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## DOCTORING A RUN-DOWN SOIL

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OF INDIANA.

Author of "How to Grow 100 Bushels of Corn Per Acre on Worn Soil," "The Business of Farming," "The Book of Vetch" and "Alfalfa The Money Crop."

WHEN a human or domestic animal becomes sick or "run down," the physician or veterinary called to see the patient first proceeds to "diagnose the case," to ascertain, if possible, the disease from which the patient is suffering.

When the disease is ascertained the physician knows the remedies which have been approved by the profession for that particular disease and he proceeds to use them.

Soils have their ailments, or become "run down," the same as human or animal beings, hence, we have our "Soil Doctors" to administer to them, and soil doctors ought to have sufficient skill to enable them to properly diagnose an ailing or "run-down soil."

The diagnosing of soils to ascertain their needs is not a difficult task.

If you have soil that produces irregularly, some spots poorer than other portions, and the best portions grow poorer crops each year, or if it requires a most favorable season in every respect for favorable growing, to produce a paying crop, then your soil is ailing, or is "run down" and needs the services of a soil doctor.

A healthy soil will produce a paying crop any season under the most unfavorable conditions, provided, of course, it has been properly plowed, good seed sown upon it under proper conditions and the best cultivation has been given the growing crop.

So if your soil requires the most favorable conditions to produce a crop that pays, it is an ailing or "run-down soil," and if not doctored with proper skill its ills will become more acute, its producing power will wane

until within a short time it will have become so diseased that even under the most favorable conditions it will not produce a crop that pays the cost of production and it has become a worn-out soil and will eventually pass into the abandoned class of soils, and its owner wonders why he can not grow crops upon it that he once could.

We all have our ailing, or "run-down" soils and there is no use of us trying to deceive ourselves into the belief that we do not have them. It behooves us to get busy and proceed to doctor them back to fertility or to that state where they again will cheerfully take up the burden of growing profitable crops. And yet we must avoid giving them the quack nostrums and stimulants that only aggravate their ailments and which will in time make more acute and noticeable their ailing condition.

After years of deep study and actual experiment with my own sick, ailing soils, I feel safe in promulgating

the methods and remedies for doctoring a "run-down" or ailing soil, hereinafter set forth.

They are not my own discoveries. Many of them have been known to agriculture for ages. That the agriculturist generally has not applied or used them is because of conditions that have thrown environments about him that have blinded or kept him from using them.

In nine cases out of ten a "run-down" soil has been mistreated by its owner, which is responsible for its condition. Too often its owner has simply starved it. An ill-fed man or child becomes weak and emaciated in body and weak in action from lack of proper nourishing food, and the same is true of "run-down" soils, they have simply been and are being starved to death, just like the great body of our poverty stricken people in our congested cities are being starved and their bodies are being put in that condition, for lack of food, which unfits them for human endeavor.

Some "run-down" soils are poorly drained, some are too dry, some are acid, some lack in certain mineral elements, some have been improperly plowed as to time and depth, and some lack in soil bacteria.

But in most every case of a "run-down" soil the skilled soil doctor will find that it is starving for the food of better draining, plowing and organic matter, which will correct its other ailments and give it the food needed to make it well and fertile.

Bearing in mind the important truth that a soil to produce a paying crop must be a good breathing soil, or one



Fig. 1. A "run-down" soil poorly plowed at the wrong time, a drought, and the crop that does not pay. This soil was once rich bottom land. It has been mistreated as to plowing and cultivation and has never had a full feed of organic matter. Both of the author's hands are holding the corn tassels. Note the clods, result of plowing at the wrong time.



Fig. 2. An adjoining field to that shown in illustration No. 1. This soil was plowed at the right time but the plowing was shallow, and it, too, has never had a full feed of organic matter. The author's hands are holding the corn tassels. The corn crop will be a failure.

The soil in all three illustrations is of the same character and all the corn was planted the same week. Fig. 3 is upon author's "Vetchalfalfa Farm."



Fig. 3. An adjoining field to that shown in illustration No. 2. This soil was plowed at the right time, nine inches in depth, and it has been fed an abundance of organic matter, rye and vetch. It is producing the crop that pays, although the season was the driest on record.



that is well ventilated and that has a deep seed bed filled with organic matter, making a favorable home for soil bacteria and the development of plant roots and the other conditions for healthy plant growth, it will then become a safe practice for the soil doctor to first prescribe for a "run-down" soil a proper system of drainage, or one that will remove a surplus of water, and aid in giving the soil ample ventilation; and, second, better and deeper plowing, for the poorest job done upon the American farm, and one as much responsible for our "run-down" soils as any other practice obtaining upon the farm, is shallow plowing.

The average depth of plowing done does not exceed four inches and such a depth of plowing practiced upon any soil means, in a very short time, its certain death.

No soil should be plowed less than eight or nine inches in depth, and many soils can be plowed to a greater depth with excellent results.

Most farmers mean to plow deep but they lack in horse power to move their plows a greater depth and at a profitable gait, and so adjust their plows to plow the depth that will accommodate the draft of their horses.

The soil doctor that does not prescribe deep plowing for a "run-down" soil will be unable to cure his patient with any other remedy, no matter how good it may be.

When good drainage and deeper and better plowing have been prescribed, the remedies of cover and green manuring crops must be prescribed to be used liberally or in abundance. Understand, I advocate the prescribing of live stock and manure for "run-down" soils, but when we consider the fact that there is not enough live stock in the United States to produce one-tenth of the manure needed for our soils, we must prescribe other remedies that will cure the ills and keep up the fertility of the other nine-tenths.

This we can only do by the liberal use of a cover crop. A cover or green manuring crop is any herbage, usually sown in the fall season, which attains sufficient growth by winter to cover the soil so as to prevent soil washing or blowing, and which attains a sufficient growth in the spring before plowing season, to turn under.

The advantage of such a crop is to give to the soil a covering, and the growing of the roots in the soil which release the minerals needed in plant growth from the rock particles of the soil, and make them available, furnishing food for soil bacteria and the organic matter to be converted into soil and plant food.

Fertile soils were originally made so by the use of vegetation growing and decaying in them. This was Nature's method of soil building and it is, therefore, self-evident that we must follow Nature's plan in keeping our soils well and fertile by the use of the same methods.

The cover and green manuring crops suitable for this purpose are many. And no matter which one we use, some provision must be made so that we can administer one green manuring crop each year to our "run-down" soil, or we must have a farm system that will give our soils plenty of organic matter each and every year.

The old practice of giving our soils a clover crop once in four or five years with no other supply of organic matter, is like feeding cattle and hogs one day and starving them two days and expect them to soon reach a marketable stage.

The clover system as practiced by the agriculturist in the past has not only made much of our soil "clover sick," but has given us a system of crop rotation that has driven millions of acres of our soil into "agricultural bankruptcy."

Speaking from experience, I have found that any green manuring crop,

whether leguminous or non-leguminous, administered to our soil each year in connection with drainage and deep plowing done at the right time, will cure any "run-down" soil. Of course, a leguminous crop plowed under is the best, for such a crop supplies more nitrogen to the soil, an element in which our "run-down" soils are lacking and an element much needed to make a soil produce a paying crop.

Rye, a non-leguminous plant, is of untold value for green manuring, yet it is a plant generally despised and rejected by the American farmer. It grows luxuriantly upon any soil in any season. It can be sown in the corn in September and will furnish an abundance of pasture for all kinds of stock in the fall and spring, yet have sufficient of top growth and its roots will so fill the soil that a large supply of organic matter will be furnished the soil. Its root system is so extensive that it is the cause of the release of much mineral plant food from the rock particles of the soil and it gives the soil that looseness and the great supply of organic matter so much needed to make a soil fertile.

Sand, winter or hairy vetch, a leguminous plant, is the king of nitrogen gatherers, and producer of organic matter. It, too, can be sown in corn alone or with rye, in August, and makes a sufficient growth for winter soil covering, and an abundance of top or root growth for organic matter in time to turn under in the spring for the corn crop.

For years I have practiced the use of rye and vetch mixed in the proportion of one bushel of rye and twenty pounds of vetch to the acre, sown in my corn each and every fall. I then keep all stock from these fields so sown and in early May turn under

cornstalks, and the rye and vetch growth to a depth of at least nine inches.

This feeds my soil an abundant supply of organic matter and at a time when I do not need my land for the growing of the crops to be turned in to money, so no time is lost in manuring or feeding my soil. The practice of this system has enabled me to build up some of the poorest and most worn-out soil found in any land, to that stage of fertility that it will grow, with the highest profit, any crop.

There are many other green manuring crops equally as good as the above mentioned, but most of them cannot be used without the loss of a season's money crop, so the rye and vetch are truly the poor man's green manuring crop.

This article has reached the limit of its prescribed length so I must close.

In closing I again remind my readers that to successfully doctor a "run-down" soil you must drain it, plow it well and deep, and feed it every year as much organic matter as you can get upon it.

You can help and stimulate your ailing and sick soils by giving them doses of ground limestone, raw rock phosphate, nitrate of soda and perhaps commercial fertilizers, but these remedies will not cure. Nature points out the way to cure and her remedies are deeper plowing (the roots of the trees and the heavy prairie grasses were her plows), and the abundant use of organic matter, and in producing organic matter she used both the leguminous and the non-leguminous plants and trees and she used them every year. Imitate her ways and you will have a well soil, a fertile soil, and paying crops.

Editors' Note.—This is the first of 52 special articles to be published during the ensuing year. In the next issue will appear the first installment of "The Domestic Crucible," a series of short human interest articles.

## Building A Septic Tank.

WHILE the odor from a septic tank is scarcely noticeable, it is nevertheless best to locate it at some distance from the house. Choose a spot easy to excavate so that the top of the tank can be sunk six inches below ground level and where the lines of drain tile will have sufficient fall to carry off the discharged fluid. The tank should be

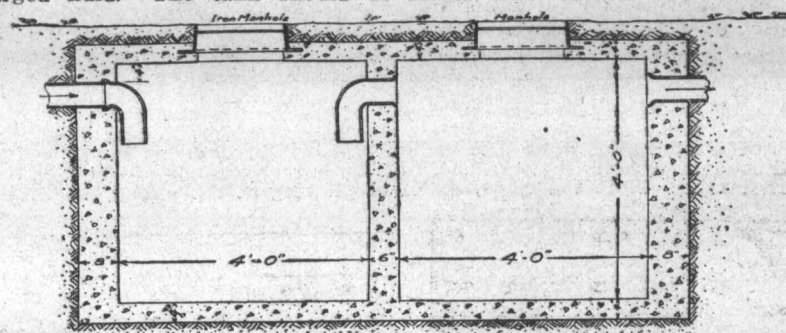


Fig. 1.—Cross Section Indicating Location of Pipes.

large enough to hold the entire sewage for one day. For a family of eight to ten people occupying a house fitted with the customary appliances in the way of bath room and stationary washstands and downstairs the kitchen sink, a concrete tank having

length of the pit should be nine feet by four feet wide by four feet high, will be required. Since the top and bottom are each four inches thick and the top of the tank is six inches below ground level, dig the pit five feet two inches in depth. The walls of the tank are eight inches thick and the partition between the two compartments six inches. Therefore, the

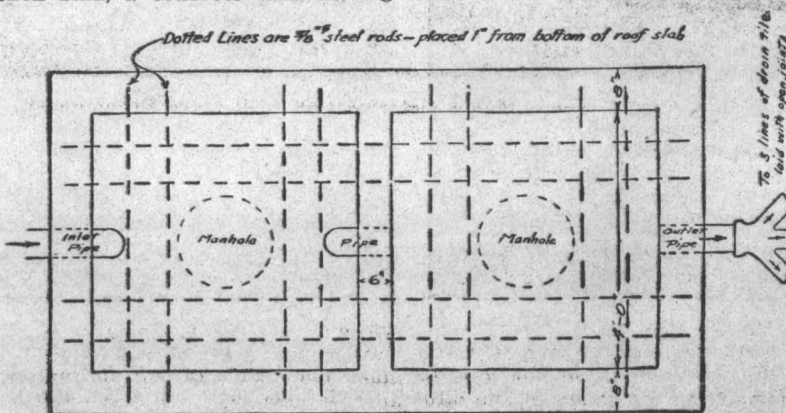


Fig. 2.—Plan Showing Proper Position of Reinforcing Rods.

will be required to make two compartments. The outside dimensions of the boxes should be four feet square by four feet high. The boxes or forms will be placed on the freshly laid concrete floor. Holes for taking six-inch pipe should be made in the boxes as shown in Fig. 1. The holes should be four inches from the top of the box form, measuring from the top of the hole. The concrete should be mixed in the proportion of one part Portland cement, two parts sand and four parts crushed rock gravel. Place a four-inch thickness of concrete in the bottom of the pit to form the floor of the tank. On top of this concrete set the box forms, which should be ready for immediate use. Place the forms so that there is a space of six inches between them and an eight-inch space between them and the earthen walls of the pit. Then commence depositing the concrete for the walls and partition. As soon as the level of the concrete reaches the holes in the forms place in the holes six-inch pipes as illustrated. Then continue the concreting until even with the top of the forms.

Two ordinary iron manhole frames and covers may be obtained from a local dealer in building supplies. The manhole covers should fit tightly and should not be perforated. The manhole frames should be ten inches high so that when placed on top of the forms the upper edge will be even with the ground level. If the manhole frame is of less height than this, it should rest on a circular piece of one-inch board, which is nailed to the top of the form. Since the concrete roof is to be self-supporting, it will be necessary to reinforce it with a few lengths of three-eighth inch round steel rods. There will be needed four pieces of three-eighth inch rods, nine feet six inches long, and eight pieces five feet long. The roof is now ready to be placed. Place the manhole frames in proper position on top of the form, and deposit the concrete to a depth of one inch and on the concrete lay the long and short bars as shown in Fig. 2. When the bars are placed, deposit the balance of the concrete so as to bring the roof to a total thickness of four inches. As it will be covered with earth it is not necessary to give this top surface a smooth finish, merely level the surface by striking off with a straight piece of board. The tank should now be allowed to rest undisturbed for at least two weeks. At the expiration of this time, saw away wooden top of the forms inside of the manhole frames. Then enter the tank and remove the wooden forms, passing the lumber out the manhole opening. While in the tank make certain that the pipes are all unobstructed and not even partially clogged with dirt or lumber. The inlet pipe is then connected to the pipe from the house and the outlet pipe joined to three lines of three-inch concrete drain tile. The drain tile will be laid about 12 inches below the surface of the ground and the joints left open, that is to say, no mortar must be used in the joints. This permits the discharged fluids to be absorbed by the surrounding soil. The drain tile lines should be laid in the form of the letter "Y" and sufficiently extended to cover a large area of ground. Average conditions require that each arm be about 100 feet long. After this is done, cover the tank with earth to the level of the manhole covers. It is now ready for use.

A tank of the size specified will require about four cubic yards of crushed rock, two cubic yards of sand and seven barrels of Portland cement. There will also be needed 78 feet of three-eighth-inch round steel rods, which can be obtained from the local blacksmith or hardware dealer. The tank can be built without skilled labor. It requires but few tools and construction methods are so simple that one man can easily build it.



## Balanced Ration for Plants.

**I**N stock feeding a great majority of the work hinges on the balanced ration. However, it is often emphasized, but after the pendulum has swung both ways too far, as it always does with any reform, a happy medium is struck in which the reform plays the part that it should in the operation under discussion. The role which the balanced ration plays in stock feeding might well be applied to the problems which confront us farmers in our crop feeding plans. It is rather common to see the same brand of fertilizer with the same composition being applied to all crops alike on the farm and in the same quantities. Undoubtedly, this practice is a wasteful one just as it would be wasteful of feeds for us to feed all classes of farm animals the same rations and in the same quantities, regardless of the functions of these animals or their size.

We know that in order to get the best results from any kind of animal, we first have to study the animal, giving due consideration to his requirements, type and what we expect of him. We cannot feed a mutton sheep on the same ration that is given to a wool sheep and get the same results from both. The production of body flesh and the production of wool require altogether different proportions of carbohydrate and protein feeds in the ration. The fattening or mutton sheep will require a ration which is very rich in carbohydrate feeds and with a less amount of protein while the wool sheep requires a larger proportion of protein, for the fibre is composed quite largely of proteid substances.

### Different Crops Require Different Rations.

The various crops raised on the farm are just as different and just as exacting in their requirements in the matter of foods as are animals. Owing to the fact that there are so many more of these classes of crops than kinds of animals, the crop requirements will stand a little more study than will the animal requirements. We know a great deal less about the soil than we do about animal husbandry and what we really know as definite about either wouldn't hurt anyone, but the application of what we do know and the search for new truth is what will solve the problem of better crops with the same handling.

Potatoes, corn, wheat, clover and the root crops each take different elements from the soil and in different proportions. We know that potatoes require a large amount of potash, corn requires a large amount of nitrogen, wheat demands phosphates, while clover supplies its own nitrogen largely, calling on the soil for proportionately larger quantities of potash and phosphates. Also, the clovers and grasses generally are benefited by an application of lime which is not a fertilizer at all, but a substance which counteracts the acids in the soil and thereby renders available many plant foods which are locked up in unavailable compounds before the application of the lime.

With the stockman who has barnyard manure to apply to the growing crops or to use in various ways, the problem is not so easy as some would seem to infer. It can hardly be taken for granted that barnyard manure is a complete fertilizer for all crops. We know that a chemical analysis shows that the manure from different kinds of animals will differ in composition, as will also that which is produced when different feeds are fed. All these considerations make the study of the needs of the plants an important part of the farmer's problem. Most farm manures are rich in nitrogen, if they have not been leached; in fact, the proportion of nitrogen is larger in these manures than is required for

some plants. If, then, we are to supply the crop in question with the elements which it requires in order to make a good growth, we must first know approximately the proportions which the plant demands. Added to this, the knowledge of the relative proportions of elements contained in the manure would be of limitless value in preventing wastes.

If, for instance, a certain crop does best under a 2:7:10 fertilizer and the manure applied contained the elements in the proportions of 2:5:8, there is an excess of nitrogen supplied and the plant cannot use it; the probabilities are that before another crop is planted, some of this excess nitrogen will have passed off into the air and be lost. With nitrogen values ranging around 18 cents a pound, a five-pound loss means a dollar gone. With the example given above, no doubt some profit would result by the application of a little more phosphates and potash. This would balance up the plant's ration and this shows itself in a better yield.

### How to Balance Crop Rations.

While nearly all of us are convinc-

on each Michigan farm would be so large that 20 hundred-horsepower tractors could not move it from place to place so that we could find out what was required even if someone else determined it. Probably some good fertilizer book which gives the requirements of certain crops and the analysis of different sorts of manures will help a great deal in balancing crop rations. Couple this with some fertilizer trials and a definite knowledge of the analysis of the fertilizer applied, and one is in a fair way to be more economical in distributing plant foods.

Ingham Co.

I. J. MATHEWS.

### PRESERVING FARM MACHINERY.

There is an immense amount of money spent annually for various types of farm machinery and this amounts high up into the millions. Part of this is for new and up-to-date machinery, which is gradually being introduced on the farms; part for machinery to replace that which has served its purpose and is worn out from natural wear and tear and long usage; but a large part of the outlay for machinery is to replace that which has become useless and invaluable

is naturally decreased by such treatment, and not only that but machines so neglected are continuously out of order and needing repair or new parts. It is bad enough to leave machinery, wagons, plows, harrows, cultivators, etc., out in the summer, but far more detrimental in the winter.

When machinery does not have to be frequently used or moved, it can be quite compactly stored away, and a lot of it take up a relatively small space. When storing it away one should keep in mind the tools that will be needed first in the spring and put them in last. Here is one case of where "the last shall be first and the first shall be last," but it saves a lot of moving and handling to put them away in the order they are to come out in in the spring. For example, the haying tools should be packed away first, so that it will not be necessary to move them when the plow, harrow or cultivator is needed, and the potato machinery placed so that it will come out in its proper order, the potato digger going in first and the planter next.

Housing machinery protects them from rust and preserves the paint. If the paint becomes worn off and rust starts, the depreciation is much greater than it otherwise would be. For this reason it is advisable to keep farm tools painted every few years, but it is seldom practiced. If properly housed the original paint will generally last.

The winter is a good time to make any repairs or replace broken parts to machinery. If there are any parts needed for mowing machine, binder, potato machinery or any of the tools, it is a good plan to order them in the winter and get them in place before time to use the machinery next year. A few machine bolts of varying size should always be kept on hand, so when anything breaks or a bolt loosens out, one won't have to be taken from other machinery for replacing the one lost or broken. By keeping a lot of these things in mind, and sheltering the farm tools from the weather, their life usefulness and service is materially increased by no small percentage.

Penn.

L. H.

### IS IT PROFITABLE TO SPRAY FOR BLIGHT?

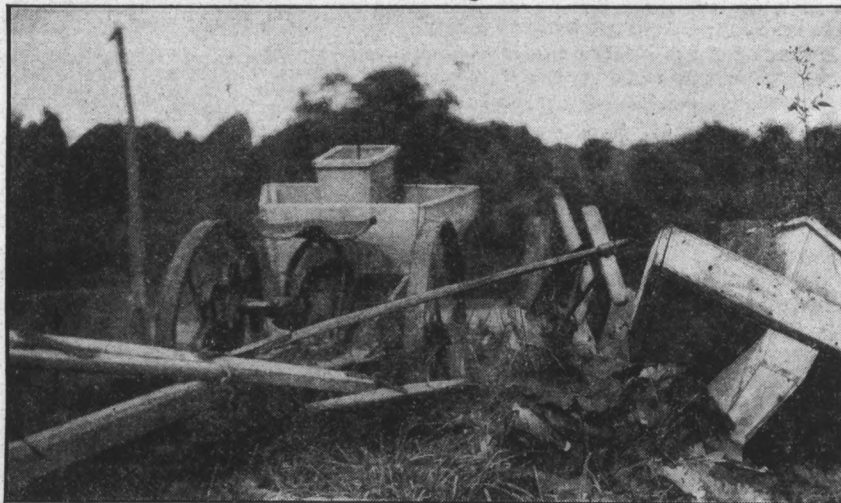
Will Mr. Lillie please give us his opinion as to whether it pays to spray potatoes to prevent blight?

Oakland Co.

SUBSCRIBER.

Careful experiments by the Geneva Experiment Station, and also by the Maine Experiment Station, are convincing evidence that it pays to spray potatoes for blight. Where careful records have been kept of portions of fields that were sprayed and portions that were not sprayed the yield has always been much larger on the sprayed fields. It will not only pay for the labor of spraying but there will be a handsome profit besides. Blight does more damage to potatoes than the ordinary potato grower realizes. We ought to spray for blight just as much as to spray for bugs. The blight is eating or sapping the life out of the potato and we don't notice it. The bugs eat up the vines and it becomes serious. Now the best way to do is to get your Bordeaux mixture with a little poison in it, then when you spray for blight you also spray for bugs. You ought to begin early when the potatoes are four or five inches high and spray at least once each week during the season. In this way the Bordeaux mixture will destroy largely the blight germs and you will have more thrifty plants, a larger yield of potatoes, the potatoes will not be as subject to rot as those are that are not sprayed, and will be healthier and better quality of tubers. Of course, where one only raises a small patch of potatoes it is quite a job to spray if you have to do it by hand.

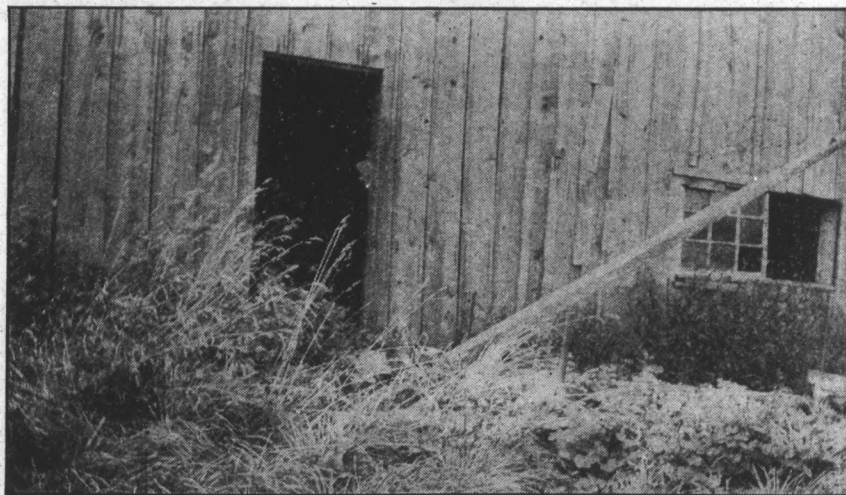
COLON C. LILLIE.



Farm Implements Deteriorate More from Exposure than from Use.

ed that the crops need a more or less accurately balanced ration, the "how" of doing this is a puzzling problem and the solution does not seem to be in sight. A crude rule for telling what element is lacking is sometimes given thus: If leafy plants do not do well, nitrogen is lacking; if grains are unthrifty, phosphorous is needed and when root crops do not flourish, potash is required. While this rule is unquestionably true, it is almost

from neglect on the part of the users. Be as careful as one may, there will be a natural wear on any machine that is used, and in time it will wear out; but the life of usefulness of any machine can be greatly prolonged by proper care and housing it under cover when not in use. There is altogether too much neglect of farm machinery, and this is really apparent by driving through the country and noticing the great number of ma-



A Covering of Weeds Makes Deterioration Still More Pronounced.

worthless because it is inapplicable. One does not want to wait until he can't raise a good crop of corn before nitrogen is applied.

The test plots which are recommended by some authors are probably the best help that the farm owner can have to study his own soil requirements. The only thing that can solve this question is for the man to lend himself to the study of the situation. A volume that would give the fertilizer requirements for each field

chines that are combating against the weather elements.

It is not uncommon to find mowing machines, hay rakes or tedders out in the field or yard under a tree long after haying is over. One place I noticed a hay rake in the potato field in the middle of the winter. It had been used to rake up weeds at potato digging time and was left in the field; another instance was a disk left at the edge of the wheat field until late in the winter. The period of service



## Preparations For Winter.

The matter of wintering live stock is very important because an animal cannot do its best in the production of meat, milk or wool when exposed to the trying conditions of cold weather. Some defer making any improvements in their stabling until such time as they can rebuild their barns and install up-to-date improvements. One of the improvements which cost little and which should not be delayed for a single season is having plenty of windows in the barn. My stock barn, which is rather large, has a row of windows on each side, a window for each stall and a wide driveway. The outside doors of the barn are kept open a good deal of the time. They are, however, kept closed in extremely cold weather or when the cold winds are blowing. The majority of barns are not sufficiently well lighted to insure the health and comfort of the animals housed in them. Particularly is this true with the average cow stable in the older barns found upon the average farm. Many barns in which cattle are confined are too open and drafty. It will cost very little to line them with building paper or put some old boards on the studs or girds and stuff the space between them and the outside wall with straw or other material which will shut out the wind and add to the health and comfort of the stable. With the store cattle this is not so essential, especially if they are allowed to run loose in the stable with access to the barnyards in all but extremely cold or stormy weather. But cattle that are being fattened during the winter must be kept as comfortable as possible or a good deal of the feed they consume will have to be used in providing warmth which is a more costly method than furnishing comfortable stables.

The barn in which the store cattle are kept in very cold weather should, however, be tight enough to prevent draughts of cold air and the opening which should be to the south or east where practicable, ought to be provided with doors so it can be closed in exceptionally bad weather. The same will also apply with equal force to the sheep barn. Until comparatively recent years the ventilation of the barns was a matter which did not receive much attention. Dairymen who confine their stock more closely than any other class of live stock owners have learned from experience that it is very important to have good ventilation in the barn. Many modern dairy barns are equipped with the King system of ventilation and I believe that it will pay to install this system in even the small dairy barn upon the average farm. It can be done cheaply and I believe will prove a profitable investment even if the rebuilding of the stable is contemplated in the near future.

The ventilation of the stable in which the fattening cattle are fed loose, and of the sheep barn is more simple but it is important that these barns be sufficiently tight to prevent draughts of cold air from penetrating the walls at any time in winter. A fairly satisfactory way to ventilate them is by an open door on pleasant days, or an open window from the side of the barn opposite the direction from which the wind blows during stormy weather. Both cattle and sheep, particularly the latter, need and must have, a great deal of fresh air and when closely housed they will get it in this way without danger to their health, from draughts or the beating in of storms. It is not uncommon to see barns of this kind ventilated with open windows on either side with the wind blowing through them on cold winter days. This, of course, is bad for the health as well as the comfort of the animals. The windows on one side should be closed and the door or

window upon the proper side left open.

I never close the large door of my sheep barn during the early part of winter except when the cold wind blows from that direction, then a door on the opposite side is opened. Later when the ewes begin to lamb and it is necessary to confine them more closely a chute is opened into the barn loft and a window is opened at a point where the wind cannot blow directly upon it. This is a fairly satisfactory method of ventilating stables for sheep and feeding cattle.

The quarters for hogs should be well looked to although it is generally presumed that Mr. Hog does not require as much protection from the cold as other classes of stock. This may be true to a certain extent with the fattening hog, as he has a coat of lard all around him which helps to keep him warm, besides he is receiving heat-making foods. His quarters, however, should be comfortable. He needs a dry pen and a good bed. As the pigs and shoats have not the warm coat of fat around they they suffer greatly when exposed to severe weather. Little pigs simply cannot stand much cold. I am confident that more young pigs die from exposure to cold than from any other cause. The hog house should be divided into compartments that will allow not more than six or eight of the larger hogs in a place, for when the weather is very cold they will pile upon each other for warmth and where a large number are allowed to sleep together some are apt to be injured and especially brood sows. Pigs which have been weaned should not be permitted to sleep with the older hogs. They require a good sleeping room to themselves, with plenty of good dry bedding. Plenty of exercise is of course, necessary for the young growing stock and breeding animals.

Illinois.

W. M. HARDY.

### LILLIE FARMSTEAD NOTES.

We have just finished filling the silos today, October 27, or rather we have just finished cutting the ensilage corn, for we did not have enough to fill three silos full. The small silo only has about seven or eight feet of lima bean silage in it and one big silo is not quite full. This last, or late cutting, is the corn grown after a crop of early peas for the canning factory. The field contained 11 acres. About four acres was Stowell's evergreen sweet corn, less than one acre Golden Bantam sweet corn, the balance, six acres, was Wings' white cap, planted quite thick.

The Golden Bantam yielded 1800 lbs. for the factory, or \$16.20. The Evergreen corn yielded 8.12 tons of ears, or \$16.24 per acre. This field produced \$19.66 tons of green peas, or practically \$80 worth of peas per acre, making a total yield of over \$96 per acre, besides the cornstalks and pea vines. I estimate the sweet cornstalks to yield five tons of silage per acre and the dent corn 10 tons per acre. If the silage is worth \$3.50 per ton and this is what we charge the cows for it, then, on the sweet corn ground there is a value of \$17.50 to be added for corn silage, and on the dent corn ground a value of \$35 per acre. Then we have the pea vine silage. I guess this to amount to three tons per acre, or a value of \$10.50, making a total crop value of \$80 for peas plus \$16.24 for sweet corn plus \$17.50 for corn silage plus \$10.50 for pea vine silage, or a total of \$124.24 per acre in one season. While on the ground planted to dent corn the total would be \$125.50. This shows that the sweet corn is not as valuable a crop as corn grown wholly for silage provided, of course, one has need of

the silage and it is worth \$3.50 per ton.

An exception to these figures should be made for the Golden Bantam silage for this did not yield over two tons per acre, and perhaps not that.

This season has been very favorable for this sort of farming. No frost here until October 26. All crops secured before the frost. The dent corn was mature enough to make good silage.

With sufficient moisture at the time of harvesting early peas it would seem to be safe to plant a fairly early maturing dent corn for silage most any year and if one could grow ten tons of silage after peas it would make a profitable crop yield. I shall try again.

COLON C. LILLIE.

### CONCRETE ANCHOR POST.

The concrete post illustrated is 18 inches square at the top, 26 inches square at ground and four and a half feet high. The foundation is 30 inches square at the ground level, and widens to three and a half feet square at the bottom, three feet below the ground.

The post was made of a mixture of six parts bank-run gravel, one part cement and all the field stone that could be used. It required three sacks of cement, one yard of gravel and a load of stone. Inch and a quarter pipe was used to make the holes in the post. Holes were made in the form for holes both ways through but where the post is to be pulled from only one way the openings in the form may be covered, as shown in the il-



The Straight Side of Post Simplifies Hanging a Gate.

lustration. The form is made with more slant on one side, this makes one side of the post nearly plumb and better for fastening a gate.

