be sure of getting it in plenty of time for filling. Prices are going to be higher and our nation's great prosperity will add to the already serious shortage of freight cars.

Then, in buying your silo, remember that your silo is a part of the institution that made it. The service and satisfaction that it gives you must be put there at the factory. Our long established and successful business is founded on service rendered our customers.

Consider the many features of the Saginaw, and you will realize the things that are necessary in the proper construction of a silo that will bring you the greatest returns on your investment.

This year you have the choice of two different types of Saginaw Silos, the Saginaw Leader and the Saginaw Steel-Built. Each one of these silos is a standard of value for silos of its kind. Large volume of Saginaw sales, latest factory equipment, expert workmanship, guarantee every buyer utmost in value.



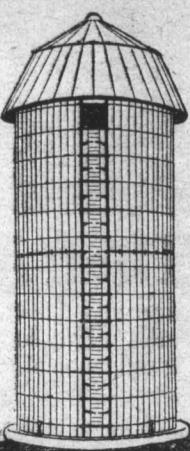
In some cases you will find the Saginaw Leader best suited to the feeding requirements of your stock. In others the Saginaw Steel-Built will be most profitable. The Saginaw Steel-Built is of exceptional sturdiness because of the steel reinforcing that is used in its construction.

You can easily find out about the success that Saginaw Silos are having by asking any farmer who has one. Write us for the name of the Saginaw salesman in your neighborhood. Address Dept. 170 and we will send you important silo feeding information.

The McClure Co.

Saginaw, Mich.

Cairo, Ill.



"How To Feed Silage"

FREE

Special 36-page chapter from famous 264-page book "Modern Silage Methods." Write for copy. Get up-to-the-minute helpful suggestions free. Also get our free catalog on Silver's "Ohio" Silo Filler. 1917 revised edition of "Modern Silage Methods" 25c, covers entire silage subject—every type of silo—how to build, 41 crops used feeding, 3-page index. 56 illustrations. Write now.

THE SILVER MFG. CO.
Box 390 Salem, Ohio

PEDIGREED OATS

Inspected under the rules of and by agents of the Michigan Crop Improvement Ass'n. These high yielding, stiff strawed varieties—Worthy and Alexander—were developed at Michigan Agricultural College and are especially adapted to Michigan conditions. Members also have for sale un-inspected barley, corn, beans, soy-beans, clover, etc. Write for list of names and prices to the secretary, J. W. Nicolson, East Lansing, Mich.

WHITE SWEET \$3.60
CLOVER 3 Per Bu.

30 LBS. UNHULLED SEED, BAGS EXTRA 25 CENTS EACH
YOUNG-RANDOLPH SEED CO., Owosso, Mich.

GUARANTEED SEEDS

Golden Glow Corn, Early and a great yielder. Choice timothy, alfalfa red, alsike and monmoth clovers. Circular and samples on request. Henry Michels, R. T. Malone, Wis.

SEED BARLEY \$2.00 BU
RECLEANED. BAGS EXTRA 25c.

YOUNG-RANDOLPH SEED CO., Owosso, Mich.

For Sale Seed Corn, Pride of Michigan, Germ. Inflation guaranteed better than 98%. Sudan grass Michigan grown. H. L. Cole, Palmyra, Mich.

Seed Corn Reid's Yellow Dent, Early Leaming and White Cap. Samples and catalog free. Theo. Burt & Sons, Melrose, Ohio.

DOGS

Fox and Wolf Hounds



of the best English strains in America. 40 years experience in breeding these fine hounds for my own sport. Save your pigs, sheep and poultry. Send 4 cents for catalog.

T. B. Hudspeth, SIBLEY, JACKSON COUNTY, MO.

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

For Sale Scotch Collie Puppies. Finely marked, sable and white, from pedigreed stock. Price \$8.
E. H. HALLER, Box 127, Hillsdale, Mich.

When Writing to Advertisers Please Mention The Michigan Farmer.

Slips Between Producer and Consumer

By I. J. MATHEWS

I REMEMBER once unpacking a barrel of apples and was amazed to find that I had asked for apples and had received a goodly supply of stones. Of course, at that time I really needed the stones for a stone wall but I was not prepared to pay apple prices for them. The stones were neatly encased in a length of stove pipe and their added weight made it appear that I was getting a barrel of Spys or some other heavy variety. Needless to say, I purchased no more apples from that same party. But that statement cannot end the case in question for the same reason that the man from whom I purchased the apples did not do the packing but he did assume the responsibility for the barrel and then passed it on to me.

When the time comes that the farmer has products to sell year after year, the time will have arrived when it is found that come-back sales are based on confidence and that increased prices are based on shouldered responsibility. The man who packed the barrel of apples mentioned above was undoubtedly one who had only a few trees in his orchard. Perhaps this was the first year in ten when he had any apples to sell and he didn't expect to have any more to sell for ten more years. Therefore he yielded to temptation and ridded his farm of stones by way of the apple barrel.

One of the biggest arguments for a particular farm being organized on a basis of having each year certain products to sell is that in the meantime, the products will have become more or less standard and there will be developed a number of business friends who will send in return orders. It is this class of orders that each farmer must cater to if he is to receive prices that are commensurate with production costs. Extended business is often spoken of as a matter of "good will" and when we come to analyze the situation closely, I feel that this statement is true. I trade with a certain grocer but because he will always make right anything that is not perfectly satisfactory. An article that we do not want, he cheerfully takes back and doesn't growl under his breath about "people knowing their own business." The grocer who does not gain and keep the confidence of his customers will find his wallet reduced to the thickness of a corn blade. This statement that sales are based on confidence applies as well to the farming business as to any other.

Responsibility is Worth Money.

Since there has been such a clamor for investigation into the ways and means of marketing different commodities, it has been definitely ascertained that the go-betweens between the producer and the consumer add to the cost price of their article because they are forced to assume both the responsibility and risk for the products they so buy. The man who buys a case of eggs assumes responsibility for the edibility of the eggs and charges a selling price in accordance with this responsibility so assumed. For instance, a man buys ten dozen eggs at twenty-five cents a dozen. He assumes responsibility and if a consumer gets an egg that will talk, it is brought back forthwith. To provide against losses of this character the selling price of the eggs is increased to the point where the risk can safely be assumed—and then some. This makes it appear that the middleman is getting unduly wealthy at the hands of the consumer.

Now, the point I wish to make is that farming will become more profitable when the farmer assumes responsibility for the thing he sells. This is not a new thought in commerce but it has not been applied to things produced on the farm until rather recent times. Various commercial houses

have proven this and they assume the responsibility for the thing that they put in the hands of their retailers and they limit the profits of the retailer by limiting the price at which the article must be sold; thus they prove that their responsibility to the ultimate consumer is worth money.

We have proven to our own satisfaction, at least, that eggs for which we hold ourselves responsible retail at a price so much in excess of "just eggs" that we are amply repaid for the assumption of this burden.

The way we do it is as follows: We secured from a local store a stamping outfit and stamp pad. Both these together cost twenty-five cents. Then we had made a stamp for the person who gathers the eggs. This cost fifteen cents, making forty cents in all. Each day, the eggs gathered are dated and stamped so that when the consumer gets his eggs, he knows just how old they are and if they are not good, he knows by whom complaints will be entertained. There is no trouble in selling these eggs at enough more to pay us for this assumption. The grocer pays us more than market prices because he knows that we stand responsible and he can therefore afford to cut the price to the consumer.

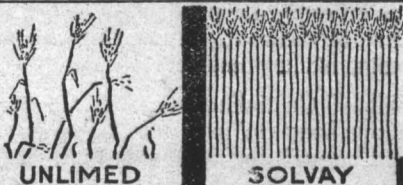
Continuous Publicity Desirable.

While it is true that most farms do not have products that can profitably bear continuous publicity, yet in the shakeup that must eventually take place, it will become a farmer's chief concern to so organize his farm that he will have some product for continuous sale, not only throughout a year but throughout a term of years. The farming business does not serve as a hand-to-mouth proposition. One cannot successfully move onto the farm this year, back to town next, and so on until he wears out the road between the town and the farm. The best advice that can be given to a young farmer is to think well before going into business. Let him ask himself many times whether he is fitted for farming as a life work and then after he has given his answer, let it be proven several times and by different methods. If he decides to be a dairyman, let him tackle a young calf and teach it to drink from a pail. If he can do this without feeling that he would like to drown the calf in the milk pail, he has at least some of the attributes of a dairyman. If he wishes to become a corn breeder, let him cultivate for three weeks under a heartless sun, behind a contrary team and in corn so high that the air absolutely refuses to circulate.

My heart goes out to the man who is a reluctant farmer, tilling the soil not because he wants to but because he must, seeing nothing in the cultivating but the drudgery of it all, seeing nothing in the cattle but the weary routine of carrying silage, dipping out grain and shoveling manure. If the business appeals in this light, shake off the dust of the farm and seek some more congenial work. Every desert has its oasis and if the oasis of your farm experience is the largest part of it, prepare to produce quality products and this through a term of years in order that you may have something that will merit continuous advertising. Advertise this product continuously, not spasmodically.

Business Methods Imperative.

Of all people, perhaps there is no one so loath to answer correspondence as the farmer. I know just how difficult it is to come in from a hard day's effort at stalking along over plowed land; then sit down with a pen in hand to answer a business letter. How great the temptation to put it off until tomorrow and the tomorrow never comes. The tomorrows that never come lose many sales for busy farm-



UNLIMED

SOLVAY

SOLVAY PULVERIZED LIMESTONE

is powdered as fine as flour. Solvay guarantees that 95% passes through 50-mesh screen. Solvay Pulverized Limestone is furnace-dried and spreads easily—two tons to the acre. Contains 94% total carbonates, and every particle dissolves into the earth, sweetening acid soil and creating maximum fertility.

Spread Solvay Pulverized Limestone now on winter wheat. Natural action of spring thaws will work in the lime. Not only will your wheat crop be benefited in quantity and quality, but the sweet soil absolutely necessary to the legume crop which follows will be provided. Order now—full information and soil advice free.

The Solvay Process Company
380 W. Jefferson Ave., Detroit, Mich.

KRAUS PIVOT AXLE CULTIVATOR

THE original Pivot Axle, a slight foot pressure moves both the shovels and wheels instantly to the right or left. Width between gangs instantly adjusted while machine is in motion. Horses furnish power, driver only steers.

Cultivates Hillsides, Uneven Land and Crooked Rows

Simplest in construction—least number of parts—nothing to get out of order. Steel frame. All castings malleable iron. Every part accessible. Built for wear and work. Light draft and perfect balance. Made in high and low wheel and KRAUS PIVOT GANG. Can be equipped with

The Akron Fertilizer Distributor

The greatest improvement in recent years. Applies commercial fertilizer while cultivating. OUR BOOKLET contains most up-to-date and valuable information. SEND FOR IT TODAY.

THE AKRON CULTIVATOR CO
DEPT. 63 AKRON, OHIO

"More Potatoes"

From ground planted secured by use of The KEYSTONE POTATO PLANTER than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc. A. J. PLATT, MFR. BOX 7 STERLING, ILL.



ers. The selling end of farming is important enough, it would seem, so that time should be taken off in the morning to attend to this important detail.

Letters should be answered promptly. Very often a letter is merely an inquiry but the very fact that some person inquires about your products is a sign that his attention is focused your way and that conviction may be had if you approach him right. I have received many letters from those having wares to sell; some of these writers seemed to realize that I was a prospective purchaser, while many of them took it for granted that I was interested in price only and the letter was merely a string of lifeless quotations. The personal element can be worked quite effectively in selling farm products. Remember that the buyer will be interested in what the product means to him, not what it means to you, and therefore don't let price quotations take up most of your letters. The price is only incidental, quality talks with most buyers and if it talks loud enough, the price is promptly forthcoming.

No farmer who has for sale articles that have been advertised can afford to be without a typewriter. The typewriter adds legibility to the letter, a cause of many failures where hand writing is used. After I have taken a half hour of perfectly good time to decipher a letter that appears more like Sanskrit than English, I usually conclude that I wasn't very much interested in the first place and forthwith dedicate the letter to the great god of fire. Typewriters can be had comparatively cheap and they make the business end of farming a pleasure where often it was a bore before. I feel this way about it: It certainly is a distasteful thought to get out a pen, ink and paper; then put a newspaper over the tablecloth and proceed to put my convictions on paper. When my convictions are bound up in such a procedure as this, I don't burden other people with them. The typewriter is, however, ink, pen, paper, newspaper and tablecloth all in one and appeals to me after a day of hard work.

Retain Carbon Copy.

Many who use the typewriter do not know the great value of carbon paper. Carbon paper is a thin membrane covered with finely divided bits of carbon or lampblack that has been dyed any color desired. I have used red carbon paper for special work but use black for most work. A thin sheet of paper is laid on the table, then the glossy side of a piece of carbon paper is laid down on the sheet of paper, then the letterhead is put on top of this and the three are put into the machine with the glossy side of the carbon paper visible on the under side of the roll. I make it a practice to take a copy of every letter I write. If the letters I receive are written on one side only, I make the carbon copy of my reply on the back side of the original letter.

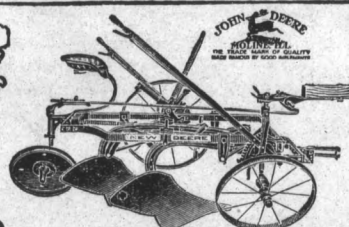
On several occasions these carbon copies have proven most valuable. Sometimes a customer claims that you made prices to him that you feel reasonably certain you never did. Reference to the carbon copy will show exactly what quotations you did make. Carbon paper may be used when writing with pen or pencil either and every farmer should provide himself with a few sheets of it so that his business affairs can be administered with more accuracy. This carbon paper can be had at almost any stationery store.

The little slips between the producer and his customers are costly and they should be avoided. Responsibility for the articles sold is well repaid by extra prices. Advertise as much as is consistent with the article produced and then sell just as advertised. The typewriter helps and the carbon paper should be made a part of every farmer's business equipment; a scrap of carbon paper has avoided many a lawsuit.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS

AND HOW TO USE THEM



New Deere Light Draft Gang Plow

For twenty years the New Deere Gang has had the good opinion of enough farmers to make it the one best seller—

The New Deere Gang is the most widely used plow of its type.

It is light draft, durable and is equipped with John Deere bottoms, known all over the world for superior work, easy scouring and light pulling qualities. It cuts and turns full width of furrow.

A simple, practical foot lift and auxiliary hand lift lever—easy to raise bottoms out of the ground.

John Deere Quick Detachable Shares—great labor and time savers. Share can be taken off easily, only one nut to remove.

And, today, it is the same plow it was twenty years ago, with the usual minor refinements added.

Correct in design, always representing the highest development of the plow-maker's art, the New Deere Gang is a leader, and has been every single year for twenty years.

Go to your John Deere dealer's and look this plow over—you will readily see why it is such a popular plow.



The John Deere-Dain System Rake

Here is what you do with the Dain System Rake:

Follow the mower closely, rake while leaves are still active and place hay upon clean stubble.

Make straight windrows, and no dumping of rake is required. There is no bunching of hay in turning corners.

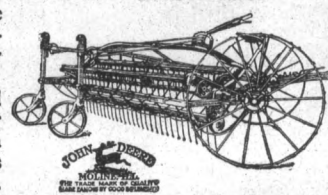
Put the hay in medium size windrows, with the bulk of the leaves inside and the majority of stems outside.

The windrows will be loose in the center for the free circulation of air. The hay retains its color and nutrition.

The John Deere-Dain System is the rake employed with the Dain System of Air-Curing Hay.

Reel raised or lowered, rake thrown in or out of gear and angle of teeth changed by means of convenient levers.

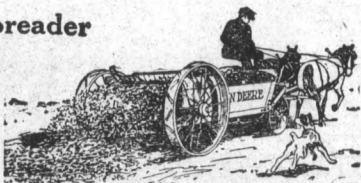
Ample capacity. The inclined frame grows higher where the windrow becomes larger—an exclusive Dain feature.



John Deere Spreader

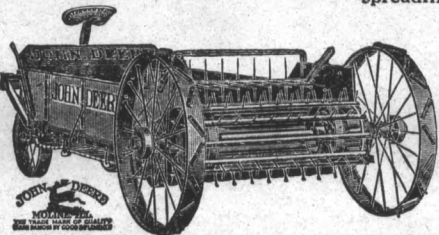
The Spreader with the Beater on the Axle

Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.



Low down, with big drive wheels out of the way. Easy to load. Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron—drive—a new and exclusive driving device. Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



John Deere Harrowing Machinery

John Deere harrowing machines have worked under every possible condition—severe droughts that resulted in

much light grain, short and irregular straw—extremely wet seasons, heavy grain, down and tangled.

However, the John Deere, "The Better Binder", has throughout maintained an unbroken record of success in cutting, binding and tying grain.

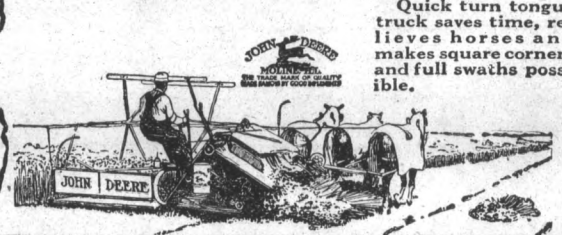
The John Deere Grain Binder has wide and high bull wheel—great power.

Main frame riveted—unusually strong.

Three packers instead of two, make better shaped bundles and save grain.

Accurate tying mechanism.

Quick turn tongue truck saves time, relieves horses and makes square corners and full swaths possible.



JOHN DEERE, MOLINE, ILLINOIS

Ancient Farming

Herodotus, in the year 450 B. C., said that good cultivation yielded two-hundredfold in the Valley of the Euphrates. Even in that land of Eden, poor cultivation yielded but fiftyfold.

In 1898, the average Wheat yield per acre in New York State was 21.2 bushels; in 1907, 17.3 bushels per acre; in 1912, but 16 bushels.

European yields are more than double.

Isn't it time for our farmers to get down to business methods? Home Mixed Fertilizers will help.

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To buy Soy Beans, Field Peas, Field Pumpkin, Barley, Buckwheat, White Cap Dent, Smut Nose Flint Corn. Mail us samples. S. M. Isbell & Co., Jackson, Michigan

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A complete garden for a one dollar bill. Texas winter field grown vegetable plants. Save you four weeks of time. Means an early garden. For \$1 you receive these plants: 100 beets, 25 cabbage, 100 carrots, 15 cauliflower, 25 celery, 100 onions, 50 head lettuce, 10 parsley. Postpaid. Thrifty plants. Send your order today. Complete catalog free.

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We want every reader to test "HARRIS SEEDS THAT HUSTLE." Send 10c. now—before you forget—for this mammoth collection. We send you 20 separate packets, finest varieties—one each of Beets, Carrot, Cabbage, Celery, Cucumber, Lettuce, Cress, Muskmelon, Watermelon, Onion, Parsley, Parsnip, Radish, Salsify, Spinach, Tomato, Giant Mixed Peas, Calendula, Cosmos; also Children's Botanical Garden, a collection of flower seeds. With this collection we send rebate check for 10c. and big catalogue of world's finest seeds. **HARRIS BROS. SEED CO., 1250 Main Street, Mt. Pleasant, Mich.**

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Our seeds are selected and cleaned to be weedless and free from dead grains. They will go much farther than ordinary field seeds, nearly always adding enough to the crop to pay for themselves. Samples and catalog including "How to Know Good Seeds" free. Write today. **O. M. SCOTT & SONS CO., 46 Main St., Marysville, O.**

BARLEY VERNON CHAMPION. Two rows. First Prize at Michigan State Fair '15-'16. \$2.00 per bushel, bags included. Order early. **MASON, MICH.**

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SCARFF'S SEED CORN

5000 Bushels extra selected and sown to grow. Finest quality. 20 leading varieties. Highest yielders. Best show corn. Wonderful ensilage corn. Also seed oats, barley, alfalfa, timothy. Samples on request. 1200 acres. Write for catalog. **W. N. SCARFF & SONS, New Carlisle, O.**

For Sale SEED OATS. New Victory just imported from Sweden, \$1.00 per bushel. **E. A. BLACK, R. 3, Howard City, Michigan**

FOR SALE Early Ohio Potatoes for Seed. Grown in the famous Red River Valley of Minnesota. **CHAS. W. RUDD & SON, 518 West Jefferson Ave., Detroit, Mich.**

Seed Oats and Corn. Best Varieties. Send for circular. **F. A. Bywater, Memphis, Mich.**

Seed Oats. Samples free. Worthy, Alexander and others. Won 2nd prize at college exhibit. **O. M. YORK, Millington, Michigan**

SEED CORN 7 varieties—90, 100 and 110 day corn, all northern grown; full line farm seeds—everything guaranteed. **C. H. & J. GRAVES, Antwerp, O. (Paulding Co.)**

INFLUENCE OF THE SEVERE WINTER UPON WORLD CROPS.

The cold wave which set in during January throughout Europe, bringing the temperature down to exceptionally low levels in many places, has done damage to autumn sown crops and has considerably interfered with field work in that month. This is the chief feature in the reports published in the February number of the Bulletin of Agricultural and Commercial Statistics of the International Institute of Agriculture.

In France plowing and sowing were perforce stopped, and nothing but carting of fertilizers was accelerated by the abnormal temperature.

In that country a noticeable decline in the area placed under cereals during the autumn of 1916 is reported. The wheat area on January 1, 1917, was only 4.277 thousands of hectares or 85 per cent of that sown at the same date in 1916; the area under rye was 828 thousands of hectares (90 per cent) and that under oats was 651 thousands (95 per cent). The only increase is in the area under barley, amounting to 10 per cent over that of 1916; this year's return is 109 thousand hectares. The condition of autumn sown crops on January 1, 1917, was lower than that of the same date last year, for wheat, barley and oats, while for rye it was practically similar. In Great Britain and Ireland heavy snowfalls with icy winds prevailed during the greater part of the month, and caused much retardation in field work. Still the crops that are above ground look well in places where the snow is not lying, but are not sufficiently advanced for the time of year.

In Italy the weather was almost as inclement as in the other two countries mentioned. The condition of crops is an average one, but the preparations for spring sowing in North Italy have been inaugurated only in a few provinces. In the peninsula plentiful rains have been generally favorable to these preparations.

In British India, the sowing season for wheat has been favorable on the whole, in spite of too much rain in certain provinces, which however do not account for more than twenty-five per cent of the whole area under this crop. On the other hand the important rice-growing regions of Bengal, Bihar and Orissa (where about one-half the yield of British India is produced as a rule) have suffered from heavy rains and floods, causing injury which cannot be disregarded. In Japan, the sowing of wheat and barley has been slightly retarded by rains.

Passing to the countries of the southern hemisphere, where the cereal harvest of 1916-17 is now completed, it may be noted that Australia has modified previous estimates and now publishes the following figures: Wheat, 39,048 thousands of quintals, or 100 per cent of the crop of 1915-16; rye, 34 thousands of quintals; barley 912 thousands of quintals; oats 3,012 thousands; maize 2,159 thousands of quintals.

The result is that the crops for 1916-17 of the two principal countries in the southern hemisphere (Argentinian and Australia) reach only 60,111 thousands of quintals of wheat as compared with 85,907 thousands in 1915-16, or 70 per cent of the last mentioned yield.

By comparison with the average yield of the five years 1909-10 to 1913-14, this year's crop is only 92 per cent.

There are no great changes observable in the results of the harvest of 1916 in the northern hemisphere.

As regards the potato crops, the Bulletin of the Rome Institute, now under review, sums up the yields of France, Great Britain and Ireland, Italy, the Netherlands, Canada, the United States and Japan with a total of 286,634 thousands of quintals, against 331,701 in 1915, and 364,578 the average of 1909 to 1913, representing respectively

86 and 79 per cent of these two figures. This is an unsatisfactory crop, especially considering that the cereal harvests have been by no means brilliant, and that potatoes are consequently more in request than formerly.

The agricultural portion of the Bulletin also includes estimates of the number of farm animals in some countries. In Great Britain and Ireland between June, 1915, and a twelvemonth later, the number of horses increased six per cent, that of cattle and sheep two per cent, while pigs decreased five per cent. In the United States, on January 1, 1917, only cattle and mules were more numerous than on January 1, 1916, while horses, sheep and pigs were very much on a par at the two dates.

MICHIGAN FARMERS CO-OPERATE.

The newly formed Grand Rapids Dairy Association, made up of the milk producers supplying Grand Rapids consumers, plan to form a \$75,000 company, and to start operations in a central distributing plant in the city on or before November 1.

The Kalamazoo Celery Growers' Association met in that city and elected the following officers: President, H. L. Schippers; vice-president, John DeLoof; secretary-treasurer, John Hybek; trustees, George Vanderveen, A. Bolle, J. Zant, and J. VanderMolen. Every bunch of celery shipped out of Kalamazoo will be graded this season. In past years only the large shipments have been graded.

The Eaton County Sugar Beet Growers' Association was formed at a meeting held in Charlotte, with W. L. Huber, of Charlotte, as president and Clifford O'Neil, of Roxand, as secretary. A chairman was appointed for each township and it was voted to enter into no contracts for less than \$8 per ton this year.

Saginaw county beet growers have been holding a series of meeting in the townships, which closed with a round-up at Saginaw. They are holding out stoutly for the flat rate of \$8 a ton.

A state association of maple syrup and sugar makers was formed at Charlotte, Eaton county, with L. D. Dickinson, of Charlotte, as president, and E. C. Mandenberger, of East Lansing, as secretary. The purpose is to encourage better methods of manufacturing as well as advertising and marketing these products. Standard grades and prices were established.

The St. Louis Co-operative Creamery Company of Gratiot county, enjoyed a prosperous year and has paid a cash dividend of two per cent, in addition to previous dividends during the year. Directors were re-elected.