Branch Co.

I. H. WALBRIDGE.

### FARM NOTES.

#### Applying Lime with Manure Spreader.

Could a manure spreader be used to distribute ground limestone? A neighbor tells me this can be done. If not is there any other practical way to apply ground limestone than the spreaders made for the purpose? A neighbor tells me that if commercial fertilizer is applied to land for a few years and then the use of it discontinued, that the land becomes worthless. Will you please advise on this point?

Barry Co.

SUBSCRIBER.

Ground limestone can be very successfully distributed with a manure spreader by putting a little coarse manure in the bottom of the spreader and covering it with a layer of the ground limestone to a sufficient depth to insure getting on about the right amount per acre. Ground limestone is best applied with a special distributor made for the purpose, but it can be distributed successfully in a number of ways. The writer has applied same by emptying it into a wagon box

and having men scatter it by hand or with a shovel on each side of the wagon box as it was driven along. This, however, does not insure as good distribution as the regular lime or fertilizer distributor, or even the manure spreader.

#### Does Commercial Fertilizer Injure the Land?

There is no foundation for the assumption that the use of commercial fertilizer will injure the land for future production, even though its use be discontinued after a time. The fertilizer simply adds available plant food to the soil, enabling the crop to get a better start than would otherwise be the case. If only small amounts of fertilizer are used, the added vigor which plants gain early in their period of growth will perhaps enable them to reach a little further into the soil for the plant food already there, and thus take more of the available fertility from the soil than would be possible if the fertilizer were not used. A judicious system of management, however, will make this profitable rather than otherwise, since it will increase the revenue from crops and will not make the problem of conserving and increasing soil fertility more difficult.

### RAISING SHETLAND PONIES.

Many farmers would find the raising of Shetland ponies a profitable side line. It is doubtful if any line of horse breeding pays better than that of growing Shetlands, considering the small amount of expenditure and care required in raising them. The cost of raising Shetland ponies is remarkably low. These little animals are natives of a rough and semi-barren country where they are compelled to rustle for every mouthful of their food. They are almost complete strangers to a grain ration. In the Shetland Islands they run out the year around, picking their living between the rocks, and they are never provided with shelter. This kind of a struggle for existence has resulted in a race of hardy little animals that are able to thrive on the coarsest of food and to stand more hardships when it comes to bad weather, than any other line of domestic stock. Yet they respond very quickly to good treatment and for the most profitable results in breeding them the breeder should care for his ponies the same as he does his other stock.

While the Shetland pony is pre-eminently a child's pet, it is also a most useful and profitable adjunct to any farm and family and there is always a ready demand for them at good prices. There seems to be no danger of the business of raising Shetlands being overdone. The price of these little animals has about doubled in the last few years notwithstanding the fact that numerous farms have been established where the ponies are produced in large numbers. Shetlands can be sold at an early age and they can be shipped to distant parts of the country at very little expense, thus giving breeders access to a large market. A Shetland of 500 lbs. can be crated and shipped 2000 miles by express for about \$10; for short journeys about \$5 is the prevailing rate.

The farmer who wishes to engage in the raising of Shetland ponies on either a large or a small scale should start with registered Shetland brood mares, as the better the stock the better the prices obtained. Good registered mares can be obtained for \$750 to \$200; filly colts at one year of age sell for about \$100. The color of Shetland ponies is wholly a matter of personal taste. Those breeding to sell should take into consideration the most popular and salable colors. In many localities the evenly marked, black and white spotted ones seem to be preferred.

Indiana.

W. F. PURDUE.



# Valuable Tribes of Cattle—By N. A. Clapp.

WHEN we are in distress we usually seek some means by which we can get relief. At the present time we are, in this country, short of the normal supply of cattle. At present there are about 34,000,000 head of cattle in the country, and we have considered that the normal supply must reach at least 50,000,000. The individual who can devise means by which the American farmers can meet the demands of the consumers within a short period of time, say two years, will have solved a great problem and should be considered a public benefactor.

Back in the early part of the 19th century there was in the English counties of Durham and Yorkshire, a class of farmers who were devoting their entire time and energy in their agricultural pursuits which embraced both live stock raising and general farming. In that valley of the River Tees there were excellent conditions for the development of a class of cattle, equal to, if not superior, to anything found anywhere else in the known world. Those farmers were judicious managers, good care takers and excellent feeders, especially during the winter season. The dominant supply of feeds was grasses, hay, roots, and a small amount of the different kinds of grain, including oil meal.

Those farmers displayed excellent judgment in the selection of their breeding animals, and sorted out the inferior ones, retaining only such as possessed useful and profitable qualities; in other words, those that readily produced meat and at the same time the cows yielded a large supply of milk. Those were conditions which caused the fame of these cattle to be carried to all parts of the civilized world.

It was at that period that Robert Bakewell, the so-called originator of systematic breeding, began his operations in improving sheep and cattle. Prices for both meat and other farm products were high, and agricultural pursuits were considered popular. At this time King George III turned farmer and became a pupil of Bakewell, thereby lending his patronage as an encouragement for other people to follow in the improving of their live stock.

There were far-seeing and sagacious men who could see that by adopting a system such as was followed by Bakewell much could be attained toward attracting the attention of people to the then excellent breed of cattle in the valley Tees that were beginning to be known as the "Durham" breed. The brothers Colling, Robert and Charles, were among the first to undertake to illustrate the benefits of inbreeding and liberal feeding. With the Durham cattle as subjects for operation they carried their system to an extreme, and found by the flourish of high-sounding words and the then

popular method of advertising by the word of mouth and the press attracted much attention, and at the sale of Charles Colling those cattle sold at high prices. Privately considered, their system of breeding was a detriment instead of a benefit to the breed, notwithstanding that they attracted the attention of cattle growers throughout the civilized world.

At the same time there were breeders who were plodding along, as we sometimes express it, in the even tenor of their ways, and using good, common sense methods in breeding, which produced an excellent class of cattle. The prices of cattle obtained at the Colling sale attracted buyers from this country, as we at that time had an abundance of feed and a very poor class of native cattle to consume it, and it was the sign of the display of good judgment when men of means imported some of the best specimens of the breed into this country that could be found in the valley of the River Tees. Among those cattle that came at an early date were representatives of tribes that afterwards be-

The craze for specialties had not overtaken the people of this country at the time, and the farmers were able to supply the market with an excellent quality of meat, which was made on the roughage produced on the farm and brought a good price in the market and gave excellent satisfaction with the consumers.

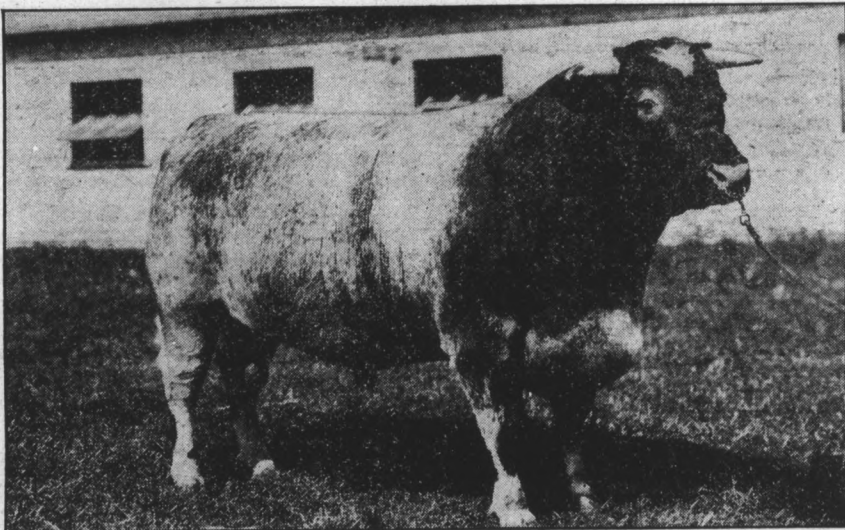
Subsequent events have done much to drive out of existence the excellent breed of cattle which were so well adapted to meet the farmers' requirements. In England there was a division among the breeders, some following a breeder called Booth, and another, Bates. The Booth cattle were not popular in this country, but the Bates cattle became very popular. The distinguishing differences between the cattle descended from those kept by the two leading breeders was that the Booth cattle, which were subsequently called Shorthorns, were excellent beef makers, but not heavy milkers. The Bates Shorthorns were distinguished for both beef and milk, and furnished the farmers of this country, who had the enterprise to in-

Dame Fashion demanded still farther, the roans, which were usually the best specimens in the herd, and held only to the red cattle. No matter how inferior in general characteristics, the one thing, color, was held, although it often went along with the animals of inferior quality. The following of this fashion did much toward destroying the desirable characteristics of the breed, and subsequently had much to do with rendering them unpopular with breeders who were more discriminating as regards the useful and profitable qualities of their cattle, and they were persuaded to turn their attention to other breeds. Fashion had much to do in what was called "shaping the pedigrees," or the selection of the lines of blood that should be used in perpetuating the Shorthorn breed. In fact, they became so discriminating that no matter whether the animals were of excellent quality and desirable characteristics, if they carried within their veins lines of blood known as unfashionable, they must be gotten rid of and only the fashionable lines of blood be retained. This discriminating against the good cattle and retaining the inferior ones on the account of fashion, was another means of defeating the ends for which cattle were kept; that is, to supply the farmer with cattle that were possessed of useful and profitable qualities, producing meat and milk.

Still another craze became dominant among the breeders, and that was discriminating against those Shorthorns that were bred as the majority of the Shorthorns in the country had been bred, from excellent foundation and along the lines mentioned, and taking up another class of Shorthorns that were introduced in this country and were useful when the western ranches were being stocked in competing with the exclusively beef breeds, such as the "Herefords," "Polled Angus," and "Galloway" breeds.

By the time this craze had run its course, what was termed the old style Shorthorns had been disposed of for meat, prices were low and the majority of the breeders had abandoned that business, and the so-called specialists' dairy breeds have taken their places; and today all of that portion of the country known as the Middle West, where a large proportion of the cattle should be raised to supply the meat demanded by the consumers in our markets, is nearly destitute of this class of cattle which can produce both meat and milk, and meet the requirements of the farmers in supplying not only the markets with meat, but with dairy products.

We have often been led to wonder if, by any means, the same class of cattle that were once so popular and useful, the reds, whites and roans that were such an ornament in the green fields in which they were pastured, which with ordinary care and keep yielded so abundantly, could



Pride of Albion, Grand Champion Shorthorn Bull at the Mich. State Fair.

came housewold words among farmers and breeders of that distinguished and excellent breed of cattle. All lovers of Shorthorns understood well what was meant by the "Young Marys," the "Young Phyllises," "Strawberries," "Rose of Sharon," and many other tribes too numerous to mention. It may be proper to state that the tribes were usually named after the name of the cows that were imported, and the descendants of imported "Young Mary" were called "Young Marys," etc.

Subsequent importations of cattle of excellent character followed, and in a few years there were a considerable sprinkling of the Shorthorn cattle and their grades in nearly all parts of the country. Those representatives of the old style Shorthorn were of great size, the majority of the cows were excellent milkers. Those characteristics constituted excellent farmers' cattle.

vest in animals descended from the Bates herd, with excellent representatives which gave good satisfaction. Many of the men of riper years of today who had experience with those early Shorthorn cattle on the farm often refer to them as the best cattle for the general farmer ever known.

Dame Fashion got in her work in subsequent years and held her magic wand before the breeders of the country and dictated, to their detriment, many things that were to prevail among the breeders. She first declared that some of the original colors among the Shorthorns were not as good for the general farmer as the one color. The red, white and roan were the distinguishing colors of the breed. Dame Fashion said: "The white is not as good as the other colors, and therefore must be obliterated." Breeders fell in with the idea, got rid of their white cattle, and as



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again be brought from their native country and distributed where they would meet the requirements of both farmer and consumer. We sincerely hope that there will be a revival of interest along these lines, and that the farmers who have an abundance of forage and grains on their farms to be consumed and turned into milk and meat, can again secure specimens of a noble breed that will not only enrich the grower and breeder, but will much better meet the demands of the public than the ewe-necked, narrow chinned, narrow backed, cat hammed, pod bellied specimens so abundant in our markets at the present time.

Under modern conditions and with the knowledge and skill now possessed by the average farmer of the country in rearing, feeding and marketing cattle of excellent quality, there are opportunities for the ambitious and enterprising ones to not only secure a better class of cattle than is being kept at the present time, but there are possibilities of making more money in the rearing of cattle under our present system of feeding than can be secured by any other breed of cattle, and give better satisfaction to the grower and better satisfaction to the consumer. Those who will inaugurate the schemes by which this famous and useful class of cattle can again be adopted as the cattle operated with by the general farmers, will be public benefactors.

Wayne Co.

N. A. CLAPP.

#### FEEDERS' PROBLEMS.

##### Potatoes as a Stock Food.

Do potatoes make a good feed for cows and horses in place of grain (oats), and if so in what proportion? Alpena Co. J. D. M.

Potatoes may be made a valuable factor in the ration for either cows or horses by feeding raw in moderate quantities to add succulency to the ration. In this case, as with silage, however, they should replace other roughage rather than grain in the ration, as they are not sufficiently concentrated food to be substituted for grain. Comparatively large quantities can be fed to cows with safety as is the case with silage, but they should be made only a limited factor in the ration of the horse. When steamed or cooked they tend to stimulate a deposit of fat, while when fed raw the milk secretion is increased, but the animal will shrink in weight unless the discrepancy is made up with grain. In feeding experiments where potatoes have been cooked and fed in comparison with grain in rations made up of part cooked potatoes and part grain, it has been found that from 400 to 450 pounds of potatoes are equal in feeding value to 100 pounds of grain. When used as a means of furnishing variety and succulence in the ration, potatoes are a valuable food for all classes of live stock, but beyond this point they cannot profitably be used to take the place of a grain ration.

##### Cooked Feed for Hogs.

Kindly give us your opinion on cooking feed for hogs. Oakland Co. A. R. F.

There is considerable difference of opinion with regard to the advisability of cooking grain feed for hogs. Many farmers who have practiced this method of feeding contend that it is a profitable method, particularly through the promotion of better health and greater thrift of the hogs fed. Some go so far as to make the claim that it is a practical protection against infectious diseases, including hog cholera. There is no doubt but that the feed cooker is a valuable addition to the equipment of any farm. There are a great many feeds which can be profitably utilized by cooking which could not be used to as good advantage in any other way, such as cull beans and potatoes, etc. It is also claimed by many excellent feeders that it is profitable to cook chopped clover or alfalfa hay with grain feed for hogs, particularly for brood cows that are

being carried through the winter. There is considerable experimental data to show that no greater economy in gains is secured by cooking all the feed for hogs, but an occasional or frequent feed of cooked feed is undoubtedly beneficial for them, both by way of adding variety to the ration, and promoting more healthy and normal condition of the animal. Every good horseman knows that an occasional bran mash is invaluable in conditioning a horse, and common sense indicates that the same principle can be profitably applied with hogs.

##### Sheep as Scavengers.

I never had much experience with sheep and do not know much about them, and would like some advice. I am in need of some sheep to help me clear a farm or two. I want a breed that is healthy, hardy, prolific breeders, and that turn off a good fleece of wool. The brush, weeds, etc., I want to subdue are sumac, popple, witch-hazel, poison ivy, bittersweet, blackberry, goldenrod, milkweed, brakes. I wish to know which of those they will eat and which they will not. To what extent, if any, can they be pastured in corn and potato fields for weeding them? Does the use of bells have any influence to prevent dogs from chasing them? If I undertake the sheep business, I want to start so I will not make any mistakes to be corrected.

Montcalm Co.

S. K. M.

Sheep are a valuable aid in the clearing of new land if rightly used. They should not, however, for best results be turned into brush pastures, as there is usually a dearth of grass in such places, and sheep cannot be expected to yield a profit where they are compelled to browse for their entire living.

The best way to handle sheep on new land is to burn the land over after it is lumbered and sow to clover and timothy on the burning. If the land has been permitted to grow up to brush after it has been lumbered, then the best course is to cut the brush, burn when dry, and seed at once. A fair stand of grass will be secured, and under these conditions enough sheep can be pastured in the field so that they will browse down the new growth as rapidly as it appears, and they will do a very thorough job in keeping down both brush and weeds on all upland.

As to the best breed to use for this purpose, it would probably be the better course to buy western sheep which are mostly of the middle wool type. Western sheep are less apt to be troubled with internal parasites, which is an important consideration where they are to be pastured for some time on the same land. We have seen lambs turned into corn fields to trim out the weeds, but do not consider it a good practice.

It is thought by many that bells help to prevent dogs from attacking sheep, but they can not be considered as a certain preventive.

It is stated that the outbreak of foot and mouth disease among cattle in southern Michigan has reached a serious stage, and the bureau of animal industry of the Department of Agriculture has ordered its entire available force of inspectors to the afflicted territory. The bureau hopes to stamp out the disease before it has an opportunity to spread to other sections. Already, however, the disease has spread to Indiana, and it has been sweeping over the northern portion of that state, Inspector Thomas R. Caster, of the federal bureau, announcing that 750 head of cattle and sheep had been corralled for killing at once. This disease has always been greatly dreaded in this country, and in European and South American countries, where its ravages at various times have been serious. While proving fatal in only isolated cases, it is dangerous because it generally leaves the infected animals in a crippled condition and because it is highly contagious. The only way to eradicate it is to destroy the infected animals and at once thoroughly disinfect the premises. It is supposed the disease was carried from Michigan to the two northern counties of St. Joseph and Laporte in Indiana, where a quarantine was promptly placed on all cloven hoofed animals by the state veterinary officer and the United States Bureau of Animal Industry officials.



## Practical Science.

### THE CONTRIBUTIONS OF POULTRY TO FOOD AND DIET.

A recent Department of Agriculture report estimated that poultry is kept on 89 per cent of the farms, this includes, of course, chickens, ducks, geese and turkeys, and that the total number of chickens in the United States was in excess of 200,000,000; the total number of turkeys, in excess of 5,000,000; and geese and ducks, together, almost 10,000,000. The estimated value of the poultry of the United States was better than \$125,000,000, and it may thus be seen that domestic fowls are a very important item for consideration, and from a standpoint of food, to the country. Probably 200,000,000, if not more, considering all kinds of poultry, are consumed yearly in the United States, which would make a per capita consumption of two or more.

#### The Increasing Use of Poultry for Food.

It is usually considered among city buyers and consumers that poultry, particularly chickens, and turkeys, at the prevailing prices current, constitute a very expensive form of meat, but exceedingly high prices prevail for the sirloin and porterhouse steaks, and as a consequence the use of poultry has been coming more rapidly into prominence generally, particularly in the cities.

There are several things which have heretofore operated against the consumption of poultry as a regular item of diet. Among these items perhaps we may give first consideration to the difficulty of offering poultry in a thoroughly marketable form. The production and marketing of poultry so far has not attained anything like the wholesale scale that beef, mutton, and pork have reached in the larger packing centers, but has been left to the individual poultryman, and chiefly the farmer.

#### Poultry Raising a Side Issue.

Except in a very few instances the raising of poultry is not attempted on a very large scale. It is a side issue with most farmers and being a subsidiary item, no great attention is paid to questions of feed, to the housing of poultry, or to desirable methods of marketing. We think a careful study of the poultry situation will show that there is no live stock on the farm which returns a greater, or perhaps as great, a profit for the sum invested, as poultry, and particularly chickens.

In the raising of poultry, speaking generally, the fowl is used for egg production as well as for food, but leaving out of consideration for the present, poultry in this capacity of egg production for food purposes, we will consider in brief several items to which consideration is not generally given by farmers and which have an important bearing upon the use of poultry for food purposes.

#### Effect of Kind of Feed.

From this standpoint, probably the item of first consideration should be the character of the feed used and its effect upon the finished carcass of the fowl. Aside from the items of health the feed used in the early stages of life have no great effect upon the character of the flesh of the mature fowl, but as in the breeding of steers, it is of prime importance that the food used for finishing the fowl be given very careful consideration. Without doubt, feed has an important relationship to the quality and perhaps the flavor, in a general way, of the poultry flesh. Another important factor, of course, is the age of the fowl. A very young bird has a more delicate flavor and is, of course, more tender and juicy than an old one.

Age tends to give the flesh a strong and undesirable flavor. It is generally considered, likewise, that sex has considerable to do with flavor, the preference in regard to flavor and other points of consideration being given to the female birds. There is possibly one exception to this statement, and that is when caponizing is practiced, for the highest market price is paid for well developed capons.

#### Strong Flavored Fowls Undesirable.

Poultry experts maintain that the food of fowls must contain, or should contain, scraps of animal meat. We think this is essentially desirable for laying fowls, but some considerable care should be exercised in the nature of the meat scraps which are fed. In the first place it should be wholesome meat; it should not be decayed or rancid, or badly or highly flavored meat. Fish is not an ideal meat for the finishing of poultry for the market as its flavor is too strong and will taint the finished product. Many highly flavored vegetable foods are for like reasons undesirable if one would produce a delicate, desirable flavor of poultry flesh.

These points are not raised with the idea that the reader will get any valuable advice on the feeding of poultry, but rather to call his attention to the fact that in the production of poultry for the market it is desirable that he should look into the question of poultry feeds, particularly when finishing for an early market.

#### Cleanliness is the Foundation Stone.

In the marketing of poultry probably the item of highest consideration should be the practice of scrupulous cleanliness all the way through; not only in the surroundings under which the poultry are kept, but in the killing, the plucking, marketing, and in the market—in the storing and displaying. The accepted method of killing seems to be to suspend the fowl by the feet and sever the artery in the roof of the mouth. In this way the blood leaves the carcass entirely and does not become coagulated and stagnant in the arteries and veins. It is said that removing the feathers promptly after killing facilitates the plucking very much. This is done for market purposes by plucking dry. The common method on the farm of removing the feathers is to dip the fowl in a pail of hot water which, of course makes the process of plucking much easier, but also tends at the same time to impair the appearance of the fowl after it reaches the market.

In the marketing of poultry the two great dairy desiderata likewise should be followed; first, cleanliness, and then cold. As soon as the fowl is killed and plucked it should be placed in a dry, cold atmosphere. The practice in certain sections of the country of putting the fowls in cold water for cooling and plumping, or of using a bellows for blowing out and in this way plumping, should certainly be discouraged from the standpoint of sanitation.

#### We Believe Poultry Should be Drawn.

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# What the Government is Doing for the Farmer

Address of Hon. D. F. Houston, Secretary of Agriculture, at the National Dairy Show.

I AM not here today to discuss the technical problem of dairying or the live stock situation specifically and especially not to discuss either of these topics in their technical bearings. Others much more expert in such matters will deal with these problems. I am here to consider with you certain broad aspects of agriculture and of rural life in this nation; to indicate the interest of the Federal Government in their betterment, and to tell you, as fully as time will permit, what the government is doing to help the farmer and therefore make the nation prosperous. It is a truism that the advancement of farming and the betterment of rural life lie at the very root of our prosperity and strength as a nation. Today all the people, urban and rural alike, are keenly interested in the supply of the necessities of life, and recognize the supreme importance of making agriculture efficient and profitable, and rural life comfortable, healthful, pleasurable, and attractive. More attention and more intelligent thinking have been directed to the study of the fundamental problems in rural economies in the last few years than in any preceding decade, and it may be safely asserted that in the last two years more significant legislative measures have been enacted or pushed farther to the stage of completion than in any similar period in the history of the nation. It is vastly significant that attention is no longer exclusively directed merely to the primary problems of production. The center of interest, as a matter of fact, has tended to shift, and the rural life problem has begun to be conceived, as it should be, as a very broad and complex one.

## Too Much Emphasis Placed on Production.

Up to the last two or three years, unquestionably attention was directed too exclusively merely to the production of rural life. The slogan was "make two blades of grass grow where only one grew before, and individualism characterized thinking and acting. Obviously, there is more to rural life than the mere increase of crops and animals, important as this is; more even than increase in production and the finding of markets; more than a matter of profits and even of justice in distribution; and to limit the attack on the rural life problem merely to these phases of it is inadequate and wasteful. It is necessary to look at this side of our national economy in its larger aspects as well, and while not neglecting the older forms of activity to do all in our power to organize rural life, to develop the moral, the intellectual, and the broader economic, governmental, and social interests. For, the rural district no less than in the urban district, it is life and that more abundantly which we are interested in, and to which all the material things must minister, and certainly the time has come to bring it about that all the fruits of modern civilization shall not accrue to the towns and cities.

## The Nation and Agriculture.

The neglect of rural life by the nation has not been conscious or wilful. We have been so bent on building up great industrial centers; in rivaling nations of the world not so fortunately circumstanced agriculturally; in manufacturing, fostering it by every natural and artificial device we could think of; so busy trying to make each city larger by a half million or more people for the next census, that we have overlooked the very foundations of our industrial existence. It has been assumed that we have had a natural monopoly in agriculture, that it could take care of itself, and for the most part we have cheerfully left it to do so; and, too, recklessness and

waste have been incident to our breathless conquest of a continent. And so, as the President recently said: "It has singularly enough come to pass that we have allowed the industry of our farms to lag behind the other activities of the country in its development." \* \* \*

## The Decrease in Staple Food Products.

With all our efforts, while we witness an increasing diversification of agriculture and both a relative and absolute increase in many of our important lines of production, such as wheat, forage crops, fruits, dairy products, and poultry—we still note not only a relative but also an absolute decrease in a number of our important staple food products such as corn and meats. In the former, in the last 15 years there has been no substantial advance. In cattle, sheep and hogs there has been an absolute decline—in cattle from the census year 1899-1909 of from 50 million head to 41 million; in sheep of from 61 million to 52 million; of hogs from 63 million to 58 million, while population has increased 16 million. Remember that this situation appears not in a crowded country, but in one which is still in a measure being pioneered; in one in which, with 935 million acres of arable land, not over 400 million or 45 per cent is under cultivation; in one in which the population per square mile does not exceed 31 and ranges from seven-tenths of one per cent in Nevada to 508 in Rhode Island.

## An Analysis of the Trouble.

What is the trouble? Is it that the American farmer has not as much intelligence or as high a degree of efficiency as those of other nations? I would resent on behalf of the American farmer such an imputation and the facts contradict it. It is true he does not produce as much per acre as the farmer in a number of civilized nations, but production per acre is not our standard. It is production per person engaged in agriculture and by this test he is from two to six times as efficient as most of his competitors. And I have not the slightest doubt that the ensuing years will make it clearer that the American farmers can hold their own in free competition with those of the rest of the world and not only retain in large measure a monopoly of his own rapidly growing home market, but also supply a considerable part of the food-stuffs consumed by the world. Relatively speaking, extensive farming is still economically the sound program for the American farmer, but it is becoming decreasingly so. The continued solution of the problem here suggested is one which now seriously engages the attention of the Federal Government as well as the governments of the states.

Through every promising approach the government is studying and attacking the problem of increasing production. Through cultural methods and the control of plant diseases and plant insects the experts in plant industry are lending their assistance. They are suggesting improved varieties of staple crops, introducing new ones, encouraging standardization and pointing out methods of protection from plant diseases and plant insects; and the requisite quarantine measures are being enforced. \* \* \*

## Seeking the Reason.

Just what factors have brought about the serious situation confronting the nation in its meat supply no one can with certainty define; and so to ascertain them I have appointed a commission consisting of the best authorities I could discover. It will make a survey of the whole field and report at the earliest possible moment. This study will embrace an investigation of production and consumption, of the methods of producing, finishing, and marketing and when a conclusion is reached such measures as may be helpful will be adopted and any further requisite measures for increasing production and bettering distribution will unquestionably be supported by the authorities.

Certain things, however, are now clear and definite measures for increasing the meat supply are being taken and can be taken with certainty. It is clear that we have been considering the meat supply of the nation too exclusively in terms of the big ranch and of the large animals. Obviously it is important that we should continue to help the cattlemen and to develop the ranch, and no pains will be spared to do this. \* \*

## More Live Stock on the General Farms.

But unquestionably the largest hope for a considerable increase in our meat supply lies in three other directions: First, in the systematic attention to the production of larger animals in the settled farming areas of the country, especially in the south. Second, in increasing attention to the smaller animals, such as swine and poultry, and third, in the control and eradication of cattle ticks and hog cholera.

There is no question that the average farmer in the settled areas of the nation generally can produce a greater number of the larger animals principally as by-products, to the betterment of his farm economy and without great increase in expenses, and that the farmer in the south in this respect enjoys unusual opportunities. And it is further apparent that the farmer everywhere in the existing state of knowledge can largely increase the supply of swine and poultry products which constitute a large and increasing part of the consumption of the average family, the annual value of the latter alone aggregating half a billion dollars, or 50 per cent of the aggregate value of the cotton produced in the nation. The last census shows a lamentable neglect of live stock in the south. \* \* \*

## Eradication of Disease will Increase Meat Supply.

An easier and more definite program for a large increased meat supply involves the eradication of the cattle tick of tuberculosis and of hog cholera. The Federal Department of Agriculture inspects meats passing into interstate commerce. In one year it condemned three hundred thousand entire carcasses of animals and five hundred and sixty thousand parts of carcasses. Of fifty-seven million animals inspected in 1914, five hundred and thirty-three thousand were found to be infected with tuberculosis. This disease is increasing. It is estimated that hog cholera caused a loss in 1913 of over six million hogs valued at more than sixty millions of dollars, and that the cattle tick causes an annual loss of from forty to one hundred or more millions of dollars, and prevents the proper development of the live stock industry in the infected area.

The government is vitally interested in the control and eradication of these diseases, and for the current year appropriated more than a million and a half dollars for this service and for the development of the dairy industry and animal feeding and breeding, to say nothing of the large item for meat inspection. The most significant new piece of legislation was the appropriation of a half million dollars for hog cholera which is being used for experimental and other demonstrations in the control of this disease, and for the inspection of serum and the protection of the farmer against impotent products. \* \* \*

Every effective thing that may be done to stimulate the live stock interests in general, will of necessity react favorably upon that great industry, the dairy industry in which you are immediately and specially concerned. The importance of this great interest the government fully appreciates, involving as it does the handling of twenty-one millions of cows, an annual product of approximately six hundred millions of dollars in value, more than half a billion pounds of butter, half a billion pounds of condensed milk, and a third of a billion pounds of cheese. It is needless for me to tell you that dairying has made marked advance in recent years, but there is much to be done and the government is making every effort to assist. It is studying how to reduce to cost and to eliminate waste, to develop in those concerned careful business habits, the keeping of exact records, and the definite knowledge each day of how their business stands. It is urging the grading of all dairy products, the elimination of waste in milk delivery, the organization of the milk supply, the extension of co-operation in buying and selling and the extermination of disease in cows, especially of tuberculosis. Along these lines lies the hope of development and profit both to the producer and consumer.

## Agricultural Extension Work.

Within the year Congress has enacted a measure of even vaster significance and greater consequence. I refer to the Smith-Lever extension bill, which, in my judgment, is one of the most significant educational measures ever adopted by any government. It recognizes a new class of pupils—a class composed of men and women working at their daily tasks on the farm. The government takes the adult farmer and farm woman, as well as the farm boy and girl, as its pupils. It provides for an expenditure of over eight millions of dollars, partly by the nation and partly by the states. It incorporates the most efficient method of conveying information to the farmer, and through the healthful process of co-operation between the state and the nation, places the brains of these two great agencies at his disposal, insures efficiency, and eliminates waste and friction. I yield to no man in my appreciation of the value of scientific investigation and research, but I am convinced that the great task confronting us now for the betterment of agriculture is to bring to the average farmer what the experts and the best farmers know and induce them to apply it. If we could secure this we would revolutionize agriculture; and this is the object of the Smith-Lever bill. It aims to reach the farmer by personal contact, and above all, to bring assistance to the farm woman who has been too long neglected as a factor in the agricultural life of the nation.

## The Problem of Distribution.

But vital as are these problems, it has become clear to students of agriculture that further production in many directions waits on better distribution, and that in this field fundamental problems of justice and injustice are involved which demand solution. The time has come to conceive agriculture in all its relations, to conceive it as a unit and not to attend to merely one or a few of its phases. The government has been quick to see these things. Urgent problems have been pressing upon it for solution, problems of marketing, of distribution, of good roads, of rural finance and of rural sanitation and health, and the Department of Agriculture has rapidly tended to become as it should a great department of rural economics and of rural life. The Congress now sitting has appropriated



two hundred thousand dollars for the study of marketing, passed the cotton futures act, made increased provision for the investigation and promotion of good roads, and has pushed nearly to the point of completion measures for the standardization of grain and for the supervision of its sale in interstate commerce, for the standardization of cotton and for a permissive warehouse system for the leading staple crops. The Office of Markets, although only recently created and necessarily requiring time for the consideration of its projects and especially for the securing of an efficient staff of experts, has conducted investigations in a great variety of directions and furnished much information to those seeking it; and it will at no distant day extend aid through bulletins and as rapidly as possible through demonstration. It is investigating the proper methods of grading and standardization, packing and shipping, the marketing of special products, transportation and storage problems, city marketing and distribution, including farmers' municipal wholesale and retail market houses, the direct dealings between producers and consumers, and co-operative production and handling of products. It is giving special attention to such details as dockage in the sale of grains, and to the methods and practices of large terminal markets in the practice of mixing. \* \* \*

#### Good Roads.

Intimately involved in both the production and distribution of products is the matter of good roads. Good roads are prerequisite, not only to economical production and distribution, but also to the furtherance of the educational, social and sanitary life of the farming districts. The great need is for roads which shall get products from the farm to the nearest railway station and enable the farmer to haul when he cannot be busy about his sowing and reaping, and to haul at a lower rate. The railway will continue for an indefinite time to be the nation's highway. The emphasis is needed on the commodity road. It is estimated that it costs twenty-three cents per ton mile to haul loads under existing conditions on the country road, and that this could be reduced by half if the roads were improved.

The question is one, partly, of course, of means or of funds, but even more largely of methods, of instrumentalities and of administration. The nation today is spending annually the equivalent of more than two hundred millions of dollars for roads, an enormous increase in the last decade. Much of this is directed by local supervisors and it is estimated by experts that of the amount so directed anywhere from thirty to forty per cent is, relatively speaking, wasted or misdirected. The first requisite, therefore, is for efficient expenditure and administration, and so far as the Federal Government is concerned, to project it in the situation so as to safeguard the expenditure and to perfect the administration. The office of Public Roads is at present doing everything in its power to promote the economical building of good roads, and especially to assist in the development of proper administration. The difficulties are presented mainly in the sphere of state and local administration. Less than half the states at present have an expert highway commission, and none have expert county commissioners. If direct Federal aid is to be expected, it is to be done only under such conditions as will guarantee a dollar's result for every dollar of expenditure. \* \* \*

#### Rural Organization.

The Government recognizes as well the broader aspects of rural life. It knows that the genius for organization which has done so much for industry in the nation can be brought to prevail in the sphere of rural life and of agriculture. Extreme individualism in agriculture has had its day.

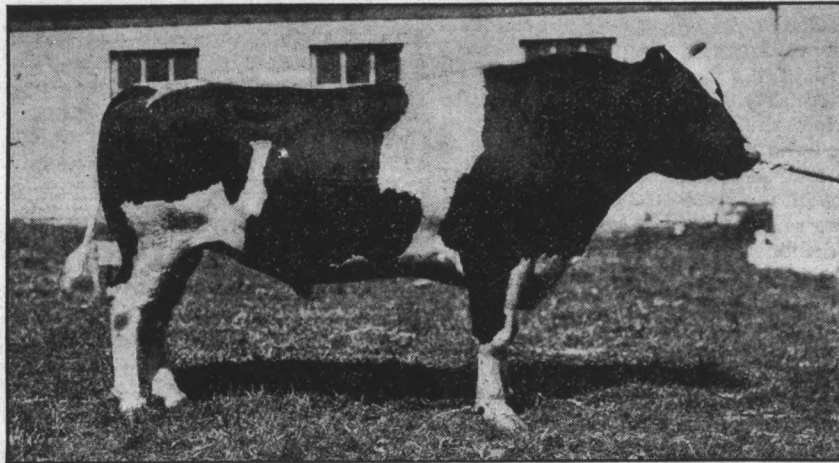
There can be no question that the key to the solution of many of the problems of rural life will be found in some form of concerted action or of co-operation. Some form of organization is as inevitable as it is desirable. Without it the farmer cannot have adequate schools or social life; without it he cannot secure good roads, standardize his products or economically market them; without it he cannot have the proper health facilities or lay the credit foundations which will enable him to secure capital at more reasonable rates. The congress has recently given concerted expression of its appreciation of these phases of rural life by placing at the disposal of the Department of Agriculture the fund for the study of co-operation not only as it affects marketing, but also as it affects other phases of rural activities and especially as it affects rural credits. In addition to recognizing, as the President expresses it, that the farmer "is the servant of the seasons," and that, therefore, not as a matter of discrimination but as a matter of equal justice, peculiar consideration should be had of his circumstances and of his credit needs by providing in the Federal Reserve act for a longer period of maturity for

duction of material things, we must minister to the minds and spirits of the rural population. In short, we must see to it that the finer results and the higher things of civilization are not the peculiar possession of urban peoples, that they do not pass by or over our struggling rural masses.

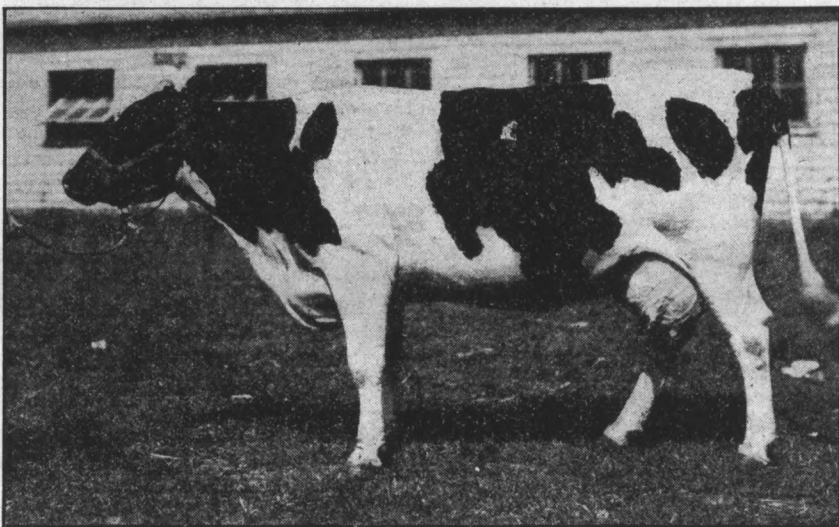
We must see to it that there is within reach of every country boy and girl an opportunity for a sound elementary and secondary school training; that the rural family be protected in its health against the ravages of insects and of disease; that the load be lifted in some measure from the struggling women of the farm and that the wholesome social attractions of life be made more freely to abound. Any expenditure of effort or money in this direction will not be a burden but an investment, and with such protection the farmers of this nation need not fear the competition of the world and the nation need not fear for its permanency.

#### HISTORY OF THE SILO.

Silage is one of the principal winter roughage feeds on many Michigan farms and while the history of the use of silage can have no actual bear-



Grand Champion Holstein Bull and Cow at Michigan State Fair.



farmers' loans and for loans on farm mortgages by national banks within certain limits, Congress has spent many weeks maturing a measure for the creation of land mortgage banks, and the Department of Agriculture has made a special study of co-operative credit associations for the small farmer. There is every reason to hope that in the near future valuable and helpful action will be taken in these two directions. \* \* \*

We cannot neglect the higher things to which the material minister and which if secured would render much of our other effort unnecessary. The greatest undeveloped resource of any community is its people, and if we devoted more attention to the conservation and development of the people, we should be relieved of much of our concern for the conservation and development of our natural resources.

An awakening of the mental and spiritual faculties is prerequisite to the success of any educational enterprise, and therefore along with our attempts directly to increase the pro-

duction in dollars and cents, it is interesting because of the fact that so many people think that the idea of using fermented plants as a winter feed is a very recent one. While it is true that above ground silos are a creation of comparatively recent times, yet the idea has been known and utilized for many centuries.

Underground pits with cemented brick or stone walls constituted the first silos used. Green forage was carefully packed in these pits and then pressed down to exclude the air, by means of heavy stones and weights. We have records of these pits in the Persian and Roman writings of many centuries ago and so it would seem that they appreciated the value of silage as a roughage feed. These pits were commonly used in Europe previous to the time of the erection of the first above-ground silos. In 1876 the construction of silos above ground was commenced and M. Gaffart, of France, owned the first one that was used extensively.

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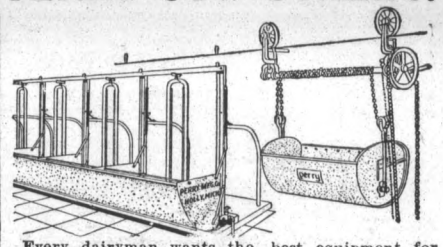
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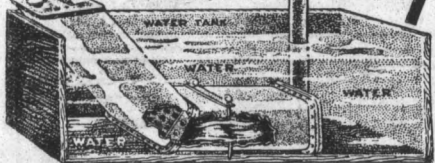
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# National Dairy Show.

THE Ninth Annual Dairy Show held at the International Amphitheatre, in Chicago, October 22 to 31 inclusive, was voted by all who attended it as the best show in the history of this association. The entries were not only numerous but the quality of the animals shown was more than ordinarily good. In many of the classes where twenty-five to thirty animals of superb quality competed in the ring, the task of placing the ribbons was not an easy one.

As has been the case in nearly every former show held by the association, the Guernseys were in predominance so far as numbers were concerned, there being 234 entries of this breed. The quality was also high, but this being true of all the breeds shown the Guernseys cannot be singled out as an exception in this regard. The Jerseys were next to the Guernseys in point of number, there being 180 entries of this popular Channel Island breed. Holsteins were next in order with 162 entries of high quality, while there was good competition in the Ayrshire classes and a very good representation of Brown Swiss. The judging of the cattle was the ring feature of every day during the second week of the show, and the crowd of enthusiasts who stuck at the ringside during the many hours required to place the awards was an indication of the fact that many breeders of special purpose dairy cattle were making a close study of breed type and quality as demonstrated in this ring.

As usual at the National Dairy Show, the exhibits of dairy appliances, farm equipment, etc., was large and attractively placed. This feature of the show held much of educational value to all classes of patrons whether breeders, dairy farmers, creamery or cheese factory men, or consumers of dairy products. So extensive and varied was this feature of the show that it is impossible in the limited space available to present any comprehensive review of its features. Suffice to say that both large wings of the amphitheatre were fully occupied by this class of exhibits.

Noteworthy among the educational features of the show were the exhibits of the Dairy Division of the U. S. Department of Agriculture and several state agricultural colleges. The educational value of the dairy division exhibit was exceptionally high, including as it did a demonstration herd, various charts giving statistical information of value to any dairy farmer, etc. In addition to these physical exhibits, an educational program was carried out each day in which short talks were given by dairy farmers, college professors and others upon many practical dairy topics. So important was this phase of the show to the dairy farmers attending, who sought practical information upon general dairy matters rather than to study the fine points of dairy type in the various special purpose dairy breeds of cattle exhibited at this show that we shall in a future issue describe more fully some of its leading features. The college exhibits consisted mostly of charts presenting information of practical value on various phases of the dairy industry. The students' judging contest was a feature of considerable interest and great educational value to the considerable number of students participating. The premier honors were won by the Ohio student team.

Entertainment features of the show included an evening program which was liberally patronized throughout the week. Among the notable educational exhibits was a working model creamery, cooking school demonstrations relating particularly to the food value of dairy products, milking machine demonstrations showing several

different types of machines in actual operation, etc. In fact, there were something like 100 exhibits of machinery and equipment shown under actual service conditions.

The attendance was fully 20 per cent above that of last year, a fact worthy of special mention in view of the general falling off in attendance of big agricultural fairs throughout the country, which was almost universal this year. Meetings of various breed associations and other organizations affiliated with the dairy industry were held during the show and there was a general inclination on the part of patrons, in whatever branch

## Making up Efficient Rations.

THE cost, composition, variety and palatability of feeds are some of the important features to consider in feeding dairy cattle. Dairy cows' rations should consist of such foods as will supply sufficient nutriment so proportioned as to sustain the body and produce a heavy flow of milk. Variety increases the amount of food consumed and this increases the flow of milk. Variety is a cardinal factor in making foods palatable and unless the food is suited to the cow's appetite she will not consume enough to maintain a profitable milk yield. Palatability induces an increased flow of the digestive juices and this aids digestion. Individual differences in appetite should be studied and the cow's rations mixed accordingly.

The profit from the dairy is found between the sales of dairy products, and the cost to produce them, hence, the cost of production is of first importance and must be regulated to a great extent by increasing the efficiency of the ration. Quality of dairy products should never be sacrificed in lowering the cost of production.

To determine the best ration for economy in feeding both the composition and cost of foods must be considered. A straight ration of corn will not produce enough milk to show a profit, or even properly nourish the cow's body. With the addition of cottonseed meal or bran the cost of feeding is increased but the extra flow of milk is more than enough to pay the extra cost of feed. Hence we find that the economy of the ration depends upon the cost of feed per day. As an illustration, we will suppose that one dairyman has a large crop of corn and timothy hay. Other feeds are scarce and high and he thinks it will be cheaper to feed what he has than to buy supplemental feeds to increase the efficiency of his rations. He thinks that eight pounds of corn meal, 15 pounds of timothy hay and 10 pounds of corn stover is about right. What do the results show?

Such a ration contains carbohydrates enough to produce 30 to 40 pounds of milk, but only enough protein for about five pounds of milk, consequently the cows receiving this ration cannot be expected to give more than five pounds of milk per day. The cost of such a daily ration is 12 cents, which makes the cost of milk 17 cents per gallon. By replacing the corn meal with the same number of pounds of wheat bran and feeding the same amounts of roughage as before, we have a ration that will supply protein enough for about 12 pounds of milk. This lowers the cost of production to about 11 cents per gallon, and only increases the cost of the ration to about 14 cents per day. We next substitute an equal weight of clover for timothy hay and thereby have a ration that will produce 18 to 20 pounds of milk per day and the cost of feed is not increased, but the cost of production is only about six cents feeding value.

of the dairy industry they might be interested, to boost for a larger attendance, particularly of general dairy farmers in future years, which not only insures the permanence of this show as an annual event but promises much in the way of increasing its sphere of usefulness in bringing about a general betterment of the dairy industry throughout the country.

A prominent feature of the show was the presence of the Secretary of Agriculture who addressed the patrons present on Monday, October 26. The major portion of his address will be found on another page of this issue.

The placing of awards had not been completed at this writing, some important classes remaining to be judged, including the class from which the best cow in the show will be selected.

per gallon. These illustrations show the economy of selling corn meal and timothy hay and buying wheat bran and clover. This means that a cow yielding 20 to 25 pounds of milk per day should receive enough protein to properly balance the fat and carbohydrates in the home-grown foods.

Many dairymen make the mistake of feeding all their cows the same amount of grain without regard to the amount of milk they are producing. Every dairyman should feed in proportion to the amount of milk each cow is giving to realize a fair profit. A cow requires a certain amount of food to sustain her and should receive a surplus above that amount to maintain a flow of milk. If not she will make all her surplus flesh into milk and as soon as she falls away in flesh condition her milk flow shrinks until her yield is in exact proportion to the amount of food consumed. On the other hand, in case of excessive feeding her surplus not required to maintain body and milk yields, is converted into fat or passes through the cow without being digested and finds its way to the manure heap. As a general proposition dairy farmers will find greater profits if they raise nearly all of their feed on their own farms. The best crops are those that increase the fertility of the soil and furnish a nearly correct ration for milk production. Fortunately for dairymen, the soil building crops and the best feeding crops are the same.

Dairy feeds and soil fertility are closely related. In planning a system of growing crops to feed dairy cattle, clover and alfalfa should be the main reliance for hay crops, with corn the main grain and silage crop. Other small grains must be grown as a complement to crop rotation and to serve as nurse crop to seed the clover and grass crops with. Catch crops may be employed for soiling uses but with plenty of clover, alfalfa and corn with small grains that are grown in the regular rotation it is seldom advisable to depend upon catch crops. The best feeding crops and the best soiling crops are the same and we are on safer ground when we confine our efforts to a few standard crops for our cow foods.

The succulent quality of pasture grasses causes the increased flow of milk during spring and early summer. Succulence in feed causes a better condition of the digestive organs and general health of the animals. This gives it a feed value in excess of the actual nutritive value that it possesses. For this reason corn ensilage promotes better health and higher milk production in winter than dry feeds. Ensilage saves other foods and is the most economical method of conserving the whole corn crop in a palatable and nutritious form for winter feeding. There is practically no waste in feeding well preserved ensilage and the cost of production is lower than is the case with any other food of equal feeding value. W. MILTON KELLY.



### THE COST OF RAISING A DAIRY COW.

According to investigators in the Department of Agriculture, the average net cost of raising a dairy heifer one year old on a Wisconsin farm is \$39.52, and of a two-year heifer \$61.41. These figures are applicable to other dairy districts in the north and east, where land and feed values are similar to those in Wisconsin. They are based on data obtained from raising 117 calves from birth to the time they enter the dairy herd.

There are in the United States over 21,000,000 dairy cows. These figures give some idea of the importance of this economic problem to the country as a whole, for these cows must be replaced every few years. The cost of the production of these heifers is a large item in keeping down the profits of the dairymen.

The most important item was the cost of the food, which was estimated at market value and amounted to nearly two-thirds of the total net cost of the heifer, while labor formed 12½ per cent of the cost.

Figures for the average net cost of the one-year-old heifer are as follows:

Feed .....	\$24.67
Labor .....	4.45
Other costs .....	6.36
<b>Total .....</b>	<b>\$35.48</b>

To this should be added the initial value of the calf, which was estimated to be \$7.04, making a total cost at the end of one year, of \$42.52. This charge is justified in view of the fact that dairy cows are credited with this item in determining the cost of milk production. By allowing \$3 credit for manure, it leaves a net cost of \$39.52 at the end of the first year.

Figures for the average net cost of the two-year-old heifer are as follows:

Initial value .....	\$ 7.04
Feed .....	40.83
Labor .....	7.81
Other costs .....	13.73
<b>Total .....</b>	<b>\$69.41</b>
Credit for manure.....	8.00
<b>Total .....</b>	<b>\$61.41</b>

One-half of the feed cost the first year and one-third for the full two years, is for whole and skim-milk.

By far the most expensive period in the life of the calf is the first four weeks, the cost being nearly double that for any other four-week period. This high cost is occasioned by its being dependent almost entirely upon whole milk.

The man labor required in raising a heifer is about 40 hours during the first year and 23 hours the second year. The total cost of man and horse labor for the two years is close to \$8. The manure produced during the two years has been valued at \$8; consequently, the cost of labor is practically offset by the value of the manure.

The item, "Other Costs," consists of expenses usually overlooked in estimating costs. These are interest, charge for the use of buildings and equipment, expense for bedding, miscellaneous expenses, a share of the general expenses for the entire farm business, and a charge to cover losses by death and discarding. The total for these forms nearly one-fifth of the total cost of the two-year-old heifer.

The foregoing figures show that it costs more to raise calves to maturity than is commonly supposed, and they support the advice which the Department is continually trying to impress upon dairy farmers, that it does not pay to raise any but the best heifers. Raising scrub heifers and selling them at \$25 to \$40 apiece, as many do, is unprofitable, except on cheap land or under other very favorable conditions. But it does pay to raise the best heifers, for in good dairy sections well-bred heifers are worth considerably more than \$60 when two years of age. Furthermore, dairy farmers as a rule, are obliged to raise their own stock, as it is difficult to buy productive cows at a reasonable price. In some

section of the west where alfalfa is worth only \$4 or \$5 a ton, or in the southwest where pastures furnish feed the greater part of the year, this cost may be greatly reduced. Even where it costs \$60 to raise a heifer, two-thirds of this amount is charged for feeds at market prices, a large part of which can be grown on the farm at a profit. Thus by raising the heifers the dairy farmer finds a home market for feeds grown on the farm at remunerative prices, and at the same time aids in maintaining the fertility of the farm.

### A MODEL DAIRY BARN.

H. B. Porter, of Lenawee county, is putting the finishing touches upon a dairy barn that he considers a model structure for a medium sized dairy.

It is located on one of his farms east of town and is the beginning of a dairy establishment which he calls "The Meadow View Dairy." The building is 32x80 with 16-foot posts which is set upon a cement wall two feet above the floor, and it is covered with a gambrel roof.

The lower floor is of cement throughout and is divided into cow stable, milk and feed rooms, and a covered barnyard. The stable is provided with revolving stanchions for 18 cows, nine on a side and facing each other across a wide feed alley. This alley extends to the end of the barn and the milk and feed rooms are located upon each side of it.

#### Covered Barnyard.

The covered barnyard takes up rather more than half the length of the barn as it is planned to feed all of the roughage here and to clean the stables directly into this room from whence it will go to the fields. It is not intended that any manure or other refuse shall collect around the outside of the barn. Mangers are placed on three sides of this barnyard and on the fourth side there is a 20-barrel cement watering tank and two big doors for the ingress and egress of a team and manure spreader.

In planning this structure Mr. Porter had in mind the legal requirements placed upon dairy barns and their management with regard to light, pure air and cleanliness, and there are 31 four-light windows opening into the lower floor, and four larger ones in the gables. Nineteen of these windows open directly into the stable and covered barnyard from the south side and west end, thus insuring a flood of sunlight where most needed.


#### The Ventilation System.

Four large air flues run from the lower floor to ventilators on the roof of the barn, two from the stable and two from the barnyard. These ventilators, four in number, make a pleasing break in the ridge line of more than 80 feet. Ample provision is made for carrying off all waste water, including that from the roof.

To one unacquainted with the inside of a modern gambrel roofed barn the hayloft—second floor—in this barn is a marvel in point of room found there. It is not quite as big as the dancing floor in the Saltair Pavillion built by the Mormon church at Salt Lake, but it is absolutely bewildering to the novice. The straw loft alone, the space over the covered barnyard, is estimated to hold 30 acres of heavy oat straw. It will be seen that there is no driving floor in this barn, the loft being filled from the end of the barn.

The structure is enclosed with yellow pine and painted in a pleasing shade of slate color and all windows, window casings, doors and cornice is painted white. This gives the building a very attractive appearance. The total cost of the building and equipment is about \$1,700. One silo will be erected before another corn harvest, and probably two of them. His dairy herd is about equally divided between thoroughbred and high-grade Holstein stock.

E. A. FULLER.



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DETROIT, NOV. 7, 1914.

### A FEW LEADING ARTICLES OF THE WEEK.

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### CURRENT COMMENT.

On the first page of this issue will be found the first of the fifty-two special articles which will be published in our columns during the ensuing year. A new one will appear each week, although many of the special topics will be presented in a series of articles which will run through several issues. A good many Michigan farmers will receive this paper who are not now regular subscribers of the Michigan Farmer. We would call their attention to the fact that in planning for this series of special articles, great care was taken to make the subjects chosen of peculiar interest to Michigan farmers no matter what special line of agriculture they might be interested in, and to procure them from authors who are peculiarly qualified to discuss the subjects selected, but as well to begin publication at the season of the year when farmers begin to have more time for reading

and study than they have during the strenuous summer campaign.

In view of these facts, we would suggest to those receiving a copy of this paper who are not regular readers of the Michigan Farmer, to send in their subscription at this time, so as to get the benefit of this whole list of valuable special articles in addition to the seasonable matter of which every issue is always made up. The late fall and winter season is a period of the year which should be made one of study and thought by every farmer, and there are a large family of Michigan Farmer readers who believe that the initial step toward preparation for such study is insuring the regular receipt of the farmer's trade paper which is published especially for the farmers of Michigan. If the readers to whom this suggestion is addressed will try it, we believe they will become of like opinion.

### The National Dairy Show.

In another column of this issue will be found a brief general report of the National Dairy Show recently held at Chicago. In that report brief mention is made of certain educational features of the show which were of interest to all dairy farmers as well as those dairymen who are specialists in the breeding of special purpose dairy animals. To illustrate this growing feature of the dairy show and at the same time to give the farmers of Michigan some benefit from this feature of the show, we shall in future issues publish reports of some of the educational features, including the substance of some of the educational addresses given in connection therewith. Heretofore we believe that the dairy farmers of the country have not had as great interest in this event as its importance and their well being has warranted. In view of this fact, we believe that the presentation of the features above mentioned will insure larger attendance of Michigan dairy farmers at this annual event in future years, and a consequent benefit to Michigan's important and growing dairy industry.

Unfortunately for the highest development of permanent agriculture, American farmers have not until recently been obliged to carefully study the question of soil fertility with a view of not only conserving but increasing that fertility. This was but the natural result of the rapid development of a great agricultural empire, during which it was much cheaper for the farmers of one section to take up new and fertile land in another region than to conserve and build up the fertility of their own farms. Another reason was that this rapid improvement of new land, together with the unprecedented development of agricultural machinery, tended to increase production to a point which made the prices for staple products so cheap as to almost compel the farmers in older sections of the country to become soil robbers to the extent of further impoverishing their already well worn soils. Then, too, the application of science to agriculture is a modern development. The problems of soil fertility, while none too well known at the present time, are far less complicated in the mind of the agricultural student than was the case but a few short years ago. Science has now progressed so far in pointing out the essential or underlying principles in the conservation and increasing of soil fertility that it but remains for the practical farmer to make a common sense application of these principles, or such of them as may be suited to his location and environment, on his own farm.

The leading article in this week's issue describes the method which one well-known and successful Indiana farmer has used to doctor his run-down soil and increase its fertility to a point which makes it profitable pro-

ducing land, and at a minimum of cost. The simple expedients outlined in this article will aid almost any Michigan farmer to begin right in the improvement of the fertility of his soil. Having made a beginning in this direction, the average farmer will further interest himself in the study of his own peculiar problems and in the making of experiments which will point out the best and cheapest solution for them. The time has arrived when the prices of staple products will not again fall to a point which will make their production unprofitable without soil robbing methods. In fact, the time has arrived when such methods will be less profitable than will methods which will conserve and increase soil fertility and at the same time increase per acre production, and the farmer who does not carefully study this proposition from every angle as applied to his own farm operations is not only neglecting an opportunity to increase his material prosperity but as well a duty to his posterity.

### Feeding the World.

Quite often some enthusiastic American writer makes the rather extravagant assertion that American farmers can feed the world. The great European war will undoubtedly shorten production in Europe and increase the demand for American staples; this fact has been a great supporting factor in our wheat market, and there is every prospect that it will continue to be a factor in that and other staple food stuffs markets for some time to come. When it comes to feeding the world, however, the contract would be altogether too large for American farmers. When one examines statistics closely he finds that our exports form only a small percentage of our products. Fortunately for our farmers, and for the world at large, we can increase that margin of difference to some extent and will do so whenever the price of such staples warrants such an increase. There is every probability that there is no danger of over-production of staple food stuffs in our country for some years to come, although this may not be true of perishable food stuffs. But in reality the margin between an excess of agricultural products and a condition of actual scarcity is very small when expressed in figures of percentage. The economic law of supply and demand keeps a pretty accurate balance in the matter of average production. A favorable season over a wide producing area may create a temporary surplus of some product, especially if it is a perishable product, but there is scarcely a possibility, much less a prospect that there will be any surplus of staple products in the near future, hence the wisdom of the American farmers doing all in their power to aid in supplying this unexpected outside demand.

### Secretary Houston's Address.

On another page of this issue we have reproduced the major portion of the address given by Hon. D. F. Houston, Secretary of Agriculture, at the National Dairy Show held in Chicago last week. The portions of the address omitted were mainly paragraphs relating to the agriculture of the south, in which Michigan readers would not be so greatly interested as in the more general topics discussed. These extended extracts from Secretary Houston's address are reproduced for the reason that it is practically his first important address to the live stock interests of the country, and as well because a reading of this address will serve to better acquaint the farmers of Michigan with the personality and the aims and ambitions of the man who now holds the important office of Secretary of Agriculture in our Federal Government. We bespeak for Secretary Houston's address a careful reading by every member of the Michigan Farmer family.

### HAPPENINGS OF THE WEEK.

#### Foreign.

The European War.—The most important news item pertaining to the great conflict across the water is the declaration of war between Turkey and the allied forces of England, Russia, France and Belgium. To date 11 powers are now engaged and three more are likely to participate. It is expected that Turkey will attempt a conquest of Egyptian territory and will threaten French possessions in northern Africa. It is declared by the Allies that preparations have been made to offset these movements. Naval engagements have already occurred between Russian and Turkish battleships on the Black Sea. Greece, Bulgaria and Roumania have joined the Allies and will send forces against Turkey. In the western theatre of war and also in Russian Poland very little has happened during the week to change the relative positions of the armies. The most severe fighting has occurred in western Belgium and northern France. Minor advantages seem to have been gained by both sides. No decisive results, however, have been reported, although the delay is generally conceded to be an advantage to the Allies. Winter weather has overtaken the troops in Russian Poland and prevented any general campaigning, although skirmishes at different points along the line of battle are of daily occurrence. The combined forces of Japan and England are closing on the fortifications of Tsing-Tao in eastern China. Decisive results may be expected from the fighting in this quarter soon.

The Mexican situation is still complicated. The Peace Conference has thus far failed to effect an agreement between the contending parties. The latest report is of the preparation by Gen. Villa to move troops on to Mexico City to force Gen. Carranza from executive power in Mexico. Gen. Carranza has 20,000 men at Leon and 8,000 at Tanaulpa, and it is predicted that any movement of troops will precipitate another armed conflict. The conference looks upon Emilio Madero, brother of former President Madero as the most likely candidate for the presidency.

Large supplies of clothing and food are being sent from the United States to Belgian refugees who have been driven from their homes and are without the necessities of life by reason of the European war. The Rockefeller foundation is offering large amounts of money to aid these unfortunate people in every possible manner. A steamer has been chartered to carry with all possible speed 4,000 tons of food stuffs for the starving women, children and men.

Prince Louis of Battenberg has retired as head of the British navy because of a campaign by the English press on the grounds that the high official, being of German blood, should not occupy so important a position. Sir John Fisher, veteran of many wars, succeeds Prince Louis and is now in charge of the great British fleets. His selection seems to have been received with universal approval. Prince Louis has since been chosen by King George to an important position on the naval board.

Germany has notified Great Britain that unless German civilians in England, excepting those against whom are grounds of suspicion, are not liberated from arrest by November 5, all British subjects in Germany will be similarly arrested.

#### National.

The situation in the live stock quarantine against the foot and mouth disease has been made complicated by reason of another outbreak in Lenawee county and suspicion having been brought to bear upon the Chicago stockyards. A complete quarantine against the shipment of cattle, sheep and hogs from these stockyards into Michigan has been approved by Gov. Ferris and the federal government has stopped interstate shipments until proper sanitary precautions can be taken. Just what effect these actions will have upon live stock prices remains to be seen. However, the federal government is taking steps to prevent private parties making capital of the situation.

Representatives of the English government are in Washington to confer with the treasury department concerning the establishment of a credit system that will overcome the necessity of the shipment and reshipment of gold to satisfy international business demands, and incidentally to deprive speculators of the opportunity to profit from the needs of the nations.

The republican national committee has announced that the call for the convention of 1916 would be on a new basis which reduces the number of delegates by 89. Most of this loss falls upon the south. A bitter fight has been waged over this feature of the party's organization since 1880.



# Magazine Section

LITERATURE  
POETRY  
HISTORY and  
INFORMATION

**MICHIGAN FARMER**  
AND *LIVE STOCK*  
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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.

## Giving the Lepers of India a Chance.

By PROF. ALFRED VIVIAN.

**P**ROBABLY nothing in the Orient so arouses the sympathy of the traveler from the west as the sight of the miserable lepers who are likely to be encountered wherever he travels. From time immemorial the people of the east have done everything possible to make the lot of the leper a hard one. He is despised and hated and dreaded by all. Instead of exciting pity in the hearts of his countrymen, he has been subjected to the

were constantly passing along the road. It is no wonder that the leper becomes the lowest of the low. Despised of all, treated like a beast, he is likely to degenerate into a condition worse than that of the lowest animal. If he begs and steals who can blame him? If he lives like a beast, it is only what is to be expected from the treatment accorded him by his fellow men. A more hopeless lot than that of the Hindu leper can not be imagined. There is no cure for his disease, and he is doomed to spend the rest of his life waiting for death to come, his hopelessness depicted on his countenance. And yet he is not absolutely hopeless, for "hope springs eternal in the human breast,"

and he has heard rumors of remarkable cures effected at some distant shrine. So he spends his life wandering from one shrine to another, thinking that perhaps the next one may be more efficacious than the last. The lepers are the greatest travelers among the Indians, and, undoubtedly, the disease is spread by their wanderings. The government tries in vain to prevent their journeyings. The law prohibits the presence of lepers in the bazaars, upon the station platforms, and (above all) on the trains, but in spite of the laws we saw

them in all these places. As long as India has to depend upon Hindu policemen to enforce the laws the leper will go where he pleases. In the bazaar and in the station platform the policeman curses the leper and orders him away, but he only smiles and says in return, "If you do not want me here, put me out," knowing full

well that the policeman will not touch him for fear of losing caste, as well as for fear of the disease. The leper selects a compartment on the train, opens the door and steps in, and if the carriage is already occupied there is an immediate exodus through the doors and windows on the other side, and he rides to his destination undisturbed by anything but the maledictions of the guards, to which he shows a calm indifference, knowing from long experience the inefficacy of vituperation. The government has tried to segregate the lepers in asylums, but the same cause which makes it impossible to enforce the laws regarding their presence in public places, also renders ineffective any measure compelling their isolation. It remained for a religious organization to do in part what the government wholly failed to accomplish.