An organization will be perfected on March 10, of Muskegon and Ottawa county celery growers, under the name of the Muskegon & Grand Haven Celery Growers' Association. The meeting will be held at the court house, Muskegon.

Hillsdale county farmers have done an \$80,000 business in live stock shipments from Jonesville during the past year. W. M. Glasgow is president and Grant S. Emery manager.

The Litchfield Shippers' Association of Hillsdale county, reports a business of \$106,385 during the past year under management of L. B. Eggleston, an increase of \$44,165 over the previous year. G. W. Hachings is president and H. D. LaFleur manager.

The Jefferson Dairy Association has opened a co-operative creamery at Osseo, Hillsdale county.

The Square Deal Co-operative Association in Eaton county reports that over \$12,000 has been subscribed for the elevator to be built at Charlotte.

The high prices being paid for waste paper has enabled the school children in many of the city schools to lay by considerable sums from the sale of paper collected and delivered at the schools which they attend. This money is used for various purposes, usually however, to supply phonographs, moving picture apparatus and other equipment desired by the teachers and children.

More than ten million men are recorded as killed, wounded, captured or missing thus far in the European war in the first complete tabulation of official and semi-official reports of the various belligerents as received in Washington. The entente's losses are given as 6,318,500 as against 3,384,800 for the central empires. Russia is the heaviest loser so far with a grand total of 3,084,200 men. The bulk of these losses occurred in the Mazurian Lake disaster and the two retreats from the Carpathian Mountains.

"No hill too steep—No sand too deep"

Jackson

Eight Cylinder Smoothness
Matchless Riding Ease

The Wolverine Eight will sell itself to you on facts. It is the world's greatest eight-cylinder value.

POWER—Ferro-Jackson Motor 3 x 3½ in. Delivers more power per cubic inch of piston displacement than any other motor built. Smooth, flexible, flowing eight-cylinder power—you can do a mile a minute in this car.

ECONOMY—unequaled. Does better than 17.7 miles to the gallon of gasoline. Gives 50% greater tire life because of Jackson spring suspension.

COMFORT—Easiest riding car built. You don't notice ruts, holes, etc., because the four full elliptic springs absorb all shocks.

BEAUTY—Finishing done in the Jackson shops. Takes 17 days to put body through paint shop. That's why Jackson finish lasts. See the Jackson dealer or write for Catalog.

Five-Passenger Touring Car \$1395

Two-Passenger Roadster \$1395

Four-Passenger Cruiser, including five wire wheels \$1495

Wood wheels \$100 less.

Five-Passenger Sedan (Detachable Top) including regular top \$1605

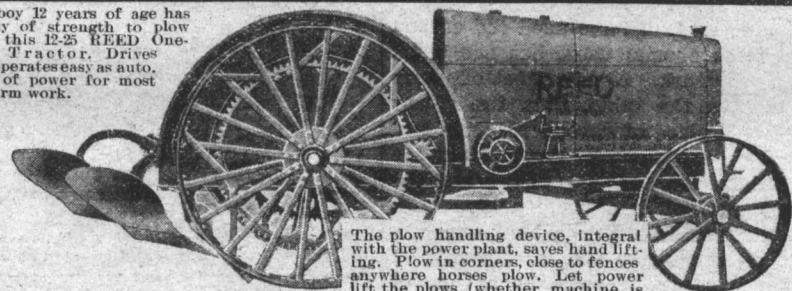
All prices f. o. b. factory.

Jackson Automobile Co.

1508 East Main Street
Jackson, Michigan



A boy 12 years of age has plenty of strength to plow with this 12-25 REED One-Man Tractor. Drives and operates easy as auto. Lots of power for most all farm work.



The plow handling device, integral with the power plant, saves hand lifting. Plow in corners, close to fences anywhere horses plow. Let power lift the plows (whether machine is moving or standing), back up, turn sharp corners, speed from furrow to furrow without hand lifting. The REED is what you have been waiting for. Investigate. Please tell who your implement dealer is, and write quick for Bulletin MI-1.

Reed Foundry & Machine Co., Kalamazoo, Mich.

Use Your Auto for Belt Power

Saw-Grind-Pump-Thresh

In two minutes **HELPING HENRY** jacks up your car and is at work—weighs only 135 lbs.—all-steel—carried on running board—go anywhere on farm or sell power to neighbors—takes place of expensive engine—costs less than suit of clothes.

Runs Hay Press—Ensilage Cutter—Pea and Clover Muller—Rice and Grain mill—Corn Sheller—Fanning Mill—Elevator—Saw-Mill—Mixer—Separator—Older Press—Washing Machine—Pump Jack—Irrigating Pump—Sprayer—Concrete Mixer. Does not wear tires—there is no slipping or friction—just like running on smooth roadbed.

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Drop a post card to factory and just say: "Send folders and prices. My car is a—." Do it today.

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Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
PUBLISHED WEEKLY
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

THE past winter a greater number of people than ever before has enjoyed the pleasure of gathering birds about premises merely by offering a few scraps of food as an attraction. The increasing interest in this work is spreading so rapidly that the number of birds commonly seen in the neighborhood of our dwellings is growing in no small way. This result points to the fact that the birds are profiting by our attempts and that they like the treatment we are giving them. It is good for us that such is the case because only by treating them as they desire to be treated can we do anything with them at all.

Homes for Our Feathered Friends

By V. E. L.

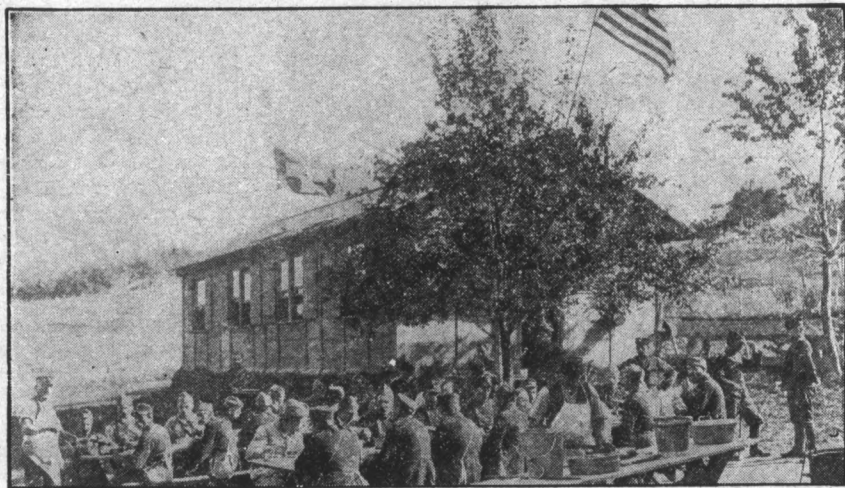
Summer is coming, however, and the birds are beginning to make arrangements for a business other than that of hunting something good to eat. The warmer the days get the more plentiful the natural food supply becomes and the less frequently will the birds call at the free lunch counter we provided for them during the winter months. There are, happily, other means of attracting birds to our homes, means that will bring in summer as good results as the food brought in

mit of dispute in the face of the fact that they return year after year and bring others with them to enjoy the safety and comfort of a ready-made house that exactly fits their needs. The amount of profit we derive from the work is strongly hinted at in the lively way we are attempting to get all the birds we can to stay with us. "Let the birds do the work," is the thought of many a wise old horticulturist who saves many dollars every year merely by attracting birds to his premises.

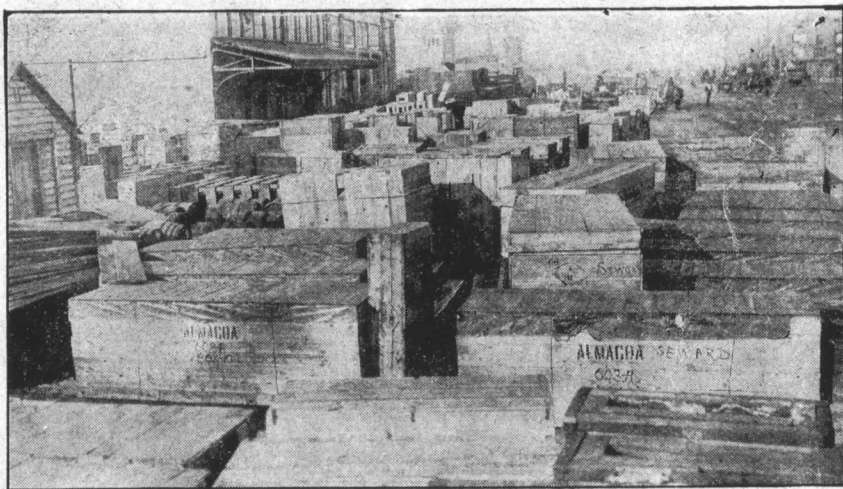
Not many years ago the house wren, the blue bird, the tree swallow and the martin composed the list of the so-

(Continued on page 404).

WORLD EVENTS IN PICTURES



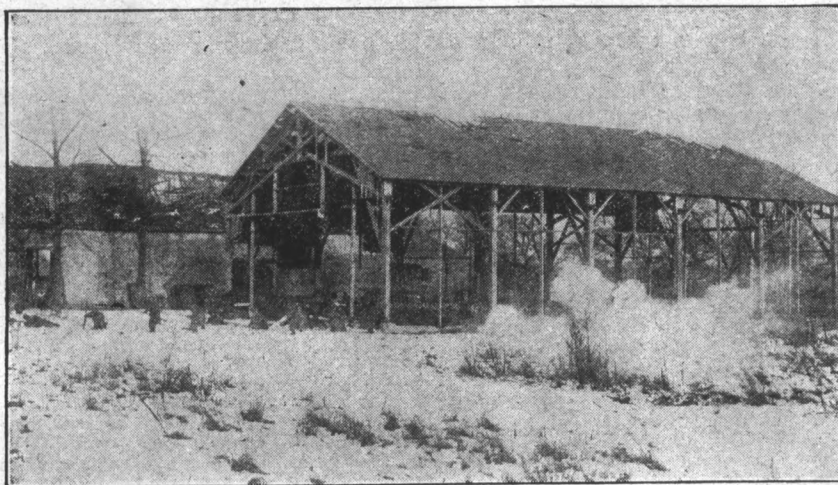
American Colony in Switzerland Presents that Country a Soldiers' Home.



New York Docks Congested with Freight as Result of German U-boat Policy.



Gen. Gomez, Leader of the Cuban Revolution, Captured.



As Shell Burst at Right Soldiers Dropped to earth to Avoid Flying Splinters.



English Women Being Instructed in Military Cooking.



Uncle Sam's Largest Aviation School Expects to Graduate 200 Men Yearly.



Iron Huts Being Used by British Soldiers on the Western Front.

A Novel Parachute

By E. R. RICE

ON the map of the T., O. & N. line Barton showed in large type.

Two things made it an important station. Because of its excellent facilities the company had built a great tank there and all trains but the fast ones stopped for water. Because of the natural beauty of the surrounding country a fine observation tower had also been erected beside the little station.

A dozen or more people usually climbed the winding stairs leading up to the observation room while their trains waited for engines to be replenished. The tower was forty to fifty feet high and the view was magnificent.

Dan Bradford the young station agent, delighted in showing all visitors the natural beauties and he prided himself on keeping the station and its grounds a credit to the line. He ventured to suggest to the officials various ways in which lasting impressions could be made on travellers and pleasing mental pictures carried away. He even went so far as to ask for a fifty-foot flag pole and a flag that would match it. When his request came in the division superintendent smiled a little and said:

"That youngster has the right idea. Send him the best flag you can find."

When the flag came and fluttered for the first time from the staff near the observation tower Dan's joy knew no bounds. Tourists were pleased with the idea and the company put into its literature a cut of the Barton Station as one of the beauty spots of the line.

But there was one man who was not enthusiastic over Dan's idea of the flag. John Proctor, the middle aged engineer in charge of the pump at the water tank was a stolid Englishman, and loyal to the land of his birth. He was a good engineer and performed his duties well, but he lost no opportunity to speak in a patronizing way of the country so dear to Dan. When the flag first went up he took it as a part of Dan's way of getting even with him and resented it.

To all of his cuts, however, Dan replied mildly and, knowing Proctor's real value, made no occasion to open a break in their friendship. Nevertheless, the open or implied sneers of the older man were trying.

"He'll come around some day," thought Dan. "But if he does not the flag stays, any how."

And Proctor did come round. The occasion which brought him will never be forgotten by either himself or Dan.

On the morning of the day it happened Proctor had been in bad spirits. Things had gone wrong with him somewhere, and he vented his ill feelings on Dan, and it was directed along the usual line of former difference. Dan had replied warmly and Proctor in a rage went to his engine house without another word. His displeasure had not worn off at noon, and instead of bringing his dinner pail over to the station as usual he went over to the hillside a quarter of a mile away.

Dan was busy all the morning, and had scarcely time to give his customary attention to the observation tower. One or two parties from morning trains had gone up the stairs and Dan had noted the untidy appearance of the little room at the top. He was anxious to put it in shape for the afternoon.

At twelve o'clock he took the report from the wires that Number Four, the fast passenger would be on time, passing Barton at twelve fifteen without stopping.

"I'll have time to fix up a thing or two in the tower," he said to himself. "Thank goodness there is no one here to bother."

He went quickly up the stairs, and

into the observation room. It was octagonal in shape and ten feet in diameter, with a window on every side.

The sash of one of these windows was loose and rattled in the stiff breeze. To give it attention Dan turned to close the trap door by which he had come up. In his haste he let it fall and when he tried to lift it again, five minutes later, it refused to budge. The clasp had sprung into position on the under side and he was a prisoner.

The novelty of his position did not alarm him for a moment for he thought that he could easily call Proctor. Then he remembered the events of the morning, Proctor's pique, and his going to the hills for his dinner. Moreover, it came to him that Number Four was nearly due.

With this thought in mind he opened a window on that side of the tower that looked out in the direction Proctor had gone. Leaning out he searched the hillside for the engineer but failed to find him. Nor did he get any answer to his calls, though made again and again.

But even then he was not alarmed for though he did not get down in time to speak the fast train the switch was set and the track clear. Number Four usually went by with a roar and a cloud of dust.

He turned to again try to raise the trap door. As he did so he heard a locomotive whistle.

"Number Four is not due for five minutes," he thought as he looked at his watch.

Again the whistle sounded. Dan started. "But that isn't Number Four. It's a train from the other direction."

Even as he looked, smoke drifted up from a train, a long freight, as it swung into view a mile away. It was on the open track and headed down grade toward the water tower. It was coming quickly on, directly in the path of the fast train due to pass Barton a few minutes later.

Dan's mind was in a whirl, shut up in the tower he could only wait for what seemed a certain, deadly crash, a terrible head-on collision.

But no! There must be some way down in time to avert it, if only he could find it.

He tore open another window and looked down. Too far. It was folly to leap forty feet to the ground. Perhaps he could reach one of the windows below. If only he had a rope.

But no rope was to be found, nor could he make one from strips of torn clothing. There was no time for that. The way down must be quicker.

He called in desperation to Proctor, but the wind that whistled around the tower seemed to carry his voice in the other direction. And then he heard the whistle of the coming flyer and caught sight of its smoke.

"A rope! A rope!" he kept repeating, and then his eyes fell upon one. There along the flag staff, fifteen feet away, was a means of escape if only he could reach it.

"Can I do it?" he cried. The stiff breeze outside blew the flag straight out from its staff. The flowing sheet whipped in the wind over toward the tower, but not near enough for Dan to reach it, the tower diverting the direction of the air current. But Dan swung open all the windows on that side and the wind sucked through. The flag swung within his grasp and with eager hand he clutched it.

With rising hope he braced himself against the window frame and pulled with all his might. But the flag was securely fastened, the rope held firm, and his effort was unavailing.

A daring thought came to Dan. Why not swing across to the pole and go down that way?

"If I can't pull it across to the tower,

it must carry me over to the pole," was Dan's conclusion.

No sooner thought than acted upon. Carefully pulling the flag toward him until he could get a firm hold with both hands, Dan raised himself out to the window ledge. Keeping his gaze fixed on the pole a dozen feet away, and scarcely breathing, he felt his feet leave the ledge. For a brief moment he hung in mid-air.

The wind swung about his ears. The fall seemed sickening as he swung down and out. The flag pole swayed under his weight and the pulley at its top creaked. The rope tightened, but held.

It took but a second, but it was hours to Dan, for his body to swing across the narrow space. The pole rushed out to meet him, but on his first swing he missed it by a foot. As he came back, like a pendulum, he threw out his arm and caught the flag rope with one hand. His other arm went round the pole in firm clasp.

Scarcely a second did he wait. With arms and legs about the tapering mast he slid quickly to the ground.

With not a moment to lose Dan dashed around the tower and toward the switch. He heard the shrieking of whistles and the grinding roar of wheels as the two trains raced forward. Too late to stop, each engineer could only hope that the friendly switch would offer refuge. With sanded rails, set brakes, and reversed engines they stared grimly ahead awaiting the crash.

As they looked Dan shot into view. Never, it seemed to him, did he run so fast. He reached the switch twenty seconds ahead of the flyer. With desperate haste he threw it open and a second later the hissing giant close behind him headed in. The engineer of Number Four divined Dan's intentions, threw off the brakes and pulled his train to safety.

The freight engineer was not so fortunate. With a heavily loaded train behind him he was forced along. Grinding, roaring, hissing, but with reduced speed, the freight engine struck the switch, just grazing the rear car of the passenger train. The great drivers plowed forward over ties and hardened road-bed for a distance of a hundred feet.

It seemed to Dan who, having done his best, had leaped aside, that the long line would never halt.

But with jar and jolt and dust-cloud the heavy box and coal cars bumped down to a full stop.

As the train crews gathered around him, Dan could only gasp out a part of the explanation. In fact, it took a long investigation on the part of the railroad officials to fix the blame for the narrowly averted disaster. But every trainman on the spot understood Dan's dash for the switch, that is, as much of it as they had seen, and they cheered him for it.

When he told them of the part the flag had played in it, they cheered again.

What Dan appreciated more, however, was the warm praise John Proctor gave him as the two, a little later, stood gazing up at the floating emblem.

"You're a great boy, Dan," said Proctor, "and you've got a great flag."

"A great flag," Dan repeated, and the two saluted it in loyal fashion.

Who Wins?

By W. K. PUTNEY

YES, that's it—who wins? Is it the fellow who says, "I don't know whether I can or not," as he goes into battle? Is it the chap who shakes his head and looks doubtful at the problem before him?

No, it is the man or woman who keeps head up and courage as high as the head. Have you ever read the histories of many of our best inventions? Did you notice that in almost every case success followed the most discouraging failure? That is a fact. Morse won only because he "stuck to it." He was laughed at just as Fulton was when he put his steamboat out into the river for its famous trip. Edison failed miserably in some of his first experiments and Columbus was ridiculed just because he said the earth was round.

We think that the fun-makers were the crazy ones when we read the story of Columbus' life. But are there not a great number of things that we would have ridiculed when they were first mentioned? What would your great-grandfather have said to see a boat go sailing up and down a harbor without anybody on board? Yet that is exactly what that wonderful young inventor and wireless student, John Hays Hammond, Jr., did. He made a vessel about the size of an ordinary motor boat go dancing up and down the waters of Gloucester harbor. He controlled that boat perfectly from his wireless machine in his work tower.

A short time ago there sailed into one of our ports a submarine carrying much needed goods for certain manufactures. It was the German Deutschland and she was the first commercial submarine to come to the United States. Yet, it was not so many years ago that folks would have talked of witches if anything like that had happened.

We are living in a different world today. We are striving to hold our own—each and every one of us. Only those who hold their heads up and fight fair in this struggle will be winners. The world does admire a hero who wins after having a hard fight to make good in the ordinary vocations of life and when that person finally does come to the top of the ladder, there is always room for him and a hearty welcome.

The Wintergreen Man

By ANNA GIRMUS

LITTLE BENNY lived with his mother in the tiny house right near the woods. They were very poor, but they had a pig, some chickens, a garden and a cow that Benny drove to the woods each morning to feed, and in the summer when people came to the big hotel near the lake and to the cottages and cabins, Benny's mother washed and ironed for them so that they got along very well.

Now Benny was a very happy little boy. When he weeded in the garden or drove the cow to the woods, he whistled as lively as could be. But one morning he walked along so still that even old boss turned her head to see if he was following. There wasn't a single smile on his face.

That morning his mother had to sit down right when she was in the middle of her washing and he saw her hold her hand to her head and the tears stood in her eyes. Benny was scared. He knew his mother was sick. If only he could do something so that she should not have to work so hard, but he was just a small boy. "What is the matter?" asked a voice right near him. Benny jumped and looked around. At first he saw no one. Then right before him, in the path, he saw the queerest little man, a regular Tom Thumb of a man, so small that Benny could almost tuck him in his pocket. He was dressed in a suit of brownish green. His coat and vest were buttoned with red, red wintergreen berries and right in the top of his green, pointed hat was a cluster of three of the biggest and reddest wintergreen berries that Benny had ever seen.

"What is the matter?" he asked again. "Why aren't you whistling? The sun is as bright as ever."

"Oh, yes, the sun is as bright as ever," said Benny, but he never smiled a bit. "My mamma is sick and I can't do anything. If only I was big."

"Sometimes, if we want to real hard, we can do things even if we are not big," said the little old man.

"But I am so small," said Benny.

"Even if we are small, we can do things, if we want to hard enough," the little man looked at Benny real earnestly.

"But I can't go to the woods and cut down trees like the men do in the winter or work in the mill in the summer," said Benny.

"Of course not," said the little, old man, "but don't look so unhappy." He picked two leaves from a sassafras bush that grew by the side of the path and made a basket of them. Then he put something in the basket. Benny could not see what it was. And he made a cover from a third leaf. It looked exactly like a big market basket when he held it in his little hand.

"There, take that home with you,"

Now the strangest thing happened. As soon as Benny took the basket in his hand, it began to grow bigger and bigger and heavier and heavier, until by the time he reached home, it was as big as a good-sized market basket and so heavy that Benny's arm was quite tired.

"I'll try to get the others to you this afternoon," he heard his mother saying to a strange lady, when he stepped into the house.

"Why, Benny! Where have you been?" she said to Benny. "I wanted you to take these clothes to the hotel. What have you got there?" she asked when she saw the basket.

"Oh, it's a basket," said Benny.

"But where did you get it? Who gave it to you?" asked his mother.

Now Benny knew by this time that the little old man was a fairy or something, but he knew that grown-ups wouldn't know so he said, "a little old man gave it to me."

"A little old man?" said his mother. "What's in it?"

"I don't know," said Benny.

So the mother raised the cover. "It's nothing but wintergreen berries," she said and was going to drop the cover.

"Wintergreen berries," said the other lady who was counting out money to pay for the washing. "And such nice ones. Would you sell some of them?"

"Of course we would," said Benny's mamma. "We have no use for them."

"I'll take two quarts and give you fifty cents a quart," said the lady. "I want some to send to a friend in the city and some for my children." And she laid a big, round, silver dollar on the table. "If you want to sell more of them, I'm certain that the people at the hotel would be glad to buy them."

"May I take them to the hotel, mamma, and try to sell them?" asked Benny after the lady had gone.

"Why, I don't care," said his mamma. "Wash your hands and face, brush your hair and put on a clean waist, first."

So in a few minutes, Benny, looking nice and clean, started for the hotel.

"There's the boy now," said the lady who had bought the berries, when she saw him coming.

"Come here, boy," called a big man, in a big voice. He was sitting in a wheel chair. "Are they real wintergreen berries?" he asked as Benny uncovered his basket.

"Yes, sir. I guess so," said Benny for he remembered how he had got them.

"Guess so," said the man in his big voice and he tasted a berry. "You should be certain."

Now the man's voice was so big that it made Benny tremble, but his eyes weren't a bit scarry.

"Best thing in the world for rheuma-

tism," he said, and because his voice was so big he could be heard all over the verandah. "Give me two quarts, boy. Can you bring more tomorrow? They are the finest I ever saw."

"Yes, sir," said Benny. "I'll try," and as fast as he could measure them out the people took his berries.

"There, mamma," he called as soon as he stepped through the door. "Look at what I have," and he held up five new, shiny silver dollars.

"That certainly will help a lot," his mother said. "Come and eat your dinner."

After dinner, Benny took his basket and started for the place where he had met the wintergreen man. "Maybe he will fill the basket for me again," he thought to himself. "Then I can sell them tomorrow at the hotel."

He found the place, but there was no little old man. He looked around carefully, but he could see nothing of the high, pointed hat with the three big berries. He looked and looked, but saw no one. The tears came to his eyes for he had been so sure that the wintergreen man would help him.

"Maybe he's farther back in the woods," he thought. So he started down the path. Two or three times he called, but he didn't know the little old man's real name. He walked on and on until he came to where he had never been before, but he saw nothing of the man. "What will I do. I promised the berries for tomorrow and I won't have a one," he almost cried.

By this time he was so tired that he thought he could not go another step, but he wanted so to see the wintergreen fairy that he could not give up.

Then, just as he was thinking that he must go back he came to a little opening in the woods and the ground was covered with the nicest, biggest wintergreen berries that Benny had ever seen.

He forgot all about the little old man and went to picking, and he picked and picked and picked, but you know wintergreen berries are small and it takes a long time to pick a basket full and the first thing Benny knew the sun went down.

He started for home as fast as he could go, but somehow he did not take the right path. It commenced to grow dark and Benny could not see a tree that he knew. Of course, he was dreadfully scared. He hurried as fast as he could, but the trees were so thick and he saw no way of getting out. He remembered about the bears that Tom Glyn had seen that winter. And there were wildcats and other things. He tried to run, but there were logs and brush in his way and the basket was heavy, if it was only half full. He didn't cry. He was too afraid to cry, but he did most awfully want his mother.

At last it was so dark he could just see the path. And then he stumbled against something dark and soft and big and furry. "A bear," he thought. He hurried to scramble up, and just as he started to run, the furry something said "moo," and got on its feet and a bell said ting-a-ling, and Benny came back in a hurry.