The Mission to Lepers, with head-

quarters in England and America, was organized by Wellesley C. Bailey to carry physical and spiritual help to the lepers of the world. This organization is non-sectarian. The plan of work is to establish leper asylums wherever needed, and to place the asylum in charge of a missionary who is already on the field. The Mission to Lepers pays the expenses of the asylum, but does not pay anything in salaries to the superintendent as he



Untainted Children of Leper Parents.

most cruel treatment. Even the Hebrew religion contained nothing of compassion for him for we read in Leviticus 13:45, 46:

"And the leper in whom the plague is, his clothing shall be rent, and the hair of his head shall go loose, and he shall cry, 'unclean, unclean.' All the days wherein the plague is in him he shall be unclean; he is unclean; he shall dwell alone; without the camp shall his dwelling be."

Not till the dawn of the Christian era does sacred writ contain a single note which indicates that the leper is worthy of even as good treatment as is accorded the lowest animal.

India has probably more than 300,000 lepers. It is almost impossible to determine the exact number, for naturally the victim himself hides the disease as long as possible, and, as a case of leprosy is a disgrace to the entire family, it is concealed from the public sometimes, for long periods, although law and custom require that it be immediately reported, and the leper banished from the home. He can expect no help nor consideration from others, for according to the Hindu belief leprosy is a punishment for some terrible sin committed by the person afflicted in this or a previous existence. He has incurred the anger of the gods and to help him, if one were so inclined, would be to bring down the wrath of the gods upon the helper's head. To touch a leper or to give him food or drink, would result in loss of caste, and the dispenser of charity would himself become no better than the leper and an outcast from the society in which he moved. A poor, dying leper lay in the gutter near the railway station at Allahabad for three days and nights crying piteously for water, and though thousands of people passed him in that time not one offered him a drink. Finally someone a little more humane than the rest, reported the case to one of the missionaries at Allahabad Christian College who removed the man to the leper asylum. Hundreds of cases are known where the victims were allowed to die by the roadside, unable to obtain the least help from any of the thousands of people who



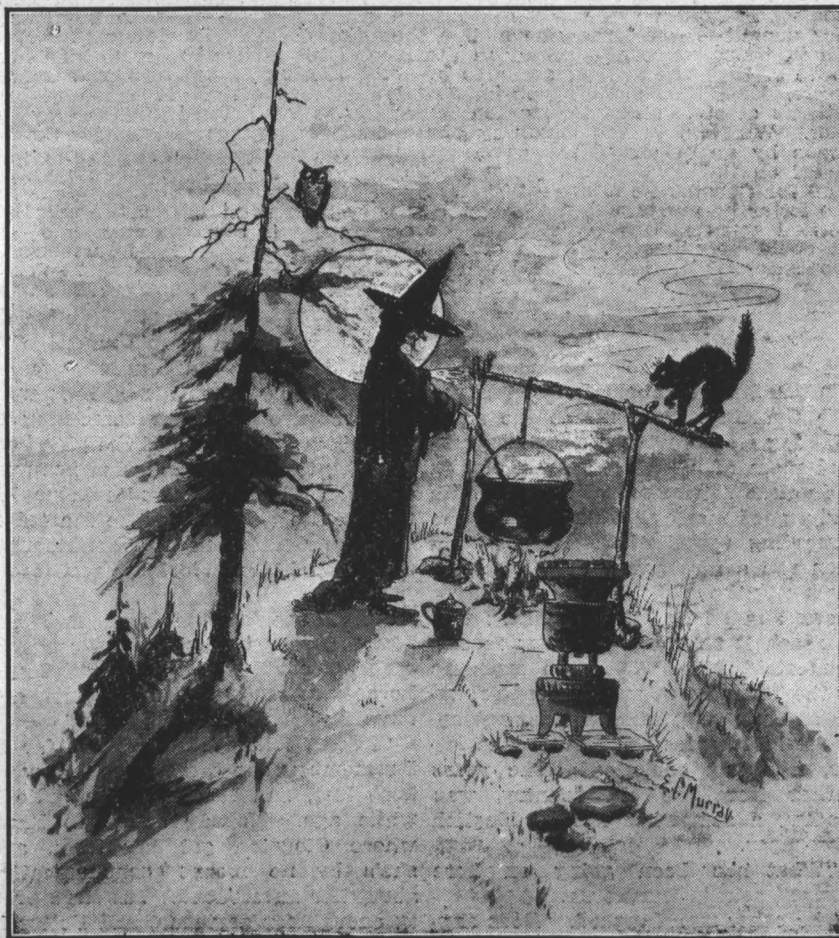
A Leper—Fingers of Both Hands Gone.

is employed by some church missionary society and takes the work of superintending the asylum as an extra burden. This letter is to be largely an account of one man's work in one of these asylums.

In December, 1903, Mr. Sam Higginbottom, a young teacher recently arrived in India from America, where he had come to take a position in the Allahabad Christian College, was informed that part of his work would be to superintend the Naini Leper Asylum. This asylum, which had been started as a government enterprise, had been a failure, and had been a short time before turned over to the Mission of Lepers, the government agreeing to give some money to its support. The houses were built of mud and thatched with straw, and were filthy beyond all power of description. The people, like swine, wallowed in the filth, and seemed but little like human beings. Many of them had hands and feet almost entirely wasted away by disease; others had the repulsive faces so often produced by leprosy, and some exhibited the loathsome sores of the tubercular type. The filthy surroundings in which they lived only aggravated the disease. The running ulcers of the tubercular type actually became fly-blown at times, and it was not unusual for those having the type of leprosy in which all sense of feeling is destroyed, to find upon awakening in the morning that part of their hands or feet had been eaten away by rats during the night. Is it any wonder that the young man's heart grew faint at first and that he was tempted to run away and leave the work for some one else to do? But it came to him that, if Christianity meant what it preached, these people were his neighbors, his brothers and sisters—miserable specimens though they were, and he determined that he would do all in his power to uplift them and to alleviate their misery and squalor.

Gradually the old mud huts have been replaced by buildings of brick and tile with cemented floors, not pa-

### BOBBY'S HALLOWE'EN DREAM.





lateral to be sure, but much better than the old ones. In tearing down the old huts, rats innumerable were dislodged, and in one of the thatched roofs were found three cobras—the most venomous serpent in India. The new houses are rows of rooms one story high, plain in the extreme, and there is little suggestion of what we would call comfort, but they are substantial, clean, and rat and cobra proof. A decent place in which to live suggested decency to the occupant and made it easier to insist upon a reasonably degree of cleanliness. When Mr. Higginbottom took charge of the asylum there were miserable accommodations for 50 inmates and these could not be kept full. Today the asylum has room for 180 and has actually 250 inmates, so that the asylum is congested beyond measure. Numerous applicants have to be absolutely refused admission where a few years ago they could not be driven in.

One of the greatest problems with which these institutions have had to struggle is to keep the lepers in the asylums after they have entered. They came only when able to travel no further. They would remain until they had recuperated a little and then, perhaps, hearing of some new or untried shrine the wanderlust would come over them and they would again take to the road, forgetting for the time how unsympathetic they had formerly found the world. Mr. Higginbottom looked around for something to counteract this wanderlust and hit upon this happy expedient. The asylum owned several acres of land and a part of this he divided into small garden plots allotting one to each inmate. In the climate of India crops can be grown the year around if water is supplied, so he put in a large well and a pump to raise the water. The gardeners are compelled to carry the water to the plots, for one of the things desired was to keep them occupied. The produce of each plot belongs to the man or woman who takes care of it. This scheme has had a wonderful effect in decreasing the exodus from the asylum; for when a man has taken care of his garden he wants to harvest the crop, and a little judicial suggestion as to the rotation followed in the garden makes it possible to have something about ready to harvest all the time. Of course the best feature of this plan is that it keeps the mind occupied in such a way that the patient is not always thinking of his own unhappy condition. It is wonderful to see what these lepers, many of them possessing only stumps of hands to work with, can produce on their tiny allotments of ground.

I do not know of any place where a small amount of money does so much good as in this leper asylum. As was said before, the superintendent receives no extra pay for his work here. He is allowed only \$25 a year (formerly only \$12) to pay all the expenses of a leper. Out of this he must pay for all food and clothing, and it may be imagined that the inmates do not revel in many luxuries. After many experiments in trying to make the small amount of money procure the largest possible quantity of the things desired by the residents, Mr. Higginbottom finally settled upon this policy. He provides each one with all the rice and flour he needs and allows him eight cents per week spending money. He has established a little store in which is kept a stock of dal, grain, spices and the many things which the Hindu fancies, and these are sold to the lepers at cost. These people get more pleasure out of spending their eight cents a week than some Americans get from spending as many thousand dollars. The store is the social center of the community, and many a good visit and gossip is indulged in during a purchase amounting to a fraction of a cent. The coin most commonly used

at the store is a "pie" which amounts to one-sixth of a cent in value. No restrictions are placed upon the expenditure of this large weekly allowance and, as the superintendent facetiously said, "If the men want to fly high and spend all the eight cents upon one meal they may do so." In addition to the flour and rice the men are allowed four yards of cotton cloth once a year for clothing, and, as women always dress more than men, the leper women are allowed six yards of the same kind of material. Once in two years each inmate receives a blanket which costs 75 cents.

It does not seem possible that any money could be spared out of this weekly pittance, but at the little church in the asylum grounds the weekly collection from this congregation amounts to from 35 to 60 cents, an amount which, if calculated upon the basis of the total income of the church givers, would put any church in America to shame. A short time since these people insisted upon paying the expenses of their preacher to attend the annual conference, although the Mission intended to do so. It is doubtful if any group of Oriental people have better grasped the spirit of Christianity than have these leper Christians.

Another splendid work being done by the Mission is the saving of children of lepers. A baby is seldom if ever born with leprosy. If the child can be separated from its parents as soon as it is weaned it rarely contracts the disease. Of those children that have been isolated over 90 per cent have grown up free from any taint of the trouble. The asylum has separate grounds and buildings for unmarried men and women, and no marriages are allowed among them. Many married couples go there, however, and often have one or two small children which they are persuaded to send to the "Home for Untainted Children of Lepers." The asylum described in

this letter has such a home although its accommodations are altogether inadequate for the number of children on hand. The fact is that the whole plant is entirely too small. Many lepers are waiting for a vacancy to get in and if there was room for them at least 1,000 would take advantage of the home provided by this asylum. Leaving out of account the Christian side of the work, and the attempt to help the leper himself, it is a matter of great importance to the country of India and the world at large that these people be prevented from wandering hither and thither, spreading their fearful disease. Up to date the Christian missionary alone has not been able to accomplish anything in the way of segregation of the lepers in India, for reasons mentioned above. It is interesting to note, by the way, that Mr. Higginbottom's idea of using the garden as a means of holding the leper in the asylum is being adopted by several other missions.

I can not close this letter without a word of appreciation for missions in general. It has become the fashion in some quarters to scoff at foreign missions. No one who will take the trouble to spend only a few weeks among the village people as I have just done, if he brings with him an unbiased mind, can help but realize that the missionary, and especially the American missionary, is having a decided influence for good among these people. The work of the missionary can not be counted in number of conversions or baptisms, for his influence is much more widespread than these would indicate. The real results of missionary enterprise will not be seen by the casual observer for years to come, but for all that, certain subtle changes are taking place in the thoughts of these people which in good time will burst forth and become apparent to all—but that is a long story and must be omitted at this time for obvious reasons.

greatly stuck on her. He sold out a week or two ago—got quite a pile for the ranch, and I understand he's going back to the old country. Any way, the girl has a catch. Potter's a straight man, and most of us like him."

He turned over his paper with a little laugh. "It doesn't interest you? Well, if you had lived out at Willow six years as I have you'd be glad of anything to talk about, if it was only the affairs of one of Clouston's waitresses."

Courthorne yawned again openly and took from his pocket a letter he had received the day before at another little town to which, in accordance with directions given, it had been forwarded him. It was from one of his whisky-running comrades and had somewhat puzzled him.

"There's about one hundred dollars due you, and we're willing to pay up," it ran. "Still, now we hear you're going back east to the Silverdale settlement it's quite likely you won't want them as much as the rest of us do. It's supposed to be quite a big farm you have come into."

Courthorne was a little troubled, as well as perplexed. He had certainly not gone to Silverdale and had no notion of doing so, though he had distant relatives there, while, so far as he knew, nobody had left him a farm of any kind. He had promised the whisky runners a guide on the night of Trooper Shannon's death, and as it was dark when, muffled in Winston's furs, he met the men—who were, as it happened, for the most part new adherents, it seemed probable that they had not recognized him or had not had any reason to believe it was not Winston himself who was responsible for the trooper's death. It was not a very unusual thing for one of the smaller farmers to take a part in a smuggling venture now and then. Still, the letter left him with an unpleasant uncertainty.

By and by his companion looked up from his paper again.

"You came from my part of the old country, I think?" he said. "I see a man of your name has died there lately, and he seems to have left a good deal of property. Here's a list of the bequests."

He stopped a moment, and with another glance at it handed Courthorne the paper. "I notice your own name among them, and it's not a common one."

Courthorne stretched out his hand for the paper, and his face became intent as he read: "It is with regret many of our readers will hear of the death of Mr. Geoffrey Courthorne, well known in this vicinity as a politician with Imperialistic views and a benefactor of charitable schemes. Among the bequests are . . . and one of the farms in the Silverdale colony he established in Western Canada to Lance Courthorne."

He laid down the paper and sat rigidly for a minute or two, while his companion glanced at him curiously.

"Then," said the latter, "it's you!" "It is," said Courthorne dryly. "I'm much obliged to you for showing me the thing, but I'd be still more obliged if you wouldn't worry me with any questions just now."

His companion made a little gesture of comprehension as he moved away, and Courthorne leaned back in his chair with his eyes half closed. He could now understand his whisky-smuggling comrade's letter, for it was evident that Winston was going to Silverdale. Indeed, Courthorne could not see what other course was open to the rancher, if he wished to preserve his safety. Still, Courthorne was aware that farming, as carried on at Silverdale, was singularly unprofitable, and he had a somewhat curious confidence in the honesty of the man he had deceived. Winston, he decided, no doubt believed that he was

(Continued on page 404).

## Winston of the Prairie

BY HAROLD BINDLOSS.

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### Synopsis of Previous Chapters.

Farmer Winston, having failed as a homesteader and driven to desperation, accepts a proposal to simulate Lance Courthorne, an adventurer; through the consummation of which Courthorne and his pals, after a struggle with the police, during which Trooper Shannon is killed by Courthorne, who leaves evidence pointing to Winston as the murderer, are able to smuggle through some illegal distillery products. The scene shifts to Silverdale, a settlement founded by Colonel Barrington, to which Maud Barrington, his niece and ward, has just returned after a visit to Montreal. Her questions elicit the information that the Colonel is worried over a fall in wheat prices, especially in the face of his advice to her to hold her share of that commodity; and also over the coming advent of Lance Courthorne, Miss Barrington's cousin, to Silverdale to claim his share of his father's estate. Maud Barrington learns more of her cousin's unsavory past. Winston, in the meantime, pushes on to Montana, is held for Courthorne by an officer of the government patrol, who discloses to him the belief on the part of the police that Winston is the murderer of Shannon. Mail for Courthorne is opened by Winston. Complying with instructions in the letter he meets and confers with a lawyer respecting Courthorne's inherited acres at Silverdale, visits the colony and is received as graciously as could be expected. Some of his actions fail to tally with Courthorne's reputation. He wins the good will of Dane, the Colonel's adviser. The real Courthorne, who was supposed to have been drowned during the smuggling, now reappears in Montana.

### CHAPTER IX.

#### Courthorne Disappears.

SUPPER was cooking when Lance Courthorne sat beside the glowing stove in the comfortless general room of a little wooden hotel in a desolate settlement of Montana. He had a good many acquaintances in the straggling town, where he now and then ran a faro game, though it was some months since he had last been there, and he had ridden a long way to reach it that day. He was feeling comfortably tired after the exposure to the bitter frost, and blinked drowsily at the young rancher who sat opposite him across the stove. The latter, who had come out some years earlier from the old country, was reading a somewhat ancient English newspaper.

"What has been going on here lately?" asked Courthorne.

The other man laughed. "Does any-

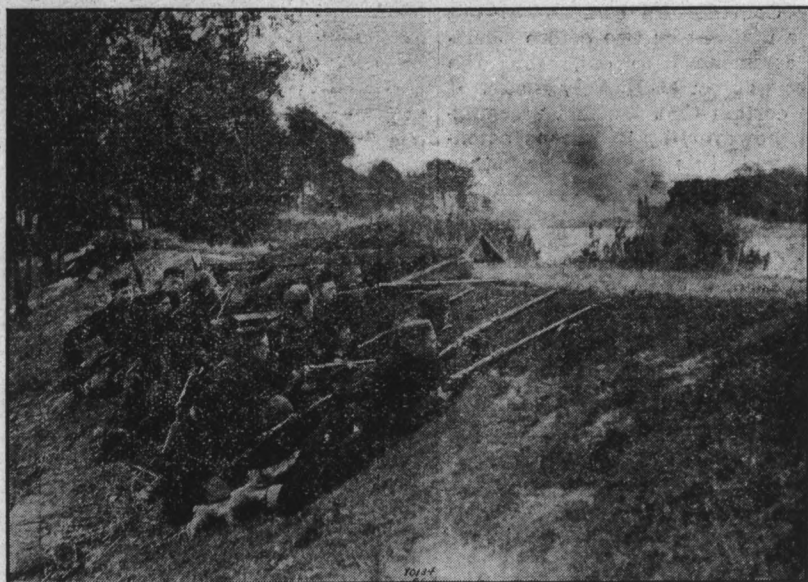
thing ever happen in this place? One would be almost thankful if a cyclone or waterspout came along, if it were only to give the boys something to talk about. Still, one of the girls here is going to get married. I'm not sure old man Clouston finds it helps his trade quite as much as he fancied it would when he fired his Chinamen and brought good-looking waitresses in. This is the third of them who has married one of the boys and left him."

"What could he expect?" and Courthorne yawned. "Who's the man, and have I seen the girl?"

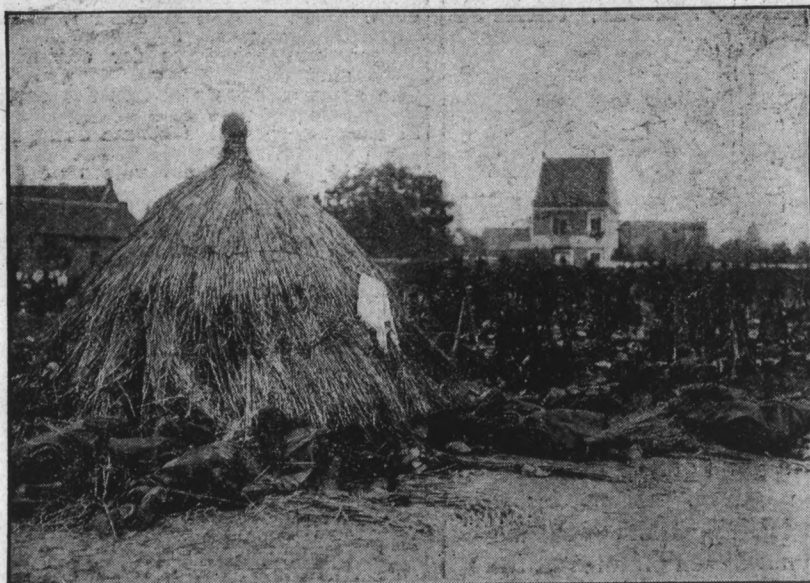
"I don't think you have. So far as I remember, she came since you were here last, and that must be quite a while ago. Nobody seems to know where Clouston got her from, and she's by no means communicative about her antecedents; but she's pretty enough for any man, and Potter is



# WORLD EVENTS IN PICTURES.



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Belgians Fighting Germans on Opposite Bank of the River Nethe.



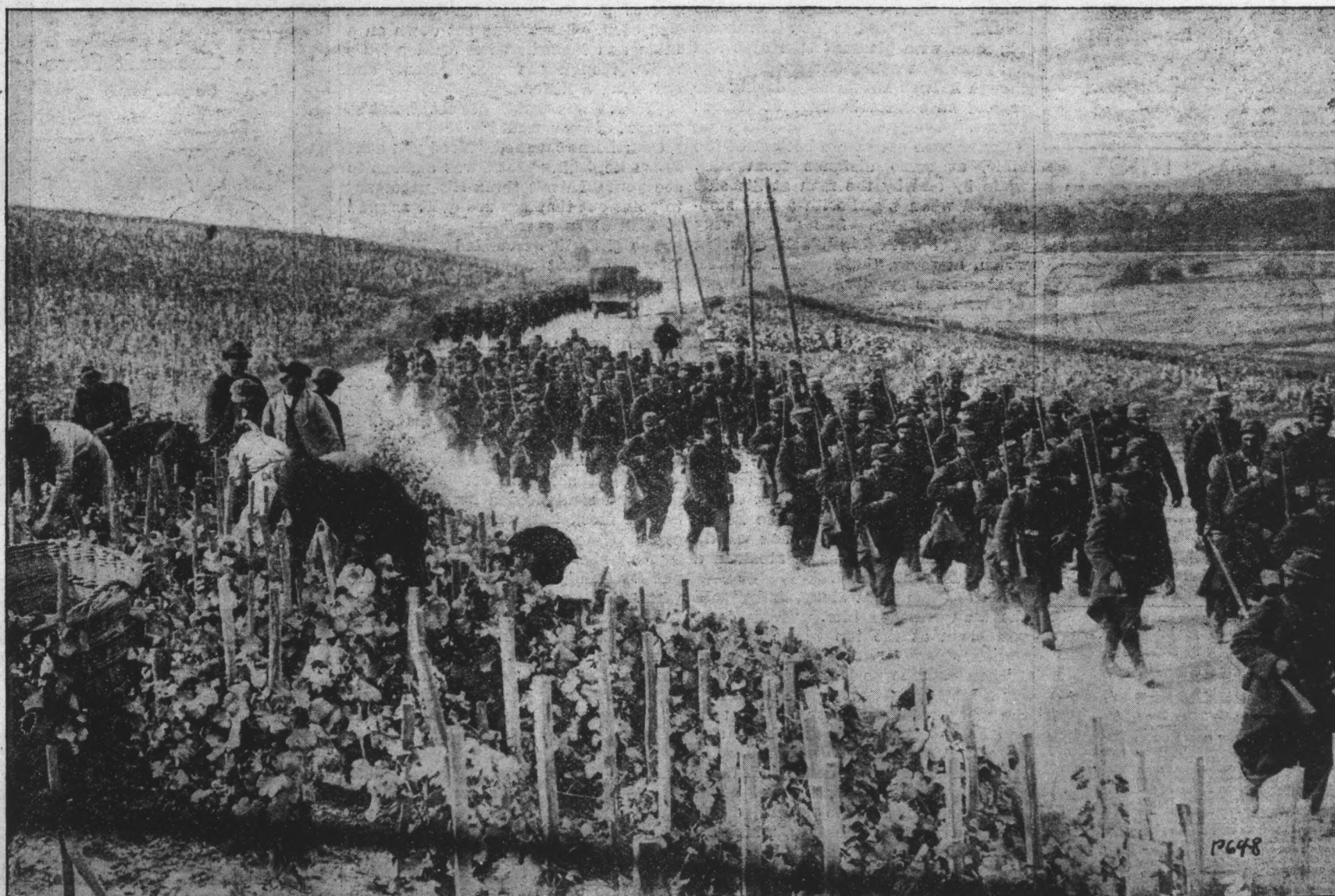
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## THE WOODS.

BY J. A. KAISER.

Beneath these trees whose giant, moss-grown trunks Have stood unscathed amid a thousand storms, Whose branches have for centuries shut out The summer suns and left the earth below In shade perpetual, I sit me down Upon this fallen trunk, and list awhile To wild and winsome voices of the woods. I breathe the breath of green and fallen leaves, Of springing and decaying trunks, of moist Earth and fragrant flowers, and heart and soul Drink in the spirit of the solitude And chime with all the wildness of the woods.

No worry here within the forest shades, No sweat and dust and din, no lust and greed, No struggling after fame and wealth and power; But hoary trees that rise in majesty And spread abroad their canopy of green Through which the zephyrs murmur in accord With babbling brooks and singing birds that sound Nowhere so wild, so sweet, so free, as in These forest solitudes. If thou art sick And weary of the strife, go rest awhile Where Nature thrives unmarred by hand of man, And worship there alone with her and God.

## WINSTON OF THE PRAIRIE.

(Continued from page 402).

drowned the night Trooper Shannon died, and had been traced as Courthorne by some Winnipeg lawyers acting for the executors.

Then Clouston came in to announce that supper was ready, and Courthorne took his place among the rest. The men were storekeepers of the settlement, though there were among them frost-bronzed ranchers and cattle-boys who had come in for provisions or their mail, and some of them commenced rallying one of their comrades who sat near the head of the table on his approaching wedding. The latter bore it good-humoredly, and made a sign of recognition when Courthorne glanced at him. He was a big man, with pleasant blue eyes and a genial, weather-darkened face, though he was known as a daring rider and successful breaker of vicious horses.

Courthorne sat at the bottom of the table, at some distance from him, while by and by the man at his side laughed when a girl with a tray stopped behind them. She was a very pretty girl with big black eyes, in which, however, there lurked a somewhat curious gravity.

"Fresh pork or steak? Fried potatoes," she said.

Courthorne, who could not see her as he was sitting, started involuntarily. The voice was, at least, very like one he had often listened to, and the resemblance brought him a little shock of disgust as well as uneasiness. Gambler and outcast as he was, there was a certain fastidiousness in him, and it did not seem fitting that a girl with a voice like the one he remembered should have to ask whether one would take pork or steak in a little fourth-rate hotel.

"Take them right along, Ailly," said the man next to him. "Why don't you begin at the top where Potter's waiting?"

Then Courthorne looked around and for a moment set his lips tight, while the girl would have dropped the tray had he not stretched out a hand and seized it. A dark flush swept into her face and then as suddenly faded out of it, leaving it very pale. She stood gazing at him, and the fingers of one hand quivered on the tray, which he still held. He was, as it happened, the first to recover himself, and there was a little sardonic gleam in his eyes as he lifted down one of the plates.

"Well," he said, "I guess Potter

will have to wait. I'll take steak."

The others had their backs to the girl, and by the time one or two of them turned round she was quietly helping Courthorne's companion; but it was a moment or two before Courthorne commenced to eat, for the waitress was certainly Ailly Blake. It was as certain that she had recognized him, however, by no means astonishing, and this promised another complication, for he was commencing to realize that since Winston had gone to Silverdale it would be convenient that Courthorne as such should cease to exist. He fancied that should any of the men he was acquainted with happen to come across Winston at Silverdale—which was, however, most unlikely—they might be deceived by the resemblance between himself and the farmer; but it was hardly to be expected that Ailly Blake would fail to be sure of him in any circumstances and anywhere. He accordingly decided that he must have an interview with her as soon as possible, and since he had been in many tight places before, in the meanwhile went on tranquilly with his supper.

The meal was over, and the men clustered around the stove when he gathered up one or two of the plates and laid them ready as the girl moved along the table. She glanced at him for a moment, with startled eyes. A spot of crimson showed in her cheek.

"I want a word with you," he said.

Ailly Blake flashed a swift glance round the room, and Courthorne noticed with a little smile that it was one man in particular her gaze rested on; but neither Potter nor any of the others seemed to be observing them at that moment.

"Then open the second door down the corridor in about twenty minutes," she said.

She moved away and left him to join the others about the stove, until the time she mentioned had elapsed, when he sauntered out of the room and opened the door she had indicated. It led into a little room apparently used as a household store. Here Ailly Blake was standing, while a litter of forks, spoons, and nicked knives showed what her occupation had been. Courthorne sat down on a table and looked at her with a little smile, though she stood intent, and quivering a little.

"Well," she said, almost harshly, "what is it you want?"

Courthorne laughed. "Need you ask? Is it astonishing that I was anxious to see you? I don't think it's necessary to point out that you are quite as good to look at as ever."

The girl's lips trembled a little, and it was evident that she put a constraint upon herself.

"You haven't changed either," she said bitterly. "You have still the smooth tongue and the laugh in your eyes that should warn folks against it. I listened to it once, and it brought me black shame and sorrow."

"I almost fancy, Ailly, that if I wanted you to very much, you would listen again."

The girl shrank from him a little and then straightened herself suddenly and faced him with a flash in her eyes.

"No," she said. "Once I would have put my hand in the fire for you; but when you left me in that dance house I knew all there was to know of you—and I hoped you might never come in my way again. Shamed as I am, I could not fall so low as you did then."

"I don't know that I'm very proud of the part I played," and though Courthorne smiled there was a faint flush in his face. "Still, you see, I hadn't a dollar then, and what could I do? Anyway, that's done with, and I was wondering if you would let me congratulate you. Potter seems to be a general favorite."

He saw the apprehension once more creep into the girl's eyes and noticed the little tremor in her voice, as she said, "You have heard of it? Of



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course, you would. What do you mean to do?"

"Nothing," and Courthorne smiled reassuringly. "Why should I do anything? After all, I owe you a little reparation. Silence is easy and in our case, I think, advisable. Presumably you are as fond of the worthy Potter as you were of me, and there is no doubt that he is considerably more deserving of affection."

His good-humored acquiescence was in one respect almost brutal, and the girl winced under it, in spite of her evident relief.

"Lance," she said, with a curious forceful gravity, "Frank Potter is such a man as you could never be. There can't be many like him. As I said, there was a time when I would have slaved for you and starved with you cheerfully; but you threw me off—and, now this man who is big and strong enough to forget what you brought me to has given me a chance to wipe out the past, I do not think I need be afraid of you. At first I was a little so, but it wasn't altogether for myself. I want to warn you. If you try to make mischief he will kill you."

"Ah," said Courthorne quietly. "Well, it wouldn't be very astonishing if he attempted it, and nobody would blame him; but I have, as it happens, no intention of provoking him. After all, it was my fault, and you were too good for me, Ailly."

He stopped a moment and smiled, for there was in him a certain half-whimsical cruelty. "Still, perhaps, it's a little rough on the excellent Potter, though from what you said one would think that you had told him—something."

The crimson crept into the girl's cheek. "He knows everything—except who you are. That is why I am afraid. If he found out, I think one of you would never leave this place."

Courthorne shrugged his shoulders. "I believe I owe you enough to go away tomorrow. It would be wiser. I am not, as you know, a model of discretion, and it's perhaps, natural that, now you have given me up, you appear rather more attractive than ever. In fact, I almost feel tempted to stay to see if I'm not a match for Potter. Still, I'll go away. I suppose you haven't heard from Larry lately?"

He saw the returning fear in her face give place to pain and bitterness as he concluded, and he made a little sign of comprehension.

"Well, perhaps, one couldn't blame him. You are going back to England with Potter after the wedding?"

His companion said she was, and Courthorne sat silent a moment or two, for the news was at once a relief to him and a cause of thoughtfulness. Ailly Blake, who would never be deceived by the resemblance between him and Winston, was a standing menace while she remained near the frontier of Canada. He had discovered that it is usually the last thing one expects or desires that happens, and it was clearly advisable for Lance Courthorne to efface himself very shortly, while the easiest way to do it was to merge his identity with that of the man who had gone in his name to Silverdale. Winston had, so far as everybody else knew, been drowned, and he must be in the meanwhile, at least, not be compelled to appear again. It would simplify everything if Ailly Blake, who evidently did not know of Trooper Shannon's death, went away.

"Well," he said, "I'm glad to hear it, and I'm leaving this country, too. I'm going east tomorrow to Silverdale. I wonder if I could be permitted to send you a wedding present."

The girl turned to him with a crimson spot in her cheek, and there was a little hoarse thrill in her voice that made its impression even on him.

"Once I thought I'd have every little thing you gave me buried with me," she said. "I felt I couldn't part

with them, and now I'll remember you often when I should forget—but whatever you send I'll burn. I don't know why I'm telling you this, but I can't help it. Perhaps it's mad, foolish, but I want you to think well of me still."

She stopped and caught her breath with a little gasp, while her voice grew strained and broken as she continued.

"Lance," she said, passionately, "can't you understand? It's my one chance to creep back to where I was before you came my way—and Potter's kind to me. At least, I can be straight with him, and I pray I'll never see your face, or hear your name again. Now go—go—I can't bear any more from you."

Courthorne stood still looking at her for almost a minute, while the wild reckless devil that was in him awoke. Clever as he was, he was apt now and then to fling prudence to the winds, and he was swayed by an almost uncontrollable impulse to stay beside the girl who, he realized, though she recognized his worthlessness, loved him still. That he did not love her, and perhaps, never had done so, did not count with him. It was in his nature to find pleasure in snatching her from a better man. Then some faint sense of the wantonness and cruelty of it came upon him, and by a tense effort he made her a little inclination that was not ironical.

"Well," he said, "if they are worth anything my good wishes go with you. At least, they can't hurt you."

He held his hand out, but Ailly Blake shrank away from him and pointed to the door.

"Go," she said hoarsely. "Go now."

Courthorne made a little gesture that might have meant anything, and then he swung around abruptly without another look at her. When the door closed behind him he went down the corridor with a little wry smile in his eyes.

"After all, it's the gambler first," he said. "A little rough on the straight man—as usual."

Then he sat down beside the stove in the bare general room and thoughtfully smoked a cigar. Ailly was going to England, Winston, to save his neck, had gone as Courthorne to Silverdale, and in another day or two the latter would have disappeared. He could not claim his new possessions without forcing facts better left unmentioned upon everybody's attention, since Winston would doubtless object to jeopardize himself to please him, and the land at Silverdale could not in any case be sold without the consent of Colonel Barrington. Winston was also an excellent farmer and a man he had confidence in, one who could be depended on to subsidize the real owner, which would suit the gambler a good deal better than farming. When he had come to this decision he threw his cigar end away and strolled towards the bar.

"Boys," he said to the loungers, "I want you to have a drink with me. Somebody has left me land and property in the very select colony of Silverdale on the Canadian prairie, and I'm going back there to take possession first thing tomorrow."

Most of them joined him, and the second time his glass was filled he lifted it and glanced at Potter.

"Long life to you and the prettiest girl on either side of the frontier!" he said.

They drank the toast with acclamation, and Courthorne, who strolled away, retired early and started for the railroad before daylight next morning. He laughed softly as he glanced back a moment at the lights of the settlement.

"There are a good many places on this side of the frontier that will suit me better than Silverdale," he said. "In fact, it's probable that most of his friends have seen the last of Lance Courthorne."

(Continued next week.)

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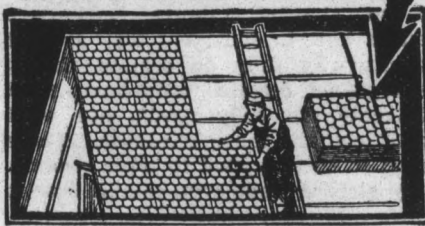
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# Woman and Her Needs

## At Home and Elsewhere



### Michigan's Happy Babies—No. 1.

By ALTA LAWSON LITTELL.

**M**ICHIGAN is famous for many things. Her apples, potatoes, beans, and celery, her automobiles, her copper and iron mines, her furniture and stove output, not to mention her wonderful water advantages have made Michigan one of the best known and best beloved of states. Nature and the men of Michigan have put her name to the fore.

Why can not the women of Michigan add to the laurels of our state by making her famous for fine babies?

I have just left the happiest woman in Michigan. She is the 20-year-old mother of a six-months-old boy. Presiding genius in the kitchen on a 180-acre farm, with a hired man all the time, and bean pullers, potato diggers, threshers and ditch diggers scattered through the year, she works from 4:30 a. m. until long past lamp-light, happy every minute of the time, because baby is here and because he is good. Far from being an added burden, baby is proudly referred to as "mamma's little helper," and the young mother boasts that he has never cried, never had colic, and for the first three months of his life slept 22 hours out of every 24.

There is no trouble about feeding, no trouble about teething, the first two teeth made their appearance quite unannounced by any preliminary crossness or ill-health. In a word, baby is a perfectly healthy, and therefore, perfectly happy youngster, and mother is happy as a consequence.

Lucky and thrice happy is the mother who is so blessed. Lucky that she has not been forced into that company of worried mothers who must resort to artificial feeding for their child, for when this case arises trouble all too often begins. On no subject under the sun is there such profound and universal ignorance as on the feeding of babies, and mothers are not alone in this lack of knowledge. Many doctors know little more than the mother about dieting, and the search for a proper food for baby resolves itself into a series of experiments from which the child emerges with stomach scarred for life, if not with rickets or some other disease caused by wrong feeding. All too often the little life is lost, not for want of attention or money, but because the efforts were directed in the wrong way. Small fortunes are spent on many a baby's food, all to no purpose, when a tenth of the money spent for the proper food would put the child on its feet.

How are we to tell what is the right food for our baby? The same way we tell what is the right food for our stock. By applying scientific principles to his feeding, making a study of food properties, watching the effect of the particular food we try on the child's stomach and bowels and stopping instantly anything we see is causing trouble. It is as easy to raise thoroughbred babies as to raise thoroughbred animals. The only trouble is we do not make a study of the subject. We let this neighbor tell us one thing, that neighbor tell us another, one grandmother order cream and another skim-milk. We try every hour a week spent in a cooking class

thing anyone suggests in the blind hope that we'll hit the right thing, meantime suffering all the tortures of the damned because baby cries and we don't know what to do for him. When we stop to consider that health and life, not to mention happiness and contentment, are dependent upon the food we eat, isn't it queer we have never made more of a study of the subject? Especially when the subject is so simple? Country girls are taught how to cook, but they are not taught why they do certain things, what effect certain foods have, what elements the body needs, nor what foods contain those elements. There is no science applied to their cooking. City girls are not even taught how to cook. If they know the shortest route to the delicatessen store, that is sufficient knowledge of cookery so far as home training is concerned. The schools try to do something, but one

in school will do little if not backed up by practice at home.

For the sake of the babies of Michigan, the boys and girls of a decade from now, the young fathers and mothers of another 20 years, The Michigan Farmer will run, through the coming winter a "Happy Babies" department, based on the theory that a properly-fed baby will make a healthy, happy baby, providing always that he was a normal child at birth, perfectly normal and free from hereditary taint. Short articles on proper feeding will be run weekly, and any queries pertaining to the feeding of any infant or child will be promptly answered. No medical advice will be given, as medicine and diet are two entirely distinct fields. As by far the largest per cent of delicate infants are merely victims of improper feeding this department should help practically every mother who is having trouble with her baby. The best American and European authorities will be back of every answer given. How many mothers will join the movement for promoting universal happiness?

### Kindergarten Helps for Busy Monthers.

By EDNA R. J. HARTENBOWER.

Few mothers realize the possibilities of the kindergarten gifts or their adaptability to home conditions. The lonely only child or the little one left at home when the older children go to school turns almost invariably to the mother for something to do, and the busy country mother has little time to give to play. Thrown entirely upon its own resources a little child too often turns to mischief. The mother must always be ready with watchful care and helpful suggestions.

It is just here that the kindergarten material helps. It is not hard to obtain, it requires little preparation, it need not be expensive, and always it is constructive, never destructive in its teaching.

While many of the kindergarten gifts require the almost constant help of an older person, there still remains a long list that may be given to the child of four or five years, or even to smaller children. If the little one be fortunate enough to possess a low table which may be easily moved, it takes very little time to oversee the work. Often a touch, or even a suggestion, will smooth out difficulties and straighten tangles that would discourage the child if left alone.

The following gifts I have found to be best adapted to use in the home: Colored balls, Mrs. Hallman's wooden beads, straws and papers for stringing, peg boards, colored sticks, scissors and paper for cutting, sewing cards, mats for weaving.

The balls should be about two inches in diameter, six in number and of the six standard colors. They may be bought in sets or made at home. The best ball I have found for indoor play is of cork, covered with crochet cotton. It is light, is more durable than rubber, and bounces well. Even a tiny child will readily learn the colors with these balls.

The wooden beads come three dozen in a box, spheres, cubes and cylinders and these, too, are in standard colors. They are strung on shoe laces. Closely following the bead stringing comes the stringing of straws and pa-

pers. I prefer plain straws about three-fourths of an inch in length, alternated with colored papers. I know of nothing that will furnish the child of three or four so many hours of pleasant employment as these two gifts.

Peg boards may be easily made at home and colored pegs bought in quantities.

Sticks may be had plain or in colors and in lengths from one to five inches. They combine well with the wooden beads and suggest the teaching of linear measure.

No list could be complete without scissors and paper, and as soon as the little hands can manage it, paste. From the cutting of simple vegetable, flower and fruit forms to the more complex animal forms is but a step, and arranging and pasting these forms to illustrate stories or to make posters and pictures, follow naturally. Scissors for small children should have blunt points and papers for cutting may be bought in sheets and cut into small squares. Or smooth, soft-colored wrapping papers, such as come into every house, may be utilized.

At the close of the season discarded sample books may be had for the asking from most wallpaper dealers, and they will prove a veritable gold mine to a constructive child. Lighter weight papers may be cut into strips and pasted to form chains.

Sewing cards may be bought ready to use, or cut at home from thin white cardboard. Care should be taken to have the forms simple, with lines that may be easily followed by a child, as many of the cards are so complex as to tax the ingenuity of the grownups.

One sewing sequence which I have found very satisfactory and which I have never seen catalogued, is made by cutting six cards four by six inches. Draw and punch for sewing on the first card, one circle, on the second two circles, and so on, having six circles on the sixth card. Then sew the first card in red, the second in red and orange, and continue, following the order of the standard colors,

so that the sixth card has six circles, one of each color. Later the circles may be colored to match the sewing, using either water colors or crayons.

It is better to buy weaving material, and mats and fringes, may be had in paper or linen in assorted shades. Weaving is too difficult for very small children, but it furnishes an interesting employment for children of five or six years.

I have passed over many of the gifts because they are not so well suited to the needs of the home as to the school room, but with the help of a catalog of kindergarten material, almost any mother can select those gifts best fitted for her own little ones, and it is not difficult to arrange the work so that the last year or two before a child enters school may be a time of preparation, of pleasant employment, and, in later years, of pleasant memories for both mother and child.

### POTTING PLANTS FOR WINTER.

BY L. H. COBB.

When the frosty nights come it is time to think about taking up the plants for the winter, such as one wants to take into the house for winter blooming. Also it is the time to pot up the bulbs that have been resting during the summer if they have not been potted already.

The first thing of importance is to prepare the soil. A soil for winter use should be well prepared and should be rich, and yet not have any decomposing manure in it. If you have access to good leaf mold a mixture of one part each of garden soil, leaf mold, manure rotted until it is like earth, and sand will be found all right. I like rotted sods instead of the garden soil if they can be had, but it takes a couple of months at least to rot them sufficiently. Mix the soil thoroughly and add a quart of bone meal to the bushel of soil if you can get it conveniently.

In taking up the plants there are some of them that you will have to be very careful with. Mignonette, nicotiana, and any of the plants that have tops very heavy for the amount of fiber roots should be taken up with as much soil as possible and put into pots large enough so the roots will not be bruised or disturbed much in the handling. Cut back the tops as much as you can without making the plants stubby, though they will outgrow a little stubbiness and be all right if they get a good start. Snapdragons, carnations, petunias, verbenas, begonias, lantanas (trailing), violets, lobelias, and many other good garden annuals or bedding plants are easily taken up and will bloom freely in the house.

Tuberose bulbs that have not bloomed when the cool nights arrive can be taken up also, and they will bloom in the window. Do not let them frost. They like a warm place, for they are heat lovers. Carnations on the other hand, want a cool place, as do most of the annuals where they are grown in the house, especially verbenas, alyssum, and stock.

Pot up hyacinths and narcissus now and put away in a cool closet or cellar and bring them in as wanted during the winter. They should be well watered and remain in the dark for a month, except the Paper White Nar-



cissus and the Sacred Lilies, which can be brought to the light at once if desired, though they will be best for a couple of weeks in the dark.

## Bad Food and Temper.

**H**OW much of our bad tempers and actual wrong doing shall be charged up to inbred sin, and how much to our diet? The longer I live and the more I observe, the more I am forced to believe that 99 out of every 100 hastily spoken words are the result of indigestion rather than actual meanness, and that at least 75 per cent of vice is traceable to bad cooking and insufficient nutriment.

A young man sat opposite me in a restaurant the other day, whose shaking hand attracted the attention of everyone at the table. He could not raise his cup to his lips without spilling the liquid, and knife and fork clattered noisily against his dishes as he tried to use them. His face showed marks of dissipation, and I mentally decided he must just be getting over a prolonged spree. When he had left the table the friend who was with me remarked:

"Did you notice that chap who just went out, how nervous he is? You thought he was a hard drinker, didn't you? Well, he isn't. That's just tea, strong tea, tea strong enough to hold up an iron bar, as we say. He is of a nervous temperament to begin with and his mother did the rest. She used to give him weak tea in his nursing bottle to keep him quiet. As he grew older she kept making it stronger and stronger. When he was hungry in his second year she'd give him a lump of brown sugar because it was less trouble than cooking a cereal. Later she fed him on cookies and rich cake and mince pie whenever he asked for them, because he screamed and had hysterics if she didn't. Of course, she ruined his stomach and nerves, and as a natural consequence, his life. He is so grouchy he can't hold a job, and so nervous he finds life intolerable. Some day he's going to go the prussic acid route, and who'll be to blame?"

Of course, the case is extreme, but to a greater or lesser degree we are all sinners where meat and drink is concerned. How often we say, "I know I shouldn't drink coffee, but when I smell it I just can't resist it." Or, "warm bread always makes me sick, but I just can't let it alone." Or perhaps its cabbage, or strawberries or ice cream or candy or corn meal muffins, something we like overmuch and eat overmuch and pay the penalty in a deranged stomach, headache and bad temper. Perhaps it is no one thing we over-indulge in. We may be simply "heartly" and over-eat whenever we come to the table. Because our long-suffering stomachs adjust themselves some way, and we do not die at once, we cajole ourselves by saying it doesn't really hurt us. Often we laughingly boast that "it never killed me yet," and go on sinning against our bodies.

There are some poisons which kill outright and others that are accumulative. Of these latter, one dose is not fatal, it takes many small doses to cause death. Intemperance in eating is like the accumulative poisons. We are not killed at once, but sooner or later we pay the penalty. Our stomachs refuse to endure more and we are down and out as regards our health. Always we suffer the incidental irritations of over-indulgence. We are "nervous," because we are not supplied with good blood. Nervousness becomes an excuse for nagging, complaining, moodiness, often for recklessness and further indulgence. Our irritated nerves demand stimulus. Tea and coffee no longer satisfy and we try beer and wine. The temporary effect is so satisfactory that when the reaction comes

next time we indulge again for the sake of temporary relief. Before we know it we have formed the alcohol habit, not because we meant to be bad, but because we have formed the habit of eating and drinking what we liked without regard to evil effects.

I always remember what a wise old doctor said when my first baby cried all the time and the family physician insisted he was just "cross." "A well baby is a happy one," said the specialist. "If your baby cries he is not well, and if he is organically sound he is ill because he is improperly fed. Feed any child, or adult, correctly and keep him otherwise well, and he'll not have bad tempers."

Experiments with the baby proved he was right. When the baby got the right food he stopped crying, and the same rule has held good through his childhood. Fed properly on good plain food, meat, milk, eggs, plain bread and butter and fresh fruit and vegetables, he is as good-natured as a healthy boy can be. But if there is any lapse of maternal vigilance and he indulges his fancy for candy, "frosting cake," pie and heavy, greasy food, he is so whiney and disagreeable there is no living with him.

Observation of the dietary of older "cranks" has led me to believe that what goes into the mouth is largely responsible for all those petty irritations which make so many homes intolerable. The families fed on baked goods, with a low supply of meat, eggs and milk are sickly, peevish and unhappy. Those who eat a well-balanced ration, vegetables, fruit, plain bread, meat, fish and eggs for the staples and an occasional pie or cake as a treat, are healthy and happy.

Many a mother who is sorrowing over a son or daughter gone wrong could, if she would, trace the trouble back to her own kitchen.

DEBORAH.

## PAPER AS TIME AND STRENGTH SAVER.

BY GRACIA SHULL.

From old newspapers to the linen finished lunch cloth, the uses to which paper may be put are legion. I am going to tell you of a few common-sense uses I make of paper and I shall begin with the commonest—old newspapers. I cut these in squares, 8x10 inches, and keep on a wire hook near the kitchen sink. I use them, a square at a time, to wipe grease and food from pans, kettles and utensils before washing them, after which I burn the paper, usually when kindling a fresh fire. I also use newspapers to polish the heater and the kitchen range, as the printers ink lends a beautiful polish.

In winter I warm 10 or 12 thicknesses of newspapers and stand on them when the floor is cold and I have ironing or other work to do where I must stand in one place for some time. When the linoleum is freshly washed, I place newspapers on the floor near the sink, the kitchen table and around the range to save the clean linoleum from tracks and spatters. I also line hens' nests with newspapers saturated with crude carbolic acid and kerosene. This keeps out vermin. In winter I place newspapers in the windows back of my house plants to keep out the frost. This saves me a deal of work in moving my plants nearer the fire over night and back again in the morning. I place old newspapers on the floor under my carpets, and line the boxes in which we keep fur caps, coats, etc., through the summer and I never see moths or any trace of them.

My next step in the use of paper as a labor saver is in the use of inexpensive tissue paper. I keep a two-cent roll near the sink in the kitchen on a hanger. This I use to polish brass and nickel trimmings, lamp and lantern globes, and use small pieces to wipe food from glass and china dishes

IN turning hogs into pork products yourself, you want an equipment that will get you every cent of the extra profits you are after. The world's standard machine for its purpose is the

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Made with "Enterprise" care and precision in every part

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And plunger fits accurately—rides evenly. Tinned Cylinder (and strainer) has wide lips, making it easily handled when filled with hot cracklings. Long crank handle makes easy turning. Gears are accurate and smooth running. Plunger screw thread is stout and heavy and won't strip. Easily taken apart and cleaned.

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181 State St., MARION, IND.

before washing, and to polish my silverware.

On a roller, I have, at all times, a roll of sanitary paper towels. In this way there is always a clean towel in the kitchen.

I purchase white manila paper by the roll, the two and a half foot width. When I knead bread, biscuit, pie crust-cookies, or bread fish, steak, cutlets, croquettes, etc., I use the clean paper on top of the molding board. When the work is done the "muss" is gathered up in the paper and burned and there is no board or table top to scrub and scour. For everyday we use paper napkins, and I also spread them on the table under the plates to save the table cloth and tuck them under the chins of the little folk in place of a "bib."

At my attic, cellar, transom and bathroom windows I use crepe paper curtains. I run them on rods the same as any curtain, making hems and casings on the machine with the tension loose. These curtains may be changed several times during the season and always look fresh and nice. I only change mine at regular house-cleaning time, however, as ours remain clean that length of time, they are inexpensive and save lots of washing and ironing. I always use the plain white paper.

White waxed paper and plain paper napkins, nappies, paper cups, etc., are kept on hand in quantities and used in putting up lunches, school lunches, especially.

When I serve cold tea, sherbets, lemonade, etc., at meal time or to afternoon callers, I use the thin paper tumblers and sherbet cups. ly little paper bowls. When we have company for dinner or supper I get out my lace edged lunch set and proceed to set my table daintily and with much enjoyment, as I have not a heavy damask cloth and a lot of linen napkins staring me in the face the next washing and ironing day.

Thanksgiving days we use tablecloth, centerpiece and napkins of white crepe paper, with borders of ripe pumpkins, and turkeys in full feather. Our Christmas set has borders of holly and holly berries and sprays of poinsettias. These sets are inexpensive and dainty, and relieve me of work and worry.

I should not forget to say that the paper napkins for infants are worth any mother's consideration as there are waterproof ones for the inner. These save clothing and a great deal of unpleasant work.

In summer we have an occasional lap supper under the trees and in winter we hold it around the fire, using paper plates, cups and saucers. We enjoy ourselves greatly, the change gives us an appetite and mother has not so many dishes to wash.

I even try the paper bag cookery at times and like it. The food retains all juices and the flavor is delicious and there are no greasy, heavy utensils to wash. I thoroughly and sincerely believe in the use of paper as a labor saver and will thank some enterprising manufacturer when he evolves a complete set of paper dishes and utensils; complete even to the knives, forks and spoons.

## HOME QUERIES.

Household Editor:—Could you send me a recipe for making good grape wine?—Mrs. W. A. Warren.

Press washed and stemmed grapes through a coarse cloth to remove all juice. For every three quarts of juice add one quart of soft water and for every four quarts of juice four pounds of brown sugar. Put in a crock, cover with a thin cloth to keep out dust and let stand six weeks. Then bottle.

Some time ago I saw a request from a lady to know how to bleach white flannel that had become yellowed with age. I neglected to write right away but perhaps this will help someone.

Wash carefully in the usual lukewarm water and ammonia. Then pin in the window to dry. The sun shining through the glass bleaches wonderfully. I have only done this in cool weather, though.—Mrs. F. L.

## CONTRIBUTED RECIPES.

### Wild Grape and Apple Marmalade.

Stew apples thoroughly, then mash through colander. Treat wild grapes the same way. Then add together, two-thirds apples, one-third grapes, with their equal weight or measure of sugar and cinnamon to taste. Cook until thoroughly scalded. Can or seal in jelly glasses.—M. B. H.

### Wild Grape Jelly.

Wild grapes make an excellent jelly, and for a pleasing variety we use apples and grapes together, usually one-third grape juice and two-thirds apple juice, with equal measure of granulated sugar.—M. B. H.

### Wild Grape Jam.

Pick off and wash grapes, cook in water to cover, put through colander. Add equal weight of sugar, boil until thick as you like.—M. B. H.

### Chocolate Carmels.

One cup of medium brown sugar, sweet cream to moisten; if you do not have the cream use milk instead, and butter size of an egg. When it forms a hard ball in cold water, pour on buttered tin after first adding one cup of ground peanuts and vanilla flavoring. I grind the peanuts with a rolling pin. I think this is the finest candy and cake filling made. Coconut fudge can be made by adding coconut instead of peanuts, and using granulated sugar instead of brown.

## FASHIONS BY MAY MANTON.

Our large Fashion Book, containing illustrations of over 700 of the season's latest styles, and devoting several pages to embroidery designs, will be sent to any address on receipt of ten cents.



No. 8237—Boys' suit, with long or short sleeves. Cut in sizes, 4, 6 and 8 years. Size 6 years requires 1½ yards for blouse and 1¼ yards for trousers, and trimming of 36-inch material.

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No. 8227—Boys' one-piece bathing suit. Cut in sizes 4 to 12 years. Size 8 years requires 2 yards of 36-inch material.

No. 8249—Child's rompers. Cut in sizes 4 and 6 years. Size 4 years requires 2¼ yards of 36-inch material and 1½ yards 27-inch material and 1½ yards of 27-inch for trimming.

No. 7440—Child's one-piece dress. Cut in sizes 2, 4 and 6 years. Size 4 years requires 1½ yards of 36-inch material for dress, and ¾ of a yard for knickerbockers, with 1 yard of 27-inch material for trimming.

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## UTILIZING THE CHEAP CUTS OF MEAT.

The genius of the French chef in turning "everything and anything" into delectable dishes is recognized. Now, the "little French chef" of the housewife's kitchen is the meat-and-food chopper. It is your strongest and best ally in putting Old General High Price and his followers to rout.

The versatility of the meat-and-food chopper is astonishing. You can make everything from croquettes to chicken and lobster salads, hash and hamburger steak, down to minced meat, sausage, scrapple and hogshead cheese. You can cut codfish, clams, peppers, cocoanuts, suet, tripe, meat for beef tea, corn for fritters, stale bread and crackers for crumbs. You can cut—perfectly—every kind of meat, fish and vegetable, nuts, etc., that are "cuttable."

Almost any kind of chopped raw beef can be made quickly into a savory dish, simply by cooking it with water, or with water and milk, for a short time, then thickening with butter and flour and adding different seasonings—pepper and salt alone, or celery or tomato or onion juice. By serving it on toast, with, say, a border of rice, it will go even "further." New soups, salads, sandwiches, croquettes, curries, combination meat dishes, fruit and nut cakes and confections will be at your command.

Grease the broiler carefully in order that the cakes will not be pulled to pieces by adhering to the wires of the broiler. The small particles of the chopped meat provide many possible outlets for the juice, so that one should turn more rapidly than for a steak. When broiling under gas, set below a smaller pan within a large one; most of the juice and fat will fall within the smaller one, thus saving more of the gravy.

## Grange.

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

### OCTOBER POMONA PROGRAMS.

Co-operation was the main subject discussed at the Kent County Pomona Grange, held with Kinney Grange on Wednesday, October 8. The forenoon was taken up by a short business session and work in the fourth degree. The welcome was given by Hon. Huntley Russell, who said that the Grangers were the people who appreciate the things of today. He congratulated those who had taken the time to come to Kinney Grange, and hoped that all would enjoy the program which the worthy lecturer had taken so much time to prepare. Bro. Chas. Godfrey, of Grattain Grange, responded in a most pleasing way. A recess was taken to enjoy the dinner provided by the ladies of Kinney Grange. The afternoon meeting was called in open session at two o'clock. Brother Chas. Allmand, of Cedar Springs, told how he had made a success of raising Orpingtons. He said three things should be considered in raising fowls for profit: First, the best kind to raise; second, are they suitable to their surroundings; third, does the market demand the kind raised? He said that in 1912 and 1913 he sold from 45 hens, besides what the family used, \$128 worth of eggs and fowls each year. The subject was further discussed by Bros. Keech, Norton, and others.

Co-operation Among Farm Women was a very able paper given by Mrs. Leon Haybarker, of Sparta Grange. She showed that co-operation means much to the farmers. The old adage about farmers never co-operating was true because the women were left out. Now that the women are coming to the front they are proving that they can beat the men in co-operation. As tall oaks from little acorns grow, so grows the social, mental, moral and physical betterment of a co-operative community much quicker than the tall oak grows. She told of the farm women of Manitoba, and how they organized a co-operative society for the sale of farm products, with headquarters at Winnipeg. Prof. Sprague, of

the M. A. C. Experiment Station, spoke on co-operation among stock breeders, and crop growing. He said he was glad to be in this live community, as it gave him new inspiration. Too many times the farmers forget the little things of today as there is always so much to do at home. Cut out the things that do not profit and put in the things that are profitable. We should like the work we do. Farmers should co-operate and stick together. Have the best thoroughbreds in the barnyard. He told how the crops could be improved by keeping the seed pure. Never send away for something you know nothing of, but test out and use the very best of grains. He advised the farmers to organize and co-operate. J. W. Spanenburg, of the Sparta Grange, in his paper told of the Rochdale plan of co-operation. His idea of co-operation as he expressed it, is that the individual give his efforts for the whole and in every branch of trade all work together. The farmers, he said, are the most difficult to organize, but slowly they are learning to do better. The farmer does more of the work than the man who handles the product, and there are altogether too many agencies intervening between producer and consumer. The Rochdale plan originated in England and is known in this country as the Right Relationship League. He also mentioned the State Grange contract system and how the State Grange received two per cent on contracts. Farmers should be loyal and co-operate.

A Royal Welcome was given the Newaygo County Pomona by the Ensley Grange on October 6, crowds coming from all parts of the county. The hall was packed in the afternoon. The convention was called and all the Granges in the county but one were represented. The lecturer took up the program and we thoroughly discussed "Bean Diseases and their Control," E. R. Clark taking up the subject. Mr. Blandford said the only way to suppress disease was to hand-pick the beans and be very careful in the selection of your seed. On "The Most Important Question Before the Public Today," Mr. Blandford said there were many, but looking from his viewpoint thought the training of the boys and girls for citizenship the most important. Miss I. M. Becker swung out with her subject, "Progress in Rural Education." She began with the grading of the country school and went on up step by step to the standard school. This talk was full of meat. When she stopped all wanted to help correct school evils. On the question "Shall we as a County Encourage Boys' and Girls' to Enter Agricultural Contests for Prizes and Free Trips?" it was generally thought to be a good thing; it encourages the boys and girls to stay on the farm. Mrs. Frank Hillman read an amusing paper on "How Much of a Husband's Business Should a Wife Know?" This brought out an amusing discussion, also the value of a bathtub and automobile, the automobile winning out. Mr. Frank Hillman said in his question that the two leading parties would continue to be democrats and republicans. The two leading issues would be National Prohibition and Woman Suffrage. Everyone concurred in this. J. H. Edwards, of Newaygo, gave a splendid talk on the "Causes of the War." Race and greed were the two principal factors, jealousy another. Said he did not think it would benefit the American farmer either way. Neil McCallum gave an instructive talk on the "Fire Blight on Fruit Trees." He advised close cutting and applying a solution of carbolic acid and water. The orchestra of Ensley Grange furnished music the first day, which was enjoyed by all, and played in the evening for the young people to dance. Ensley furnished music and recitations and everything was done for our delectation and enjoyment. Mrs. Wm. Roberts.

### AMONG THE LIVE GRANGES.

Bellevue Grange held a successful fair October 16-17-18, in Grange Hall and the improvement club hall. The Grange made a splendid display of exhibits in their hall, while the business men made their exhibits in their own hall which adjoins. The ladies of the Grange served a chicken-pie supper Friday night to over 300 persons in spite of the fact that it had rained steadily all day and was still pouring when they began to serve.

### COMING EVENTS.

Gratiot County Pomona Grange will meet with Newark Grange, November 7. There will be a state speaker present.

The date of Oneida Grange fair and exhibit is set for November 20. There will be a large display of fancy work, aprons, vegetables and live stock. A chicken-pie supper will be served.

## Farmers' Clubs

### OFFICERS OF THE STATE ASSOCIATION OF FARMERS' CLUBS.

President—Jas. N. McBride, Burton.  
Vice-president—J. F. Rieman, Flint.  
Secretary-Treasurer—Mrs. C. P. Johnson, Metamora.  
Corresponding Secretary—Mrs. J. S. Brown, Howell.  
Directors—Wm. T. Hill, Carson City; Jerry Spaulding, Belding; R. J. Robb, Mason; Joseph Harmon, Battle Creek; C. B. Scully, Almont; C. T. Hamline, Alma.

Address all communications relative to the organization of new Clubs to Mrs. C. P. Johnson, Metamora, Mich.

### PREPARE FOR THE ANNUAL MEETING.

Every local Farmers' Club in the state which has not previously given consideration to this matter should at once prepare to participate in the annual meeting of the State Association of Farmers' Clubs, which will be held at Lansing during the early days of December. The advantages which come from affiliating with the state organization are so many and varied that it is unnecessary to here enumerate them for the benefit of local club members. Suffice it to say that the benefits derived are altogether out of proportion to the cost of sending one or two delegates to this meeting. Delegates should be elected at the November meeting by every local Club in the state, and any proposition which it is desired to present to the annual meeting should be talked over and reduced to writing so that it may be promptly presented by the delegates and be referred to the proper committee during the early sessions of the State Association which will insure its fair consideration. Clubs which have not heretofore sent delegates to the State Association should not longer continue to neglect this important advantage. Preparations are now being made for an excellent meeting by the executive committee, and every indication points to a continuation of an unbroken record of making every meeting better than any of those which have preceded it.

### FARMERS' CLUB FAIRS.

#### South Novesta Club.

It was a rainy day but South Novesta Farmers' Club held their fair just the same on October 16 at the home of Mr. and Mrs. Jas. B. Thomas, who entertained them well. The show of vegetables, grain and flowers was all good. The idea of fruit will be perceived when we tell of perfect apples 15½ inches in circumference. The rain kept our North Novesta friends from the scene of action except Dugald McIntyre, who came with a choice variety. When the vegetables were arranged for show, it was discovered there was one selection "minus" a cabbage. Then a member came forward with the suggestion that John McCracken take his place on the platform as a substitute for a cabbage head. When John was about to accept the offer, one with pity in his eye claimed a red-headed cabbage faded by the frosts of time would spoil the beauty of the selection, hence that order of business was passed over.