"Nice old boss, good old boss," he whispered, and he put his arms tight around old bosse's neck.

Old Boss stood still just a minute and then she started off. Benny followed her and in a little while they were home.

The next morning Benny took a pail and went back to the wintergreen patch and long before noon he had his basket full of berries.

Every day after that, all summer long, he would go to the woods, pick his basket full of wintergreen berries and sell them at the hotel. So that even if he was a small boy, he helped his mother a lot and she did not have to work so hard.

He looked for the little, old man real often, but he never saw him again, maybe because he did not need him any more.



Europe's many tongues and consequent misunderstandings

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cient telephone service, suffer from inadequate facilities for inter-communication.

We now talk from the Atlantic Coast to the Pacific, and eliminate more than three thousand miles. In Europe, contending with a babel of voices and unrelated telephone systems, a bare quarter of that distance has been bridged with difficulty.

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Gang of Auto Thieves Exposed

Stole Automobile From Farmer Near Albion Reward Starts Investigation

William Squires, Albion factory hand, stole automobiles as a side issue. Worked with a gang selecting automobiles in different parts of lower Michigan. He would leave his work a day or two, selecting some farmer's car, turn over the automobile which would be sold and he would get from \$10-\$50 for his share. The last car stolen was from Arthur Sine, a farmer living about seven miles from Albion. This happened to be insured, and the Citizens' Mutual Automobile Insurance Company, of Howell, offered a reward, and an investigation was started. Deputy Sheriff McCarthy, of Albion, found this car on March 12th; it had been stolen, afterwards traded to a garage dealer for a larger car; the radiator and hub caps had been painted to avoid detection.

Mr. Squires has been arrested, statements taken, which implicate a number of parties in the gang. It appears other automobiles had been stolen near Lansing, St. Johns, Jackson and many other places. It is thought that the activity of the police and the insurance companies in the cities were such that the thieves had found it easier to get away in the country districts. Many farmers are now owners of automobiles, and they are much interested in seeing the thieves punished to the fullest extent of the law.

If they obtain their rights they should organize in the country as well as in the cities, as the auto thief is starting his activities early in the year, and no doubt will continue.

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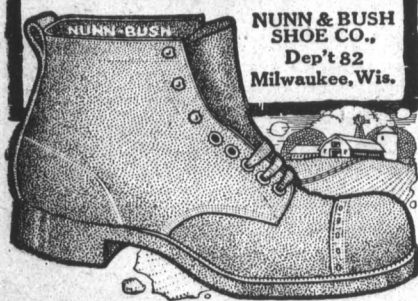
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"Mister 44" By E. J. RATH

Reaching the street, Stoddard set off at a brisk walk toward the boarding-house the address of which he had obtained from Ales. Optimism was running strong within him. He knew now to a certainty that Sadie was in Buffalo. He also knew that she needed a job so badly that there was no chance of her leaving the city, even if she desired to, until she had earned some money. He was sure he would find her, though it took days and weeks of searching.

Something else elated him. He had a new and wonderful admiration for Sadie Hicks. More than ever was she remarkable in his eyes. Now he knew the environment whence she had come. He had seen the dreary and stifling packing-room with the Shrimp and its other denizens; he had breathed the factory atmosphere, with all its cheapness and sordidness and weariness.

And out of this she had come, like some beautiful flower rearing itself above a bed of weeds, unspoiled and without the taint of it all. Back in the dismal room where she earned her seven dollars a week she had seen, not the monotonous toil and the grimness of human beings become machines, but fair visions of her big outdoors. Her mind had risen, though her body might be chained.

"She shall have her dream when I find her," he said half aloud.

The boarding-house reminded him of the factory. It was another bit of environment that had made no impress upon Sadie. It was clean, but prim and cheerless. All the hope, if any it ever harbored, seemed gone from it.

"I am looking for Sadie Hicks," he told the landlady, who was lean, tired-looking and "particular" about her lodgers.

"She left last week," was the answer that accompanied a swift and suspicious inspection of his person.

"Been back?"

"Come here yesterday afternoon, but her room was let. I don't have rooms standin' idle in my house."

"Any idea where I can find her?"

"No."

The door closed simultaneously with the answer.

Stoddard lost a shade of his optimism. Finding Sadie might not be so simple after all. He walked slowly down the street, his head bent and his forehead wrinkled. Occasionally he bumped into people, apologizing perfunctorily. Most of them started after him.

Just what to do next puzzled him. He thought of returning to the factory and maintaining a vigil, in the hope that Sadie might return, having failed elsewhere to obtain anything to do. But he decided this was too negative a method and that in any event the time for it had not arrived.

His costume was a handicap and an annoyance, he soon discovered. It attracted disconcerting attention. Also, he was embarrassed for lack of money. His capital was now eighty-five cents.

On revisiting the telegraph-office he was disappointed to find that as yet there had been no answer to his wired request for money. They told him to drop in later.

After that he did a great deal of walking, up one street and down another, with no very definite purpose in view. He bought several newspapers and studied the "want ad" pages with a view to getting an idea of what sort of jobs girls in a big city looked for. This led him to the plan of advertising for Sadie, which struck him as rather brilliant and simple. She would surely be reading the want columns,

he thought. But he could not advertise until his remittance came.

Then he thought of Sadie and the movies and made a resolve to keep close watch upon the gaudy picture-palaces that evening, although he was not sure that in her present financial straits she could afford to spend nickels on luxuries.

If all else failed he conceived the scheme of sending out a general movie alarm; he would have an appeal to Sadie flashed on every picture-screen in Buffalo. But this, too, was a matter for future consideration. His case was not yet so desperate.

Stoddard was hungry. He counted his money. Four cents invested in newspapers left him eighty-one cents. As it was mid-afternoon he decided to eat.

Several restaurant windows made alluring appeals to his eyes, but not to his finances. He wanted something cheap. He decided not to spend more than a quarter on his meal.

At last he found his place. Standing on the sidewalk was a sign that related the entire menu—all sorts of combinations "with coffee, tea or milk." He studied the list with the determination to obtain the maximum of bulk for his money. Two fried eggs with bacon, rolls, butter, and coffee, all for a quarter, sounded a good deal like breakfast, but he was not particular. He went inside.

The place was narrow and dingy with tables huddled in close array against the walls. A girl cashier inspected him as he passed the desk and curled her lip. The Royal boasted no swells among its patrons; yet on the other hand it rarely descended to the entertainment of wild men in tatters.

Stoddard seated himself at an unoccupied table, gave his order to an impatient and indifferent girl, and began contemplating the passers-by without. He grudged the minutes required to fry his eggs; they were so many lost in his quest. He heard the man behind him complaining of delayed chops and heard a waitress answer that she was not "his" waitress but would convey his sentiments to the kitchen.

The next thing Stoddard became conscious of was a tremendous crash of dishes directly behind him. Coffee from a shattered cup spattered his boots. Two wan-looking chops slid across the tiled floor. He turned to inspect the wrecked tray. Then he glanced upward at the aproned waitress who had dropped it. She was staring at him.

Sadie!

CHAPTER XX.

"I Love You!"

Stoddard neither did nor said any of the things he had planned to do and say when he found Sadie Hicks. Instead he stood up and said stupidly: "Hello."

"Hello," she answered like an echo.

Then the customer who had waited for his chops ventured into the conversation.

"Say," he rasped, glaring at Sadie. "Think I'm payin' to have my meals served on the floor? I waited long enough for them chops. This is a deuce of a restaurant."

Following which he tossed his napkin into the mess on the floor and walked out of the place.

A fat man with a cigar in his teeth came running from the rear, glaring as he approached. He shook his fist in Sadie's face.

"You said you was a waitress," he screamed shrilly. "See what you done."

He pointed tragically downward.

"I seen it," said Sadie wearily.

"You a waitress! Twenty cents' worth of dishes gone, a quarter's worth of grub, and a customer! Do you think I'm runnin' a hash-house? Was that there man sittin' on the floor that you chuck his vittles on it?"

"Shut up!" said Stoddard shortly.

"Come on, Sadie."

"She comes to work only this mornin' and—"

"Well, she's quitting now. Here's a quarter for what I ordered. Chuck my grub on the floor, too, if you like."

Stoddard had Sadie by the arm and was urging her toward the door. The proprietor of the Royal followed them, delivering himself of copiously worded thoughts.

"It was an accident," explained Sadie as she was borne steadily in the direction of the street. "I—"

"Keep still!" commanded Stoddard. "Let's get out of here."

"Yes, sir," answered Sadie meekly.

"Don't you say 'sir' to me."

"No, sir."

The cashier girl stopped chewing gum as they passed her desk; then turned to the perspiring owner and inquired calmly:

"Wholl I charge them dishes to?"

Out on the sidewalk Stoddard and Sadie were rapidly leaving the scene of disaster behind. His grip on her arm would have caused most girls to cry out in pain. Stoddard was unconscious of the viselike pressure his fingers exerted. So was Sadie. She walked mechanically, like a woman in a trance.

Once she glanced up at him timidly. His face was so grim that it frightened her. His lips were set tightly, his chin was thrust forward truculently, as he hurried onward with long strides. She had difficulty in keeping pace with him but Stoddard took no note of that either.

Only one thought occupied his mind. He had captured Sadie. To carry her off was mere instinct. He had no idea whither he was taking her, no plan whatever. He was simply a captor with his prey.

They turned into a busy shopping-street and began bumping into people. Stoddard brushed them aside and dragged Sadie onward. She tried to follow his rapid step and found herself fairly running. Not until her initial bewilderment begun to subside did she realize that a crowd had started to follow, laughing and hurling sidewalk wit.

"My hat!" she exclaimed. "It's back at the restaurant."

"I'll get you another," he said shortly.

On they walked. Sadie, looking behind her fearfully, beheld a mirthful gallery of followers. Her arms were bare to the elbows, like those of Stoddard, and her apron was flying in the wind.

"We're follered," she informed him hesitatingly. "A crowd of people's after us."

Stoddard glanced backward as if abruptly awakened from a dream; then mentally cursed the shopping-crowd for a pack of idle curiosity seekers. But he also realized the spectacle that was being furnished for their amusement.

They reached a crossing where a trolley-car had halted. Without taking note of its direction or destination, he propelled Sadie aboard the rear platform and followed her. He handed the conductor a dime.

"Transfers?" asked the official as he stared at his new passengers.

"No," answered Stoddard, and plunged into the car behind Sadie.

She was already crowding into the far corner of a crosswise seat, trying to shrink from the scrutiny of wondering eyes. He sat beside her and looked straight ahead, very stern of countenance.

Persons in seats ahead of them, influenced by that psychic phenomenon

that spreads intelligence in a crowd, turned to stare and grin. But none of the passengers spoke of the pair save in whispers. The expression on the big man's face was too forbidding.

Sadie again ventured a glance at her captor. He seemed oblivious to her presence. Her own heart was beating rapidly. She was excited, bewildered, content. Just what it was all coming to she did not attempt to guess. She simply knew she was free of the dismal restaurant and a prisoner in the hands of No. 44. That was enough for the present.

The car went onward for many blocks, stopping often to disembark passengers who had stared and smiled, and to receive new ones, who took up the scrutiny where others left it. Stoddard was unconscious of it all. He sat with a frown on his face, his jaws set tightly, his sinewy arms folded uncompromisingly across his broad chest.

Once Sadie spoke after more than a quarter of an hour had elapsed.

"Where—where are we going?" she asked hesitatingly.

"Anywhere," was the answer she received.

She did not interrogate him as to the location of "anywhere," and Stoddard, if he had any notions on the subject, did not enlighten her.

They were running through a suburban section now. Sadie knew it well; she had ridden out that way on Sundays many a time. Stoddard paid no attention to the changing landscape. He was still sitting rigidly, eyes front. Nearly all of the passengers had left the car, but he was not aware of that either.

Suburban villas gave way to country houses, and city yards to fields and little clumps of woods. Sadie watched the change with dreamy satisfaction. She did not care where they were going nor possess any curiosity in the matter. No. 44 would explain it all when the time came. She was glad that at any rate they were leaving the city behind, for she knew that she presented a dreadful spectacle to the eyes of urban dwellers.

The car was at the end of the line and the conductor was switching the trolley-pole, while the motorman, controller in hand, now enjoyed his first view of his very extraordinary passengers.

"All out!"

Stoddard roused himself and stood up. Then he reached for Sadie's arm.

"Come on," he said.

She followed with complete docility. They found themselves on a dusty country road. Still gripping her firmly, he began walking in a course away from the city. They passed loosely scattered farmhouses and stretches of field and cow-pasture.

Sadie noted them, but her companion saw them not. His mind was utterly remote from their environment. Not until the road began to wind through a clump of woods did he give any sign of being awake to his surroundings.

A break in a stone wall on one side of the road caught his eye. He steered Sadie across the ditch and through the opening. They walked onward among the trees, down a sloping hillside. Presently the tinkle of water reached her ears; then the silver flash of a running brook was visible. They halted at the brink of it.

Stoddard sighed and looked about him. There was a little grassy spot a few yards distant, past which the stream flowed musically. He led Sadie to it.

"Sit down," he said.

She obeyed mechanically; then looked up at him. He was studying her with an expression that brought a swift blush of recollection to her cheeks. She dropped her glance and began plucking blades of grass from the sod at her feet. Stoddard, contemplating the top of her head for a

moment, seated himself cross-legged in front of her.

"Now we're ready to talk," he announced.

"Yes," she assented. "About what?"

"Everything."

"You begin," she suggested.

Sadie was greatly puzzled, perhaps a little disappointed. She was thinking of the morning in the Deepwater when he stood with her hands imprisoned in his, his glance reading her very heart, while it revealed his own.

"Well, I received your letter," he said.

Sadie made no comment.

"I followed you as quickly as I could," he added. "I caught the late train. I got here last night."

She nodded.

"You had no business to run away," he said, and there was severity in his voice. "It wasn't fair."

"Wasn't it?" Her tone was small and meek.

"You know it wasn't. You wouldn't have dared to try it if I'd been there."

"Maybe not."

"Why did you do it?"

She gave him a swift, appealing glance, but made no answer.

"Tell me why," he commanded.

"You—you got the letter. It was in there."

"It was not," he declared sternly. "You know it was not."

"I said there wasn't any jobs up there for a girl, didn't I?"

"But that was not the reason you left. It was something else. What did Livingston say to you?"

Sadie maintained a stubborn silence for a full minute.

"Go ahead and tell me. What did he say?"

"I—I cannot."

"Nonsense. You must. What was it that you think he was right about? It's almost impossible for him to be right on anything."

"I—just can't say it, No. 44. Don't make me."

"I've got to know," he said relentlessly.

"Please!"

"It was about me—and you? Wasn't it, Sadie?"

"N-no. Not exactly. Not all of it."

Sadie was in a pitiable state of embarrassment. How could she tell him what Livingston said? How could she confess that she loved him when her own ears were waiting for the message that was unfinished on his lips?

"Go ahead."

"It was about a man and a woman," she faltered.

"Something like a parable?"

She nodded.

"Let me see if I can guess some of it," said Stoddard. "He told you about a man who was rich and successful, who had an education and a social position and ambitious relatives, and all that sort of thing. Is that right?"

"Yes," she whispered.

"And then he told you about a woman who was poor and had a very lowly position in society and who did not always talk after the fashion of educated people. Didn't he?"

"Yes."

"I imagined it was something of that sort," he went on slowly. "Larry is clever, in his contemptible way. He made the two pictures exceedingly vivid, beyond doubt."

"Not exactly," she corrected. "I—I told him about the woman."

"He left that to you, did he? He just suggested it, for you to fill in the details. Nice of Larry. Well, after you had these two pictures before you, what then?"

"He went away."

"And left you to study them?"

She inclined her head in faint assent. "Nothing else said? You're sure?"

"He—he asked a question."

"What was it?"

"That's the part I can't say," she answered in a whisper.

(Continued next week.)

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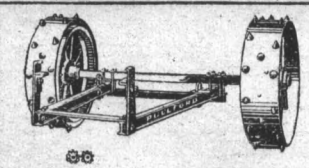
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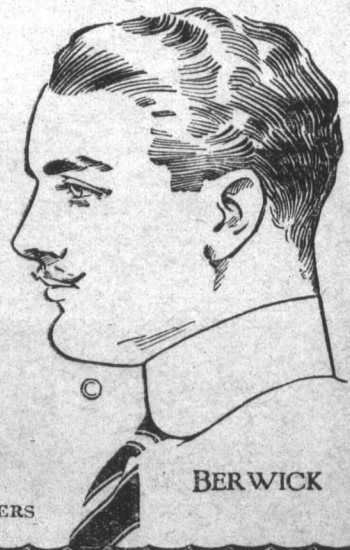
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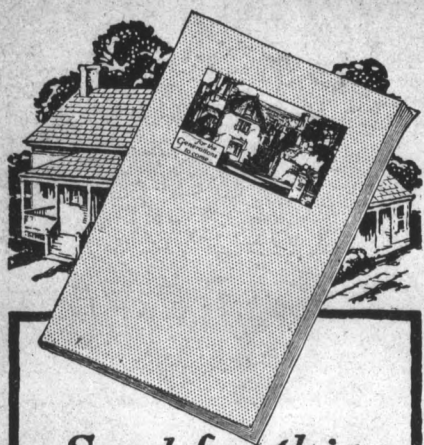
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HOMES OF OUR FEATHERED FRIENDS.

(Continued from page 399).

called house birds. In those days the birds were attracted to the premises largely because of their song and beauty. Their economic worth was not so well understood as it is today. Of course, we are now as devoted to the beautiful in birds as we ever were, but we have developed an appreciation of other values also. These other values spell dollars and when money whispers we all strain our ears to listen. It is not necessary to repeat what the money told. It is enough to know that thousands of people are busy studying the needs and natures of all birds that might be of any possible benefit to humans. One of these important studies has to do with the kind of houses various birds of undisputed benefit to man will accept as fitting places in which to rear their young.

The result of this investigation is certainly most encouraging. Every year now adds to the number and what is more important and pleasing, the variety of bird that can be induced to leave its natural nesting place and take up a home in one of the various kinds of bird houses we build for that purpose. The list has already reached a number ten times as great as it was a few years ago. The song sparrow and even the downy woodpecker have at last enlisted in the ranks of birds

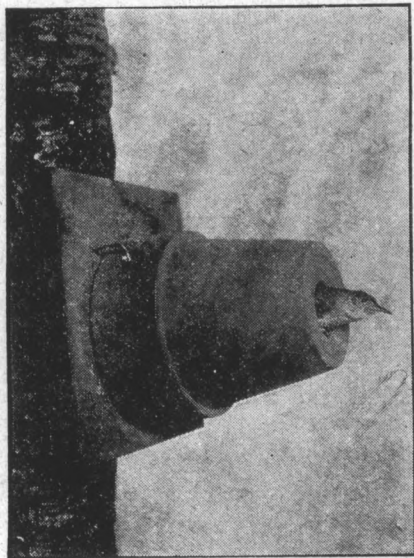


Old Woodpecker's Hole Makes Best Kind of a House.

six to ten feet from the ground. Of course, the can is placed so that the bottom will form the roof. An entrance seven-eighths of an inch wide for wren, and one and a half inches wide for the blue bird, is made near the top. If bird houses of this kind are erected it is a good idea to place them where they will be in the shade during the heat of the day because the metal will get too hot for the birds if the house is in the full light of the sun.

Another good wren house can be made from a common earthen flower pot. Two small holes are made in the rim of the pot and through these holes wires are passed and made fast to a board a little larger than the top of the pot. Chip the edges of the hole in the bottom of the pot until it is just seven-eighths of an inch wide. This size opening will admit the wren but will keep out the English sparrow, which is one of the worst enemies the wren has. Seven-eighths of an inch is not a very wide entrance and it has been observed that the wren sometimes has trouble getting in nest material through this entrance. But if the opening is made wider the English sparrows will enter and destroy the wren's nest. If the entrance is made seven-eighths of an inch wide and a little over an inch the other way the wren will not be put to so much trouble getting in the twigs, roots and grasses out of which the nest is largely constructed. The house wren or Jenny Wren, as it is sometimes called, is one of the popular birds with people. Its warble is wonderfully sweet and pleasing and accounts in a great way for its many friends.

The birds that are more particular in their requirements must have houses with a definite diameter for both entrance and cavity and usually the depth of the house must be in accord with their specific needs. The chick-



Flower Pot Used to Furnish Jennie Wren a Home.

that will live in a house which is not of their own construction.

It is commonly known that woodpeckers excavate their own houses and usually make a new one each year. The old houses are readily accepted by other birds less capable of drilling into wood after the fashion of the woodpeckers. In this way birds like the wren, chick-a-dee, nuthatch, etc., find safe and well made nesting places. This fact explains why we, as builders of artificial bird houses, generally go to the woodpecker for our ideas, and why most of our bird houses have something in common with the well-made house of the woodpecker. For instance, we construct houses with the entrance from two to three inches above the bottom, as in the case of the wren house, or as much as a foot above the bottom, as in the case of a house for a screech owl or a flicker.

Not all birds, however, take to the woodpecker design of house. Robins, for instance, regard a mere shelf closed on one or two sides as being well adapted to their needs and they will quickly take care of any other construction necessary for the formation of a nest.

There are a few birds that are content to nest in almost any sort of place. The wren and the blue bird are conspicuous examples. Both of these birds will take to a house so humble that it consists of nothing but a tomato can fastened to the top of a fence post or to the stump of a sawed-off limb of a tree

a-dee and nuthatch could hardly be induced to nest in a tin can. The chick-a-dee likes a deserted woodpecker's hole and an admirable house can be put up for him if an old woodpecker's nest is cut out of a dead tree in the woods, supplied with a piece of tin for a roof and mounted ten or fifteen feet from the ground.

Many times trees are found with natural cavities that open to the outside through a knot hole. Such cavities make excellent bird houses when cut out and mounted properly. The nuthatch in particular is given to nesting in places like these. If the cavity is large enough a screech-owl might make a home of it. This night-prowling bird with the large appetite for mice and English sparrows, deserves more credit than he gets. He is a great help around any farm.

A square cigar box with one side left open forms a good attraction for the phoebes and robins, or even the swallows will take it if it is placed high enough. Close up under the eaves is the place to mount this house because there it is protected from wind and rain.

Martin houses must be different from any other kind of bird house because martins choose to live in colonies. The social instinct of these birds is a characteristic trait which is

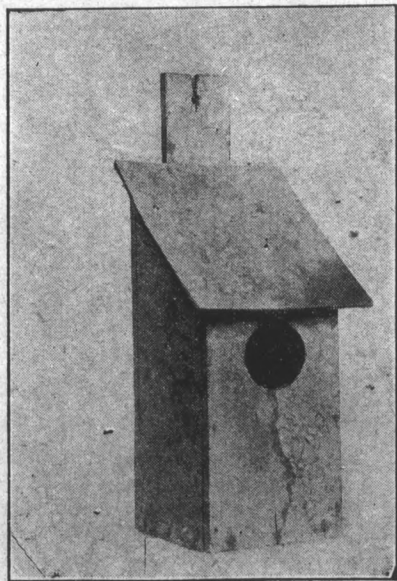


The Blue Bird is Satisfied with a Humble Structure.

lacking in most other birds. A martin house can be made on almost any plan just so it contains twelve or fifteen rooms. Several small houses placed close together will answer the purpose. The idea is, if the house or group of houses is not large enough to accommodate the whole colony of martins there won't any of the birds stay. So if martin houses are to be made be sure to get them large enough to accommodate a large colony. Each room in the martin house should be six inches square with an entrance two and a half inches in diameter and placed about an inch up from the floor. The whole house should be ten or twenty feet from the ground.

It is usually the case that birds of the same species, with the exception of martins, will not nest close together. During the breeding season birds are singularly intolerant of all others of that particular kind although birds of a different species as a rule get along well enough together. For this reason it is not advisable to put up several houses all of which are intended to attract the same kind of a bird. Vary the nature of the houses and the chances of their being occupied will be increased.

If the bird houses have been used the year before they should be cleaned of all rubbish. A clean house is an important factor in attracting birds. The English sparrow should be discouraged at every possible opportunity. There are a great many desirable birds that find it wholly impossible to live about some of our homes on account of this pestiferous bird.



Model of Bird Houses Suited for the Wren and Blue Bird.

Woman and Her Needs

Weak Nerves or Bad Temper

"I've noticed," said the small boy to the friendly aunt, "that when it's mamma, she is nervous. But when it's me, I'm cross. Things get on my nerves, too, just like they do hers. But when she's nervous she expects to be humored, and when I am I always get spanked."

And the aunt, who was also observing, could only say:

"It isn't nice for little boys to criticize their mamma."

It must seem all wrong, though, to the children. For even those who say nothing observe carefully the behavior of parents. Mother can lose her temper and storm about when the fire won't burn or small son tears his clothes. And father can swear like a trooper when the pigs get out or the cow kicks the milk over.

But if sonny flies in a rage when he can't button his clothes he is shaken up or sent to bed. And if, awful day, he swears when the dog he has harnessed to his cart runs away and smashes things—he has his mouth washed out with brown soap and is preached at for a half hour from the third commandment.

Mother can always excuse her bad temper on the ground of overwork, ill-health or nerves. Father, more honest, makes no excuse at all. He simply blows up as a matter of course and as his inalienable right by virtue of being a man. But the small son and daughter are allowed neither excuse nor right. They are pronounced naughty, and promptly squelched.

Isn't it time father and mother, especially mother, looked the disease squarely in the face and diagnosed it

as lack of self-control? That is really all it is, call it what you will. And other people call it by its right name, have no doubt of that.

I've often wondered what "nervous" women would think if they could look into the minds of their husband and children. The picture would not be at all flattering. Instead of the martyred, self-sacrificing wife, the loving, indulgent mother they expect to find, they would see themselves reflected as a furious virago, a mean, scolding, bad-tempered grown-up, always finding fault and spoiling fun.

Don't excuse yourself. That is a good rule for old and young. Make allowance for the other fellow's temper, but never your own.

One mother was effectively cured by her ten-year-old son. A year of taking care of an invalid sister, followed by a six-weeks' sickness of her own, left her wornout, nervous and cross. She began to indulge herself in tempers. One evening she surprised even herself by vigorously shaking the baby, because he dropped his bottle and broke it. When the storm clouds cleared away the ten-year-old boy came up, put his arms about her neck and whispered:

"I guess someone lost her temper. I don't like to see you do that, mamma. I hurts me in my throat."

The remark was most illuminating to the mother. She could excuse herself on the ground of sickness, but to her boy she showed only bad temper. Something "hurt her in her throat," and never again did she allow nerves to excuse a lack of self-control.

Many homes would change entirely if other mothers would wake up.

DEBORAH.

SOME CHICKEN DINNERS.

BY HILDA RICHMOND.

Some weeks ago a lady was giving an enthusiastic account of a successful chicken dinner a certain organization had served to 125 people at twenty-five cents each. The dinner, she said, was delicious and they had made a good sum on the undertaking. It was not a church dinner, perhaps it is best to explain, for fear someone might think it as swindle perpetrated in the name of a good cause, before mentioning that the ladies had exactly seven hens for the feast. In answer to a chorus of questions as to how it was served the ladies calmly gave out that they "shredded" the chicken after cooking it till tender. Anyone who is quick at figures can readily multiply four pounds by seven and get the amount of chicken, bones and all, before cooking that those luckless diners consumed. It should have been called a gravy dinner for that was what the chicken really was used for.

About the same time a party of people, most of them from fine farms, attended a reunion in a fine grove and chicken was the chief meat served at the meal though there were boiled ham, meat loaf, salmon and some other meats. The fried chicken averaged straight through one-half chicken for each person, including infants, and everything else was served in proportion. Platter after platter of beautifully browned chicken was crowded upon the long table together with cakes, pies, preserves, pickles, bread, meats and all the fruits known to farms as well as the products of the stores in town, such as cheese, wafers, candies, tinned meats and nuts.

Perhaps the most remarkable dinners with chicken for the basis are served by restaurants, and really they are not to blame for skimping in these

days of high prices. Years ago when food supplies were cheap and abundant the popular priced meal was a quarter and in all the changing scenes and places and prices of food supplies that same quarter meal is the only one the general public demands. There is no help for it, the quantity served must be cut down. Nowadays the chicken that finds its way to the restaurant is cut up in a fearful and wonderful manner. First of all it is used to furnish the foundation for noodle soup and then it is doctored with dressing, gravy and biscuits until it can hardly be recognized. The real artist in the restaurant is the person who dishes up. He piles up a little mound of dressing and on it lays a sliver of white and a sliver of dark meat with a scanty lake of thin gravy all about it and then he decorates the whole with little sprigs of parsley to hide its meager proportions.

Then there is the fearful and wonderful chicken dinner of society which never figures under that name. I once knew a housekeeper who could take one chicken and deacon it up with gelatine, peppers, seasonings and various condiments and make that one bird serve twenty-five people. When her daughter married there were forty people present at the wedding and she allowed two medium-sized chickens for the dinner served at noon. It has always been a source of wonder to me how long that woman could keep a hired man on the farm if she should move to the country.

The normal chicken dinner is an enjoyable affair with plenty of meat and delicious gravy, but a dinner that merely hints at chicken is a fraud. Most of us have partaken of both kinds and are ready to testify that plenty or none is the only safe rule for a chicken dinner.



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It is different from a churn. It makes, washes, works, salts and moistens the butter, ready to wrap in 25 minutes or less. The butter is high-grade—as good as any big creamery can make—and often much better. Minnetonna butter commands a premium price everywhere. Run by hand or power. The extra butter profit from two cows pays for machine in a year or less.

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No more outside back yard inconveniences. No chambers to empty. No sewer or cesspool. Chemical process dissolves human waste in water. No trouble. Kills disease germs. Prevents flies, filth and bad odors of outhouse. A real necessity for old, young or invalids. Preserves health.

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Great Northern Railway has just issued two beautifully illustrated descriptive bulletins. One describes opportunities in irrigated lands in West Okanogan Valley at the foot of the beautiful Cascade Mountains—fruit-growing and diversified farming paradise. Three crops of alfalfa first year after planting. One-third of entire new irrigated area settled in past year.

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Dept. 309 Great Northern Railway, St. Paul

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GREAT NORTHERN RAILWAY
Chicago National Park

Mention The Michigan Farmer When Writing Advertisers

BOYS AND DOMESTIC SCIENCE.

BY HARRIET HENDERSON.

What to do with the boys while teaching domestic science to the girls is often a question in the one-room, one-teacher school. I have found that domestic science and domestic art are good subjects for boys as well as for girls. All but the very small pupils can join in the class work and different groups may do the practice and note-book work best suited to each.

Before organizing the classes I talk to the pupils about the pleasure of knowing how to do things and of how it often becomes necessary to help yourself. I mention the Y. M. C. A. classes in a near-by city and how anxious the boys and men are to learn camp-cooking, etc. We talk of how handy it is for boys to know how to sew, and how doctors, guides, sailors, and many other men know how to do these things better than some women. After a few days when the classes are ready to start the boys are as interested as are the girls.

I have given the first lessons in the form of a story which I read to the pupils. Each one kept a note book, writing down important points of the lesson, recipes, experiments, etc. Any project that did not turn out well was talked over and the cause of failure ascertained and written down, and the work repeated. Different successful methods were compared and sometimes copied.

This work was correlated with the study of agriculture whenever possible. When studying the potato, samples were brought showing those unfit for seed and those especially good for seed, different types, etc. Before this pupils had been told to bring salt, butter and dishes and we baked some of our sample potatoes in the ash-box of the heater. We found that they bake quicker if some of the hot ashes are left, instead of having the box empty. We tried both ways. Lessons on setting the table, serving, etc., were also given at this time.

When we came to the topics of food values, and the chemistry of foods, the work of the physiology and hygiene classes, especially the boys, improved wonderfully through correlation of the subjects. In such matters as stoves, why and when they draw well, etc., the boys went ahead of the girls and were naturally pleased to show off their superior knowledge or understanding of how to build fires in house and in camp.

In the matter of house decoration we started with the outside of the house and had both boys and girls interested in choosing paint, its color, durability, the style, construction, etc.

We came naturally to interior decoration and talked of the men who designed cloths and clothes, furniture and wall and floor coverings. Advertising samples help to make this concrete and interesting. When I feared that any subject might not interest boys because they thought it pertained too much to women's work, I was careful to start out with a story of materials, manufacturing, selling, etc., thus interesting them first in their end of the work.

In the sewing classes which the boys were anxious to join, our first real work after learning to name and illustrate the different stitches and materials, was mending and darning. Near the first of this work I remember a quiet little boy came smilingly and told me that he had mended his father's mittens. I was, I think, as pleased as he was and it turned out that his father was pleased, too.

The work of these classes was very interesting, carried on in this way and the educational value was, I believe, as great for the boys as for the girls. The finished work handed in sometimes showed less natural aptitude in the boys, but not always. And judged by improvement, interest, aid to ex-

pression, aid in memorizing important facts, and indirect aid in other subjects, the time was well spent.

THE CARE OF WINDOW SHADES.

BY MARGARET KEYS.

Though much is being written on household management, and domestic science courses cover the care of the house from blacking a stove to serving a twelve-course dinner, the writer has seen very little on the care of window-shades. They are an important consideration in furnishings, and what is more aggravating than to attempt to raise a shade and have it balk or come tumbling down on one's head?

In order to care for a shade properly one must know something of the mechanical construction of the roller. The ends of the roller set into brackets attached to the casing. One end of the roller is hollow and encases a spiral spring some six or eight inches long. This spring is controlled by two tiny "dogs" which drop into a notch on the end of the spring and hold it. As the spring is wound up the action of the roller becomes stiff. Under no circumstances should an ordinary carpet tack be driven into the spring end of a roller. This is frequently done. Some one pulls the shade too far down, tears it from the roller and to mend it they drive in a carpet tack. The tack being too long passes through the hollow roller into the spring and it is ruined. Use only small tacks one-fourth inch long on the spring end of your roller.

Sometimes it becomes necessary to cut the roller to fit the casing. Any woman handy with tools can do this. Measure carefully the distance between your brackets. Insert a screw-driver under the little plate at the end of the roller. Work the plate loose, then insert the claws of the hammer under the plate and draw out the brad just as you would draw a nail. Cut the roller squarely off with a saw. Lay the plate back on the end, and drive the brad into the center, holding the roller in the hand. Do not rest the other end on anything, as the pounding might injure the spring. Then tear off the cloth to fit the roller and tack the edge back along the line on the roller. It is only necessary to remove from the roller what cloth is to be cut off. Never tear a shade at the side fastened to the spring end as it will ravel and the threads will become wound up in the spring and cause trouble.

The life of a shade can be considerably lengthened by turning end for end. As they are of ample length, the hem can be cut off, using a square to get a straight edge. This end can be fastened to the roller. Never attempt to tear a shade cross ways. Turn a new hem evenly and carefully. Lengthen your sewing machine stitch to twice the length for sewing and stitch the hem with number forty thread. One should use a rather coarse needle for this work as the dressing in the shades dulls the point of the needle.

Shades are greatly improved and made sanitary by cleaning. Twice a year at least, take them down, unroll full length on a flat, clean surface and go over them with paper cleaner. This removes smoke, dust and germs, and brightens up the colors. Draw rings in shades add to their appearance and longevity by preventing finger marks along the hem. When putting up the brackets, one must see they are level and firmly fastened so they will stand the pull on them. Brackets once put up ought never to be changed as frequent changing mars the casings.

SALT AS A GERMICIDE.

BY JULIA R. DAVIS.

We all appreciate salt as a household germicide, but some of us may not know that it is the best dentifrice that can be used. I give this upon the authority of the best dentists, and also upon the authority of experience.

If used as a wash frequently, it will keep the gums in a healthy condition, and if they have become diseased in any way, the use of salt will help to restore them to a state of firmness and health.

After the gums and teeth have been properly brushed, sufficient salt is placed in a glass of warm water to make a strong solution. This is used as a mouth wash.

Clean your brush by holding it under the hot water tap. Then sprinkle salt on the brush and hang it up to dry. The salt permeates to the center of the tufts of the bristles, and sterilizes them as well as toughens them.

The next time the brush is used it will be sterile and incrusts with salt crystals which may be shaken off.

Try salt as a mouth wash, and you will have healthy gums, and a germless mouth.

Another excellent use for table salt is for a shampoo. Salt and fine corn meal in equal parts rubbed on the scalp, will cure dandruff when all else fails.

HOME QUERIES.

Household Editor:—Mother would like to know how to clean by blue silk and wool crepe de chine dress. It is only soiled from wearing. How do you get rid of the odor after cleaning with gasoline?—M. P.

It should wash nicely with a good wool soap and warm water. Press on the wrong side. Soap and water is more satisfactory than gasoline. The only way to get rid of the gasoline odor is to hang the garment outdoors until all odor is gone.

Household Editor:—We have taken the Michigan Farmer for several years and would feel lost, almost, without it. I especially enjoy the magazine section. There is always something helpful and uplifting in it for each one in the family. Now, I wish to ask if you will kindly send a recipe for making hard soap, with concentrated lye?—Reader.

Most cans have a recipe printed on the wrapper. Dissolve one can of lye in fifteen quarts of water. Then add eight pounds of grease and boil until it becomes soap, one to four hours. Then add four ounces of salt and boil for ten minutes. The salt causes the soap to separate from water and rise to the top, when it may be dipped off in molds or left to cool and harden. Boiling water must be added as it boils away to keep about the same quantity in the kettle all the time. The soap may be perfumed just before cooling.

Household Editor:—Please tell me how to make suet pudding that you steam in cans and eat with a sauce, and how to make the sauce also?—Mrs. F. B.

A cup each of molasses, sweet milk, chopped suet, chopped raisins and currants, two and one-half cups of flour sifted with one teaspoon of baking powder. Mix fruit with part of flour. Add suet last of all.

Lemon Sauce.—Add one and a half cups of boiling water to one cup sugar and three teaspoons of corn starch, thoroughly mixed. When done add the juice and grated rind of one lemon and a tablespoon of butter.

Household Editor:—Will someone please give me a recipe for coloring blue on cotton with Chinese or Prussian blue, and yellow with copperas?—Mrs. E. M. B.

Household Editor:—Two or three years ago there were published recipes for dyes of all the standard colors. I saved them and now that I want to use them I cannot find the clipping. I hope you can republish them.—Mrs. S.

To color a bright and permanent yellow on cotton, requires two pounds of lead and one pound of bichromate of potash for eight pounds of rags. Dip in the sugar of lead dye first, and then in the potash solution, repeating the process until the proper shade is reached.

Bright Orange on Cotton.—Color as above directed for yellow, and then dip the rags in a strong solution of lime water. A softer orange may be

obtained by running the rags alternately through copperas water and lime water.

Light Blue on Cotton.—For six pounds of rags take four ounces of copperas, four ounces of prussiate of potash, one ounce of oil of vitriol. Boil the rags in soft copperas water. Take them out and drain them. Make a new solution of the potash and, when warm, put in the vitriol and then the rags. Boil half an hour, rinse out and dry.

Green on Cotton.—Dye the rags a light blue as above, and then color in the yellow dye, repeating the dipping until they are of the desired shade.

In using any of the above dyes care must be taken to rinse the goods thoroughly before they are dyed to insure perfect cleanliness, and even greater care must be used to rinse them well after coloring, as the dyes will otherwise be liable to rot the rags.

Brown on Cotton.—A beautiful brown for either cotton or woolen is secured by using two pounds of cutch, two ounces of alum, and three ounces of bichromate of potash. Dissolve the cutch and alum in boiling water and steep the goods two hours. Wring out and run them through the potash solution. The above will color ten pounds of goods.

Then there was olive green oak bark dye, secured by dipping the rags first in alum water and then in a decoction of oak bark. The brown for wool or silk is secured with walnut shucks brightened with alum. Horse-chestnut peels also give a brown color. A mordant of muriate of tin turns it to bronze, and sugar of lead, a reddish brown shade.

Always use soft water in coloring if possible, using about four gallons of water to one pound of goods.

MICHIGAN FARMER PATTERNS.

Our latest Fashion Book, containing illustrations of over 1,000 designs of ladies', misses' and children's garments in current fashions, also newest embroidery designs, and articles which give valuable hints to the home dress-maker, will be sent to any address upon receipt of ten cents. All patterns are ten cents each. Do not forget to state size.



No. 8240—Ladies' Blouse. Cut in sizes 36 to 42 inches, bust measure. The blouse has Duchess closing in front and the sleeves may be long or short.

No. 8236—Boys' Suit. Cut in sizes 6 to 14 years. This suit consists of a plain coat and full knickerbockers.

No. 8263—Ladies' Dress. Cut in sizes 36 and 40 inches, bust measure. The dress is cut in one piece and the sleeves may be long or short.

The Proof Of The Pudding

is found in the eating of it.

Big sounding words and claims of superiority are quickly forgotten, but actual results are long remembered.

The next time you bake, and it's cheaper to bake your bread than buy it, use

Lily White

"The Flour The Best Cooks Use."

The results will delight you and every member of the family.

Bread baked from Lily White Flour has a delicious flavor as well as an excellent color and fine texture.

You will notice the difference.

VALLEY CITY MILLING CO.,
Grand Rapids, Mich.

The New Hired Hand!

—the farmer needs good help in the fields. His wife needs good help in the kitchen. Her important duty is to make the best bakings. Her most important helper is Baking Powder.

If she tries Calumet she'll stick to it. Its dependability and uniform quality means good-bye to bake-day failures.

The farmer's wife wants the *most* of the best for her money. That's why most of them use Calumet. It's pure in the can and pure in the baking.

Received Highest Awards
New Cook Book Free — See Slip in Pound Can.

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BAKING POWDER
CALUMET BAKING POWDER CO.
CHICAGO

200 SATISFIED USERS IN ONE COUNTY

Over two hundred satisfied users of our lighting system in Jackson County alone.

To you who want better lights doesn't this offer the best recommend in the world? You can have this same light for your house, barn and out-houses—safe, economical, guaranteed, and approved by the National Board of Fire Underwriters.

WRITE US TODAY.
Night Commander Lighting Co.
JACKSON, MICHIGAN.

**Only \$2 Down
One Year to Pay!**

\$24 Buys the New Butter-fly Jr. No. 2. Light-running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in five larger sizes up to No. 8 shown here.

30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.

ALBAUGH-DOVER CO. (INC.)
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Some Good Clubbing Bargains

No. 1.
Michigan Farmer, 3 yrs., wk. \$1.75
Boys' Magazine, mo. 1.00
McCall's Magazine, mo.50

Regular price \$3.25
OUR PRICE ONLY \$2.20

No. 2.
Michigan Farmer, 3 yrs., wk. \$1.75
The American Boy, mo. 1.50
Every Week 1.00
American Poultry Advocate, mo.50

Regular price \$4.75
OUR PRICE ONLY \$3.00

No. 3.
Michigan Farmer, 3 yrs., wk. \$1.75
American Poultry Advocate, mo.50
McCall's Mag. and Pattern, mo.50
People's Home Journal50

Regular price \$3.25
OUR PRICE ONLY \$2.25

No. 4.
Michigan Farmer, 3 yrs., wk. \$1.75
Pictorial Review, mo. 1.50
Every Week 1.00
Green's Fruit Grower, mo.50

Regular price \$4.75
OUR PRICE ONLY \$2.85

No. 5.
Michigan Farmer, 3 yrs., wk. \$1.75
Youths' Companion, wk. 2.00
McCall's Mag. and Pattern, mo.50
Poultry Success, mo.50

Regular price \$4.75
OUR PRICE ONLY \$3.90

No. 6.
Michigan Farmer, 3 yrs., wk. \$1.75
American Swineherd, mo.50
McCall's Magazine & Pattern, mo.50
Poultry Advocate, mo.50
Every Week 1.00

Regular price \$4.25
OUR PRICE ONLY \$2.60

No. 7.
Michigan Farmer, 3 yrs., wk. \$1.75
Choice of any daily in Detroit or Grand Rapids except Detroit News 3.00
McCall's Mag. and Pattern, mo.50
People's Home Journal, mo.50
Every Week 1.00
Poultry Advocate, mo.50

Regular price \$7.00
OUR PRICE ONLY \$5.00

No. 8.
Michigan Farmer, 3 yrs., wk. \$1.75
Any Detroit or Grand Rapids Daily (except Detroit News) 3.00
Poultry Success, mo.50
Boys' Magazine, mo. 1.00
Today's Mag. with Pattern, mo.50

Regular price \$6.75
OUR PRICE ONLY \$4.80

No. 9.
Michigan Farmer, 3 yrs., wk. \$1.75
Choice of either:
American Sheep Breeder or
Hoard's Dairyman 1.00
Poultry Advocate, mo.50
Boys' Magazine, mo. 1.00
McCall's Magazine, mo.50

Regular price \$4.75
OUR PRICE ONLY \$3.00

Order by number and address all orders to the Michigan Farmer.

Markets.

GRAINS AND SEEDS.

March 20, 1917.

Wheat.—Wheat prices have substantially recovered the loss sustained a week ago. The satisfactory settlement of the railroad trouble was the large factor in giving strength to the market at the opening session of this week. While English and French victories on the western front have heretofore acted as bearish influences on the wheat trade, the heavy drive now being prosecuted against the Teutons has aided in advancing wheat values here because it seems to spell the defeat or at least the restriction of submarine activity in the Atlantic. Still another strengthening factor was the determination of the American government to put an end to the attacks made by the German submarines on American shipping. It is reported by transportation men that exports from the United States will in all probability show liberal increases in the near future. Reports from Great Britain indicate a fairly liberal quantity of the grain for immediate use, but France is greatly in need of supplies. Crop conditions in this country vary widely in different sections, with the general impression prevailing that the crop is below average for this season. One year ago No. 2 red wheat was quoted locally at \$1.13½ per bushel. Last week's Detroit quotations are:

	No. 2 Red.	No. 1 White.	May
Wednesday	1.92	1.89	1.94
Thursday	1.94½	1.91½	1.96½
Friday	1.95½	1.92½	1.97½
Saturday	1.97½	1.94½	1.99½
Monday	2.01	1.98	2.03
Tuesday	2.02	1.99	2.04

Chicago.—May wheat \$1.86½; July \$1.57½; September \$1.44½.

Corn.—This cereal continues strong, and the market scored a one cent advance on the local board of trade on Monday. A very strong undertone exists and all attempts to bear the market have failed. Eastern buyers are bidding for the grain, and the continued cold weather and advancing prices for live stock are encouraging farmers to continue their feeding operations beyond the intended periods, which is keeping a larger part of last year's crop in farmers' hands. A year ago No. 3 corn was quoted at 70c per bu. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	1.11	1.12
Thursday	1.11	1.12
Friday	1.11	1.12
Saturday	1.12	1.12½
Monday	1.13	1.13½
Tuesday	1.15½	1.16½

Chicago.—May corn \$1.12½; July \$1.10½; September \$1.08½.

Oats.—The recuperative powers of this market, due to more liberal supplies, were not as strong as those for wheat and corn, and prices have not as yet returned to the high level prevailing two weeks ago. Standard oats a year ago were quoted at 48c per bushel. Last week's Detroit quotations were:

	Standard.	No. 3 White.
Wednesday	65	64½
Thursday	65	64½
Friday	65	64½
Saturday	65½	65
Monday	65½	65
Tuesday	66	65½

Chicago.—May oats 58½c; July 56½c.

Rye.—Nearly a dime has been added to rye values, and the market is firm at the new figures. No. 2 rye is now quoted at \$1.59 per bushel.

Beans.—The loss reported last week has been regained in bean circles and the market is steady, following a revival of interest on the part of users and brokers. Cash beans are quoted on the Detroit market at \$7.50 per bu. In Chicago the trade is reported a little easier with Michigan pea beans, hand-picked, ranging from \$7.50 to \$7.85, and red kidneys \$6.75 to \$7.15.

Peas.—Market steady, with the Chicago price for field peas at \$2.75 to \$3.75 per bushel, sacks included.

Seeds.—Prime red clover \$10.85; March \$10.75; alsike \$11.40; timothy seed \$2.60.

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

\$40; fine middlings \$45; cracked corn \$46; coarse corn meal \$46; corn and oat chop \$42 per ton.

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

Pittsburg.—No. 1 timothy \$16.50 to \$17; No. 2 timothy \$14.50 to \$15.50; No. 1 light mixed \$15 to \$15.50; No. 1 clover, mixed, \$16.25 to \$16.75; No. 1 clover \$16.75 to \$17.25.

DAIRY AND POULTRY PRODUCTS.

Butter.—This commodity is steady and in active demand. Prices are unchanged. Quotations: Creamery extras 38½c; do firsts 37c; packing stock 24c a pound.

Elgin.—Market is steady at 40 cents per pound which is 1c lower than last week.

Chicago.—A firm feeling existed at unchanged prices. The demand is fairly good and receipts moderate. Extra creameries 40c; extra firsts 38½c; packing stock 26 to 26½c.

Poultry.—This market is firm with prices about 2c higher for hens and springers. Receipts are light. No. 1 spring chickens 23 to 24c; No. 2 do 20 to 22c; No. 1 hens 24 to 25c; No. 2 do 22 to 23c; small do 20c; ducks 23 to 24c; geese 19 to 20c; turkeys 25 to 26c.

Chicago.—Prices are unchanged and the market is easy. Buyers believe lower prices are due. Fowls 15 to 21½c; spring chickens 17 to 21½c; ducks 17 to 23c; geese 13 to 15c; turkeys 12 to 20c.

Eggs.—Cold weather brought higher prices but the market is easy and lower prices are expected. Firsts 28½c; current receipts 27½c.

Chicago.—Market is easy although prices are slightly higher than last week. Consumptive demand is good. Mild weather will probably bring lower prices. Fresh firsts 26½c; ordinary firsts 25 to 26c; miscellaneous lots, cases included 25 to 26½c.

FRUITS AND VEGETABLES.

Apples.—Market firm with prices unchanged. Baldwin \$5 to \$6; Spy \$5 to \$7; Steele's Red \$5 to \$7. At Chicago feeling is easy although prices are unchanged. Fancy stock is in greatest demand. Less desirable grades are plentiful. No. 1 stock sells at \$4 to \$7 per bbl; No. 2 at \$2.25 to \$3; orchard run \$3.50 to \$4.

Potatoes.—In carlots at Detroit in sacks, Michigan long white \$2.50 to \$2.55 per bushel; Wisconsin \$2.50 to \$2.55. At Chicago no Michigan stock was reported. Market is quiet and weak with a tendency toward lower prices. Prices range from \$2.30 to \$2.65 per bushel.

WOOL.

Although this is the season when wool prices usually begin to soften up a little, the scarcity of stocks at the present time gives the market a very firm undertone. Prices keep on advancing and there seems to be no limitation to the upward trend. Michigan three-eighths-blood unwashed combing sold in Boston last week at 53c, and quarter-blood of the same class went at 51c. Michigan wool growers are now of the opinion that the 1917 crop will ultimately sell off of the farms at around the half dollar mark. Present prices at Boston are. Michigan unwashed delaines 50c; do combing 45 to 52c; do clothing 40 to 42c.

GRAND RAPIDS.

No much change is noted here in the potato market, prices in the city continuing at \$2.60 to \$2.80, while the market outside is around \$2. The wise gardener is buying his seed early, as a scarcity is reported in onion sets and some other things. The demand for seed is expected to be unusually heavy, since many of the vacant city lots will be used for raising vegetables this season. The egg market has shown firmness on account of the cold weather and the Easter demand. In poultry live fowls have advanced to 20c.