The meeting was graced by the presence of the new minister and his wife, a friendly young couple from across the "pond," and although the Elder was brought up in London, he takes easily to American ways for he can now handle a piece of choice pumpkin pie with the science of a down east Yankee.

John McCracken offered to give a one dollar Bible to any one showing 35 ears of corn that filled a bushel basket and weighed 31 pounds, and behold J. B. Thomas, our host, turned the trick for he had the maize on the ground.

A unanimous vote was taken to hold a fair in October of each year. Night began to throw its shadows before all broke loose for home; then they went moist but cheerful, well pleased with their first venture of a Farmers' Club Fair.



## Neuralgia

There is no need to suffer the annoying, excruciating pain of neuralgia; Sloan's Liniment laid on gently will soothe the aching head like magic. Don't delay. Try it at once.

### Hear What Others Say

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Handsome rolled gold and enamel sent free for two subscriptions to the MICHIGAN FARMER either kind. The great special offer—3 years for \$1 or at 50 cents a year. Send orders to the MICHIGAN FARMER, DETROIT, MICH.



# Farm Commerce.

## The Handling of Market Milk.

**M**ANY Michigan farmers are producers of milk and they either sell and dispose of it directly to the consumer, or they sell to milk dealers in some of the larger cities where it is rehandled. Because of the many complaints about the work of the city milk dealer, the gist of a talk given by Mr. Ernest Kelly, of the United States Department of Agriculture at the National Dairy Show, will be of interest to many Michigan milk producers. Mr. Kelley is connected with the Office of Markets and this agency has been for some time studying the details of milk distribution, together with some of the economic factors involved, which have something to do with the great difference between the prices paid to the producer and by the consumer.

### Wasteful Practices are Uneconomical.

The investigation showed that there were a great many wasteful practices connected with this work which may be avoided by exercising the proper care of the product when it is received in the city. There is on the average, about two per cent of the total amount consigned, lost through sloppage, evaporation, filling the bottles too full before capping, breakage of bottles, small amounts which were left in the milk cans indefinitely, etc. Again, many of the drivers in the cities make over each other's territory so much that this constitutes another source of loss. When one considers that there are about seven and one-half million gallons of milk produced annually in the United States, this loss of two per cent, while it may seem small in small quantities, it amounts to a great deal when considered in connection with such a large quantity.

It was also found in this investigation that the arrangements of machinery in the bottling rooms and separating rooms had a great deal to do with the efficiency of the plant and the consequent price which the dealer had to ask of the consumer if he was to make these operations pay him. In many cases, the milk had to be conducted over 300 feet in pipes before it finally reached the bottles, and this surely was uneconomical, to say nothing of the uncleanness which must surely result. When milk dealers will continue in such practices, then the farmer or producer cannot be truthfully blamed if milk does not seem up to par when received by the consumer. It has undergone contamination through this means.

### Methods of Buying Milk.

A practice which so many milk dealers are still continuing in at the present time is the buying of milk by the gallon. The ordinary cans which are supposed to hold ten gallons of milk are not uniform in weight and the milk which they hold was found to vary all the way from 80 to 85.4 lbs. with the average at about 83 lbs. This does not do justice to either the milk producer, the milk dealer or the consumer. Milk production is a business and should be treated as such, and there is scarcely any business now where the products are exchanged on the measure plan. Milk, according to Mr. Kelley, should be bought on the weight basis.

Shipping facilities are at fault. As was the case in one place where an observation was taken, the milk arrived at the destination with a temperature of about 55 degrees F., and it was set out on the steps of the station for an hour and a half, and when samples were taken by the federal government, some of the milk was

found to have a temperature of 85 degrees F. How, then, can the consumer hope to secure clean milk when the milk dealers follow such practices as these? While these observations do not prove the practice to be universal, yet they are so common that some means should be taken to give them publicity. Public opinion should soon put a stop to this sort of work.

### Lack of System Raises Price Paid by Consumer.

Some of the plants investigated were found to be woefully lacking as far as adequate accounting methods were concerned. Many of them had no book-keeping system at all, while that employed by others was so far

sold the milk outright to the drivers and they did their own collecting. Others give the drivers a bonus for the collections made before a certain period has expired. It was recommended that in each town where there are several milkmen, they should be perfectly honest about taking each other's bottles, and besides this, there should be a bottle exchange where odd bottles might be returned to the owners.

### Proper Equipment Lessens Production Cost.

Some interesting data was collected concerning the relative costs of handling milk with the various units of equipment. It costs somewhat more to prepare two pints of milk for the consumer than one quart, and yet there are few cities where two pints sell for more than a single quart. It was found that the labor of washing bottles ran all the way from one to 15 cents per hundred bottles. The machine washers were very much more economical as to cost, and when washed by hand, 15 cents was about the price that had to be paid. Com-

ies and the like, can be formed in any community. The small class of stock-buyers and other middlemen who oppose this movement, are but a handful, and their opposition stands for naught in a locality where the farmers are united. So long as the farmers of any community are indifferent or indolent or unwilling to sink petty individual differences for the common good, just so long will the class which produces no wealth, continue to live at the expense of the farming class.

In considering the phases of co-operation, it would seem that there are splendid opportunities for benefit along this line in fields not yet undertaken. In the writer's section, certain crops like cabbage and tomatoes and cucumbers, must be for the most part, contracted months ahead. Firms which handle these products say this step is necessary for their own welfare, and often, growers not contracting, run a risk of having the crop left without a market, on their hands. Co-operative kruit mills, co-operative canneries, co-operative pickle factories—all these would be a boon to growers and give them a much larger share of the profits. Often in contracting, the grower gets a much lower price than that quoted at the time the crop is harvested. If his crop is a light one and general conditions make the prevailing price correspondingly high, he must still abide by his contract, and receive the price which is profitable only in normal years. Co-operative creameries and co-operative shipping associations are proving a grand success. Why not co-operation in these other lines? Is it fair to find fault with conditions which you yourself, may help to remedy if you will?

In co-operating that he may eliminate the non-producers who take from him a share of his hard-earned wealth the farmer is only doing what has been done in other lines of activity for a long time. Nor does co-operation to this extent, work hardship to the consumer. The nearer the producer and consumer get together, the better for both. It is the men who stand between who make the enormous difference between the price received by the producer and the price paid by the consumer. Farmers in this section who are members of co-operative associations, are enthusiastic. The undertaking has proved so far, satisfactory beyond expectation. The field in which the co-operative movement can be applied would seem to be almost unlimited. It would seem, too, judging from successful beginnings, that the co-operative idea is to be the greatest factor in the economic development of the future. If you have faith in the movement, get together and work for it. There is nothing like a good, fair trial in testing the utility and soundness of any movement.

Hillsdale Co. J. A. KAISER.



A Careful Study of One's Products Gives Advantages in Marketing.

inadequate to the needs of the concern that but little could be told as to the true status of the business. Unquestionably, such lax business methods would make for higher prices to consumers. That is not all, however, a concern that is so careless in the administration of its business will probably be careless as to how the milk is handled. Inasmuch as milk is one of the best culture mediums there are for bacteria, public sentiment demands that nothing but the best and most painstaking care be given the product.

An inadequate system of returning milk collections by drivers was found. Some plants in order to correct this,

parisons of the costs of filling and capping the bottles were made and machine costs were about 1.2 cents a hundred, while hand-filling and capping ran about 9.2 cents per hundred pounds. Where information was available, it was found that glass bottles lasted for all the way from six to 50 trips before their disappearance and the average was 23 trips. A glass bottle should last at least from 30 to 40 trips and the less the number of trips, the greater the handling costs. These points brought out by Mr. Kelley are of interest to Michigan men, especially those concerned in the marketing phase of distribution.

Ingham Co.

I. J. MATHEWS.

## Some Phases of Co-operative Marketing.

**V**ERY often, the writer has heard farmers say something like this: "When we wish to buy anything, we pay the price quoted to us, and when we wish to sell any farm product, we must still abide by the price that is offered. We do not have a fair chance, and must give and take the prices made by others, without having any voice in the matter."

In such remarks as the above, the farmer means, of course, his business relation to local dealers. He takes his butter and eggs to market and gets the price the dealer sees fit to pay. He buys sugar or shoes, or whatever he needs, and pays the dealer's price. The same is true with his wheat, his hogs, and his cattle. He takes the price offered by the local buyer. It must be admitted, too, that in these conditions, the farmer has some basis for complaint about an unequal chance.

But may we not find in these conditions, as in most others, that the man

or class that is finding fault has the power to make better the very conditions concerning which complaint is made? In the light of recent developments, is it not being proved that the farmer himself is in no small measure to blame for the unfair condition mentioned? We think he certainly is. Co-operation as it is being tried out in different localities in this section, is proving conclusively that the farmer has in his own hands, the making of better prices for his produce. If he cannot fix his price, he can at least ignore the local agent and place his product on the market himself. The elimination of this local agent gives to the producer more nearly than ever before, the real worth of his product.

With increasing examples of the co-operative idea working successfully, it is up to the farmers to work out their own salvation in this matter. Co-operative shipping associations, co-operative creameries, co-operative canner-

### LIVE STOCK NEWS.

A very few sales of fancy feeding cattle have been made recently in the Chicago stock yards at prices far above the market. Not long ago N. Christianson, Illinois, had the courage to pay \$8.65 per 100 lbs. for a carload of high-bred Angus steers that averaged 1291 lbs. They carried considerable flesh and were taken out for a short feed. It was decidedly the highest price paid this season for that description of cattle, and they would have sold for at least 75c per 100 lbs. more a few weeks ago, being good killers.

Adverse industrial conditions, resulting in large numbers of unemployed men, are responsible for much of the greatly lowered consumption of beef throughout the country. This is especially felt in the case of medium and plain quality beef, while the scant supply of choice to prime steers in the markets of the country is so small that such kinds are selling as a general rule, at steady prices, being very much higher than a year ago. At that time beef steers were selling in the Chicago market at an extreme range of \$7@9.60. Four years ago the range was \$4.60@7.90.



# STUDYING OUR PRODUCTS.

The threadworm saying, "There is plenty of room at the top," is as true of the marketing of farm products as of the positions of life. Good products are the last to suffer during business depression, consequently the man who produces the best is certain to have shorter seasons of "hard times" than he who furnishes inferior products.

But in the effort to reach the top one cannot afford to have a single season when the quality of his goods is below par. Every allotment must sustain the reputation of all former ones; there can be no exceptions. The man who aspires to lead in his line must be consistent and have every transaction aid him in the up-hill climb.

In order to make every transaction satisfy, the producer cannot work in a promiscuous manner. He must follow a program leading more or less directly to the results sought. And such a program can be mapped only after gaining a thorough understanding of the products we are to have for sale and of the market to be served.

Now there are two general ways of improving the demand for farm products: One is to increase the appetite of the prospective buyers for the products, either by educating those who are now buying, or by going to a market where the buyers are so educated; and the other is to grow a product that suits present needs. In either instance the attempt is to have the product satisfy a real desire.

Where one is to educate the appetite of prospective buyers or seeks a market where the people are craving for the product for sale, he must act wittingly. What are the merits of this product? Wherein does the tastes of these people fail to appreciate its desirable qualities? Is it the fault of the people or of the goods? Can their tastes be changed or must a better grade or variety of goods be grown? Would a little publicity work help them to realize the pleasure and profit there are missing through their failure to buy? Would more careful grading, better packing, neater containers, different sized units, assist? A more comprehensive knowledge of the uses of the product, would that widen the demand? These and other questions the grower should put to himself and then in his work of growing, handling and selling, at his desk and wherever he may go, he should seek to answer them. A great deal of patience will be needed and much trouble encountered before the answers will be satisfactory. Nevertheless, this is the straight and narrow way that leads to the top. But once a careful survey has been made, the producer will be put in possession of valuable marketing information. Besides helping him to a better understanding of the possibilities in selling his products, a careful study of the soil, the climatic and marketing conditions that he must meet, will give to his particular line of business an interest that will make life and work much more worth while.

Wayne Co.

A. H.

# Crop and Market Notes.

## Michigan.

Emmet Co., Oct. 27.—The weather has been favorable for fall crops. Corn ripened well and the yield is much better than the average. The acreage of wheat sown is much larger than usual, and is going into winter in excellent condition. The acreage of beans was larger than usual, and the yield and quality above the average. Apples are good but market unsatisfactory. Potatoes are large and of good quality, but the price offered is 25¢@30¢, and farmers are storing the greater share of the crop.

Gratiot Co., Oct. 20.—The drouth which prevailed through September was broken by rains in October, but too late to save the early sown wheat. August-sown wheat shows the ravages of the Hessian fly, but late-sown looks good, and the acreage is large. Beans are yielding light and pick heavy.

Corn is a good crop, and ripened well. Farmers pay four and a quarter cents per bushel and board for husking. Apples are plentiful and the market is slow. There seems to be more hogs than last season. Beans \$2; wheat 98¢; eggs 21¢.

Ottawa Co., Oct. 26.—Corn, beans and potatoes are yielding well but not heavily. Clover seed is a small crop. Apples plentiful but quality is poor. There is an increased acreage of wheat and rye, and it is looking good. The price of live stock, especially of hogs, is falling off on account of the quarantine.

Washtenaw Co., Oct. 24.—The rains last week while injuring corn in the shock, benefited the wheat, which has made a rapid growth; a large acreage was put in. Beans averaging around 10 bushels per acre. Not much clover seed. Apples a good crop. The recent slump in hogs was discouraging, as many have been fattened on high-priced grain, and farmers were obliged to sell rather than continue feeding after the hogs are ready for the market. Hogs \$7; butter 30¢@35¢; eggs 24¢; potatoes 35¢; apples 50¢ per bushel.

## New Jersey.

Morris Co., Oct. 21.—The usual acreage of wheat and rye was sown. Some farmers who started to plow late were compelled to quit on account of the drouth, which is the worst we have had in years, but was broken a few days ago by a nice rain. Corn is a good crop, and some is being husked now. Potatoes were a heavy yield and are selling at 75¢@85¢ per bushel. Apples were an extra good crop. Wheat \$1.10; rye 85¢; corn \$22 per ton; buckwheat 90¢; eggs 38¢; butter 34¢.

## New York.

Niagara Co., Oct. 22.—Corn is turning out fairly well. Potatoes look promising, though few have been dug yet. Beans are good, but not so many planted as last year. There is little clover seed. Apples are a good crop and finely colored. About one-tenth of farm land has been sown to wheat, but very little rye sown. Live stock is in good condition, though there is not much stock for sale. Wheat \$1; oats 50¢; rye 93¢; corn 85¢; flour \$6.50 per bbl; butter 32¢; eggs 30¢; apples \$1.45@1.50 per bbl; pears \$1.50 per bushel; sugar 7½¢; hogs \$7.50; calves \$10; lambs \$7.

## Ohio.

Hardin Co., Oct. 27.—Husking corn is the order of the day, though it is a little green to crib yet. About the usual amount of fall grain sown, and is looking fine. Not many apples. Potatoes are a fair crop, selling for 50 cents. Many hogs are being fed, and buyers are offering \$7. Some hay is being marketed at \$10.

Harrison Co., Oct. 27.—The weather is cool with first frost on October 26. The fall has been warm, with showers, so everything looks good. Wheat made a fine growth and will go into winter in good shape. Stock of all kinds is in good condition, quite a lot of sales, and stock of all kinds selling high. Corn will yield from 25 to 50 bushels per acre. There is not much clover seed. Apples are a good crop, and great quantities of cider are being made. There are no potatoes grown for sale. Wheat \$1; new corn 60¢; eggs 30¢; butter 30¢; potatoes \$1 per bushel; pears 50¢ per bushel; apples 35¢ per bushel.

Medina Co., Oct. 26.—Farmers are beginning to husk corn, which is a fair crop. The potato crop is the largest in years. There are few apples. A little more than the usual acreage of wheat was sown, and is looking fine. There is no clover seed. Live stock, especially hogs, plentiful and in good condition. Beef 6¢@8¢; pork 7¢; wheat \$1.10; oats 42¢; corn 70¢; apples 60¢; potatoes 40¢; eggs 28¢; butter 30¢.

Warren Co., Oct. 27.—The first killing frost came on the 26th. Wheat is all sown, and early sowing looking fine. There was a somewhat larger acreage of wheat, and less rye. Potatoes harvested, and a small crop; many carloads of potatoes are being shipped in. No onions, beans or clover seed. Live stock is going into winter quarters in fine condition, as fall pastures have been very good. Few cattle for sale, but many hogs being marketed. Hog cholera has made great inroads on many farms. Winter apples are a short crop. Hogs \$7; cattle \$6.75; corn 65¢; wheat \$1; oats 50¢; butter 30¢; eggs 30¢; spring chickens 11¢; apples \$3 per bbl; potatoes 75¢ per bushel.

Hancock Co., Oct. 22.—Wheat and rye all in and looking fine; about the usual acreage sown. Farmers busy husking corn, which is yielding 30 to 60 bushels per acre. Late potatoes extra good. Clover seed is nearly all threshed, yield fair. Plenty of fall pasture, and stock is in good condition. About the usual number of cattle will be fed. Hogs scarce and high in price. Some cholera is reported. Wheat \$1; corn \$1 per cwt; oats 43¢;

rye 75¢; barley 48¢; butter 25¢; eggs 24¢; chickens 11¢; ducks 11¢.

## Indiana.

Lagrange Co., Oct. 20.—The corn crop is yielding about 60 per cent of normal. Late potatoes are an excellent crop, and a good many are for sale. Not many beans were grown and the price is very good. Clover seed is very scarce. Very few apples; not much wheat was sown on account of the injury done last year by the Hessian fly. Many acres of rye was ready for market. The cattle have good pasture and are looking fine, none for sale. Wheat \$1.05; oats 44¢; old corn 70¢; hogs \$7.25; steers \$7; winter apples 90¢; onions 30¢; eggs 25¢; butter 30¢.

Laporte Co., Oct. 22.—Wheat and rye were sown late, but are making a good growth. Corn is not husked. Potatoes are a fair crop, and sell for 40¢ per bushel. Apples light crop and quality poor. Stock is healthy, and a great many hogs are being fed, but none shipped yet.

Elkhart Co., Oct. 22.—Weather is warm, with no frost. A large acreage of wheat and rye was sown, is up and looking fine. Hogs are doing well with no cholera. Two adjoining counties are quarantined for contagious foot and mouth disease, and large numbers of animals are being condemned and slaughtered.

Daviess Co., Oct. 26.—Corn is good average crop. Late potatoes good; the onion crop better than average. Beans and clover seed a failure. Apples good. A large acreage of wheat and rye is being sown. All kinds of live stock somewhat scarce but in good condition, owing to the good fall pasture. Corn 55¢; wheat \$1; hogs 7¼¢; cattle 7¢; butter 25¢; eggs 22¢; chickens 12¢; potatoes 80¢; apples \$2 per bbl; onions 35¢@50¢ per bushel.

## Illinois.

Marion Co., Oct. 26.—Very little corn raised here this year, and many farmers put their whole crop in silo. Potatoes are a failure. No beans, onions or clover seed. Apples few and quality poor. A large acreage of wheat is being sown and though some is late it is getting a good growth. Fall rains made pastures good. Not many cattle and hogs are being kept, as most farmers have to buy feed. There is no grain being marketed. Cattle \$6@7; hogs \$7@7.75; winter apples 50¢ per bushel; eggs 23¢; butter 25¢; chickens 11¢.

## Iowa.

Osceola Co., Oct. 26.—Plowing is all done, and the threshing season will be finished in a few days. No frost yet, pastures are good for the time of year, and live stock is in good condition. Corn is yielding from 45 to 70 bushels per acre, and ripened up hard and dry, as the fall has been most favorable for maturing. New corn is quoted at 60¢; oats 40¢; barley 55¢; butter-fat 29¢; eggs 19¢; hay \$10.

## Missouri.

Vernon Co., Oct. 26.—Weather is very cool, first frost October 25. Farmers are still sowing wheat, of which a large acreage is being put in. Corn is yielding on an average 25 bushels. No potatoes to speak of. Live stock is in fine condition, and farmers have plenty of grain and roughage. Corn 60¢; wheat 97¢; oats 40¢; potatoes 75¢; hay \$7; hogs \$6.50; chickens 10¢; butter 30¢; eggs 17¢; sweet potatoes 50¢ per bushel; apples \$1 per bushel.

Polk Co., Oct. 24.—Wheat sowing is later than usual on account of Hessian fly, which has ravaged some early wheat. The acreage of wheat is somewhat smaller than last year; 20 per cent of corn cut and in shock or silo. No frost yet, and stock doing well on pasture. Horses selling better than a month ago; hogs cheaper.

## Nebraska.

Knox Co., Oct. 26.—We have had a fine fall with no frost until Oct. 24. Corn is averaging 15 to 20 bushels per acre. Potatoes, beans and onions are a fair crop. There are not many apples. Live stock looks fine. Hogs \$6.10; new corn 46¢; oats 35¢; wheat 90¢; eggs 20¢; butter 25¢; butter-fat 28¢.

Otoe Co., Oct. 26.—Weather is fine, with plenty of moisture and no killing frost. Wheat all sown now, though farmers held back their seeding on account of Hessian fly. Not much rye sown. Corn husking is about to commence, yield 15 to 35 bushels per acre and of good quality. Potato crop good, best in years. Apples scarce in some localities, though of good quality where orchards were sprayed. Some hog cholera reported. Not many surplus cattle; a few horses sold at \$75 @150 each; milch cows \$75@90; hogs \$6; potatoes 65¢ per bushel; apples, hand-picked \$1; new corn 35¢; cream 28¢ lb; eggs 19¢; butter 30¢.

## Colorado.

Kit Carson Co., Oct. 25.—Weather fine though somewhat dry. Lots of wheat and rye sown. Corn yield is good, potatoes and beans good; clover seed poor; apples scarce and are being shipped in. Live stock is in good condition, and a great many are being

(Continued on page 412).

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# Markets.

## GRAINS AND SEEDS.

November 3, 1914.

**Wheat.**—The wheat trade has followed the lead of the bulls this past week. Prices rule higher with the tendency still upward. This has happened in the face of extremely heavy selling throughout the winter wheat states of the country. Urgent buying by foreign countries makes possible this favorable condition for American wheat growers. Last week practically nine-tenths of the world's shipments came from North America, but despite the 9,000,000 bushels sent across the Atlantic, the visible supply for the United States shows an increase of 2,274,000 bushels. With these two factors working it is little wonder that prices are fluctuating over so wide a range. Millers are also active buyers. One year ago the price for No. 2 red wheat was 94½¢ per bushel. Quotations are as follows:

	No. 2	No. 1	
	Red.	White.	Dec.
Wednesday .....	1.11	1.08	1.14½
Thursday .....	1.11½	1.08½	1.14½
Friday .....	1.13	1.10	1.16½
Saturday .....	1.13	1.10	1.16½
Monday .....	1.14	1.11	1.17
Tuesday .....			

Chicago, (Nov. 2).—No. 2 red, \$1.13@1.14½; Dec., \$1.16½; May \$1.22½¢.

**Corn.**—Notwithstanding a general impression that the corn yield for the country will exceed the October estimates of the federal government, last week's prices have not only been maintained, but a fractional advance made. The firm sentiment is due in part to the strong position of wheat and also to export buying of corn itself. The receipts of the grain are limited, visible supply showing practically no change for the week. The local demand is firm and receipts are small. One year ago No. 3 corn was quoted at 74½¢ per bushel. Quotations are as follows:

	No. 3	No. 3	
	Mixed.	Yellow.	
Wednesday .....	75	77	
Thursday .....	75	77	
Friday .....	75½	77½	
Saturday .....	76	78	
Monday .....	76½	78½	
Tuesday .....	76½	78½	

Chicago, (Nov. 3).—No. 2 yellow corn 75@75½¢; Dec., 69½¢; May, 71½¢.

**Oats.**—This cereal failed to gain in price, despite the continued demand from foreign buyers and the strength of corn and wheat. There has not been a large amount of dealing on the local market, and sellers here seem to be quite plentiful. One year ago standard oats were quoted at 42½¢ per bushel. Quotations are as follows:

	No. 3	
	Standard.	White.
Wednesday .....	51	50½
Thursday .....	49½	49
Friday .....	50	49½
Saturday .....	50	49½
Monday .....	50	49½
Tuesday .....		

Chicago, (Nov. 3).—Standard oats, 48½¢@48½¢; Dec., 49½¢; May 53½¢.

**Rye.**—This grain is firm at 95¢ for No. 2, which is 2¢ higher than last week.

**Beans.**—Trading is active with prices higher and demand good. Detroit quotations are: Immediate and November shipment \$2.30. Chicago.—Market is firm. Demand is good for pea beans. Pea beans, hand-picked, choice, are quoted at \$2.40@2.50; common at \$2.25@2.35; red kidneys, choice at \$3.25@3.50.

**Clover Seed.**—Market is quiet and easy. Prices are steady. Prime spot quoted at \$8.90; December \$9; March \$9.20; prime alsike sells at \$8.60.

**Toledo.**—Prime cash \$8.95; December \$9.05; March \$9.25; prime alsike \$8.40.

## FLOUR AND FEEDS.

**Flour.**—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.20; second \$5.80; straight \$5.35; spring patent \$6.50; rye flour \$5.60 per bbl.

**Feed.**—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$32; coarse corn meal \$32; corn and oat chop \$28 per ton.

**Hay.**—Carlots on track at Detroit are: New No. 1 timothy \$15.50@16; No. 2, 13.50@14; No. 3, \$11@12.

Chicago.—Choice grades are in good demand and firm, while common is easier. Choice timothy \$16.50@17.50; No. 1, \$15@16; No. 2, \$12.50@13.

**Straw.**—Steady. Rye \$7.50@8; oat straw \$7@7.50; wheat straw \$7@7.50 per ton.

## DAIRY AND POULTRY PRODUCTS.

**Butter.**—Market is firm at prices 1¢ higher than last week on all grades. Extra creamery 31¢; firsts 29¢; dairy 20¢; packing stock 19¢ per lb.

Chicago.—Market steady with prices on all grades advanced about 2¢. Supply is light and prices are well maintained. Extra creamery 32½¢; extra firsts 30@31¢; firsts—27@29¢; seconds 24@26¢; packing stock 20½¢@21¢.

Elgin.—Sold at 32¢ which is a raise of ½¢ over last week.

**Poultry.**—Supply and demand both light, with little change in prices. Springs 13@14¢; hens 13@14¢; ducks 14@14½¢; young ducks 14@14½¢; geese 13½@14¢; turkeys 19@20¢.

Chicago.—All kinds except geese have advanced, turkeys being 2¢ higher than last week. Trading is good notwithstanding liberal receipts. Quotations on live are: Fowls 10½@11¢; spring chickens 12½¢; ducks, good stock 13½¢; guinea hens, per dozen \$3.50; young guinea hens \$2@4; turkeys 15¢; geese 12@13¢ per lb.

**Eggs.**—Market firm with prices advanced 2¢. Fresh stock sells at 27¢ per dozen; current receipts 25½¢.

Chicago.—A firm feeling exists at prices advanced about 3¢ over last week. Fresh supply is light and storage stock is being drawn on. Miscellaneous lots, cases included 18@26½¢ per dozen; ordinary firsts 24½@25¢; firsts 26½@27¢.

## FRUITS AND VEGETABLES.

**Fruits.**—Pears, Bartletts, \$1.75@2 per bu; Keiffers 50@60¢; grapes 17@18¢ for blue, per 8-lb. basket.

Chicago.—Pears, Keiffers \$1.75@2 per bbl; quinces \$2@4 per bbl, \$1@1.40 per bu; black grapes 10@18¢ per 8-lb. basket.

**Vegetables.**—Home-grown cabbage, 75¢@1 per bbl; new beets 60@65¢ per bu; radishes \$1@1.25 per hundred bunches; tomatoes \$1.25@1.50 per bu; onions 70¢ per 100 lbs. in bulk.

**Potatoes.**—Michigan 45@48¢ per bushel in carlots, 50¢ per bushel in sacks; carlots \$1.25@1.30 per sack; at Chicago Michigan white, bulk, are quoted at 35@45¢ per bushel.

**Apples.**—Supply is liberal and demand is fair. Average receipts 50@75¢ per bu; \$1.50@2.50 per bbl.

Chicago.—Fancy goods are in fair sale and steady. Much of the barrel stock is not choice and not wanted; bulk stock being preferred. Baldwins \$1.75@2; Kings \$2.25@2.50; Wageners \$2@2.25; Jonathans \$3.50@4; Greenings \$2@2.25; Northern Spy \$2.50@2.75; Twenty-ounce \$2.25@2.50; bulk apples 30@70¢ per 100 lbs., according to quality. Western box apples are selling for 80¢@1.50 per box.

## WOOL.

A strong market continues, with prices firm and the tendency upward on certain active grades. Just what influence the embargo placed on Australian wools by the British government will have cannot be foreseen, although the general belief is that it will hasten advances for domestic wools on this side. Prohibiting Australian wools coming to this country for any considerable length of time is quite certain to bring an acute demand for our domestic stores. The situation will increase South American importations. This, however, will probably supply our trade only in part so as to allow holders of wool to make prices. There is a general belief that much wool is being bought in this country for shipment to Germany and Austria. Sales for the past week at Boston aggregated 4,250,000 pounds. Michigan unwashed delaines are quoted at 27@28¢; do. combing 23@29¢; do. clothing 22@26¢.

## GRAND RAPIDS.

Potatoes are bringing 35@40¢ on the city market here, while the price paid at outside loading stations is below 30¢. Many potatoes are being stored. Apples have a wide range, bringing from 25¢ up almost to the \$1 mark for fancy stock in small lots. Eggs are worth 25@27¢; dairy butter 23¢. Live poultry quotations this week are: Fowls and chickens 10¢; roosters 8¢; ducks 10¢; geese 10¢; turkeys 16@17¢. Grain prices are unchanged. Hay is a little higher, bringing \$12@14.

## DETROIT EASTERN MARKET.

The market was active Tuesday morning with a large number of buyers and farmers present. Prices are being well maintained. Since farmers have rounded up their fall work the delivery of potatoes, apples and other crops has become the order. Potatoes rule steady at 50¢. Apple prices range from 45¢@1 per bushel with supply ample; cabbage 25¢; beets 30¢; carrots 35¢; parsnips 50¢; onions 75¢; cauliflower 5¢ per head; celery 25@35¢ for large bunches, according to quality. Loose hay is coming along

better with prices steady at \$17@19 per ton.

## THE LIVE STOCK MARKETS.

### Buffalo.

November 2, 1914.

(Special Report of Dunning & Stevens, New York Central Stock Yards, Buffalo, N. Y.)

Receipts here today as follows: Cattle 250 cars; hogs 140 d. d.; sheep and lambs 85 d. d.; calves 1000 head.

With 250 cars of cattle on our market here today, everything was well cleaned up and tonight there is but little if anything left over in the yards unsold. All the cattle showing quality and fat sold fully 15@25¢ per cwt. higher than last Monday. There is considerable excitement here now as to the foot and mouth disease and some of the best houses here fear that our yards will be quarantined in the very near future; however, it is best not to cross the bridge until we get to it. The market closed steady and the outlook for the remainder of the week is quite good.

We had a liberal run of hogs today about 140 double decks all told. Our opening trade was rather slow, but with rumors of the Chicago yards being closed, owing to quarantine, the late trade was more active and a fairly good clearance was made, the bulk of the hogs going to eastern slaughterers. One or two decks of selected hogs sold at \$7.75, but the bulk of the best changed hands at \$7.70; pigs generally \$7.50; roughs \$6.50@6.75; stags \$6@6.50. Conditions at present time are rather uncertain, but we think our outside outlet will be quite good and we look for at least a steady market the balance of this week.

The market was active today on lambs and sheep, with prices quarter lower on lambs than the close of last week; choice handy lambs selling at \$8.15@8.25. We look for steady prices last of the week.

We quote: Lambs \$8.15@8.25; cull to fair \$6@8; yearlings \$6@6.50; bucks \$3@4.25; handy ewes \$5.25@5.50; heavy ewes \$4.75@5; wethers \$5.75@5.90; cull sheep \$3.50@4.25; veals, choice to extra \$11@11.50; fair to good \$9.50@10.50; heavy calves \$6@9.

### Chicago.

November 2, 1914.