DETROIT EASTERN MARKET.

There was fairly liberal trading for the spring season at the Eastern Market Tuesday morning, with prices well maintained on all offerings excepting eggs, which are now down to a 35c basis. Pork sold around 19½c; the bulk of the apples went from \$1 to 2 per bushel, with a few selling up to \$2.50; parsnips \$2.75; carrots \$1.25; rhubarb 40c per large bunch.

LIVE STOCK MARKETS.

Buffalo.

March 19, 1917.

Cattle.

Receipts 60 cars; market 25 to 30c higher; choice to prime native steers \$11.75 to \$12.75; fair to good \$10.75 to

11.75; plain and coarse \$9.25 to \$10.25; yearlings \$10.75 to \$11.25; best handy steers \$10 to \$11; fair to good \$9.25 to \$10; handy steers and heifers, mixed \$9 to 9.75; light butcher steers \$8.50 to \$9; western heifers \$8.25 to \$9.50; best fat cows \$7 to 7.75; cutters \$5.75 to \$6.25; canners \$4.50 to \$5; fancy bulls \$8.25 to 9.50; butchering bulls \$7.75 to \$8.50; common bulls \$6 to \$8.50; best feeders \$7.50 to \$8; best stockers \$7 to 7.50; light common \$5.50 to \$6; best milkers and springers \$8 to \$11; mediums \$6 to \$7.50; common \$4 to \$5.50.

Hogs.

Receipts 15 cars; market 10c higher; heavy \$15.60 to \$15.85; yorkers \$15.50 to \$16.75; pigs and lights \$13.50 to \$14.25.

Sheep and Lambs.

Receipts 7 cars; market 25c higher; top lambs \$16 to \$16.15; yearlings \$13 to \$14; wethers \$12.50 to \$12.75; ewes \$11.50 to \$12.

Calves.

Receipts 400; steady; tops \$15.50; fair to good \$13.50 to \$14.50; fed calves \$5.50 to \$7.

Chicago.

March 19, 1917.

Cattle. Hogs. Sheep.
Receipts today.. 2,500 6,500 8,000
Same day 1916.. 17,211 49,314 15,359
Last week..... 40,020 172,995 80,653
Same wk 1916.. 41,731 176,528 62,182

Country shippers held back their live stock so generally because of the threatened strike of the railroad workers that the receipts today were meager in the extreme for Monday, and everything sold higher. Cattle were called 15 to 25c higher, with prices largely nominal. The packers received a good share of the hogs direct from other markets, and the supply on the market was helped out some by the 10,576 hogs left over from last week. Prices averaged 15c higher, with hogs selling at \$14.15 to \$15.20. Hogs received last week averaged in weight 207 lbs. The sheep and lamb market was higher, with prime lambs bringing \$15.

Cattle receipts were on such a moderate scale last week, while the general local and shipping demand was so large that sellers were placed in a very independent position, being able to obtain much better prices than heretofore. Cattle were the highest ever known in the long history of the market, advancing 35 to 60c per 100 pounds, and by Wednesday the greater part of the steers sold at \$10 to \$12.35, with a fair representation of choice heavy steers selling at \$12.40 to \$12.65. Steers grading as good sold at \$11.80 and upward, while a medium grade brought \$10.75 and over and fair light killers \$9 and upward, with inferior little steers going in a limited kind of way down to \$8 or even lower prices. Yearlings that were desirable in quality brought \$11 to \$12.50, and usually the market was pretty much nominal for prime beefs, with none offered, as the feeding districts have hardly any left. It was a strong market for butcher stuff, with not enough to go around. Cows selling at \$7.10 to \$10.75 and heifers at \$6.50 to \$11.25, prime yearling heifers being the high sellers. Cutters sold at \$6.25 to \$7 and canners at \$5 to \$6.20, no such high prices for these cattle having ever been paid before. Bulls found ready buyers at \$6.25 to \$10, and there was an active and high market for calves, with light vealers purchased for \$12.50 to \$14.25 and sales down to \$5.50 to \$10.50 for heavy weight calves. The stocker and feeder trade was rather large, considering the moderate offerings, with stockers selling at \$6.50 to \$9.25, and desirable yearlings purchased at \$8.50 and over, while feeders were taken at \$8.75 to \$9.75. The inferior stockers and feeders were neglected by buyers, the call centering on a good kind, which showed decidedly the most firmness. The threatened railroad strike loomed up as the week advanced as a disturbing element in the trade. During the latter part of the week the railroads refused to take any live stock for shipment because of the threatened strike.

Hogs continued to command extraordinarily high prices for still another week, although breaks in the market took place because of much larger receipts, many stock feeders rushing in their hogs in order to get the high figures offered. As usual, much the largest numbers arrived on Monday, the receipts for that day numbering 53,602 head. With the large supplies of light and underweight hogs selling at a marked discount in prices, the spread in quotations became the widest seen in several weeks, and prices for pigs underwent several declines. The big packing firms received large supplies of hogs consigned to them direct from other markets, using them as a club in holding down prices. At the week's close hogs sold at \$14 to \$14.75 for light bacon weights; \$14.55 to \$14.95 for the heavy packers; \$14.80 to \$14.90 for light shippers; \$14.95 to \$15.05 for heavy shippers and \$10.25 to \$13.25 for pigs, the

higher prices being paid for pigs that weighed around 130 to 135 pounds. The hog top for the week was \$15.10.

Everything in the sheep or lamb line brought extraordinarily high prices last week, with the highest price paid for prime Colorado light-weight yearling wethers ever received in the history of the trade while prime fat lambs sold close to their recent high record, although the market felt the influence of larger receipts of Colorados and westerns. Some big bunches of Colorado fed ewes and yearlings were marketed, and they brought very high prices, as did all desirable feeding and shearing lambs. Lambs closed at \$12.50 to \$14.90; fat heavy lambs selling at \$13.85 to \$14.60 and feeder and shearing lambs at \$13 to \$14.40. Yearlings closed at \$11.25 to \$14, wethers at \$10.75 to \$12.65, ewes at \$8 to \$12.25 and bucks at \$9.50 to \$11.25. Wethers sold at the highest prices on record.

Horses were in fair supply last week and in the usual demand at current prices, with army horses wanted at \$120 for riders and \$150 to \$160 for gunners for the French army. Horses rejected by the French buyers were poor sellers at \$50 to \$75 for shipment east and south. Good to choice 1600 to 1800-lb. horses were wanted at \$250 to \$300, and 1400 to 1550-lb. horses brought \$225 to \$240.

LIVE STOCK NEWS.

The dairy industry of the south is being developed in various quarters, and a short time ago L. L. Johnson, agricultural manager for the Santa Fe system, with headquarters in Amarillo, Texas, left for Wisconsin and Michigan to purchase 400 head of Holstein cows, to be divided between several dairy associations, and it was said that some cows were likely to be bought in Oklahoma and Canada.

Recent receipts of sheep in the Chicago market have been the smallest ever known at this season of the year, and lambs make up most of the daily offerings, with 75 per cent at least of the receipts hailing from northern Colorado. Many of these lambs are heavy in weight, but they have sold much better than usual, as the price of wool has advanced so much as to stimulate the demand. Shearing lambs are very high and much wanted.

The high cost of living is much discussed everywhere, and so far as meats and other farm products are concerned, the remedy appears to be a return of a portion of the swollen populations of the larger cities to the farming districts, thereby increasing the production of live stock, grains, vegetables, etc. Among the causes of the enormous advances which have taken place in meats, Professor Howard H. Smith, Chicago live stock commissioner, names as the most important the disappearance of cheap range cattle, increase in exports of meats of various kinds since the great war started, the short crops of grain last year and the ravages of contagious disease among American live stock. As is generally known, the production of live stock of all kinds has utterly failed to keep pace with the rapid growth of our population.

FARMERS UNITE IN MARKETING MOVEMENT.

More than sixty celery growers of Muskegon and northern Ottawa county met at Muskegon and completed the organization of the Muskegon and Grand Haven Celery Growers' Association, with officers as follows: President, Martin Berkema, Muskegon; secretary and treasurer, W. J. Moorman. Mr. Moorman will represent the growers in the Chicago market during the season. Four of the Chicago commission houses were represented. An instructive talk was given on celery diseases by Ezra Levin, of Kalamazoo. R. H. Elsworth, of East Lansing, in charge of market extension work, assisted in the organization. The plan of carrying out co-operative selling on the Chicago market in an extensive way is being worked out and the Grangers, Gleaners, fruit growers and other organizations of the two counties have been asked to attend a federation meeting, to be held at the court house, Muskegon, on Saturday, April 14.

It is planned to ship in carlots or in considerable quantities on the boats, choosing a few commission houses and dealing with them exclusively as long as they get satisfactory treatment, demanding from these houses a duplicate statement of their sales each day, to be furnished to the representative of the Michigan federation in Chicago. The three per cent commission usually paid by the Chicago houses to their buyers at shipping points will be demanded from the federation and the amount divided pro rata among the members.

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 22, 1917.

Cattle.

Receipts. 2578. The receipts in the cattle division at the local yards this week were very large for March but the trade was active from start to finish and prices on all grades were very high, quite a large number selling from \$11@11.50 per cwt, the better grades of steers and bulls of all kind held full steady, but all other grades dropped 25c a hundred from last week. Thos. E. Newton, president of the Newton Packing Co., was one of the busiest men in the yards and bought the bulk of the high grade stuff, paying \$11.25@11.50 for around 100 head and over \$9.50 for many others. I. R. Waterbury, of Highland, had a load of good ones that sold straight for \$11.25. The milch cow trade for anything but prime grades was dull all common grades going to canner buyers.

The close was fairly active at the early decline. Best heavy steers \$11@11.50; best handy weight butcher steers \$9.25@10; mixed steers and heifers \$8.50@9; handy light butchers \$8@8.25; light butchers \$7.50@7.75; best cows \$8@8.75; butcher cows \$6.50@7.50; common cows \$6@6.25; canners \$5.25@5.75; best heavy bulls \$9@9.75; bologna bulls \$8@8.25; stock bulls \$6.50@7.25; milkers and springers \$5@8.50.

Sandel, S., B. & G. sold Thompson 30 steers av 855 at \$9.60, 9 do av 850 at \$9.15, 1 cow wgh 1050 at \$7, 1 do wgh 940 at \$8; to Mason B. Co. 1 bull wgh 1200 at \$8.50, 8 steers av 821 at \$9.25; to German 4 feeders av 875 at \$8; to Applebaum 5 butchers av 690 at \$7.25; to Sullivan P. Co. 3 cows av 977 at \$6, 8 do av 1030 at \$6.60; to Newton B. Co. 2 do av 890 at \$6.10, 2 do av 860 at \$5.60, 7 steers av 784 at \$8.75, 26 do av 804 at \$8.85, 2 do av 860 at \$9, 7 butchers av 630 at \$7.10, 5 do av 816 at \$7.50, 2 steers av 1100 at \$8.50, 15 do av 1105 at \$9.65, 17 do av 1141 at \$9.65, 12 do av 970 at \$9, 4 do av 892 at \$9.25; to Sutton 18 stockers av 683 at \$7.10; to Mason B. Co. 12 butchers av 726 at \$7.60; to Mindick 7 cows av 1003 at \$7.50; to Garber 6 butchers av 926 at \$7; to Hammond, S. & Co. 22 steers av 1040 at \$10.

Erwin, S. & J. sold Newton B. Co. 14 steers av 919 at \$9.75, 2 cows av 935 at \$6.50; to Mindick 2 do av 1015 at \$7.50; to Sullivan P. Co. 3 butchers av 770 at \$8, 1 cow wgh 1100 at \$8.25, 1 do wgh 1100 at \$7.25, 1 do wgh 1020 at \$6, 5 do av 1048 at \$7; to Hammond, S. & Co. 9 cows av 964 at \$6.50; to Kamman B. Co. 9 butchers av 871 at \$8.85; to Thompson 10 do av 892 at \$8, 1 bull wgh 1390 at \$9, 2 do av 1290 at \$8.50, 3 steers av 750 at \$9, 14 butchers av 840 at \$8.50, 7 do av 746 at \$8.25, 7 steers av 1000 at \$9.25, 23 do av 920 at \$9.75; to Newton B. Co. 2 do av 1075 at \$11, 8 canners av 1123 at \$7.75, 6 do av 878 at \$5.75, 6 do av 866 at \$5.75, 10 cows av 1072 at \$7.50, 6 do av 1000 at \$7.10, 10 do av 1072 at \$7.50, 12 canners av 860 at \$5.75.

Veal Calves.

Receipts 817. The veal calf trade was active and good grades 25@35c higher than they were a week ago and common steady, selling as follows: A few fancy at \$14.25@14.50; bulk of good \$13@14; heavy \$6@8.

Erwin, S. & J. sold Nagle P. Co. 2 av 175 at \$13.50; to Mich. B. Co. 29 av 160 at \$14, 4 av 180 at \$11, 3 av 140 at \$13.75; to Thompson 12 av 160 at \$14, 2 av 220 at \$11, 6 av 150 at \$13.75, 4 av 150 at \$13.25.

Sheep and Lambs.

Receipts 931. The sheep and lamb trade was very light and lambs never sold so high on this market, the bulk of the good bringing \$15.50 a hundred; sheep strong. Best lambs \$15.50; fair lambs \$14@15; light to common lambs \$11@13; fair to good sheep \$10@11; culls and common \$6@8.

Bishop, B. & H. sold Parker, W. & Co. 207 lambs av 84 at \$15.50; to Newton B. Co. 25 do av 70 at \$15, 15 do av 55 at \$14, 31 do av 90 at \$15.50, 9 sheep av 115 at \$10; to Thompson 21 lambs av 75 at \$15.25, 5 do av 45 at \$13; to Nagle P. Co. 60 do av 70 at \$14.75, 5 do av 90 at \$15.40; to Sullivan P. Co. 128 do av 85 at \$15.50; to Parker, W. & Co. 90 do av 85 at \$15.50; to Thompson 21 do av 75 at \$15.25.

Hogs.

Receipts 3736. The hog trade was active at last week's closing prices and the quality was fair; good mixed grades \$14.50@15; good pigs \$12.75@13; skips \$10@11.

Crop and Market Notes

Michigan.

Gladwin Co., March 15.—Snow nearly all gone, and fields have been well covered all winter. No maple syrup made here. Farmers are getting ready for the spring work. Some hay and some potatoes still in farmers' hands. Live stock is not looking as well this spring. Some horses are being shipped out. Beans \$7.20; corn 97c; wheat \$1.79; oats 70c; butter-fat 40c; eggs 30c; hay \$11@12.

Cass Co., March 12.—We are having rain and sleet but no snow, and winter grains are in fair condition, though the March winds were hard on the wheat. Some cloverseed has been sown. Not much stock being fed, as feed is scarce and hard to get. There will be hay enough to get through the season, but grain must be shipped in. Wheat \$1.80; corn \$1; oats 53c; rye \$1.30; potatoes \$2; hogs \$13; calves \$10; cows \$50@75. Farm help scarce and hard to get.

Sanilac Co., March 16.—Ground has been bare for two weeks, and it is feared that winter grains will suffer. So far, little maple syrup harvested, the weather being unfavorable. Considerable stock is being fed. Most silos are empty, but there is plenty of hay in barns. Not much produce yet to be marketed. Wheat \$1.98; oats 65c; beans \$7.40; butter-fat 41c; eggs 26c; fat cattle \$7.50; hogs \$13.

Delta Co., March 15.—February temperature averaged nine degrees colder than the ten-year average. There is about thirty inches of snow, and badly drifted, so there is not much farm work being done yet. The usual amount of maple syrup will be made. There is plenty of roughage but not much grain. Potatoes are very scarce and selling at \$2@2.25; hay \$14@15; eggs 40@45c; butter 35@40c.

Minnesota.

Stearns Co., March 12.—This has been a hard winter on feed of all kinds. Snow is very deep, as we have not had any warm weather yet. Cattle and hogs are scarce, also feed and roughage. Horses are sold very cheap at auctions. Winter grains look very poor. Not much of anything being marketed except hogs and cattle. Butter-fat 38c; eggs 27c; wheat \$1.98; corn \$1; oats \$13.50.

New York.

Steuben Co., March 14.—No snow except in the woods. Winter grains and grass are in good condition. The weather is not favorable for maple syrup making yet; only a few farmers produce syrup or sugar for the market, and many groves have been cut in recent years. Hay is in abundant supply, and sells for \$10@12; potatoes have been as high as \$3.25 per bushel, but are now \$2; beans \$7; butter 38@40c; eggs 32@34c; apples 60c@1 per bushel. Farmers have been hauling manure and lime. The high prices of produce and grain will encourage strong efforts for greater crops, but scarcity of efficient farm help promises to be a hindrance.

Orleans Co., March 13.—Very little snow left. Farmers are making preparations for spring work. There is, however, a shortage of seed, especially potatoes. Winter grains in good condition so far. Not much stock being kept, and there is plenty of rough fodder on hand. Baled hay is selling for \$9.50 but many are holding for higher prices. Potatoes \$2@3; beans \$6@7; wheat \$1.80; milk \$2.50 per cwt; pork \$15; sheep \$14@16 per head; dairy butter 30c; eggs 30c.

New Jersey.

Morris Co., March 13.—No snow on the ground now. We had a heavy snow a week ago, but it went off very fast. Winter wheat and rye are not looking very good. Very few public sales this spring. All produce bringing big prices. Farmers are short of roughage. Potatoes retail at \$3.25; eggs 32c; butter 42c; ear corn \$1.50 per cwt; milk 4½c a quart.

Shiawassee Co., March 19.—Cold northwest winds prevail with a light fall of snow. Winter wheat is not coming through the winter in the best of condition on account of the large amount of ice covering the ground caused from the melting snow and freezing. Rye also is looking rather injured. New meadows are in fair condition, although some killing out on account of the light covering of snow during the winter. A large number of lambs are going to market and feeders generally are well pleased with results. Good horses are in good demand, also good fresh cows. Very few marketable hogs in the country. A few farmers are hauling hay to market. Plenty of feed in farmers' hands. Stock of all kinds in good condition.

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Raising Chicks to Maturity

THE rearing of chickens, in order to be successful or profitable, requires all the care that can be given them, for proper care is one point which must be considered. If young chickens are well housed, have good mothers or brooders, together with good food and care, there is no more danger of losses if they are hatched early or late in the season.

The first essential to success is vigorous breeding stock. If the parent stock of both genders should happen to be constitutionally weak, all the care will not restore the lack of initial vigor which is transmitted through the fertilized germ. If that initial vigor should be lacking so that the chicks are not strong when hatched, there is little hope of their being successfully raised. But even if such chicks should be raised to maturity, they are not worth the time and trouble, either for egg production or for breeding purposes.

One of the discouraging features in raising chicks is to have many of them die off. The trouble is fundamentally a lack of vigor in the breeding stock, though care and management has sometimes something to do with the

it had better be avoided altogether. The best protection the poultry keeper can accomplish is to secure a variety of grains and prepare his own feeding ration.

In feeding baby chicks a combination feed that I have found to give satisfactory results is a mixture of equal parts of oat meal, or rolled oats, bran, small-size cracked corn, wheat and bread crumbs.

The First Feeds.

This forms an excellent feed for the young chicks and it may be fed from the time they first begin to eat, when from thirty-six to forty-eight hours old, until they are several weeks old.

Such a feed mixture can be prepared very easily and it will provide a comparatively well-balanced grain ration. In early spring weather chicks should be fed regularly three times a day, while four times a day is not too often as the days grow longer. But care should be taken not to over-feed at any time. Feed should not be left around to get soiled or become sour. To keep up their natural heat and vitality and to provide for their normal growth, early hatched chicks should be thoroughly nourished, and this can

been adjusted and warmed up, place the chicks under the hover. Their body heat will increase the temperature under the hover somewhat, but the regulator will take care of the excess heat. Frequently visit the hover, notice the thermometer and adjust the regulator slightly until the heat reaches and maintains a temperature of ninety-five degrees.

The forenoon is the best time to transfer the chicks to the hover as it allows time to adjust the temperature properly and to accustom the chicks to their new quarters before leaving them at night. Baby chicks unless supplied with ample heat, huddle for warmth, both under and outside the hover. The acquiring of this habit should be prevented. Keep them confined to or near the hover until they learn it is the only place where they can find heat they require.

It will be necessary to confine them close to the hover for the first few days until they become hover-broke. Make a simple circular chicks-guard out of wire-cloth, chick netting, cloth-covered frames. This is necessary to prevent the chicks from wandering too far from the heat of the hover, and to teach them to find warmth of the artificial mother.

The following temperature with the chicks outside the hover will prove quite satisfactory: Ninety-five degrees the first week, and reduce gradually to ninety degrees by the seventh day; reducing the temperature about five degrees each week for the first few weeks. At this rate the end of the fourth week will find the temperature about seventy-five degrees.

Steady Growth of Chicks Important.

The primary aim in the management of chicks is growth. Many growers of chicks do not realize the importance of keeping the youngsters steadily growing until the pullets reach laying maturity. To keep the chicks steadily growing so that the pullets shall be laying in October, is the surest and best road to a good profit.

Common causes of growth being checked are lack of room in the coops, not having abundant range and not having good and sufficient food. It seems almost unnecessary to urge giving the youngsters roomy coops, and yet that is a point where very many fall down. They do not realize that growing chicks double in size in a remarkably short time. Many coops which seem very roomy when we put the fifty chicks into them, are sadly over-crowded when the rapidly expanding youngsters have become half-grown.

The value of ample range for growing youngsters is also of importance, which cannot be too strongly emphasized. The best possible way to grow future layers is to set the coops along the edge of a corn field in summer and allow the pullets to range through the corn at will. With plenty of room in the coops, at night, abundance of good food and fresh water to drink, plus ample range with shade, pullets will grow immensely.

Early spring-hatched pullets some times require artificial heat until they are eight or ten weeks of age, while later hatched pullets can be weaned at six to eight weeks. The actions of the chicks may be taken as a more or less accurate guide in this matter. The youngsters roosting on the top of the hover and in places other than under the hover is a sign that artificial heat is no longer required. If the weather is mild and other conditions favorable, they may be transferred to the growing coops or colony houses and as above mentioned, placed along the edge of a corn field.

A good colony house should provide an abundance of fresh air and sunshine, it should be so constructed that it will provide conditions necessary to the health and growth of the chicks. Growing pullets must not be crowded. They need lots of roosting space to



Free Range for Chicks will Promote Vigorous Growth.

losses that have been incurred. Not only is it the loss of time during the hatching period, but the later loss of chicks involves the loss of time and labor of the poultry keeper, the feed consumed, and the prospects of profits in late spring and early fall. These are all discouraging features which can largely be avoided by paying close attention to the breeding stock and egg incubation, whether natural or artificial. If these conditions are fulfilled, then the raising of chicks becomes largely a question of comfortable quarters, clean food and good care and management.

The Cause of Chicks Dying.

The cause of chicks dying off in large numbers usually results in feeding too heavily. If any great quantity of feed is thrown at a time, more than they can eat up readily, this feed is trampled over by them and becomes filthy, absorbing the foul gases which makes it unfit for food. If in their hunger they are forced to eat it, these gases irritate the digestive organs of the chicks, causing inflammation. The chicks then drink large quantities of water to allay the fever; this results in bowel trouble and the chick, having but little vitality to draw on, soon lays down and dies. Therefore, you can readily see how important it is that little chicks should be fed clean, sweet grain and because of their crops being so small they require but little food at a time, but require it often.

To secure good results, purchased feeds should be fresh ground from wholesome grain. In the spring of the year cracked grains spoil readily and quickly, especially if they get damp, and care should be given to the preparation and handling of feeding stuffs for young and growing chicks. If grain, particularly corn, is in the least moldy

only be done by giving attention to their feeds and feeding.

The advantage in feeding dry food is the exercise it forces the chicks to take. This can be induced almost from the start. Nothing makes a chick healthier, stronger and a good feeder more than plenty of exercise, which is essential to a chicken, young or old. This exercise is absolutely necessary so long as the chicks are confined. Give them plenty of range and they will exercise without being coaxed, if they are healthy and vigorous. Clover chaff makes the best of litter in which to throw the grain, but if this is not available, then fine cut straw is very good. I have quite often seen bran used as a litter on the floor, but an objection to this is that the droppings become mixed with it and the chicks obtain unclean food.

Brooding Chicks Artificially.

Outdoor brooding by artificial means can be practiced during the spring and summer months and indoor brooding during the winter months. Of these, hovers and stoves are perhaps the most popular foster-mothers. The hover is used for brooding smaller flocks, and the stoves are used to brood larger units up to 500 chicks. Manufacturers usually rate the capacities of their devices much higher than is required.

There are several requirements to be kept in mind for the best artificial brooding of chicks. The hover should be well ventilated, easily cleaned, accessible, partly darkened and so arranged that the chicks can run under at any time to warm up quickly. The compartment in which the brooding device is placed should be well ventilated, lighted, moderately warm and should provide plenty of exercise room for the chicks. After the brooder has

prevent over-heating and crowding. Confinement in small ill-smelling coops brings on heavy mortality.

One of the greatest advantages of free range method of rearing is the reduction of the cost of the labor and feeding. Under right conditions there need be little fear of the youngsters over-eating, becoming excessively fat or off their feed through lack of exercise. Equal parts of cracked corn, wheat and oats fed to growing pullets both morning and night, with a supply of grit, ofster shell, green cut bone and charcoal in hoppers, will soon fit them in laying condition most any time.

Iowa.

F. F. HUNSTOCK.

LICE AND MITE TROUBLE.

The development and growth of the young chick can be greatly hindered by the presence of lice and mites. They will sap away its life and even if it is able to withstand them, will be weaker and undeniably tardy in its growth and maturity.