Cattle. Hogs. Sheep.  
Receipts today..21,000 35,000 38,000  
Same day 1913..22,012 38,142 49,190  
Last week ....48,566 137,923 156,173  
Same wk 1913..66,166 144,697 192,784

The announcement early this morning that the stockyards of Chicago and other leading markets of the country were quarantined against all kinds of live stock and that no receipts or shipments from here would be permitted by the federal government until the yards were disinfected caused great surprise. At first prices were lower for hogs and to some extent for lambs and sheep, but later hogs advanced sharply, and there was a firm sheep market, while cattle prices were irregular—partly steady and in part weak to lower. Late prices for hogs were quoted as much the same as on Saturday. How long it will take to cleanse the stockyards of infection, no one knows, but no business is likely to be done for many days. Hogs marketed last week averaged 225 lbs., the lightest average so far reported.

Cattle experienced such large reductions in prices for the rank and file of the offerings in recent weeks because of excessive receipts that country shippers sent in greatly decreased supplies last week, and this resulted in good rallies. Week before last the receipts reached the great number of 65,473 head, starting off with a Monday run of 30,000, and when the week closed sales were made of the general run far below prices paid at the high time a few weeks earlier. About the only exceptions to the downward course of the market for recent weeks were the better class of long-fed choice beefs and fat little yearlings, these being scarce with receipts mostly made up of cattle from grass, including rangers, as well as natives. The materially lessened offerings last week made buyers more ready to take hold, and at the advanced prices, the bulk of the beef steers sold at \$8.25@10.25, the extreme range being \$6.40@11. The better class of corn-fed steers went at \$10@11, with a good class bringing \$9.50 and over and a medium class taken at \$8.65@9.45. The steers sold at \$6.40@8.60 comprised a poor to fair class of light to moderate weights, grassers predominating. Western range steers sold at \$7.50@10, while native butcher lots of cows and heifers found buyers at \$5@9.25, with a sale of 26 fancy Angus and Shorthorn yearlings heifers that averaged 900 lbs. at \$10. The most desirable yearling steers sold at \$9.50@10.80. Cutters went at \$4.60@4.95, canners at \$3.25@4.55 and bulls at \$4.50@7.70. The stocker and feeder trade was fairly active at the advanc-

ed prices, the receipts being much smaller. Stockers sold at \$5@7.50, feeders at \$5.90@8.25, with a sale of 28 Herefords that averaged 606 lbs. at \$8.50, stock steer calves at \$7.25@8 and stock and feeding cows and heifers at \$4.75@6.50. Prevalence of foot and mouth disease in several counties of Michigan and Indiana checked shipments there. Calves sold at \$5@11 and milch cows at \$60@95 each. Advances of 25@50¢ occurred in beef cattle during the week, including steers, cows and heifers.

Hogs experienced some advances in prices last week, followed by declines, with no heavy receipts and a moderate eastern shipping demand. Surroundings of the market have not changed radically, but there is a growing impression that prices have about reached their lowest. It has been a great fall in values since August, when hogs sold up to \$10.20 for the best. And the decline has taken place in spite of the fact that since March 1 the number of hogs slaughtered at western packing points has ran 2,118,000 head below the number killed a year ago. Fast declining prices for hogs has resulted in owners shipping them much lighter in weight, and recent receipts averaged but 228 lbs., comparing with 254 lbs. late last August and with 249 lbs. four years ago, when hogs sold at \$7.65@8.95. The range of prices has narrowed greatly, with choice weighty hogs going highest. Cold weather has improved the demand for fresh pork products, as well as the cash demand for cured hog meats, although the southern demand is poor. Recent sales of hogs were at much lower prices than in most recent years. The week closed with hogs selling at \$7.10@7.65, comparing with \$6.90@7.60 a week earlier, while pigs brought \$5@7.25. Hogs weighing 220 to 290 lbs. sold highest, with prime light hogs about 15¢ below the top figures.

Sheep and lambs may be expected to do better for their owners from now on, and already decidedly higher prices have been paid for desirable flocks, with greatly lessened receipts compared with those seen only a few weeks ago. Receipts were made up last week largely of range lambs from Montana and Wyoming, including a good many feeders, as well as feeding ewes and yearlings with a very good representation of native lambs and ewes. At the close the fat lambs sold 35@50¢ higher than a week earlier, with sheep 25@40¢ higher. Lambs sold at \$6@8.20, feeder lambs at \$6@7.25, yearlings at \$5.75@7, feeding yearlings at \$5.65@6.25, wethers at \$5.50@6.25, ewes at \$3.50@5.50, feeding ewes at \$3.85@4.60, breeding ewes at \$5@6.50 and bucks at \$3.50@4.25.

Horses were plentier and in better demand last week at generally unchanged prices. Second-hand city work horses were sold in the ring at \$42.50@112.50 per head, while commercial chunks brought \$160@210 for 1300 to 1400-lb. weights, with 1500 to 1600-lb. horses salable at \$185@250. Army horses sold at \$100@135 for riders and at \$150@175 for artillery service. A black mare brought \$225.

## CROP AND MARKET NOTES.

(Continued from page 411).

sold and shipped at a good price. Wheat 83¢; corn 40¢; rye 64¢; potatoes 40¢; eggs 18¢; butter-fat 26¢; apples 90¢ per bushel.

**Weld Co., Oct. 19.**—Corn is extra good; potatoes fine; beans good; apples fair. Very little wheat or rye sown, as it is too dry. Most of the sugar beets are dug, and the crop is very good. The fourth cutting of alfalfa is in shock, and there is plenty of good hay. Lots of dairy cows to feed, and a few hogs in the farmers' hands. Wheat 80¢; eggs 30¢; butter 30¢; cabbage 35¢ per cwt.

### Kansas.

**Franklin Co., Oct. 28.**—October has been an unusually wet month, little plowing could be done. Corn was less than half a crop; a large acreage of wheat has been sown. Very little rye sown here. Onions and beans were a fair crop. Very little live stock is being kept. There are a great many public sales this fall and stock is selling cheap. Winter apples are scarce here and sell at \$1.50@2 per bushel. Eggs 22¢; butter-fat 26¢; wheat 90¢; corn 85¢; oats 35¢; hogs \$7.30; cattle \$7.80.

**Cowley Co., Oct. 28.**—Weather conditions have been very favorable for fall sown grains and about the usual acreage is sown. Corn is being gathered; in places is very good; other fields light, in general below the average. Kaffir yielding from 10 to 25 bushels of fair quality. Apples are very good, in commercial orchards selling from 80¢@1. Live stock not very plentiful but in good condition, except some loss among young cattle by blackleg. Wheat 98¢; corn 68¢; rye 70¢; oats 35¢; milch cows sell from \$70@150; fed cattle around \$7.



THIS IS THE FIRST 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 MARKETS.

Thursday's Market.  
October 29, 1914.  
Cattle.

Receipts 2009. Market steady. Best heavy steers \$7.50@8; best handy weight butcher steers \$6.75@7.50; mixed steers and heifers \$6.50@7; handy light butchers \$6.25@6.75; light butchers \$6@6.50; best cows \$5.50@6; butcher cows \$5@5.50; common cows \$4.50@5; canners \$3@4.50; best heavy bulls \$6.25@6.75; bologna bulls \$5.50@6; stock bulls \$4.50@5.25; feeders \$6.50@7; stockers \$5.50@6.50; milkers and springers \$4@90.

Spicer & R. sold Findlay 60 stockers av 614 at \$6; to Mich. B. Co. 27 heifers av 874 at \$6.25; to Mason B. Co. 1 cow wgh 1340 at \$6.17; butchers av 922 at \$6.75; 2 steers av 855 at \$7; to Sullivan P. Co. 4 cows av 1022 at \$5; to Hammond, S. & Co. 2 do av 910 at \$5.50; 1 steer wgh 980 at \$6.25; 1 cow wgh 720 at \$4.23; do av 1040 at \$5.50; to Kamman B. Co. 3 butchers av 1020 at \$6.50; to Thompson Bros. 3 do av 610 at \$5.25; to Hammond, S. & Co. 10 do av 636 at \$6.8; cows av 820 at \$4.35; to Molter 14 feeders av 862 at \$6.25; to Watts 10 cows av 700 at \$5.50; to Mich. B. Co. 21 butchers av 853 at \$6.50; to Breitenbeck 13 do av 815 at \$5.90; to Rattkowsky 6 cows av 960 at \$5.75; to Reardon 8 stockers av 615 at \$6.25; to Sullivan P. Co. 2 cows av 1020 at \$5.50; 3 do av 813 at \$4.50.

Roe Com. Co. sold Applebaum 1 cow wgh 770 at \$5.50; 5 butchers av 406 at \$5.25; 5 do av 504 at \$5; to Mich. B. Co. 24 do av 540 at \$5.50; 12 av 766 at \$5.75; 3 do av 627 at \$5.5; do av 554 at \$5.25; 3 do av 683 at \$5.75; to Zehender 4 stockers av 637 at \$6.5; do av 560 at \$6.3; do av 620 at \$6.6; do av 890 at \$6; to Kamman B. Co. 22 steers av 955 at \$6.75; 4 do av 967 at \$6.75; 13 butchers av 858 at \$6.50; to Mich. B. Co. 1 steer wgh 990 at \$7; to Sullivan P. Co. 6 cows av 983 at \$5.75; 1 do wgh 1050 at \$6.1; do wgh 900 at \$5.2; do av 875 at \$4; to Bresnahan 9 stockers av 590 at \$6; to Hammond, S. & Co. 8 cows av 800 at \$4.25; 1 bull wgh 960 at \$5.50; to Zehender 17 stockers av 615 at \$6.15; to Breitenbeck 2 bulls av 890 at \$5.75; 3 do av 747 at \$5.50.

Haley & M. sold Reardon 21 stockers av 765 at \$6; to Sullivan P. Co. 2 cows av 875 at \$4.50; 5 do av 880 at \$5.2; 2 bulls av 1060 at \$6.4; cows av 885 at \$4.25; 1 do wgh 800 at \$4.75; 1 do wgh 1050 at \$4.75; to Newton B. Co. 1 bull wgh 1180 at \$6.25; 1 do wgh 1350 at \$6.25; 9 heifers av 640 at \$6.3; do av 540 at \$5.50; 11 butchers av 613 at \$6.15; to Shapiro 2 do av 685 at \$5.35; to Schlischer 6 do av 765 at \$6.50; to Goose 7 do av 680 at \$6.50; to Thompson Bros. 1 bull wgh 1180 at \$6.4; cows av 860 at \$5.50; 2 bulls av 570 at \$5.25; 1 cow wgh 970 at \$5.25; 4 heifers av 622 at \$6; to Resnick 6 cows av 1026 at \$6.50; to Cook & Co. 11 steers av 906 at \$7.10; to Hammond, S. & Co. 2 bulls av 1175 at \$6.15; to Smith 6 stockers av 485 at \$6; to Schlischer 6 butchers av 636 at \$5.85; 3 do av 573 at \$5; to Reardon 6 stockers av 683 at \$6.25.

Veal Calves.

Receipts 799. Market 25@50c lower. Few fancy \$11; best \$10@10.50; others \$7@9.50.

Roe Com. Co. sold Rattkowsky 10 av 150 at \$10.75; to Nagle P. Co. 1 wgh 240 at \$7.50; 2 av 160 at \$10.50; to Thompson Bros. 9 av 150 at \$10.1; wgh 150 at \$8.1; wgh 240 at \$6; to Rattkowsky 10 av 303 at \$5.25.

Haley & M. sold Hammond, S. & Co. 5 av 125 at \$10.11; av 170 at \$11.1; wgh 130 at \$10.50; to Nagle P. Co. 3 av 140 at \$10.50.

Sheep and Lambs.

Receipts 10,739. Sheep 25c lower and lambs strong. Best lambs \$7.50@7.60; fair do \$7@7.40; light to common do \$6@6.75; fair to good sheep \$4@4.50; culls and common \$2.50@3.50.

Bishop, B. & H. sold Thompson Bros. 37 lambs av 45 at \$6.16; do av 55 at \$6.40; to Nagle P. Co. 117 do av 85 at \$7.25; 28 sheep av 105 at \$3.85; 32 do av 100 at \$4.25; 32 lambs av 60 at \$6.25; 80 do av 55 at \$6.25; 25 do av 57 at \$6.25; 26 sheep av 110 at \$3.75; 10 do av 112 at \$4.25; 18 lambs av 55 at \$6.50; 37 do av 65 at \$6.25; to Nagle P. Co. 139 lambs av 75 at \$7.25; 107 do av 73 at \$7.10; to Parker, W. & Co. 98 do av 60 at \$6.60; to Sullivan P. Co. 20 sheep av 90 at \$4.10; 37 do av 90 at \$3.30; to Swift & Co. 450 lambs av 75 at \$7.50; 175 do av 73 at \$7.50; 55 do av 75 at \$7.40; to Nagle P. Co. 223 do av 80 at \$7.30; 147 do av 75 at \$7.25; 105 do av 70 at \$4.31; do av 80 at \$2.60; 35 lambs av 70 at \$7.40; 49 do av 55 at \$6.42; do av 56 at \$6.25.

Bishop, B. & H. sold to Armour & Co. 980 av 82 at \$7.75.

Hogs.

Receipts 8602. None sold at noon; prospects, all grades \$7.50@7.60. Roe Com. Co. sold Sullivan P. Co. 360 av 190 at \$7.55; 120 av 170 at \$7.50; 400 av 200 at \$7.60. Haley & M. sold Hammond, S. & Co. 450 av 200 at \$7.60; 450 av 190 at \$7.55. Spicer & R. sold same 450 av 190 at \$7.55; 200 av 200 at \$7.60. Bishop, B. & H. sold Parker, W. & Co. 2110 av 190 at \$7.55; 1250 av 200 at \$7.60.

Friday's Market.

October 30, 1914.  
Cattle.

Receipts this week 2156; last week 2182; market dull. Best heavy steers \$7.50@8; best handy weight butcher steers \$6.75@7.50; mixed steers and heifers \$6.50@7; handy light butchers \$6.25@6.75; light butchers \$6@6.50; best cows \$5.50@6; butcher cows \$5@5.50; common cows \$4.50@5; canners \$3@4.50; best heavy bulls \$6.25@6.75; bologna bulls \$5.50@6; stock bulls \$4.50@5.25; feeders \$6.25@7; stockers \$5.50@6.25; milkers and springers, \$4@85.

Veal Calves.

Receipts this week 962; last week 759; market dull. Best \$10@10.50; others \$7@9.50.

Sheep and Lambs.

Receipts this week 13,816; last week 11,828; market steady. Best lambs \$7.65; fair lambs \$7@7.50; light to common lambs \$6@6.75; fair to good sheep \$4@4.50; culls and common \$3@3.50.

Hogs.

Receipts this week 11,348; last week 9,872; market steady; all grades \$7.50@7.55.

LIVE STOCK NEWS.

"Tight money, feed abundance and cattle scarcity are in abundance in northern Iowa," said John T. Alexander, recently returned to Chicago from a visit to that part of the country. "Causes of money scarcity are many, and reckless speculation in western land recently is one of them. That beef production during the next six months will be curtailed as a result of this is certain. The country is in excellent shape for extensive cattle feeding operations if the necessary financial assistance could be obtained. Pigs are plentiful everywhere."

Hog cholera has broken out violently in portions of Missouri, and it is reported that all the serum plants in the state are working to their utmost capacity. As a general rule, hog growing sections in this country have been healthy this year, presenting a marked contrast with the last two years, last year particularly. Many reports state that serum is made more carefully and work far more satisfactorily than heretofore.

Foot and mouth disease has prevailed so extensively in several counties of Michigan and Indiana that the demand in the Chicago market for stocker and feeder cattle and feeding lambs and sheep to ship to the affected districts has ceased. A short time ago it was stated that a great many cattle had been condemned and that the United States government had agreed to advance the entire amount of the loss to the stock owners in Indiana on condition that it shall be reimbursed one-half of the amount by the state through the action of the next legislature, which meets in January.

Range cattle that were right off the grass, instead of being fattened on corn and other high-priced feeds, were sold in the Chicago stock yards the other day for over \$2,000 a carload, part of them going for \$10 per 100 lbs. on the hoof. "This example, illustrating the advance in cost of live animals, will enable the public to better understand why meat is dear," said Melville F. Horine, statistician for the Union Stock Yards & Transit Company. "A single consignment consisting of 40 carloads of range cattle from Montana was sold at prices ranging from \$8.50@10 per 100 lbs. When grass-fed cattle directly from the range will bring such prices, the scarcity of cattle throughout the United States is demonstrated, and the cause of the high price of beef is revealed."

Now that the time for marketing range flocks of lambs and sheep is fast approaching its close for the year, conditions are becoming far better for sellers of fat live muttons. Receipts in Chicago and other western markets in recent weeks have been undergoing very large reductions, and prices have been placed on a much firmer basis for desirable offerings. The demand for feeders from the Montana and Wyoming ranges has kept up, and the best feeder lambs have sold higher relatively than fat killing lambs. It is a settled fact that much less feeding will be carried on this winter than in recent years, and it is almost certain that fat flocks will be marketed at extremely high prices.

The packers in Chicago and other western markets have been cutting up

hogs at a great profit, the decline in prices from the high time in August having been enormous. Provisions have failed to decline in accordance with the sensational break in prices for live hogs, and bacon, hams and other hog meats are bringing as high prices as ever in the retail meat markets of the country. As to the future, there is the usual difference of opinion, but many observers are coming to the conclusion that prices are hardly likely to go much lower. One result of the decline in prices has been to stimulate the marketing of the lighter weight hogs, thereby drawing largely on the future supply of porkers.

According to York A. Hartman, of the Sioux City Live Stock Record, the winter hog crop in South Dakota, eastern Nebraska, western Iowa and southwestern Minnesota will be 145 to 150 per cent of that of a year earlier. In territory tributary to St. Joseph and Kansas City, the increase will be less, as it was the upper Missouri River region that was so seriously ravaged by the prevalence of hog cholera last year. Thus far this year receipts of hogs in western markets are enormously short of those for last year, and it seems hardly likely that the deficiency will be made up later.

Reports from the country lying west of the Missouri River are that agricultural conditions were never better, with an abundance of everything except live stock and money. It is almost certain that much feed will go to waste, and much hay is likely to be carried over, while much roughness will be lost. But the fine crops of grain will bring high prices and farmers will reap substantial benefits in this way. The beet sugar crop is a good one, but it was contracted before the war started, and the sugar refiners will derive the enhanced profits from the boom in sugar prices.

Olaf Hovre, of Wisconsin, was in the Chicago market recently with two carloads of mixed cattle, which were sold at high prices. The shipment contained two steers bought by Mr. Hovre from Gerald D. Arnold, the well known Shorthorn breeder of Wisconsin, which were sold \$11.25 per 100 lbs., or 35c above the market, the next highest sale being at \$10.90. One of these animals was a pure-bred Shorthorn roan that tipped the scales at 1800 lbs., and the other was a red, the product of an Angus cow and a Shorthorn bull, and weighed 1620 lbs. The two animals were exhibited by Mr. Arnold at ten fairs this autumn, and they were undefeated by any except by each other. At Milwaukee the roan was second, competing against all pure-breeds, while the red was first, and the grand champion cross-bred steer.

While large numbers of range feeding lambs have been shipped into the feeding districts from Chicago and other large market centers in recent weeks, comparatively few feeding wethers or yearlings have been received, and it is estimated that shipments of range feeding wethers for the year from Chicago have been all of 75 per cent less than for the corresponding period last year. But feeding ewes have been offered liberally, and shipments of such sheep from Chicago to feeding districts in the surrounding country have been the largest ever known at this season of the year. There is every reason for expecting substantial profits from fattening lambs and sheep during the approaching winter season, as the numbers fed will in all probability fall much short of other years.

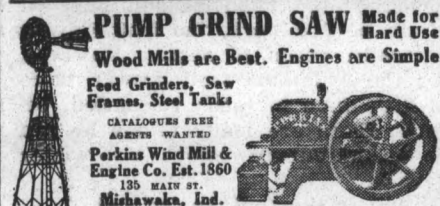
A CHANCE TO HELP.

Floods along the West River of Southern China destroyed the crops on 10,000 square miles of prosperous farming country. As a result many millions of unfortunate people will need help. An appeal is being made to the people of the United States for funds. Any who can and desire to contribute to this worthy cause should address their enclosures to the "Famine Fund, the Christian Herald, New York City."

The helpless condition of the thousands of non-combatant Belgians rendered homeless by the great European war which has destroyed their homes and laid waste their country, is pitiable in the extreme, and with the situation but half known there is little wonder that Americans are anxious to help assuage the suffering. The Dollar Christmas Fund for Homeless Belgians, with Henry Clews, banker, 66 Broadway, New York, as treasurer, has been organized to receive contributions from anyone who desires to aid these unhappy people, and a dollar gift sent to the above address of Mr. Clews will be promptly acknowledged and applied to the general fund for purposes of relief in the way of shelter and food after consultation with the officials of the Belgian government.



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APPLES AND POTATOES MAKE YOUR SHIPMENTS TO E. L. RICHMOND CO., Detroit, Mich.

Cider Barrels For Sale. Whiskey barrels, half barrels and kegs for cider. Mich. Barrel & Bag Co., 238 Franklin St., Detroit. Phone M 3122.

Farms and Farm Lands For Sale

Good Farms Around Lansing, and East Lansing. J. D. TOWAR, [East Lansing, Michigan].

WANTED to hear from owner of good farm for sale. Send cash price and description. D. F. BUSH, Minneapolis, Minn.

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Near Saginaw and Bay City, in Gladwin and Midland Counties. Low prices. Easy terms. Clear title. Write for maps and particulars. STAFFELD BROTHERS, 15 Merrill Building, Saginaw, (W. S.), Michigan.

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MARYLAND—The State for Thrifty Farmers. Delightful, healthy climate. Good Land, Reasonable Prices. Close to big markets of large cities of the East. Send for free descriptive pamphlet with map. STATE BUREAU OF IMMIGRATION, Hoffman Bldg., Baltimore, Md.

STOCK OR GENERAL PURPOSE FARM, FOR SALE. 169 acres, good soil, creek, large bank barn, big silo; other buildings, house. Present owner 28 years, 4 miles from town, on good road. Price \$4,500. 414 E. Warren, Big Rapids, Michigan.

Other Business forces sale. 313 Acres, 12-room house, painted; 3 barns, main barn, basement; granary, hog house, shop; fruit; watered by springs and creek. Owner includes 16 good cows; all for \$4,000. cash. balance 5 percent interest. HALL'S FARM AGENCY, Owego, Tioga Co., N. Y.



# After Apple Harvest.

THE harvesting of the apple crop involves considerable strenuousness. It is without doubt the most important part of apple growing, because it constitutes one-half of the labor and cost involved in a season's work in the orchard. It is also important because the method of harvesting and packing the fruit will determine whether one will get the most out of the crop or not. After being relieved of the financial and physical strain of this work, the fruit grower naturally wants to relax. However, for the ambitious fruit grower there is little time for such relaxation, because there are many things he can do to advantage before the winter sets in.

## Get the Cull Apples Out.

One of the first things to do after the better grades of fruit have been barreled is to dispose of the culls. While the sale of the culls often does not return much profit for the labor involved, it is well worth the time and labor to get them off the place

knife, the wound being trimmed to perfectly healthy wood, and then disinfected with a five per cent solution of carbolic acid. It is also advisable to paint these wounds over with white lead and oil to prevent them drying out. The trimming out of these blight cankers is one of the most important means of controlling the blight, as it is in these cankers that the spores live over the winter and are the cause of an infestation the following blossoming time.

## Transplanting Trees.

This time of the year is also the most desirable for transplanting the trees. Often a fruit grower realizes that he has set his trees too close, and desires to remove some of them to another part of the orchard. With care this can be done with trees as old as ten years. In doing this the root system should be kept as intact as possible, and in setting the trees in their new place the earth should be thoroughly tamped around the roots to prevent air pockets. The earth



Use Care in Harvesting; Poor Harvesting Spoils Good Crops.

for orchard sanitation purposes, as they are a source of insect and fungus infestation. The culls should consist of the apples which have been sorted out of the graded stock, the windfalls throughout the orchard which should be picked up, and the apples remaining on the trees. The latter, if left on the trees through the winter will become a source of serious trouble if the practice is continued for several years. These apples will eventually rot and the rot spores will be carried to the lower limbs where they will start rot cankers.

The next thing which needs attention after the crop has been harvested is the putting away of the harvesting equipment. Too often the ladders, picking tables and baskets are left scattered about the orchard over winter, and the result is that in spring they have greatly deteriorated in value on account of the action of the elements on them. It takes but a short time to go through the orchard and gather up these odds and ends of the equipment and put them under shelter.

## Take Care of the Broken Limbs.

Invariably after harvesting there are some broken limbs, and often limbs of good size have been split from the weight of the fruit. These should be taken care of in the fall, before they dry out too much if they are to be bolted together again. Even if the limbs are to be cut off, the fruit grower who has pride in his orchard will cut them off in fall for appearance sake. It is also beneficial to the wounds made by the limbs splitting down to have the limb cut off and the wound painted over with pure white lead and raw linseed oil, which should be mixed to the consistency of good paint.

The blight which has been quite serious in the past two years should also be given attention before the winter sets in. All blighted limbs should be cut out before the foliage drops, as they can be readily seen. The trunks and the main limbs should also be carefully inspected for blight cankers. These should be cut out with a sharp

should also be mounded around the base of the tree to the height of about two feet so as to keep the tree from being shaken by the winter winds. The tops of the trees should also be cut back quite severely so as to balance the tops with the roots. It is a decided advantage to do this pruning at the time the tree is being transplanted, as the reduced top will give the wind less opportunity to shake the tree loose.

## Preventing Mice Injury.

In orchards where the mice are troublesome, the sod should be dug away from the base of the tree and a small mound of earth put around it. In such orchards it is also an advantage to quite thoroughly spray the base of the trees with lime-sulphur, as it is known that the mice are not especially fond of bark flavored with lime-sulphur. As a further preventative it is advisable to go through the orchard after heavy snows and in places where the mice are most frequent tramp the snow around the base of the tree.

The fruit grower who is a thorough sprayer need not give much thought to fall spraying unless he should acquire an orchard which has been neglected in the past. However, orchards which have a bad infestation of the San Jose scale or are fungus covered from the lack of spraying in the past may receive the fall application of lime and sulphur to great advantage. It is not possible to thoroughly clean up a bad infestation with one application, but a thorough spraying in the fall, followed by another in the spring, should so reduce the scale that they will be of little trouble the following season.

## Care of Spraying Outfits.

Another thing which should receive attention at this time of the year, if it has not been attended to before this, is a thorough cleaning up of the spray outfits. It is advisable to pump clear water through the outfit for several hours so as to clean out as much of the lime-sulphur as possible. This should really be done immediately after the spraying is finished, and be-

fore the lime-sulphur has hardened, but if not done then it had better be done this fall. After this has been done care should be taken to drain the water from all parts of the pump and engine so as to prevent breakage from freezing. Then the outfit should be put under cover or well covered

with waterproofed canvas side curtains if there is a top over the engine. Fall work after harvesting is the stitch in time which often saves a rip in plans of spring work when there is a lot to do and time is valuable. It is, therefore, economy of time and money to do it now.

# Disposing of the Cull Pile.

INDUSTRIES which live and continue through many generations to be useful to man must pass through periods of evolution. These periods of evolution make for the industry the development which fits them for the conditions resultant of ever-changing time. Progress and conservation brings on these evolution periods. Conservative feeling has been foremost in the minds of prominent men for many years. Fruit growers have been no less attentive to the by-product problem and have endeavored to reduce as much as possible the cull pile, the unprofitable product of the orchard. As the fruit grower is dealing with natural conditions which are ever changing, he cannot expect perfect results and entirely eliminate the cull pile if he packs his fruit honestly; he must therefore find the best way of getting as much as possible out of it.

## The Cull Pile Not an Asset.

The easiest way of handling the culls is to sell them to the cider mill, but there are times when, as with the present season, the price of cider apples is so low that it hardly pays to handle them. In such cases a cider press on the farm would be a great advantage, as many products can be made with it. These can be sold at a greater profit than can be had from the ordinary method of disposing of the cull crop. There are no statistics to tell us how many millions of dollars go to waste in rotten apples. They are allowed to drop from the trees and rot on the ground by the billion bushels. This year on account of the poor market conditions, the loss will be enormous, and efforts should be made to conserve in some form the present crop. The liquid form seems at present the best method of conservation for much of it.

The evolution of the cider press is interesting. The old log beam having a fulcrum at one end and raised by

cylinder. Water is easily pumped through a small pipe into the cylinder and the pressure being applied against the end of the piston or ram. The ram is thus forced out, pressing the apple pomace which has previously been prepared by hand, or belt-driven apple grater. An average of four and a half gallons of cider can be produced by these presses from a bushel of apples; and from 300 to 6000 gallons made per day.

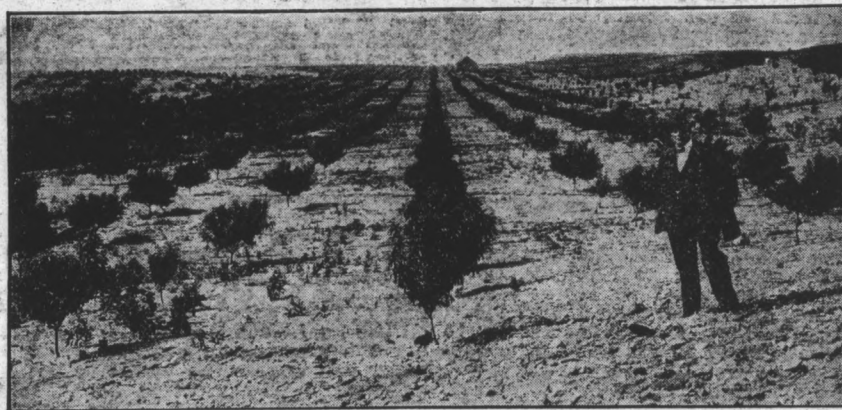
The hydraulic press has put the cider industry on a paying basis. The price for making cider ranges from one to three cents per gallon; one day's run of 4000 gallons say, at two and a half cents per gallon would make the operator \$100. Treated cider sells as a soft drink at 30 to 70 cents per gallon; 100 bushels of apples unfit for market could thus be made to yield between \$200 and \$300 with very little labor.

Some of the useful products which come from the apple are vinegar, cider syrup, cider jelly, apple butter, pasteurized cider, etc. Below is given a brief description of these products.

## Vinegar.

The process of transforming apple juice into good cider vinegar is easily accomplished, and can be produced in every household where the necessary temperature can be controlled. For vinegar, the wind-falls may be used or the pomace of later pressings may be re-pressed, but for a superior article only sound, ripe apples should be used.

Common experience teaches that if cider is exposed to the air it will soon ferment. Now, by proper handling after the first stage of fermentation the cider may be converted to vinegar in a very short time. It is well understood now, that fermentation is the work of myriads of bacteria that infest the cider and behave very much after the manner of yeast in bread making. Cider, in changing to vine-



A Promising 250-acre Orchard in Leelanau County. Rows of Peaches and Apples a Mile Long.

gar, passes through two stages: First, the sugar of the juice is changed to alcohol. Next, the alcohol is changed to acetic acid or vinegar by further fermentation.

## The Evolution of the Cider Press.

Next in line came the screw and knuckle joint presses; which served the apple grower long and faithfully. But these, too, came to the turn of the road and were supplanted by modern hydraulic presses.

The old style screw press of the small type is still used to some extent where it is desired to make a small amount of cider at odd times for private use. These presses will turn out from 40 to 100 gallons daily and are sold at prices ranging from \$10 to \$20.

The modern hydraulic press is equipped with a piston working in a

## Cider Syrup.

Evaporation is another method of treating cider. By this process the volume is greatly reduced and the resultant product is so concentrated that it will remain in a perfect state of preservation for years. In this way two great advantages are secured: First, the product can be stored in much less space, and, second, it will keep indefinitely. When the cider has been reduced in volume in the ratio of five gallons to one the product is of such consistency as to be suitable for handling and in no danger of fermenting. This product is



called cider syrup, or boiled cider, and is widely used in making apple butter, mince pies and the various products of the culinary art.

#### Cider Jelly.

When evaporation is carried further, reducing the volume in the ratio of about seven to one, the product is known as cider jelly. In this form it is quite acceptable to those who like a jelly somewhat tart. By adding sugar it may be made to please the taste of those who like jelly of a milder, sweeter taste. The jelly may be flavored to suit various tastes by using any flavoring material that will not evaporate readily. Apple jelly is usually marketed in glass jars holding two or three pints.