There is considerable difference in the treatment for chicken lice and chicken mites. The lice do not stay on the coop or chicken house, but on the chicken itself, so that the disinfectant must be applied directly to the chicken in the form of a lice powder, dip or spray; while the chicken mite stays in the cracks about the coop or chicken house or in crevices in the roosts or nests ready to come out at night and go onto the body of the chicken. To effectually rid the premises of mites it is necessary to apply the disinfectant preparation in the form of a spray over the whole inside of the chicken house or coop and in all the cracks and crevices and over all the roosts, supports, nest boxes and dropping boards. I have had good results in killing mites by spraying with creosote oil or kerosene. This readily soaks into the cracks and crevices and destroys the mite as soon as it comes in contact with them. Crude carbolic acid and crude petroleum can also be used to good advantage.

As a home remedy for body and head lice, I use a mixture made up of three tablespoonfuls of lard, one teaspoonful of kerosene and ten drops of some disinfectant mixed warm. I apply a few drops of this mixture to the head, around the vent and under each wing of the chicken. This will rid them of the lice.

Cleanliness is a very important factor in keeping the chicks free from mites and lice. The coops, henhouses and roosts should be kept clean and plenty of whitewash used. It not only improves their quarters but adds very greatly to the appearance of the chicken yards. I try to move the coops for the young chickens about every two weeks and prefer to locate them close to some good blue grass and clover.

Nebraska.

PAUL H. EATON.

STIMULATE EARLY BROOD REARING.

Colonies that have become weakened over winter, either through improper protection from the cold or insufficient quantity of stores are not in a condition to take advantage of the early flow of nectar from the fruit and other blossoms. A large number of workers is necessary if the colony is to start early laying in of stores and this can hardly be expected of a colony that has dwindled in numbers.

Bees, like any of nature's creatures, will give their first attention to the rearing of young and the perpetuation of the species. Thus it is that the queen and her workers turn their first efforts to the rearing of brood and the strengthening of the colony in the spring of the year; the very time when the honey flow is the heaviest and when the workers should be laying in their most abundant supply of stores. Fall feeding to induce late brood

rearing, ample supplies of stores left in the hive, and proper protection from the cold are the best means of insuring a strong colony in the spring of the year. Even with the strongest of colonies, however, spring feeding is advisable in order that they may have their full quota of workers before the honey flow starts.

Feeding can be commenced as soon as it is safe to open the hives in the spring. Syrup made from pure cane sugar and water in equal parts is used for this and is made up fresh and placed in the hives every day.

The water is first heated and the sugar dissolved in the hot water. Extreme care should be exercised in the making as even a slight amount of scorching will result in the death of the bees. The safest plan is to remove the water from the fire before adding the sugar.

Syrup should always be fed within the hive. Where fed outside marauders from neighboring colonies are pretty apt to be attracted and robbing is sure to ensue.

Any of the several types of inside feeders will do very well, although the super type is preferable to most others. This is constructed in much the same manner as is a super and fits on over the hive body. It holds quite a quantity of syrup and is so arranged as to keep the bees out of the liquid and to prevent their drowning.

A saucer in which has been placed a piece of bread will answer the same purpose as will a special feeder. The bread will keep the bees out of the syrup but this method of feeding has its drawbacks. A saucer will not hold any quantity of the syrup and is further in the way, sitting on the floor of the hive as it must.

Rye flour fed in conjunction with the syrup makes a good substitute for pollen. Pollen is one of the chief constituents in the feed for the young, being mixed with nectar to make the "bee bread" upon which the young are reared. The flour may be placed in a shallow pan in close proximity to the hives. It is not necessary to place the flour within the hives as it is with the syrup and a single pan will answer for several colonies.

Feeding is not necessary after the fruit blooms come or after the honey flow has become fairly abundant. To be most effective it should have been done prior to this time and a large number of workers produced for gathering the stores from the earliest blooms and blossoms.

Indiana.

J. R. CAVANAGH.

EIGHT EGG POINTS.

H. L. Kempster, of the Missouri Agricultural College, gives the following essentials for successful poultry feeding:

1. Grain (scratch food) and ground feed (mash).
2. Animal food, such as beef scrap or sour skim-milk.
3. Grit and oyster shell.
4. Clean, fresh water.
5. Liberal feeding.
6. Plenty of exercise.
7. Regular attention.

Hens eat from five to eight pounds of food a month, or sixty to eighty pounds in a year. The daily food eaten by a hen is from three to four ounces. The daily ration for 100 hens is from nineteen to twenty-five pounds.

Hens drink about six pounds of milk a month. One hundred hens drink two and one-half gallons of milk daily.

On limited range a laying hen eats two pounds of grit and three pounds of oyster shell in a year.

A poultry specialist claims to be able to reduce loss among incubator chicks by providing the brooder with feather dusters. The chicks in coming in contact with the dusters imagine that they are being brooded by a hen and consequently do not become homesick and despondent over the fact that they have no mother to love them.

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Additional Poultry Ads. on Page 415

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Early History of the Grange

ON November 15, 1867, in Wash-
ington, D. C., was held the first
formal meeting of the group that
founded the Patrons of Husbandry,
now commonly called the Grange. On
November 15, 1916, forty-nine years lat-
er, in the same city, was held the
annual convention of the National
Grange that marks the fiftieth anniver-
sary of the organization. It is the only
large farmers' organization in this
country that has maintained a contin-
uous existence for so long a period. It
is interesting at this time to review
the visions and vicissitudes of the or-
iginator, who was Oliver H. Kelley,
now reverentially called by the mem-
bership, "Father Kelley." Mr. Kelley
left his native state, Massachusetts, in
1849 to pioneer on a Minnesota farm.
As to the occasion that resulted in the
start of the Grange he relates in his
history of the early work: "Excessive
drouth in northern Minnesota in 1862-
63 by which I was a considerable suf-
ferer induced me to take a clerkship
in the Department of Agriculture in
the winter of 1864. I returned to Min-
nesota in the spring. October 20, 1865,
Isaac Newton, Commissioner of Agricul-
ture, wrote me thus: 'I am anxious
to have you come to Washington. I
wish to see you on special business.'"

On reaching Washington in Novem-
ber Mr. Kelley was informed by Pres-
ident Johnson and Commissioner New-
ton that he was to be sent through
the south to obtain statistics and other
information, the former channels for
which had been cut off by the war.

Regarding his findings, Mr. Kelley
wrote: "In my interviews with plant-
ers, as a member of the Masonic frater-
nity I was cordially received and
given much valuable information. I
became convinced that politicians
could never restore peace; if it came
at all, it must be through fraternity. I
mentioned in a letter to my niece, Miss
Caroline A. Hall, the idea of a secret
society of agriculturists as an element
to restore kindly feelings among the
people of the south. She encouraged
the suggestion. From January to May,
1866, I was constantly in motion, and
this idea of an association was getting
fixed in my mind. I remember compar-
ing the Mississippi and its tributaries
to such a national organization and its
subordinates."

Mr. Kelley talked the idea over with
various planters, who also endorsed it.
He returned to Washington on April
21, 1866. On his way back to Minne-
sota, he went to Boston to visit rela-
tives. His niece, Miss Hall, being there
the plans for the organization were
made to take more definite shape, Miss
Hall urging that women be given full
membership. Mr. Kelley's idea was
that a secret organization could be
most effective in rendering co-opera-
tive assistance between farmers in dif-
ferent sections in purchasing and mar-
keting and general protection. He
spent the summer on his farm in Min-
nesota, returning to Washington in the
fall to work in the Post Office Depart-
ment. Here he received encourage-
ment from W. H. Moreland, chief clerk
of the finance office, and "penciled out
a plan for the ritual." Rev. John Trim-
ble, a clerk in the Treasury Depart-
ment, as a friend of Kelley's, also be-
came interested. Trimble, however
was so conservative in his interest
that he called himself "the wet blanket
of the institution." He proved later a
very valuable successor of Mr. Kelley
as secretary from 1885 to his death in
1902, when he was succeeded by the
present secretary, C. M. Freeman, of
Ohio.

In August, 1867, they interested Wil-
liam Saunders, superintendent of the
government experimental gardens, in
the project. Saunders, on a trip to St.
Louis late in August stopped along the
way. He wrote Kelley thus at Sandus-

ky: "I have mentioned your order to
a good many, who agree that it is a
grand idea. Some will write you."

Anson Bartlett, of North Madison,
Lake county, Ohio, was the first to
write, and he suggested as a name for
the new order, "Patrons of Industry,"
which prompted Mr. Kelley to substi-
tute "Husbandry" to make "Patrons of
Husbandry," which name was adopted
December 4, 1867. Mr. Bartlett also
objected to the word "lodges" which
Kelley, as a Mason, had proposed for
the local organizations. Kelley replied:
"How would 'Granges' do?" And so it
was determined. Mr. Bartlett wrote
many parts of the first ritual, the main
portion being furnished by Kelley. A.
S. Moss, of Fredonia, Chautauqua coun-
ty, New York, was the second to in-
quire about the new proposition, in re-
sponse to circulars which Kelley had
sent abroad, and November 16, there
came a letter from another New York
farmer, F. M. McDowell, a large fruit
grower of Wayne, Schuyler county,
which as Kelley prophetically said in
1875, "commenced an acquaintance of
vital importance to the order." Mc-
Dowell gave the first important finan-
cial assistance, and served the Nation-
al Grange as treasurer from 1873 to
1893, when at his death his wife, Mrs.
Eva McDowell, took up the service and
has continued it to the present.

At the meeting called by Kelley on
November 17, 1867, in Saunders' office
in Washington, there were present
Messrs. Kelley, Ireland, Saunders, and
Trimble; also J. R. Thompson, a Ver-
monter employed in the Department of
Agriculture, who had become interest-
ed. Saunders was delegated to draw
up a preamble, which he did. Decem-
ber 4 following they all met again in
Saunders' office to elect officers of
"The National Grange," as they at once
named their organization. The slate
selected was: Master, Wm. Saunders;
overseer, Anson Bartlett, of Ohio, (not
present); lecturer, J. R. Thompson;
secretary, O. H. Kelley; treasurer,
Wm. Ireland; steward, Wm. Muir, of
Fox Creek, Missouri, (not present but
interested through correspondence);
assistant steward, A. S. Moss, of Fre-
donia, New York, (not present). Rev.
A. B. Grosh, of Washington, later be-
came interested and was chosen as
chaplain.

January 8, 1868, "a school of inspec-
tion" in the ritual work was started in
Washington, and named Potomac
Grange, No. 1, but it did not last long.
McDowell came to Washington to at-
tend this meeting and gave valuable
advice about policies. At this time the
Ceres, or seventh degree, which later
became the National Grange degree,
was instituted and McDowell became
first "high priest of Demeter" in it.

In the spring of 1868 Mr. Kelley de-
termined to try to organize some
Granges on his way home to Minne-
sota. He stopped at various places in
Pennsylvania and New York, without
success until he reached Fredonia,
Chautauqua county, New York, where
the previous interest of A. S. Moss
made it easy to start on April 16, 1868,
Fredonia, No. 1, the Grange that has
never surrendered its charter, and now
is the largest Grange in the order,
with about 700 members.

After the summer work on his farm
in Minnesota was over Kelley devoted
himself industriously to establishing
the order in his own state, but pro-
gress was slow, for funds were lacking.
The second Grange to organize was at
Newton, Jasper county, Iowa, on April
17, 1868, the next day after Fredonia
was started, but it did not "hang to-
gether" as Fredonia has. Granite
Grange, Sauk Rapids, Benton county,
Minn., was started July 29, 1868, but
"died" soon. Therefore, the first real
Grange in Minnesota was North Star,

organized at St. Paul, on September 2,
1868.

At the end of his first year's work
Kelley had only nine subordinate
Granges started. On February 23,
1869, Minnesota State Grange was or-
ganized at St. Paul with eleven Grang-
es represented. The movement was
progressing slowly. Kelley was con-
stantly hampered by lack of funds be-
cause the only sources were the few
"dispensation" fees (\$15 for each
Grange organized), his own limited in-
come, and what money friends of the
idea advanced. The officers of the
"National Grange" in Washington
proved most lethargic in interest and
help—Saunders was too busy, and the
others "forgot" when Kelley was not
present in person to enthruse them.

By the end of 1869 Kelley had start-
ed thirty-eight subordinate Granges, all
in Minnesota except one in Iowa, two
in Illinois and two in Indiana. (Honey
Creek and Terre Haute). At the close
of 1870 he reported the addition of
thirty-eight subordinate Granges and
one more state Grange (Illinois); dur-
ing 1871 he organized 130 subordinates,
besides Iowa and Wisconsin State
Granges, and reported subordinates in
sixteen states: New York, Iowa, Min-
nesota, Illinois, Indiana, Ohio, (East
Cleveland Grange, organized March 2,
1870, was the first Grange in Ohio),
Tennessee, California, Missouri, Wis-
consin, Pennsylvania, Mississippi, So.
Carolina, Vermont, Kentucky and New
Jersey. In 1872 he added 1,105 new
Granges, and seven state Granges; in
1873 over 8,000 subordinates and twen-
ty-two State Granges, among these
Ohio, Pennsylvania, New York, Ken-
tucky and West Virginia; in 1874 over
10,000 subordinates and four more
State Granges.

By 1871 the work had become so im-
portant that Kelley felt the need of be-
ing in closer touch with the rest of
the National Grange officers, so that
he would not seem to be the whole
thing," so he moved to Washington.
Even then he had quite a task to keep
them sufficiently interested. Finally,
in 1873, in Washington, D. C., the first
really representative meeting of the
National Grange was held, eleven
states being represented. Officers who
were really interested were selected
from various states. Dudley Adams,
of Iowa, became master; F. M. McDow-
ell, treasurer; Kelley, secretary, and
Miss Caroline Hall, the first lady as-
sistant steward. The masters have
been: Wm. Saunders, Washington,
D. C., 1867-73; D. W. Adams, Iowa,
1873-75; J. T. Jones, Arkansas, 1875-
77; S. E. Adams, Minnesota, 1877-79;
J. J. Woodman, Michigan, 1879-85; Put
Darden, Mississippi, 1885-88, (died on
July 17); James Draper, Massachu-
setts, filled out Darden's term in 1888;
J. H. Brigham, Ohio, 1888-97; Aaron
Jones, Indiana, 1897-1905; N. J. Bachel-
der, New Hampshire, 1905-11; Oliver
Wilson, Illinois, 1911 to present. The
choice of officers from among those
vitaly concerned with what such an
order could afford them marked the
beginning of steadier growth like the
past year's record of 457 new Granges
built on much more enduring founda-
tions.—Harriet Mason.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lan-
sing.

Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee.—Jas. Helme,
Adrian; Geo B. Horton, Fruit Ridge;
J. W. Hutchins, Hanover; W. F. Tay-
lor, Shelby; Wm. H. Welsh, Sault Ste
Marie; N. P. Hull, Dimondale; Burr
Lincoln, Harbor Beach.

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

Farmers' Clubs

Address all communications relative to the organization of new Clubs to Mrs. J. S. Brown, Howell, Mich.

FARMERS' CLUB PROJECTS.

There is undoubtedly a profitable field for work by the Farmers' Clubs of the state, especially those located in counties which have county farm bureaus, with accredited county agricultural agents, in some line of special demonstration work which would be valuable to a majority of the membership. In practically every community there is some line of production which is more or less general on all the farms. This should be the case if it is not, since local conditions are likely to favor some special line which a majority of farmers will find it profitable to follow.

In this case a special demonstration to determine the best varieties to use, the best cultural methods to follow, the best method of storing, grading and marketing would be most profitable. The county agent would doubtless be glad to co-operate with the Club to that end if he were asked to do so, and he could be of great aid in so doing. Why not try out this plan this year?

In counties where there is no county agent available for such aid, the assistance of an extension specialist from M. A. C. might be secured, if a committee of the Club were appointed to settle on some project in which the greatest number of members would be interested and make the necessary arrangements.

Practical work of this kind would undoubtedly be most beneficial to any local Farmers' Club. It only requires the initiative of some member to bring these beneficial results to the entire membership.

BENEFITS OF THE STATE ASSOCIATION.

Discussion by C. B. Cook, at the recent annual meeting.

I am always glad to add a word along any line that makes for better things in the future. I do believe that this organization of the Farmers' Clubs has been one of the best things that ever happened to we farmers of Michigan but I believe we must go one step further. The time is coming when we want a little more team work in the Association. The work today is moving toward organization, business organization, and until the farmers get organized along business lines we can't compete with the fellows that are. We have to waken up to that fact, and I don't know of any better organization in Michigan today than the State Association of Farmers' Clubs to come forward and take hold of this proposition along the lines of agriculture. It seems to me that just as soon as we get farmers of the state to studying the situation and see where they are from a dollars and cents standpoint we get them to thinking. What has been said this afternoon about the milk proposition goes to show that we have not been studying along that line. Now as we go into the other lines of agriculture we find the same crying needs. I believe that the time has come that in counting the benefit of this organization we must add another link to the chain of good things and get together along business lines to a very large extent and just as far as possible get some sort of an organization going that will talk up the business end of the proposition in such a way as will make the production of the farms pay the farmers a fair profit and until we come to that point our organization is going to miss the main point.

I want to add when we get an organization where we can do that kind of

business, then instead of keeping quiet let's make a little more noise—let people know what we are doing. The large cities especially are very ignorant regarding the problems the farmers are up against. At the present time, for instance, when the prices of food stuffs are so high, they think the farmers are coining money when they are not doing so. I was talking with a man in our town the other day who mentioned the fact that farmers were getting immensely rich. He said "Look at the price of beans." I told him that so far as beans were concerned I was not going to get rich this year out of them. That I had planted about fifteen acres of beans and reaped about six. Now then, let's advertise our business a little bit so that the people in town will know something about it. I don't believe they are so selfish but they don't realize.

CLUB DISCUSSIONS.

Favor Old Highway System.—The March meeting of the Salem Farmers' Club was held at the pleasant home of Mr. and Mrs. W. B. Rorabacher. About fifty were present to enjoy the fine dinner and program furnished by the men of the Club. The program opened with music by the Club. Invocation by Rev. Carter. The secretary's report was read and accepted. We then listened to a humorous recitation by I. R. Johnson, "Those Dear Enamel Cheeks," and a reading by Rev. Carter, "The Doughnuts Mother Used to Make." The question of "Good Roads" was then taken up. Mr. Chase gave a paper favoring the return to the pathmaster system which was followed by one by Mr. W. Hamilton favoring the present one-man system. Mr. W. Geiger then gave a talk suggesting a new system. A very lively discussion followed, after which the Club decided to favor the pathmaster system. After singing America the Club adjourned to meet the first Wednesday in April with Rev. and Mrs. Baker at Salem.—Mrs. I. R. Johnson, Cor. Sec.

Will Make Exhibit at County Fair.—On March 14 the members of the Essex Farmers' Club, of Clinton county, and guests to the number of seventy, gathered at the hospitable home of Mr. and Mrs. Austin E. Cowles and a pleasant and profitable meeting was enjoyed while the March winds raged without. This home has steam heat, electric lights, and a farm water system, conveniences not often found in farm homes. The farm of 310 acres is well provided with necessary buildings and tools, the main barn being forty by 175 feet in dimensions; attached to this is a barn fifty by 100 feet in size. In these barns 830 sheep and forty-five head of steers are being fitted for the spring market, while in another building 150 hogs are being prepared for the block. President Cowles called the Club to order and, following the usual opening exercises, the Club decided to make an exhibit of products of farm and home at the coming county fair, a committee being appointed to arrange for the exhibit. A reading by Elbert Mattor was the next number in which was presented many facts, pertaining to Michigan's Agricultural College. An earnest discussion of matters connected with M. A. C. followed. Mr. Childs, of Perrinton Condensary, who was on the program for an address, was unavoidably absent, which was much regretted. Adjournment for dinner being announced, the "activities" which followed, afforded a pleasing variety in the program. Being again called to order, music was enjoyed, followed by "Schools of the Present and Future, from the Farmer's Standpoint," which theme was treated in an earnest and helpful address by Dr. J. Seatchaw. The discussion of the subject was led by School Commissioner T. H. Townsend, who spoke earnestly and helpfully, among the many good thoughts were the following: "The School should fit the child for future living." "The capable teacher should be able to rightly interpret child life." Reference was made to the admirable school system of Denmark. A general and helpful discussion of this important subject followed. The next number was a paper by J. T. Daniells, treating of "Historical Events, both Domestic and Foreign." Miss Anabell Millard favored the company with a vocal solo, after which the question box provided several practical themes for discussion, one of which, "The Present County Highway Law," was examined and the manner in which it "works out" was not approved. The next meeting of the Club will be held on April 25 at "Maple View Farm," with Mr. and Mrs. J. T. Daniells.—J. T. Daniells, Cor. Sec.



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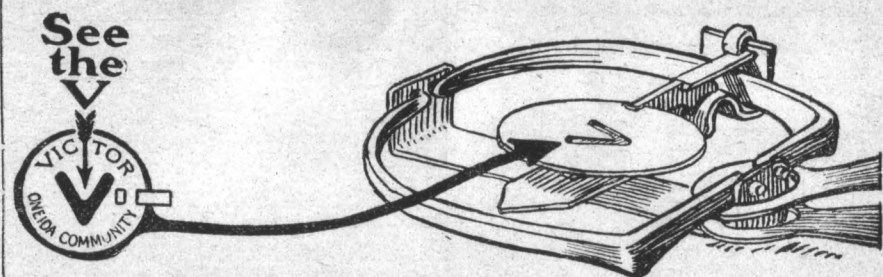
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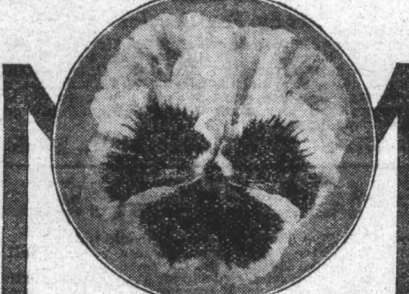
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Veterinary.

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

Brittle Hoofs—Sidebones.—I have a large work horse that is troubled with brittle hoofs; besides he has sidebones. L. A. G., Shelby, Mich.—Apply wool fat or oil of tar to brittle hoofs three times a week. Also keep his feet moist and paint sidebones with tincture iodine three or four times a week. Also lower his heels.

Sore Neck.—I have a horse that was troubled with sore neck all last summer. Our Vet. prescribed a green-colored salve, but it only palliated his trouble. S. D. E., Inkster, Mich.—First of all your horse may be one that should work in breast collar; however, if you will use a zinc pad or deer skin pad and be sure to have a nice fitting collar, his neck might not get sore, but after once becoming sore and horse working every day, you will find it very difficult to keep the neck healed. Dust on equal parts of powdered alum, oxide of zinc and boric acid twice a day.

Stomach Worms.—I copied a remedy for stomach worms in horses out of the Michigan Farmer some time ago and my recollection was to give 20 grs. of santonine, 10 grs. of calomel and 2 grs. of powdered gentian. Can you not prescribe a cheaper remedy? E. E. T., White Cloud, Mich.—Give 1 oz. of rectified oil of turpentine and 12 ozs. of raw linseed oil twice a week.

Enlarged Shin.—About a year ago my horse hurt his leg in stable injuring fore part of shin near fetlock joint, since then he has been lame, especially starting, and I would like to know how to treat the case. E. M., Attica, Mich.—Apply one part red iodide mercury and eight parts of lard to bunch once a week.

Indigestion—Weakness.—I have a horse five years old that is low in flesh, perspires freely while standing in stable and is weak. G. H. L., Hastings, Mich.—Clip your horse, examine his teeth, give him 1 dr. of ground nux vomica, 1 dr. of ground cinchona, 1 oz. of ground gentian and 1 dr. acetate of potash at a dose in feed three times a day. Be sure and keep your stable well supplied with fresh air.

Tumor on Eyelid.—I have a yearling heifer that has a growth on upper eyelid which at first seemed to be a wart. I forgot to say that this bunch is growing rapidly and bleeds occasionally. F. S., Turner, Mich.—A bunch of this kind should be cut out, then apply boric acid twice a day.

Cystic Ovarian Trouble.—I have a Holstein cow that comes in heat regularly, but fails to get with calf. J. B., Coopersville, Mich.—You had better call a competent Vet. and have him crush ovarian cysts, then your cow will perhaps breed. This is done through the rectum and proves fairly successful.

Cow Coughs, also Fails to Come in Heat.—I have a seven-year-old cow that freshened the middle of January, which frequently coughs. Furthermore, she has not been in heat. F. D. W., Atkins, Mich.—Give your cow good care as she needs no treatment. She will perhaps come in heat when warm weather sets in.

Indigestion.—Have a seven-months-old heifer that is not thriving. L. R., Twining, Mich.—Change your heifer's feed, increase her grain ration and give her a dessertspoonful of ground gentian at a dose in feed two or three times a day.

Indigestion.—I have a sow that seems to have stomach trouble; she bloats more or less after each meal. J. E. N., Iron River, Mich.—Mix together equal parts of cooking soda, ginger, gentian, powdered charcoal, give sow a teaspoonful at a dose in feed twice a day.

Rheumatism.—Am having trouble with my five-month old pigs and several of them are traveling lame. They are losing flesh and I have noticed after eating a few mouthfuls, they return from trough, lie down and when they get up, drag their hind feet. Whatever this lameness is, it is painful. A. C. K., Montague, Mich.—Give each five-month-old pig 5 grs. of salicylate of soda at a dose three times a day. Feed less corn, more oats, oil meal, tankage and roots.

Looseness of Bowels.—I bought five pigs last fall which are now six months old; they thrived well for some time, but are now dull and have more or less bowel trouble. W. S., Grosse Pointe, Mich.—Mix together one part sub-nitrate of bismuth, one part ginger, one part ground cinnamon and four parts ground gentian; give each pig a teaspoonful at a dose two or three times a day.

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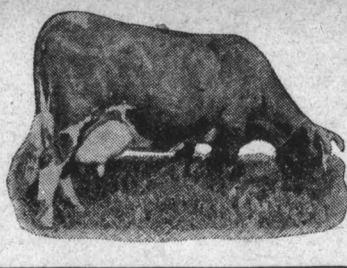
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REG. Holstein Bull, ready for service. Sired by a half-brother of World's Champion cow. Send card for pedigree & price. E. R. Cornell, Howell, Mich.



THIS GRADE GUERNSEY COW

in Illinois produced in one month 93.9 lbs. of butter fat, equivalent to 109.5 lbs. butter—over 3 1/2 lbs. daily—and 1566.1 lbs. milk testing 6% fat.

GUERNSEYS are the MOST ECONOMICAL PRODUCERS of BUTTER FAT

Write for a free breeder's calendar and our beautiful booklets

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, 300.72 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 production 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 1200 lb. record, 11-30 lb. sisters, 3-1200 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 bred from 2000 lbs. Must sell at once, need the room. Our prices will surprise you. John H. Winn, Holton, Michigan.

1200-lb. Bred Young Bulls

Their sire, Maplecrest DeKol Hengerveld. We offer one born Feb. 12, 1916, out of a 21-lb. cow from sister to 32-lb. cow. His grandsire is sire of the famous Banostine Belle DeKol, 1322.93 lbs. butter, 1 yr. Write for pedigree and price.

HILLCREST FARM, F. B. Lay, Mgr.

Kalamazoo, Mich.

Holstein Bull calf nearly white. Sire: Colantha Johanna Creamella Lad. Dam: Sexis 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.

FOR SALE Reg. Holstein cow, 10 yrs. old, due May 1st, has better than a 19lb. record at 4 yrs. old. Price \$200.00. Chas. I. Cook, Fowlerville, Box 488, Michigan.

HOLSTEIN COWS: bred yearlings and calves for sale. Every cow has produced a vigorous calf during year. C. L. Hulett & Son, Okemos, Mich. H

\$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 comprises about 100 head representing the blood of such sires as Prime Lad 9th, Perfection Fairfax, 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

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.

Get Rid of the "Boarders"

Do you keep cows or do they keep you? Do you know which are earning a profit and which are merely paying their board? One community increased the average net profit per cow 129% in a few years by testing. Cows from regularly tested herds sell for more money and so do their offspring. Knowing beats guessing in dairy work. Get our free booklet, "What is Accomplished by Testing Cows" and learn how to build up your herd from animals of known production. Every farmer should read this booklet. It's free. Send a postal today.

The American Jersey Cattle Club

346 West 23d St. New York City

Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. C. 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 ready for service 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 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 C. Lillie, Coopersville, Mich

The Wildwood Farm

Breeder of Line bred Majesty strain of Jersey Cattle. Herd on R. of M. test. Tuberculin tested. Bull calves for sale. Type & Production is our motto. Alvin Balden, Capac, Mich.

Shorthorn Cattle of both Sex for Sale

W. W. KNAPP, Howell, Michigan.

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. Shensstone Albino and Imp. Villager Registered stock always for sale.

BIDWELL STOCK FARM,

Box B, Tecumseh, Michigan.

Francisco Farm Shorthorns

Big Type Poland Chinas

"They're rugged—They pay the rent."

Nothing for sale at present. P. P. POPE, R. R. 3, Mt. Pleasant, Mich.

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 Maxwellton Monarch 2nd, a son of Avondale, from 11 to 13 mos. old. John Schmidt, Reed City, R. No. 5., Michigan

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 2 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 1897. Young bulls for sale. J. E. Tanswell, Mason, Michigan.

Bates Shorthorns only one bull left for sale. No females for sale at any price. J. B. Hummel, Mason, Michigan

HOGS.

Durocs and Victorias

Heavy bone, lengthy Spring Bors and Gilts from prize winners sired by one of the best Sires 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 Drakes \$2 each. Chase Stock Farm, R. 1, Marietta, Mich.

Berkshires,

Boars, serviceable age, best blood lines. Registered. ELMHURST STOCK FARM, Almont, 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 30 bred sows during Feb. Newton Barnhart, St. Johns, Mich.

Duroc Jerseys

18 bred gilts for sale priced to sell. Hastings, 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. 73373. Bred for Apr and May farrow. Send for pedigree. Prices reasonable. THE JENNINGS FARMS, R. F. D. 1, Bailey, Mich

Cow Coughs, also Fails to Come in Heat.—I have a seven-year-old cow that freshened in the middle of January, which frequently coughs. Furthermore, she has never been in heat. F. D. W., Atkins, Mich.—Give your cow good care as she needs no treatment. She will perhaps come in heat when warm weather sets in.

Mare Fails to Come in Heat.—We have a mare 16 years old which we would like to breed, but she fails to come in heat. H. B., New Era, Mich.—Give your mare 1 dr. of ground nuxvomica, 2 drs. of ground capsicum, and 1/2 oz. of Fowler's solution at a dose in feed night and morning. If she is in low flesh, increase her grain ration.

Spring Tonic—Pinworms.—I would like to know what would be a good spring tonic and blood purifier for a horse? Also, tell me how to rid a horse of worms about an inch long and as thick as a match that reside in the rectum. G. L. H., Fennville, Mich.—First of all bear in mind that a well horse needs no medicine, but if out of condition or sick, should have treatment. Mix together one part ground nuxvomica, one part powdered sulphate iron, one part salt, one part of ground fenugreek, one part bicarbonate soda, one part powdered charcoal and four parts ground gentian; give each horse a tablespoonful at a dose in feed two or three times a day. Occasionally wash out bowels with one part coal tar disinfectant and 49 parts tepid water.

Frozen Teat.—I have a cow with sore teat and I am inclined to believe it has been frozen. This one teat is considerably blocked and the udder is somewhat inflamed. M. C., Branch, Mich.—Dissolve 1 oz. acetate of lead in a quart of water then add 4 ozs. of glycerine and apply it to sore and inflamed part of udder and teat twice a day.

Pigs Cough.—I keep from 50 to 100 head of hogs and for about ten months some of my pigs have been troubled with a hacking cough; they seem to get it when about four months old. I also bought a boar and after I had him about a month, he also began to cough. I have 18 that I am fitting for market which weigh 175 pounds or more each. In this bunch there are four which are coughing. Our local Vet. told me to feed turpentine, which I did, but it fails to make an impression. J. S., Weidman, Mich.—It is possible that some of your hogs may have tuberculosis which, if so, the glands of throat or bowels are involved. Mix equal parts ginger, powdered licorice and gentian together; give each hog a teaspoonful in feed two or three times a day. I might add that a great many young hogs have tuberculosis, but they are fit for food.

Chronic Cough.—I have a horse that has been troubled with a cough for quite a time and I would like to know what to do for him. H. G. McC., Prattville, Mich.—Rub his throat with equal parts tincture iodine and camphorated oil three times a week. Give him a 1/2 dr. of powdered lobelia, 1 dr. muriate ammonia, 1 oz. ground licorice at a dose in feed three times a day.

Chronic Cough—Milk Fever.—Would like to know if there is a cough remedy that I can buy for my horses, one which is already prepared. I would like also to know if there is a remedy for milk fever in cows. The milk from my cows gets stringy. This happens just before the cows are turned out to pasture in the spring. T. Z., Peacock, Mich.—Perhaps your druggist keeps in stock a commercial cough remedy called Glyco-Heroin (Smith). Give 1 oz. doses to each horse three or four times a day. The air treatment which doubtless you have read about, if properly applied will cure 95 per cent of cases of milk fever. By thoroughly cleaning your stable and discontinuing to milk your cows too close to calving time, also disinfecting your stable and practicing the utmost cleanliness you will have no trouble with stringy milk.

Open Joint.—One of my horses had open joint, causing its death. I have been told had it been properly treated the horse would have lived. The hock joint was the one affected. A. F., Utica, Mich.—Even if skillfully treated an open hock joint is very often incurable.

Scours in cattle.—I have 35 head of two-year-old steers which I am feeding 20 bushels of ensilage at a feed twice a day, four pounds of cottonseed meal per head, and about five bushels of shelled corn daily. They also have all the clover hay they will eat for roughage. E. H., Unionport, Mich.—Mix together equal parts of ginger, ground cinnamon, powdered sulphate of iron, ground gentian and charcoal, give each one a tablespoonful or two at a dose twice a day. You must keep in mind that the food and water supply is perhaps what is causing this trouble and unless a change is made their bowels may continue to be loose.

Chronic Cough.—I have a colt nine months old that has had a cough since last August. I might add that every one of our horses had distemper last summer. J. H., Elsie, Mich.—Give the colt a teaspoonful of glyco-heroin (Smith) at a dose in soft feed or water three or four times a day.

LIVE STOCK NEWS

The recent report issued by the federal government showing the small remaining farm grain reserves of wheat and corn proved a bullish influence in the grain markets of the country, the corn stocks showing a decided shortage, while feeding requirements in the live stock districts are of enormous proportions. Wherever any considerable amount of stock feeding is being conducted, the feeding value of corn has become unusually large, and in recent weeks it has advanced above its selling value. Recent actual experience has demonstrated beyond any doubt that corn put into cattle and hogs has netted stockmen far more than \$1 a bushel; and in numerous instances it has netted not far from \$2 a bushel; while the shortage of fat cattle and hogs is pretty certain to continue for a good many weeks.

Cattle have made further high records quite recently, with meager receipts and a total absence of strictly prime heavy beefs and prime yearlings much of the time. Cattle have been mostly shipped out of many districts, with scarcely any of the best class left, and especially few cattle remain in such states as Iowa, South Dakota and Nebraska. The almost universal practice this season has been for owners to cash in their cattle after a short feeding period, in many instances amounting to only a warming-up process, and even distillery feeders have adopted this policy, cattle being marketed from fifty to sixty days ahead of the usual time. Thin old cows suited for canning purposes have sold particularly high all along, as they are greatly needed by the packers for converting into canned beef for supplying heavy orders placed months ago. Calves are marketed too freely, owners succumbing to the bait offered in the high prices prevailing everywhere, and during February, Chicago received 12 per cent more calves than a year ago, while the increase was 32 per cent in St. Joseph, 79 per cent in Kansas City, and 119 per cent in Fort Worth. More breeding is being carried on in the large districts of the far west than in the past but too many of the calves are being converted into veal. The market for stockers and feeders is

Hogs have sold within a short time at far higher prices than ever before in the history of the trade, the top in the Chicago market for prime heavy butchering barrows standing at \$15.10 per 100 pounds. After prices had been boomed at a lively pace, with advances of as much as 25 cents per 100 pounds in a single day or even more at times, reactions were only natural, and sharp breaks took place, leaving values far higher than in past years however. All the existing conditions have greatly favored the selling side of the market, with a serious shortage in the remaining supply in feeding districts and the largest local and shipping demand ever witnessed. Marketings have been falling off materially, compared with earlier this year and with the corresponding time last year, and there is lively competition between rival buyers for the better class of heavy and light hogs. Provisions have participated in the upward movement of the raw material, and within a short time pork has wholesaled for \$34 a barrel on the Chicago Board of Trade, comparing with \$23 a year ago, followed by a sharp decline in prices, in which changes lard and short ribs shared. The packers have placed heavy orders for provisions for future delivery, and they must have the hogs, no matter what prices are prevailing. After they catch up with their sales for future delivery, it seems not unlikely that hogs will sell at lower prices, although a shortage in supplies of both hogs and cattle is expected for weeks ahead. Few heavy hogs are marketed, and during a recent fortnight the hogs marketed in Chicago averaged only 204 pounds, comparing with 211 pounds a year ago, 232 pounds two years ago and 227 pounds three years ago. Farmers have been making enormous profits on their hogs, and several weeks ago, when hogs were selling very much lower than they are now, an Iowa farmer sold on the Chicago market three carloads of hogs that grossed \$6,184, or more than he paid for his farm of 160 acres fifteen years ago, and he said he had five loads left of the same class in his feed lots at home.

Durocs For Sale Big Heavy Boned

Fall boars and gilts, weight 125 lb. to 200 lb. each, not extra fat but in good breeding flesh. Also one yr. Reg. Percheron Stallion, color black and a good one. M. A. Bray, Estate, Okemos, (Ingham Co.) Mich.

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

Duroc Sows and gilts bred for Mar. & Apr. farrow. King The Col. Defender and Oakland Fancy families. E. D. Heydenberg, 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 Jerseys Fall boars ready for service, sired by a son of Orion Cherry King and Volunteer also booking orders for spring pigs, pairs not akin. F. J. DRODT, Monroe, Mich., R. 1.

DUROC Sows, gilts and fall pigs. Percheron stud colts, one coming two, one coming one. E. J. Aldrich, Tekonsha, Mich.


For Sale Duroc Jerseys. Six fall boars of big smooth kind. Price right. JOHN MCNICOLL, Route 4, Station A, Bay City, Mich.

Duroc Jersey Boars old enough for servicesired by Brookwater Cherry King. \$25 each. Reg. & Del. Choice goods. J. R. Hicks, St. Johns, Mich.

Duroc Jerseys. Breeding Boars and Sept. Gilts. J. H. Banghart, East Lansing, Mich.

Chesters. Bred gilts all sold. A few fall pigs left. Booking orders for spring pigs. F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites
Like This
the original big producers



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan. More Money from Hogs. G. S. BENJAMIN, R. F. D. 10, Portland, Michigan.

1/2 Ton O. I. C's. & Chester Whites 1/2 Ton 10 Oct. and Nov. boars sired by our undefeated Grand Champion School Master. The boar that has size and quality combined. All sold any age. Write and get our Catalogue free and describes our champions. We do not say our hogs are the best but we win the championships to prove it. We have 100 sows bred to our champion boars for Mar. and Apr. farrow. HARRY T. CRANDELL & SON, Cass City, Mich.

CHOICE BRED GILTS Bred to Big Prince 5800, sired by Wildwood Prince 110 lb. 3 yr. Grand Champion at Iowa, sold for \$750. Ship O. O. D. —J. Carl Jewett, Mason, Mich.

O. I. C. and Chester White Swine Strictly Big Type with Quality. Gilts bred for Spring farrow, all sold. Five line Sept. gilts bred for July farrow. Have a few good fall pigs left, either sex. We are also booking orders for early Spring pigs. Can furnish in pairs not akin. Newman's Stock Farm, Marlette, Mich. R. 1.

O. I. C. Year old 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. SWINE: Bred gilts are all sold. not akin to breed in the spring. Rush in your order before they are sold. Satisfaction guaranteed. A. J. GORDEN, R. No. 3, Dorris, Mich.

O. I. C's. Bred sows all sold. Have a few good last Sept. boars and this spring pigs. Good growthy stock. 1/4 mile west of depot. Otto B. Schulze, Nashville, Mich.

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

O. I. C. Gilts bred for June and July farrow. Also boars of September farrow. H. W. MANN, Danville, 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 prize winning stock. Write for low prices. A. V. HATT, Grass Lake, Mich.

O. I. C's. Buy the best and breed them better. Fall Gilts and Boars. CLOVER 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, Danville, Michigan

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 Goldthar Farver. 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.

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.

Big Type Poland Chinas Sept. farrow, either sex, sired by Jumbo Wood, 800 lb. hog. A. A. WOOD & SON, Saline, Michigan

HALLADAYS' HAMPSHIRE All sold, except fall pigs. We are booking orders for spring pigs. O. H. Halladay & Son, Clinton, Mich.

Hampshire Swine. Nothing for sale but fall boars and gilts. Write for prices. R. No. 9. Decatur, Ind. FLOYD MYERS.

Big Type Poland China fall boars. Am booking orders for spring pigs, satisfaction guaranteed. G. W. Holton, R. 11, Kalamazoo, Mich.

LARGE Strain P. C. bred gilts all sold. A few long bodied heavy boned boars ready for service. 2 yr. fall boars by Smokey Jumbo. H. O. Swartz, Schoolcraft, Mich.

HAMPSHIRE SWINE My herd contains the blood lines of many of the most noted champions of the breed. My herd boar, Claytons Lad, 1833 is a brother of Look Out Lad, who was grand Champion at the National Swine Show. I am booking orders for spring pigs, to be shipped about May 1st. Write me for prices. George E. Starr, Grass Lake, Mich.

HAMPSHIRE HOGS all sold out. would sell one herd boar and book orders for spring boar pigs. John W. Snyder, St. Johns, Michigan, R. 1.

HORSES

Percheron Stallions
25 Must Be Sold

Also 2 Imported Clydesdale Stallions. Spring Sale Prices are now on
Palmer Bros.,
P. O. Belding, Ionia Co., Belding, Mich.

JACKS AND MULES
Raise mules and get rich. 120 fine large Jacks, Jennys and Mules, all ages for sale. A lot of big registered Jacks. No little cheap Jacks for sale. All guaranteed Jacks. Prices \$250 and up. Come on and see for yourself or write me today. KREKLER'S JACK FARM, West Elkton, Ohio

AT HALF PRICE
Registered Percherons. Big black stud colt coming 3, sound and sure. Big boned rugged filly 2 past, bred by M. A. C. Also pair of mares 4 and 5 years old. Come and see them. JNO. C. BUTLER, Portland, Mich. Bell Phone.

KENTUCKY JACKS and SADDLERS
BIG BONE Kentucky JACKS and JENNIES. 5 head FIVE and CUBAN GAITED STALLIONS, geldings and mares. Fancy MULE TEAMS. WRITE US. ASK FOR OUR 1917 CATALOG. THE COOK FARMS Box 426L, LEXINGTON, KY.

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

For Sale Two registered Percheron Stallions, one four and one seven. Colts to shoot. Write for particulars. W. E. WAFFLE, Burlington, Mich.

Valley Side Percherons
For sale: 6 black Percheron stallions coming 2 and 3 yrs. old; these colts are sound, heavy boned and best of feet, registered in P. S. A., priced to sell. Union Phone 325-2R. C. M. RICE, St. Johns, Michigan

The Belstein Stock Farm Offers a dark bay four year old Belgian Stallion that is way above the average in breeding size and quality weighing over 2200 lb., with good style and action, price and terms right, if interested write OSCAR WOLF, ST. LOUIS, MICH.

SHELTAND PONIES
Herd established 1891. 200 Head to select from. Write Dept. E. for catalog. The Shadyside Farms, North Benton, O.

FOR SALE: 2 Black Percheron Stallions Registered, one coming 3 next June one 14 years used him here 15 years, sound and all right. William McCordan, Dutton, (Kent Co.) Michigan.

REGISTERED PERCHERON
Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, EATON RAPIDS, MICH.

Registered Percherons 1 stallion coming 1 year. Mares and Fillies. Priced to sell. Wm. J. Blake, Dutton, Mich.

Registered Clydesdale Stallions For Sale.
By Mr. F. A. PETZ, Capac, Mich.

SHEEP

OXFORD EWES
Yearlings \$35.00. Shropshires all ages \$30. All good ones and money makers. Kope Kon Farms, Kinderhook, Mich.

Oxford Down Sheep No more for sale. M. F. GANSSLEY, Lennon, Michigan.

CATTLE

FOR SALE Twenty-five Jersey cows, two to eight years old. Eight registered, balance high grades. Excellent producers, guaranteed right. Also some bred yearling heifers, 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.

POULTRY

Single Comb Black Minorcas Great big cockerels sired by a 10 lb. cock bird. R. W. Mills, Saline, Mich.

S. C. White Legorns 200 egg strain. Good winter layers. Baby chicks 15c each. Hatching eggs 5c each. Order now. C. W. Gordon, Hattiesville, Mich.

Single Comb Brown Leghorn eggs for hatching. Also day-old chicks. Order now. Frank Camburn, Saline, Mich., R. D. No. 4.

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

TRY some Silver Spangled Hamburg eggs for hatching. The Dutch everlasting layers White Holland Turkey eggs. Fine Belgian Hare Does bred to high class Bucks. Pedigreed. Stamp for circulars. Riverview Farm, Vassar, Mich.

Buff Wyandotte Cockerels \$3 each. Also Banded Rock and Wyandotte eggs for hatching, \$1.25 per 15. Mrs. R. W. BLACK, Caro, Michigan.

Silver Wyandottes. Quality cockerels for sale. Free mating list. H. J. Gettings, Hillsdale, Mich.

WHITE Wyandottes. A. 1 layers. Eggs for hatching, \$1.25, \$3 for 15, \$7 per 100. Special matings \$5 for 15. DAVID RAY, 709 Norris St., Ypsilanti, Michigan.

Veterinary.

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

Brittle Hoofs—Sidebones.—I have a large work horse that is troubled with brittle hoofs; besides he has sidebones. L. A. G., Shelby, Mich.—Apply wool fat or oil of tar to brittle hoofs three times a week. Also keep his feet moist and paint sidebones with tincture iodine three or four times a week. Also lower his heels.

Sore Neck.—I have a horse that was troubled with sore neck all last summer. Our Vet. prescribed a green-colored salve, but it only palliated his trouble. S. D. E., Inkster, Mich.—First of all your horse may be one that should work in breast collar; however, if you will use a zinc pad or deer skin pad and be sure to have a nice fitting collar, his neck might not get sore, but after once becoming sore and horse working every day, you will find it very difficult to keep the neck healed. Dust on equal parts of powdered alum, oxide of zinc and boric acid twice a day.

Stomach Worms.—I copied a remedy for stomach worms in horses out of the Michigan Farmer some time ago and my recollection was to give 20 grs. of santonine, 10 grs. of calomel and 2 grs. of powdered gentian. Can you not prescribe a cheaper remedy? E. E. T., White Cloud, Mich.—Give 1 oz. of rectified oil of turpentine and 12 ozs. of raw linseed oil twice a week.

Enlarged Shin.—About a year ago my horse hurt his leg in stable injuring fore part of shin near fetlock joint, since then he has been lame, especially starting, and I would like to know how to treat the case. E. M., Attica, Mich.—Apply one part red iodine mercury and eight parts of lard to bunch once a week.

Indigestion—Weakness.—I have a horse five years old that is low in flesh, perspires freely while standing in stable and is weak. G. H. L., Hastings, Mich.—Clip your horse, examine his teeth, give him 1 dr. of ground nux vomica, 1 dr. of ground cinchona, 1 oz. of ground gentian and 1 dr. acetate of potash at a dose in feed three times a day. Be sure and keep your stable well supplied with fresh air.

Tumor on Eyelid.—I have a yearling heifer that has a growth on upper eyelid which at first seemed to be a wart. I forgot to say that this bunch is growing rapidly and bleeds occasionally. F. S., Turner, Mich.—A bunch of this kind should be cut out, then apply boric acid twice a day.

Cystic Ovarian Trouble.—I have a Holstein cow that comes in heat regularly, but fails to get with calf. J. B., Coopersville, Mich.—You had better call a competent Vet. and have him crush ovarian cysts, then your cow will perhaps breed. This is done through the rectum and proves fairly successful.

Cow Coughs, also Fails to Come in Heat.—I have a seven-year-old cow that freshened the middle of January, which frequently coughs. Furthermore, she has not been in heat. F. D. W., Atkins, Mich.—Give your cow good care as she needs no treatment. She will perhaps come in heat when warm weather sets in.

Indigestion.—Have a seven-months-old heifer that is not thriving. L. R., Twining, Mich.—Change your heifer's feed, increase her grain ration and give her a dessertspoonful of ground gentian at a dose in feed two or three times a day.

Indigestion.—I have a sow that seems to have stomach trouble; she bloats more or less after each meal. J. E. N., Iron River, Mich.—Mix together equal parts of cooking soda, ginger, gentian, powdered charcoal, give sow a teaspoonful at a dose in feed twice a day.

Rheumatism.—Am having trouble with my five-month old pigs and several of them are traveling lame. They are losing flesh and I have noticed after eating a few mouthfuls, they return from trough, lie down and when they get up, drag their hind feet. Whatever this lameness is, it is painful. A. C. K., Montague, Mich.—Give each five-month-old pig 5 grs. of salicylate of soda at a dose three times a day. Feed less corn, more oats, oil meal, tankage and roots.

Looseness of Bowels.—I bought five pigs last fall which are now six months old; they thrived well for some time, but are now dull and have more or less bowel trouble. W. S., Grosse Pointe, Mich.—Mix together one part sub-nitrate of bismuth, one part ginger, one part ground cinnamon and four parts ground gentian; give each pig a teaspoonful at a dose two or three times a day.

BREEDERS' DIRECTORY.

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

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

Flanders Farm, Orchard Lake, Mich.

CATTLE.

ABERDEEN-ANGUS

Bulls by BLACK QUALITY ITO, sire. First prize, Breeders and Calf Herds Mich. State Fair 1916. We also won first on Exhibitors Herd, Jr. Champion Bull, Jr. Champion Female and Grand Champion Cow. Also breeders of Percheron, Hackney and Saddle Horses. WOODCOTE STOCK FARM, IONIA, MICH.

Aberdeen Angus

Eight bulls from eight to ten months old. One show bull, eight yearling heifers bred. Our motto: size with quality, best of breeding. Prices reasonable. Inquire of F. J. WILBUR, CLIO, MICHIGAN.

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Average yearly production 422.3 lbs. of fat, three fourths of them making their records as two year olds. By the use of a pure bred sire, a big improvement can soon be attained if the right selection is made. The breeding of the Beach Farm Herd is as good as can be found, and we guarantee them to be free from contagious diseases and to be satisfactory in every way or money refunded. Write and let us tell you about them.

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Coldwater, Michigan.

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

GUERNSEYS—REGISTERED BULL CALVES
Containing blood of world champions.
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FOR SALE Registered Guernsey bulls and calves and bull calves and Berkshire swine, the best breeding. John Ebel, R. 10, Holland, Mich.

For Sale Reg. Guernsey Bull, 3 years old of farmers' prices. E. A. Kellogg, Rockford, Mich.

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6 1/4 fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

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Herd No. 1. Five cows, one two year old bull.
Herd No. 2. Five yearling heifers, one yearling bull.
Herd No. 3. Five Heifer calves and one bull.
Bulls ready for service and 6 to 8 months old bulls. Prices will please you. If interested, write as soon as you read this. L. E. CONNELL, Fayette, Ohio.

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOP NOTCH" quality, of serviceable age, at moderate prices. Information, pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

Bigelow's Holstein Farms,

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Have Some Fine Registered Stock For Sale

Reg. Holstein Bull. Dam first in Dairy test. Sire G. Champion Michigan State Fair. Price right. John A. Rinke, Warren, Mich.

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

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure. H's weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

REG. HOLSTEINS: Herd headed by Albina Bonte Buller Boy No. 93124. Dam's record at 6 yrs. butter 25.53 lbs. milk 618.4. Yearly record at 2 1/2 yrs. butter 802 lbs. milk 1852 lbs. W. B. READER, Howell, Mich.

Cluny Stock Farm

100 REGISTERED HOLSTEINS 100 Save Money! Buy Now!

THE MILK AND BUTTER KIND

Pull calves by a Sire whose 3 nearest dams average: Milk, 7 d. 55.2 lbs., Butter 30.618 lbs. His dam's record 31.766 lbs. butter in 7 d. as Jr. 4 yr. old. State record for age when made. Make a saving on Price and Express charges, and raise one of his sons for your next herd sire. Prices and Pedigrees on application. R. B. McPHERSON, HOWELL, MICH.

Holstein Bulls

1 to 9 months old. Dam's A. R. O. Our herd sire is Johanna McKinley Segis 3d. 7 nearest Dams average 27.25 BLISSVELDT FARMS, Jenison, Mich.

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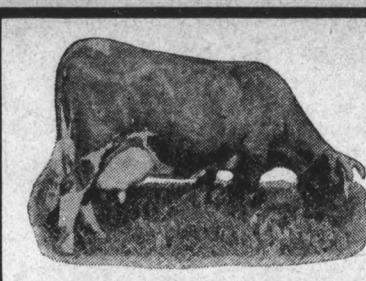
Herd Sire

Ypsiland Sir Pietertje 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, Cohoctah, Mich.

REG. Holsteins. Place your order now for a bull calf. I have cows due to freshen soon, bred to the best bull in Mich. Elmer E. Smith, Redford, Michigan

REG. Holstein Bull, ready for service. Sired by a half-brother of World's Champion cow. Send card for pedigree & price. E. R. Cornell, Howell, Mich.



THIS GRADE GUERNSEY COW

in Illinois produced in one month 93.9 lbs. of butter fat, equivalent to 109.5 lbs. butter—over 3 1/2 lbs. daily—and 1566.1 lbs. milk testing 6% fat.

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THE AMERICAN GUERNSEY CATTLE CLUB
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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 23878, now on test, has made in 5 months and 21 days, 308.97 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 production 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 1200 lb. record, 11-30 lb. sisters. Her dam, 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. FARHAM, 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 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.

1200-lb. Bred Young Bulls

Their sire, Maplecrest DeKol Hengerveld. We offer one born Feb. 12, 1916, out of a 21-lb. cow from sister to 32-lb. cow. His grandsire is sire of the famous Banantine Belle DeKol, 1322.93 lbs. butter, 1 yr. Write for pedigree and price. HILLCREST FARM, F. B. Lay, Mgr. Kalamazoo, Mich.

Holstein Bull calf nearly white. Sire: Colantha Johanna Creamella Lad. Dam: Segis Aggie Hengerveld DeKol. Write GEO. D. CLARKE, Vassar, Mich., for photo and price.

FOR SALE—Registered Holstein bull calves, 1 to 6 months old from a 31 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.

FOR SALE Reg. Holstein cow, 10 yrs. old, due May 1st, has better than a 19lb record at 4 yrs. old. Price \$200.00. Chas. I. Cook, Fowlerville, Box 438, Michigan.

HOLSTEIN COWS: bred yearlings and calves for sale. Every cow has produced a vigorous calf during year. C. L. Hulet & 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 comprises about 100 head representing the blood of such sires as Prime Lad 9th, Perfection Fairfax, 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

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.

Get Rid of the "Boarders"

Do you keep cows or do they keep you? Do you know which are earning a profit and which are merely paying their board? One community increased the average net profit per cow 129% in a few years by testing. Cows from regularly tested herds sell for more money and so do their offspring. Knowing beats guessing in dairy work. Get our free booklet, "What is Accomplished by Testing Cows" and learn how to build up your herd from animals of known production. Every farmer should read this booklet. It's free. Send a postal today.

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Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. C. 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 ready for service 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 C. Lillie, Coopersville, Mich

The Wildwood Farm Breeder of Line bred Majesty strain of Jersey Cattle. Herd on R. of M. test. Tuberculin tested. Bull calves for sale. Type & Production is our motto. Alvin Balden, Capac, Mich.

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

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. Shensstone Albino and Imp. Villager Registered stock always for sale.

BIDWELL STOCK FARM, Box B, Tecumseh, Michigan.

Francisco Farm Shorthorns Big Type Poland Chinas

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

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 Maxwellton Monarch 2nd, a son of Avondale, from 11 to 13 mos. old. John Schmidt, Reed City, R. No. 5., Michigan

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 Shansum, Fairfield, Iowa, R-8.

SHORTHORNS Maple Ridge Herd, Established 1867. Young bulls for sale. J. E. Tanswell, Mason, Michigan.

Bates Shorthorns only one bull left for sale. No females for sale at any price. J. B. Hummel, Mason, Michigan

HOGS.

Durocs and Victorias

Heavy bone, lengthy Spring Bors and Glits 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: Glits and mature sows that will farrow in April and May. Mammoth Toulouse Geese. Pekin Ducks \$2 each. Chase Stock Farm, R. 1, Marlette, Mich.

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

Fall Boars, best of breeding, one 35 summer and fall glits open, or bred to Jo. Orion 14th and held until safe in pig. Visitors welcome and satisfaction guaranteed on mail orders. Sold 30 bred sows during Feb. Newton Barnhart, St. Johns, Mich.

Duroc Jerseys 18 bred glits for sale priced to sell. Carey U. Edmonds, Hastings, 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. Keeler, Cassopolis, Mich.

Duroc Jersey Glits We have a choice lot of good rugged heavy boned Glits, registered. All bred to our Herd Boar, Jennings Pilot Wounder No. 73373. Bred for Apr and May farrow. Send for pedigree. Prices reasonable. THE JENNINGS FARMS, R. F. D. 1, Bailey, Mich

Cow Coughs, also Fails to Come in Heat.—I have a seven-year-old cow that freshened in the middle of January, which frequently coughs. Furthermore, she has never been in heat. F. D. W., Atkins, Mich.—Give your cow good care as she needs no treatment. She will perhaps come in heat when warm weather sets in.

Mare Fails to Come in Heat.—We have a mare 16 years old which we would like to breed, but she fails to come in heat. H. B., New Era, Mich.—Give your mare 1 dr. of ground nuxvomica, 2 drs. of ground capsicum, and 1/2 oz. of Fowler's solution at a dose in feed night and morning. If she is in low flesh, increase her grain ration.

Spring Tonic—Pinworms.—I would like to know what would be a good spring tonic and blood purifier for a horse? Also, tell me how to rid a horse of worms about an inch long and as thick as a match that reside in the rectum. G. L. H., Fennville, Mich.—First of all bear in mind that a well horse needs no medicine, but if out of condition or sick, should have treatment. Mix together one part ground nuxvomica, one part powdered sulphate iron, one part salt, one part of ground fenugreek, one part bicarbonate soda, one part powdered charcoal and four parts ground gentian; give each horse a tablespoonful at a dose in feed two or three times a day. Occasionally wash out bowels with one part coal tar disinfectant and 49 parts tepid water.

Frozen Teat.—I have a cow with sore teat and I am inclined to believe it has been frozen. This one teat is considerably blocked and the udder is somewhat inflamed. M. C., Branch, Mich.—Dissolve 1 oz. acetate of lead in a quart of water then add 4 ozs. of glycerine and apply it to sore and inflamed part of udder and teat twice a day.

Pigs Cough.—I keep from 50 to 100 head of hogs and for about ten months some of my pigs have been troubled with a hacking cough; they seem to get it when about four months old. I also bought a boar and after I had him about a month, he also began to cough. I have 18 that I am fitting for market which weigh 175 pounds or more each. In this bunch there are four which are coughing. Our local Vet. told me to feed turpentine, which I did, but it fails to make an impression. J. S., Weidman, Mich.—It is possible that some of your hogs may have tuberculosis which, if so, the glands of throat or bowels are involved. Mix equal parts ginger, powdered licorice and gentian together; give each hog a teaspoonful in feed two or three times a day. I might add that a great many young hogs have tuberculosis, but they are fit for food.

Chronic Cough.—I have a horse that has been troubled with a cough for quite a time and I would like to know what to do for him. H. G. McC., Prattville, Mich.—Rub his throat with equal parts tincture iodine and camphorated oil three times a week. Give him a 1/2 dr. of powdered lobelia, 1 dr. muriate ammonia, 1 oz. ground licorice at a dose in feed three times a day.

Chronic Cough—Milk Fever.—Would like to know if there is a cough remedy that I can buy for my horses, one which is already prepared. I would like also to know if there is a remedy for milk fever in cows. The milk from my cows gets stringy. This happens just before the cows are turned out to pasture in the spring. T. Z., Peacock, Mich.—Perhaps your druggist keeps in stock a commercial cough remedy called Glyco-Heroin (Smith). Give 1 oz. doses to each horse three or four times a day. The air treatment which doubtless you have read about, if properly applied will cure 95 per cent of cases of milk fever. By thoroughly cleaning your stable and discontinuing to milk your cows too close to calving time, also disinfecting your stable and practicing the utmost cleanliness you will have no trouble with stringy milk.

Open Joint.—One of my horses had open joint, causing its death. I have been told had it been properly treated the horse would have lived. The hock joint was the one affected. A. F., Utica, Mich.—Even if skillfully treated an open hock joint is very often incurable.

Scours in cattle.—I have 35 head of two-year-old steers which I am feeding 20 bushels of ensilage at a feed twice a day, four pounds of cottonseed meal per head, and about five bushels of shelled corn daily. They also have all the clover hay they will eat for roughage. E. H., Unionport, Mich.—Mix together equal parts of ginger, ground cinnamon, powdered sulphate of iron, ground gentian and charcoal, give each one a tablespoonful or two at a dose twice a day. You must keep in mind that the food and water supply is perhaps what is causing this trouble and unless a change is made their bowels may continue to be loose.

Chronic Cough.—I have a colt nine months old that has had a cough since last August. I might add that every one of our horses had distemper last summer. J. H., Elsie, Mich.—Give the colt a teaspoonful of glyco-heroin (Smith) at a dose in soft feed or water three or four times a day.

LIVE STOCK NEWS

The recent report issued by the federal government showing the small remaining farm grain reserves of wheat and corn proved a bullish influence in the grain markets of the country, the corn stocks showing a decided shortage, while feeding requirements in the live stock districts are of enormous proportions. Wherever any considerable amount of stock feeding is being conducted, the feeding value of corn has become unusually large, and in recent weeks it has advanced above its selling value. Recent actual experience has demonstrated beyond any doubt that corn put into cattle and hogs has netted stockmen far more than \$1 a bushel; and in numerous instances it has netted not far from \$2 a bushel; while the shortage of fat cattle and hogs is pretty certain to continue for a good many weeks.

Cattle have made further high records quite recently, with meager receipts and a total absence of strictly prime heavy beefs and prime yearlings much of the time. Cattle have been mostly shipped out of many districts, with scarcely any of the best class left, and especially few cattle remain in such states as Iowa, South Dakota and Nebraska. The almost universal practice this season has been for owners to cash in their cattle after a short feeding period, in many instances amounting to only a warming-up process, and even distillery feeders have adopted this policy, cattle being marketed from fifty to sixty days ahead of the usual time. Thin old cows suited for canning purposes have sold particularly high all along, as they are greatly needed by the packers for converting into canned beef for supplying heavy orders placed months ago. Calves are marketed too freely, owners succumbing to the bait offered in the high prices prevailing everywhere, and during February, Chicago received 12 per cent more calves than a year ago, while the increase was 32 per cent in St. Joseph, 79 per cent in Kansas City, and 119 per cent in Fort Worth. More breeding is being carried on in the large districts of the far west than in the past but too many of the calves are being converted into veal. The market for stockers and feeders is

Hogs have sold within a short time at far higher prices than ever before in the history of the trade, the top in the Chicago market for prime heavy butchering barrows standing at \$15.10 per 100 pounds. After prices had been boomed at a lively pace, with advances of as much as 25 cents per 100 pounds in a single day or even more at times, reactions were only natural, and sharp breaks took place, leaving values far higher than in past years however. All the existing conditions have greatly favored the selling side of the market, with a serious shortage in the remaining supply in feeding districts and the largest local and shipping demand ever witnessed. Marketings have been falling off materially, compared with earlier this year and with the corresponding time last year, and there is lively competition between rival buyers for the better class of heavy and light hogs. Provisions have participated in the upward movement of the raw material, and within a short time pork has wholesaled for \$34 a barrel on the Chicago Board of Trade, comparing with \$23 a year ago, followed by a sharp decline in prices, in which changes lard and short ribs shared. The packers have placed heavy orders for provisions for future delivery, and they must have the hogs, no matter what prices are prevailing. After they catch up with their sales for future delivery, it seems not unlikely that hogs will sell at lower prices, although a shortage in supplies of both hogs and cattle is expected for weeks ahead. Few heavy hogs are marketed, and during a recent fortnight the hogs marketed in Chicago averaged only 204 pounds, comparing with 211 pounds a year ago, 232 pounds two years ago and 227 pounds three years ago. Farmers have been making enormous profits on their hogs, and several weeks ago, when hogs were selling very much lower than they are now, an Iowa farmer sold on the Chicago market three carloads of hogs that grossed \$6,184, or more than he paid for his farm of 160 acres fifteen years ago, and he said he had five loads left of the same class in his feed lots at home.

Durocs For Sale Big Heavy Boned

Fall boars and gilts, weight 125 lb. to 200 lb. each, not extra fat but in good breeding flesh. Also one yr. Reg. Percheron Stallion, color black and a good one. M. A. Bray, Estate, Okemos, (Ingham Co.) Mich.

Duroc Sows and gilts bred to Eureka Cherry King and Crimson Critic son of Critic Model 1916 champion Iowa Fair. W. C. Taylor, Milan, 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 Jerseys Fall boars ready for service, sired by a son of Orion Cherry King and Volunteer also booking orders for spring pigs, pairs not akin. F. J. DRODT, Monroe, Mich., R. 1.

DUROC Sows, gilts and fall pigs. Percheron stud colts, one coming two, one coming one. E. J. Aldrich, Tekonsha, Mich.

For Sale Duroc Jerseys. Six fall boars of big smooth kind. Prices right. JOHN McNICOLL, Route 4, Station A, Bay City, Mich.

Duroc Jersey Boars old enough for service sired by Brookwater Cherry King, \$25 each. Reg. & Del. Choice goods J. R. Hicks, St. Johns, Mich.

Duroc Jerseys. Breeding Boars and Sept. Gilts J. H. Banghart, East Lansing, Mich.

Chesters. Bred gilts all sold. A few fall pigs left. Booking orders for spring pigs. F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites
Like This
the original big producers



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs.
G. S. BENJAMIN, R. F. D. 10, Portland, Michigan.

1/2 Ton O. I. C's. & Chester Whites 1/2 Ton
10 Oct. and Nov. boars sired by our undefeated Grand Champion School Master. The boar that has size and quality combined. All sold any age. Write and get our Catalogue its free and describes our champions. We do not say our hogs are the best but we win the champion boars for Mar. and Apr. farrow. HARRY T. CRANDELL & SON, Cass City, Mich.

CHOICE BRED GILTS Bred to Big Prince 5602, sired by Wildwood Prince 1110 lb. 3 yr. Grand Champion at Iowa, sold for \$750. Ship C. O. D. —J. Carl Jewett, Mason, Mich.

O. I. C. and Chester White Swine
Strictly Big Type with Quality. Gilts bred for Spring farrow, all sold. Five fine Sept. gilts bred for July farrow. Have a few good fall pigs left, either sex. We are also booking orders for early spring pigs. Can furnish in pairs not akin.
Newman's Stock Farm, Marlette, Mich. R. 1.

O. I. C. Year old 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. 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, Dorrt, Mich.

O. I. C's. Bred sows all sold. Have a few good last Sept. boars and this spring pigs. Good growthy stock. 1/4 mile west of depot.
Otto B. Schulze, Nashville, 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, Danville, 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 prize winning stock. Write for low prices.
A. V. HATT, Grass Lake, Mich.

O. I. C's. Buy the best and breed them better. Fall Gilts and Boars. CLOVER 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, Danville, Michigan

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 Goldthar Farver. 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.

Large Stiled Poland China sow bred, fall pigs, either sex. Young show bred 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 farmers prices. P. D. LONG, R. 8, Grand Rapids, Mich.

Big Type Poland Chinas Sept. farrow, either sex, sired by Jumbo Wood, 800 lb. hog. A. A. WOOD & SON, Salline, Michigan

HALLADAYS' HAMPSHIRE
All sold, except fall pigs. We are booking orders for spring pigs. O. H. Halladay & Son, Clinton, Mich.

Hampshire Swine. Nothing for sale but fall boars and gilts. Write for prices.
FLOYD MYERS, R. No. 9, Decatur, Ind

Big Type Poland China fall boars. Am booking orders for spring pigs, satisfaction guaranteed. G. W. Holton, R. 11, Kalamazoo, Mich.

LARGE Strain P. C. bred gilts all sold. A few long bodied heavy boned boars ready for service. 2 nice fall boars by Smooth Jumbo. H. O. Swartz, Schoolcraft, Mich.

HAMPSHIRE SWINE My herd contains the blood lines of many of the most noted champions of the breed. My herd boar, Clayton Lad, 1853 is a brother of Look Out Lad, who was grand Champion at the National Swine Show. I am booking orders for spring pigs, to be shipped about May 1st. Write me for prices.
George E. Starr, Grass Lake, Mich.

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.

HORSES

Percheron Stallions
25 Must Be Sold

Also 2 Imported Clydesdale Stallions. Spring Sale Prices are now on
Palmer Bros.,
P. O. Belding, Ionia Co., Belding, Mich.

JACKS AND MULES
Raise mules and get rich. 120 fine large Jacks, Jennys and Mules, all ages for sale. A lot of big registered Jacks. No little cheap Jacks for sale. All guaranteed Jacks. Prices \$250 and up. Come on and see for yourself or write me today.
KREKLER'S JACK FARM, West Elkton, Ohio

AT HALF PRICE
Registered Percherons. Big black stud colt coming 3. sound and sure. Big boned rugged filly 2 past, bred by M. A. C. Also pair of mares 1 and 5 years old. Come and see them.
JNO. C. BUTLER, Portland, Mich. Bell Phone.

KENTUCKY JACKS and SADDLERS
BIG BONE Kentucky JACKS and JENNETTS. 85 head FIVE and CUBAN GAITED STALLIONS, geldings and mares. Fancy MULE TEAMS. WRITE US.
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Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

For Sale Two registered Percheron Stallions, one four and one seven. Colts to show. Write for particulars. W. E. WAFFLE, Burlington, Mich.

Valley Side Percherons
For sale: 6 black Percheron stallions coming 2 and 3 yrs. old; these colts are sound, heavy boned and best of feet, registered in P. S. A., priced to sell. Union Phone 325-2R. C. M. RICE, St. Johns, Michigan

The Belstein Stock Farm Offers a dark bay four year old Belgian Stallion that is way above the average in breeding size and quality weighing over 2200 lb. with good style and action, price and terms right. If interested write to:
OSCAR WOLF, ST. LOUIS, MICH.

SHEPHERD PONIES
Herd established 1891. 200 Head to select from. Write Dept. E for catalog.
The Shadyside Farms, North Benton, O.

FOR SALE: 2 Black Percheron Stallions Registered, one coming 3 next June one 14 years used him here 11 years, sound and all right. William McCordan, Dutton, (Kent Co.) Michigan.

REGISTERED PERCHERON
Mares and Stallions priced to sell. Inspection invited.
L. C. HUNT, EATON RAPIDS, MICH.

Registered Percherons 1 stallion coming 1 year, Mares and Fillies. Priced to sell. Wm. J. Blake, Dutton, Mich.

Registered Clydesdale Stallions For Sale.
By Mr. F. A. PETZ, Capac, Mich.

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OXFORD EWES
Yearlings \$35.00. Shropshires all ages \$30. All good ones and money makers.
Kope Kon Farms, Kinderhook, Mich.

Oxford Down Sheep No more for sale.
M. F. GANSLEY, Lennon, Michigan.

CATTLE

FOR SALE Twenty-five Jersey cows, two to eight years old. Eight registered, balance high grades. Excellent producers, guaranteed right. Also some bred yearling heifers, 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.

POULTRY

Single Comb Black Minorcas Great big cockerels sired by a 10 lb. cock bird. R. W. Mills, Saline, Mich.

S. C. White Legorns 200 egg strain. Good winter layers. Baby chicks 15c each. Hatching eggs 5c each. Order now. C. W. Gordon, Fowlerville, Mich.

Single Comb Brown Leghorn eggs for hatching. Also day-old chicks. Order now.
Frank Camburn, Saline, Mich. R. D. No. 4.

SILVER. Golden, White Wyandottes. A few good Golden cockerels left. Eggs from farm flock. Whites \$1.50 per 12; others \$2 per 15. \$5 per 30. C. W. Browning, R. 2, Portland, Mich.

TRY some Silver Spangled Hamburg eggs for hatching. The Dutch & Erling layers White Holland Turkey eggs. Fine Belgian Hare Does bred to high class Bucks. Pedigreed. Stamp for circulars. Riverview Farm, Vassar, Mich.

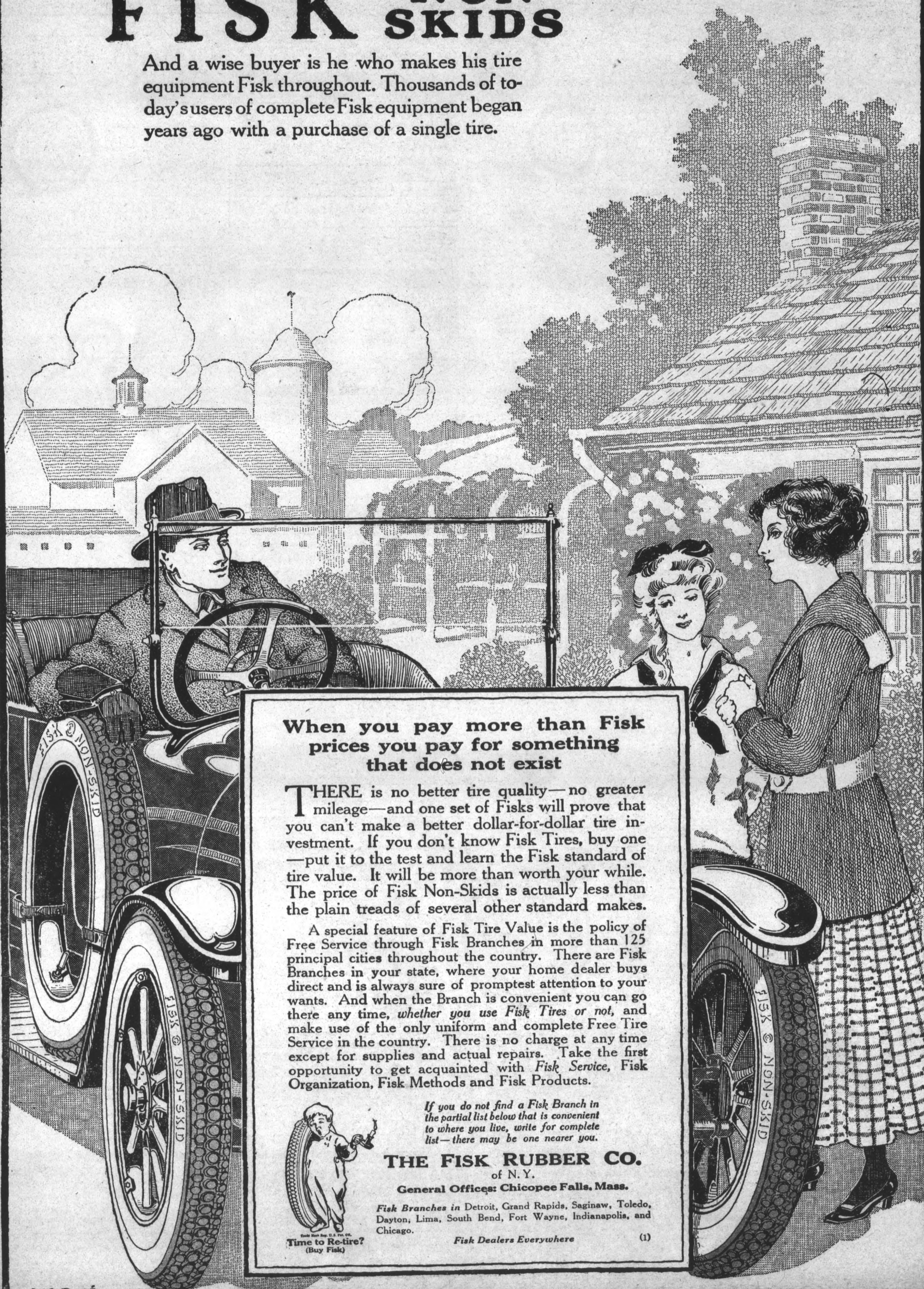
Buff Wyandotte Cockerels \$3 each. Also Banded Rock and Wyandotte eggs for hatching, \$1.25 per 15. Mrs. R. W. BLACK, Caro, Michigan.

Silver Wyandottes. Quality cockerels for sale. Free mailing list.
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