#### Apple Butter.

One of the chief uses of cider syrup is in the making of apple butter. Everybody knows the "goodness" of apple butter. Fond memory will hark back to "bread, butter'n apple butter." This apple product, combining as it does, the essentials of the best fruit known to man, well deserves high rank as a staple food and table delicacy. The slow, laborious method our mothers used—making apple butter in a big copper kettle—has given place to the new steam cooker. A copper coil quickly and easily converts a quantity of pared apples and cider syrup to a clearer, smoother and more delicious product than even mother was able to give us for our "piece." In the old method heat caramelized some of the sugar, which gave the butter a dark color and a burnt sugar taste. By the use of the simple, inexpensive apple butter cooker these objections are overcome.

#### Pasteurized Cider.

Still another method of treating cider is the process known as pasteurization. Many attempts have been made to preserve cider sweet and pure, just as it comes from the press. The use of preservatives is very unsatisfactory and often dangerous. It is well known that a fruit juice can be preserved by heating it and sealing it up, but the chief difficulty in this is to heat to the proper temperature and at the same time exclude the air. A temperature of 160 degrees F. is sufficient to destroy bacterial life and prevent fermentation, but a temperature higher than 170 degrees F. will give to the cider a baked apple taste, rendering it undesirable as a drink. A simple pasteurizer will perfectly sterilize, filter and seal up cider so that it will keep indefinitely and retain the same flavor that it had as it came from the press. The health giving properties and the medicinal qualities of pure apple cider give rise to a popular demand for the product of a pasteurizer. Pasteurized cider retails at prices that net the cider maker a handsome profit.

#### STARTING A NEW NUT INDUSTRY.

The English walnut is a great industry in some localities for the simple reason that some observing farmer of by-gone ages picked out the best trees from among thousands of wild trees and propagated them. That is the way we get the Baldwin apple, and all our other fruits. You would be rich if you had an orchard of trees like the best black walnut growing in America, or the best English walnut, or the best hickory, or the best northern pecan, or the best hazel nut, or the best persimmon. The trouble is that we do not know yet where these trees are, but they are probably growing on the farms of some of the readers of this paper. We now know how to propagate these trees, so all that is needed is to find parent trees. Can't you help? If you know of a promising tree, send a description of it and its bearing history, along with some of the nuts, to Dr. W. C. Deming, secretary of the Northern Nut Growers' Association, Georgetown, Conn. You may get one of the \$5.00 prizes that the Association is of-

fering for the best hickory, walnut, or hazel tree that is an improvement on those already known. The Northern Nut Growers' Association is doing pioneer work in this line, and the results of the competition will be reported in the Michigan Farmer.

#### FALL BEARING STRAWBERRIES.

W. F. Tindall, of Charlevoix county, is growing and marketing fall strawberries successfully. Since the twenty-eighth day of July, he has picked and sold 700 quarts of berries, the last being marketed October 11, and these berries have brought him 25 cents a quart, which is a somewhat better price than that ordinarily paid for strawberries. The plants were set out about the first of May. They are of the Frances variety, and cover a third of an acre. The blossoms were kept picked until the latter part of July, when the first berries were harvested. The berries are large, well formed and of glossy appearance. They are firm and have an excellent flavor even in cold weather. The indications are that Mr. Tindall will be able to make several more pickings from the patch before the season closes. He has been trying different varieties of fall bearing berries, and believes that he has at last hit upon the right one for his section of the state.

Mr. Tindall also raises strawberries for the regular season, and has evolved a system of irrigation which is exceptional because of the results that it produces. His strawberry patch has been piped with overhead pipes, and each night a fine mist is thrown upon the plants. As a result of the irrigation system, he harvests much larger and finer berries than his competitors, also secures a better return per acre, and in consequence reaps a profit that is in keeping with the extra labor performed.

#### TROUBLE DEPARTMENT.

##### Pitting Russet Apples.

Will someone kindly give a good method for pitting Russet apples for spring use?—Subscriber.

Russets or other varieties of apples are quite successfully pitted in the same manner as potatoes. This method consists of digging a shallow level trench six inches below the surface of the ground in which straw should be spread so that the apples will not rest on the ground. Then the apples should be placed in the trench in a conical or triangular pile, which should then be thoroughly covered with straw or some other mulching material, and a good covering of earth put on top of that. Occasionally, however, this method will cause the apples to have an earthy taste. To prevent this, a ridge pole should be set over the pile of apples in forked sticks and a roof of boards made in such a way that there will be an air space over the apples. The boards should be thoroughly covered with straw and earth.

Another good method of burying apples is to pack them in boxes and bury the boxes. The boxes can be buried separately so that when one is wanted the others need not be disturbed. It is advisable to use straw on all sides of the box before covering with earth. The latter method is an advantage because it does not necessitate the opening of a large pit of apples when just a few are needed.

Insects and diseases destroy over twenty per cent of the fruit crop of this country every year.

#### WANTED.

##### Hairy or Winter Vetch.

We have a machine for separating Vetch from Rye and are in the market for all grades. Will make offers upon receipt of samples. Address, Alfred J. Brown Seed Co., Grand Rapids, Mich.—Adv.



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For the benefit and convenience of our subscribers we have arranged the following list of papers on which we can save them money. Besides the money, they save the trouble and expense of sending each order separately.

**EXPLANATION**—The first column is the regular subscription price of the other papers. The second column gives our price for a year's subscription to both the other paper and the Michigan Farmer. The third column gives the price at which the other paper may be added when three or more are ordered. If price is not given in this column, ask us. Example: We will send the Michigan Farmer and Detroit Semi-Weekly Journal for \$1.15. If, for instance, McCall's Magazine also is wanted add it at 40c making total \$1.55. Any number of papers may be added at third column price if they are for a subscriber to the Michigan Farmer.

If you want the MICHIGAN FARMER THREE YEARS and the other papers one year add 50c to the second column price. We do not send samples of other papers. Address the publishers direct.

Send all orders to the Michigan Farmer or through our agents.

We will take your order for any publication you want whether listed or not. Write for rates.

**NOTE**—So long as a subscriber is on our list for one or more years he may order at any time any publications at third column price. So that a three or five year subscriber does not lose the advantage of the reduced price if he wants any other paper next year or the year after.

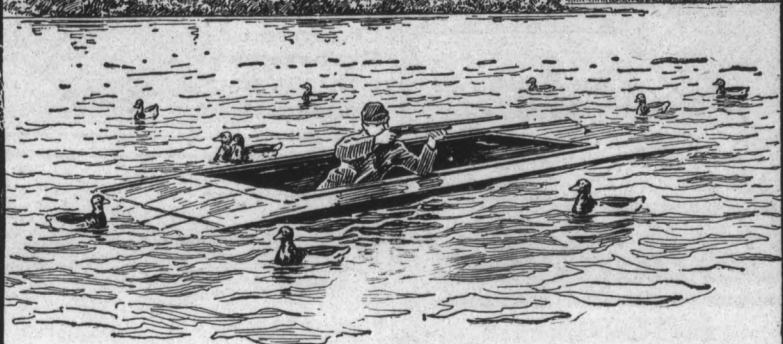
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Absolutely positive action; divided recoil; ability to shoot light or heavy loads without adjustment of mechanism; absence of projections or exposed moving parts to catch in clothing or brush or injure hands; absence of screws and pins to collect rust or dirt or work loose; two-part, simple take down and no loose parts—these are some of the valuable features that make the Winchester Self-Loading Shotgun superior to others of similar type. It is a 12 gauge, and weighs only about 7 3/4 pounds. Can be used as a repeater or single loader at will. All metal parts are made of nickel steel, which has about double the strength of the steel used in shotguns of other makes. Investigate it.

A GUN UNEXCELLED FOR DUCK SHOOTING

## Make the Lazy Hens Lay

Just as easy to get eggs in cold weather as in spring. Winter should be the best laying, best paying months—will be if only you will start at once feeding

## Poultry Regulator

Nature's own perfect tonic and conditioner. Your hens should be entirely through the moult. If they have not begun to lay, it is a sure sign that they need Pratt's Poultry Regulator—the one tonic that stirs up your idle, lazy hens, makes them hunt a nest and get busy producing eggs.

Don't delay. Go to your dealer's at once and ask for Pratt's. Makes no difference whether you have ten hens or ten thousand—they need Pratt's. A record of 42 years back of every package and sack. Satisfaction guaranteed or your money back.

In 25c packages up, big 25-lb. pails at \$2.50. At 40,000 dealers. Pratt's Roup Remedy is a guaranteed cure. Now is the danger season for Roup and Colds. Don't risk losing your laying birds, but get a box of Pratt's, 25c and 50c.

**PRATT FOOD COMPANY**

Philadelphia Chicago Toronto

### POULTRY.

**HERE'S YOUR OPPORTUNITY** Fawn and white runner ducks and drakes or pure white runner drakes, best in U. S. RIVERVIEW FARM, R. No. 8, Vassar, Mich.

**FOR SALE**—Rose Comb Brown Leghorn Cocker's \$1 each. Trios of Pekin ducks not akin. CLAUDIA BETTS, Hillsdale, Michigan.

**Pekin and Indian Runner Ducks**—Stock and prices will please you. H. V. HOSTETTER, Route No. 1, St. Johns, Mich.

**BRO. FARMERS.** We have just what you want in Barred and White P. Rock chicks. From extra laying strain, large handsome fellows. Farm raised. For prices write. RIVERVIEW POULTRY FARM, Box 798 Union City, Michigan.

**Barred Rocks**—All prize winners and breeding stock at half price. Won 20 prizes last winter. W. C. COFFMAN, R. No. 6, Benton Harbor, Mich.

**ROSE COMB BLACK MINORCA COCKERELS** and **W. HENS** for sale. Fine birds. Low prices. E. D. VAN NATTER, R. D. 3, Standish, Michigan.

**SILVER LACED GOLDEN and WHITE WYANDOTTES**—A fine lot of White cockerels weighing 6 to 8 lbs. at \$2 and \$3 each. Browning's Wyandotte Farm, Portland, Michigan.

**S. L. WYANDOTTE EGGS**—From great laying strain of Blue Ribbon Birds. Satisfaction guaranteed. F. E. COWDREY, Ithaca, Mich.

**PINE CREST WHITE ORPINGTONS**—The great winter layers, winners at State Fair, pullets, cockerels, hens, also collie puppies. Mrs. Willis Routh, Pine Crest Farm, Royal Oak, Mich.

**PLYMOUTH Rock cockerels** 5 to 11 lbs., according to age, hens 5 to 8 lbs., 15 eggs \$1. Mammoth Bronze Tom Turkeys 8 to 35 lbs. according to age. Price \$8 to \$25. 10 eggs \$3. A. E. ORAMTON, Vassar, Mich.

### DOGS AND FERRETS.

**FOX, COON AND RABBIT HOUNDS** Broke to gun and field. Prices right. Fox and Coon hound pups \$5 each. Stamp for reply. H. C. LITTLE, Fredericksburg, Ohio.

**Trained Running Fox Hounds**—30 Fox and Coon hound pups, 500 Ferrets, Poles. Send stamp. W. E. LEOKY, Holmesville, Ohio.

**FOR SALE:** Thoroughbred Scotch Collie puppies from pedigree stock. Fine marked. Natural heelers. Price \$5 & \$8. E. H. Haller, Box 127, Hillsdale, Mich.

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

**T. B. HUDSPETH,**  
Sibley, Jackson County, Mo.

2000 Ferrets for sale. Write for price list. It's free. Guarantee safe delivery. DeKleine Bros., Box 41, Jamestown, Mich.

**White and Brown Ferrets for Sale** Prices free. Will drive rats, rabbits, minks, and all small animals out of holes. Burt Ewell, Wellington, O.

**BOOK ON Dog Diseases AND HOW TO FEED**  
Mailed Free to any address by the author  
**H. CLAY GLOVER, V. S.**  
118 West 31st Street New York

**Crown Bone Cutter**  
FEED your hens cut green bone and get more eggs. With a Crown Bone Cutter you can cut up all scrap bones easily and quickly, and without any trouble, and have cut bone fresh every day for your poultry. Send at once for free catalog. WILSON BROS., Box 251, EASTON, PA.

**E. D. TOWNSEND & SONS, NORTHSTAR, MICH.** Can furnish a few families with their winter supply of honey, in gallon syrup cans by parcel post. Those wanting to buy direct from the producer should write them before their crop is sold.

## Fattening Turkeys, Ducks and Geese.

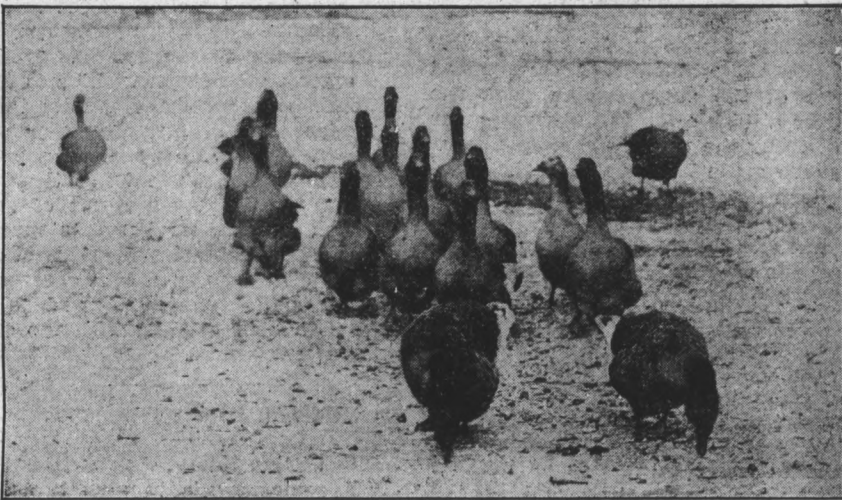
It is a more difficult task to properly fatten turkeys than it is to fatten other kinds of poultry, for the former are subject to some troubles when heavy feeding is attempted that the latter are not bothered with. Turkeys contract bowel trouble very easily when their feed is increased, and when they are being fattened particular care should be given in the selection of the feed, and the feeder should be on the lookout constantly for this ailment. There is danger in feeding too much corn because it is apt to bring about this trouble and for this reason it is best to substitute a feed of wheat frequently in place of it. The habit so many have of carelessly allowing the turkeys to run in the corn field during the fall months, where they always eat an over-amount of green corn, is a fatal one. Green corn is the next thing to poison for turkeys, for it is sure to bring on bowel trouble, and there is no remedy that will counteract the fatal effects that it has on the turkey's digestive organs. A little green corn may not have any serious effects, but the safe thing to do is to prevent the turkeys from forming the habit of ranging in the corn field. Start them out for a

cessive fat. It will not pay to place thin turkeys on the market as they will not only bring a less price than fat ones per pound, but there will be a loss in unfinished turkeys when the cost of finishing them at this season of the year is so little.

Ducks and geese are more easily fattened than turkeys as the latter are such greedy eaters. It does not fret a duck or goose to be confined during a fattening period, as it does a turkey, and for this reason they can be fattened in a short time. Two or three weeks are long enough if the proper care and feed are given them. Feed a mash composed of corn meal, ground oats and wheat moistened with milk. If the milk is not obtainable very good results can be gotten by using boiling water in its place. Allow the mixture to cool before it is fed. In addition to this feed give some fresh green feed or chopped vegetables about three times a week with a little ground meat scraps. Provide plenty of grit and fresh water also.

### Keep Troughs and Dishes Clean.

If the food is fed in clean troughs or dishes each time, the fowls will keep in better health and fatten faster, although ducks and geese do not seem



### Geese Are Easily Fattened.

few days on a route that will lead them away from the field and they will before long learn to go that way of their own accord.

### A Preventative of Bowel Trouble.

In order to make sure that your birds will not contract this serious trouble give to each poult twice a week five to eight drops of turpentine in an ounce or so of sweet milk. In addition to this, about every other week give each of them a teaspoonful of Epsom salts. This treatment will not only do a great deal towards keeping the birds healthy but it will assist them in making better use of the food they eat and thus produce more rapid gains in weight.

Chickens should be confined in a small lot or coop so they can not move about when they are being fattened, but this plan would result fatally if attempted with turkeys. They should have free range and plenty of exercise if they are expected to keep healthy, and none but healthy birds can stand to be fattened very much. It has been our experience that if the turkeys are kept perfectly healthy from the time they are hatched until the time they are fattened, it will greatly assist and hasten the process of their development for the market.

### Fattening Turkeys for the Holidays.

If the turkeys are to be sold for Thanksgiving the grain ration should be increased gradually during October, so that by the middle of November they will be on the full feed. Turkeys are very fond of wheat and this kind of feed does not have the ill effect upon the liver that corn very often does. Arrangements should be made to dispose of the birds as soon as they are finished for they do not remain healthy any great length of time after they are filled out with ex-

cessive fat. It will not pay to place thin turkeys on the market as they will not only bring a less price than fat ones per pound, but there will be a loss in unfinished turkeys when the cost of finishing them at this season of the year is so little.

In about fourteen days, if the birds have been properly fed and cared for, they should be in fit condition for the market and should bring such a price that will pay well for the extra trouble required to carry them through the fattening period. It may be that they are ready to market before the two weeks are up. At any rate they should be sold as soon as they are plump and show other signs of being well fattened, for they are such greedy eaters they will eat the profits up if kept very long after the time they should be disposed of. In order

Indiana. C. H. WHEATLEY.

### GETTING RID OF THE ROOSTERS.

Poultry journals claim that eggs are so much better if there is no rooster or cockerel with the flock after the breeding season is over. So last spring we concluded to try the experiment for the first time. Our flock of hens is not a very large one, and they have the run of a large yard and are fed a variety of food and were laying good when we disposed of the last rooster. In a few days the flock began to drop off in egg production, and in the course of a week the production of eggs dropped to about one-half, and the hens wandered about the yard and actually seemed to be unhappy and lonesome. After the expiration of about one month, with no increase in egg production, another rooster was procured and the hens plainly showed their contentment, and soon began to lay the normal amount of eggs; and have continued to do so ever since. I would like to know if any other reader has had any experience along this line. JOHN JACKSON.



## Veterinary.

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

Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published. Many queries are answered that apply to the same ailments. If this column is watched carefully you will probably find the desired information in a reply that has been made to someone else. When reply by mail is requested, it becomes private practice, and a fee of \$1.00 must accompany letter.

**Contagious Abortion.**—I have abortion in my herd and would like to know the easiest and best way to stamp it out, and I would like to know the cause of abortion. I have been farming over 30 years and have escaped it thus far. J. H. Warren, Mich.—Contagious abortion is due to a germ and is often times introduced into a herd by a service bull, or purchasing an animal suffering from the disease. You will find it far from an easy matter to stamp out of your herd. First separate all aborting cows in isolated building, yard or pasture and shut out all other breeding animals from mixing with them. It is also important to have separate attendants and separate utensils; besides, no excrement or litter should be moved from their quarters to other parts of your farm. Scrape and wash the back part of stall and gutter with a solution made by dissolving 5 ozs. of blue stone in each gallon of water. Dissolve 1 dr. corrosive sublimate, 1 oz. of alcohol, 1 oz. of glycerine in a gallon of water and use as an injection into vagina, also wash the back parts of cows every day, or you may wet the hind parts of cow with one part carbolic acid and 99 parts water. Abortifacient cows should not be bred for two or three months after calving. Thorough cleanliness and disinfection about your premises will greatly aid in stamping out this ailment. By giving cows 20 or 40 drops of carbolic acid in a pint or two of water and mixed with feed, is supposed to help to prevent abortion. Giving methylene blue is also recommended by some Vets. and experiment stations. No matter what you do in the line of treatment, it must be thorough, and even then you may fail in cleaning up your herd.

**Nasal Catarrh.**—I bought a carload of cattle some time ago; most of them have a mucus discharge from nostrils and some water drips from eyes. J. S. Mason City, Mich.—Mix together equal parts ground gentian, ginger and bicarbonate soda, and give each one two tablespoonfuls at a dose in feed three times a day. Wash out eyes with a saturated solution of boric acid twice a day.

**Weakness.**—I have a sow that farrowed 11 nice pigs, but every one of them shake and tremble badly and are hardly able to stand. Two of them died, but the sow appears to be well. C. B. Reese, Mich.—Change sow's feed, keep her pigs in a dry, warm place that is well bedded; give sow 4 grs. of quinine at a dose three times a day. Give each of the pigs a few drops of whiskey two or three times a day.

**Sick Turkeys.**—Some of my turkeys have died after drooping around a few days. They refuse to eat, excrement is yellow, but they drink lots of water. I might add that they eat large quantities of apples. L. H. Dryden, Mich.—Dissolve a tablespoonful of sulphate of soda in a gallon of water and let them drink what they want of it. Change their feed and boil the water. Discontinue feeding them apples for I fear they may suffer from acid poisoning.

**Injured Shin.**—I have a colt that hurt his shin while running in pasture some three weeks ago; have applied coal tar disinfectant wash, but this does not seem to reduce swelling. R. P. Gaines, Mich.—Apply one part tincture arnica and five parts water to thickened legs three or four times a day.

**Scours.**—I have a mare that has been troubled with looseness of the bowels since last winter and would like to know what to give her. J. T. Memphis, Mich.—Give her a teaspoonful of powdered sulphate iron, a tablespoonful of ground gentian, a tablespoonful of ginger at a dose in feed three times a day. A case of this kind can be benefited more by proper feeding and watering than by drug-ging her.

**Wart on Neck.**—Preventing Cow Sucking Herself.—Have a colt three years old with wart on side of neck, which I would like to have removed. Some time ago I noticed an inquiry asking for remedy to prevent cow

sucking herself. I have been very successful in preventing it with a piece of No. 9 wire about six inches long, bent in shape of letter "C" fastened in nose much like bull ring, with points sharpened. E. S. Lenox, Mich.—Cut wart off, apply acetic acid daily until it disappears. I fail to fully understand how the wire could be fastened in nose and prevent her sucking herself and not interfere with grazing or eating other food.

**Whistler.**—I have a mare which had distemper ten months ago, and it left her throat in rather bad shape. Since she had this attack she coughs some and whistles when exerted and it is a little worse in damp weather. She receives good care and is well fed. B. L. Midland, Mich.—Apply one part tincture iodine to three parts camphorated oil to throat three times a week. A surgical operation might relieve her, but it is doubtful about drugs helping her much.

**Chronic Heaves.**—I have a ten-year-old horse that took cold last April, has coughed more or less ever since and has had heaves for some time. Have had him treated by a Vet., his teeth are good, glands of throat are some swollen, and he makes a rattling noise when breathing. H. J. H. Mt. Clemens, Mich.—Apply one part tincture iodine and three parts camphorated oil to throat once a day. Give him 1 dr. powdered lobelia, 1 dr. of ground nux vomica, 2 drs. ground gentian and ½ oz. Fowler's solution at a dose in soft feed three times a day. Feed no clover, no badly cured fodder, very little bulky food; keep his stable clean, well ventilated, not forgetting to let in plenty of fresh air. Furthermore, he should have some exercise every day.

**Roarer.**—Asthma.—When I exert my 15-year-old mare she seems to choke, tremble violently and is unable to breathe. I am inclined to believe she has heaves, but this is different from all other cases I have yet known. J. G. D., St. Charles, Mich.—This is a case requiring surgical assistance, therefore you had better call a competent Vet. who has had experience in operating on roarers. She should be fed no clover, or musty, badly cured fodder. Give her ½ oz. of Fowler's solution, ½ dr. ground nux vomica, 1 dr. powdered lobelia, 2 drs. ground gentian at a dose in feed three times a day.

**Cribbing.**—Since last June my four-year-old horse has been cribbing and I would like to know if she can be cured. G. F. E., Plymouth, Mich.—Crib biting is a vice usually the result of indigestion, or it is contracted by imitation when an animal is idle. Remove manger and things that he is likely to get hold of, place his feed box on floor and make him stoop down to eat and drink. Also apply strap around neck, preventing him sucking wind. Give him 1 dr. ground nux vomica, 2 drs. ground gentian and 1 oz. cooking soda at a dose in feed twice a day.

**Worms.**—Will you please tell me what to do for a horse that is bothered with worms? R. N. L., Allegan, Mich.—As you doubtless know, santonine is the best vermicide known, but it is very expensive, especially since the war broke out. Mix together one part powdered sulphate iron, one part salt, one part ground wormseed, five parts ground gentian and give a tablespoonful at a dose in feed two or three times a day.

**Lice on Calves.**—My calves are troubled with lice and I would like to get rid of them before I stable my cows. R. B. Grayling, Mich.—Drop 10 ozs. of crushed stavesacre seed in two gallons of boiling water, let it simmer for two hours, strain, fill with water to original two gallons, then apply to lousy calves three times a week. One application should kill nearly all the lice, but these cases should be followed up, or you can safely use any of the coal tar preparations that are regularly advertised in this paper.

**Fungus Bunch.**—A two-year-old colt got cut while in pasture two months ago; wound healed, leaving a large bunch of proud flesh in wound, which I have been trying to reduce with iodine and caustic remedies. J. F. M., Brown City, Mich.—Either burn it off with a red hot iron, or cut it off, then apply equal parts oxide of zinc, powdered alum once a day.

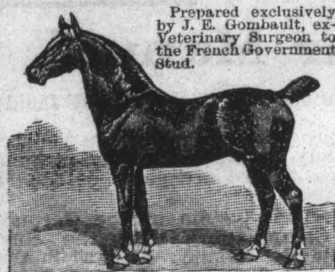
**Barbwire Cut—Enlarged Joint.**—My three-year-old colt has a thickened joint, the result of barb wire cut, and I would like to reduce it. A. H. S., Marion, Mich.—Apply one part iodine and four parts powdered alum to wound on coronet once a day and apply one part iodine and nine parts fresh lard to fetlock joint three times a week. This kind of a bunch is troublesome to reduce.

**Obstructed Teat—Hard Milker.**—I have a cow with lump the size of a pea in milk passage of teat; used iodine with some success, but it made the teat so sore that I could not get near her. I also have a Holstein cow

(Continued on page 419).

## Horse Owners Should Use GOMBAULT'S CAUSTIC BALSAM

The Great French Veterinary Remedy. A SAFE, SPEEDY & POSITIVE CURE.



SUPERSEDES ALL CAUTERY OR FIRING.

Impossible to produce any scar or blemish. The safest best Blister ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

WE GUARANTEE that one table-spoonful of Caustic Balsam will produce more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

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No blistering or loss of hair. A Signed Contract Bond to return money if remedy fails on Ringbone—Thoroughpin—SPAVIN—and ALL—Shoulder, Knee, Ankle, Hoof and Tendon Disease.

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Druggists everywhere sell Save-The-Horse WITH CONTRACT, or we send by Parcel Post or Express Paid.

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Ellis Engines develop more power on cheap lamp oil than other engines do on high-priced gasoline. Will also operate successfully on distillate, petrol, alcohol or gasoline. Only three working parts.

have patent throttle giving three engines in one; forced-feed oil; automobile type muffler; ball-bearing governor adjustable while running and other exclusive features. MAKE US PROVE IT—Every engine sent on 30 days' approval. 10-year Guarantee. Special factory prices on all sizes. Thousands of satisfied users. Write for big new 1914 catalog and special discount prices. We Pay Freight. ELLIS ENGINE CO., 110 Mallett St., Detroit, Mich.

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It runs on kerosene (and oil), gasoline, distillate and alcohol without change in equipment—starts without cranking—runs in either direction—throttle governed—hopper and tank-cooled—speed controlled while running—no cams—no valve—no gears—no sprockets—only three moving parts—light weight—easily portable—great power—starts easily at forty degrees below zero—complete ready to run—children operate them—low factory prices based on enormous output—30 day money-back trial—10-year iron clad guarantee. Sizes, 1 1/2 to 18 horsepower. Send a postal today for free catalog which tells how Sandow will be useful to you. No go-between. Protect agents' and middlemen's commissions by dealing direct with factory. Detroit Motor Car Supply Co. 164 Canton Ave., Detroit, Mich. (602)

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2 to 22 H.P. Standard for all farm and shop work for 27 years. Recommended by users in all parts of world. No cranking; Long wearing; Steady power. 60 Days Free Trial. 5-Year Warranty.

Engines shipped ready to work, easy to start and run. 2 H.P., \$34.95; 4 H.P., \$49.75; 6 H.P., \$59.35; 8 H.P., \$69.55; other sizes proportionally low. Catalog Free.

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Screenings, Salvage Grains Wholesale prices Bartlett, Co Jackson, Mich

HOG FEEDS, SALVAGE Bartlett, Co Jackson, Mich.

ONE HUNDRED HEAD Of Stock Cattle Steers and Heifers ready for to sell at once. Five cars of two-year-old steers will be ready for to sell Oct. 15, 1914. J. B. GARDNER, Cadillac, Michigan. L. B. 437.

## BREEDERS' DIRECTORY.

CATTLE.

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GEO. B. SMITH & CO., ADDISON AND SOMERSET, MICHIGAN.

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Strains represented consist of Trojan Ericas, Blackbirds and Prides, only. Black Quality Ito, a bull of rare individuality and merit, heads the herd. WOODCOTE STOCK FARM, Ionia, Mich.

**AYRSHIRES**—One of the foremost dairy breeds. The most economical milk producers. Calves for sale. White Leghorn cockerels; Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

**FOR SALE, 3 REGISTERED GUERNSEY BULLS.** Cheap if taken soon the best breeding yet. Write JOHN EBELS, Holland, Michigan.

Guernseys. Bulls from 15 mos. down. From Imported Sire and Dams in A. R. test. Excellent breeding, prices reasonable. On farm of President Snyder, M. A. C. Address P. E. Noble, Manager, R. No. 8, Lansing, Mich.

We have for sale a number of pure Guernsey cows, heifers and bulls, also Berkshire hogs. VILLAGE FARM, Grass Lake, Michigan.

Guernseys—Famous May Rose Strain. A select herd. Tub. Tested. Several A. R. Cows. J. K. Blatchford, Windermere Farm, Watervliet, Mich.

MILO D. CAMPBELL. CHAS. J. ANGEVINE.

## BEACH FARM GUERNSEYS

To whom it may concern: I have just completed a tuberculin test of 80 head of Beach Farm Guernsey stock, not one of which showed the least sign of reaction. Signed Dr. Thos. L. Bott, Vet.

Pure Bred Bulls and Grade Heifers from the above stock for sale

CAMPBELL & ANGEVINE, COLDWATER, MICHIGAN.

**FOR SALE**—Two registered Guernsey Bulls, one four years old, kind and gentle, weight 1600; one three months old. FRED T. SACKRIDER, R. D. No. 1, Parma, Mich.

## FOR SALE.

**BIGELOW'S HOLSTEIN FARMS** Three Fine Young Bulls 8, 9 and 10 months old, from 18, 20 and 20 pound cows, each one giving over 10,000 lbs. milk a year—prices, \$100, \$125 and \$150. The two oldest nicely marked—the other has black back and sides, with some white. DeKol 2nd, B. B. 3rd, and King of the Pontiacs' blood. BIGELOW'S HOLSTEIN FARM Breedsville, Mich.

## \$25 DELIVERED.

Handsome Bull Calf seven-eighths white. Thoroughbred, but not eligible to registry. By 24-lb. butter bull, out of 12,000-lb. milk cow.

ROUGEMONT FARMS, DETROIT, MICH.

ESPANORE FARM, Lansing, Michigan. Offers for sale

## Two Holstein Bull Calves

Excellent breeding and fine individuals. Write for particulars.

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Holstein-Friesian Breeder—The best families of the breed represented. D. D. AITKEN, Flint, Michigan.

I Will Buy and Sell Holstein Cattle on commission. Large acquaintance among the breeders. Bank references, Freeman J. Fishbeck, Howell, Mich.

For Sale Pure Bred Holstein Heifers and Bulls.

De Kol and Landry Girl Butter Boy strain. LEWIS NELLER, - Lansing, Mich.

## "Top-Notch" Holsteins.

Extra large fine young bull, ¾ white, born Oct. 4, 1913. Dam has official record of 29,40 lbs. butter in 7 days, 117.50 lbs. in 30 days. Sire's dam is a 22.64 lb. 2-yr. old daughter of a 30.59 lb. cow.

MCPHERSON FARMS CO., Howell, Michigan.

REGISTERED HOLSTEINS—Herd headed by Albina R Bonte Butter Boy No. 3324, whose dam has semi-official yearly record. Butter 802 lbs. Milk 1832 lbs. as a 2-yr. old. No stock for sale. W. B. Reader, Howell, Mich.

Holstein-Friesian Cattle. Young bulls ready for service out of A. R. Cows. Satisfaction guaranteed or money refunded. Jones & Lutz, Oak Grove, Mich.

Hazel-Let Herd Sires—Line bred Hengerveid DeKol 30 lb. dam. Line bred Pontiac Korndyke 19 lb. 2-yr. dam. Service fees \$50 & \$25. L. H. McDaniel, Redford, Mich. Breeders' Directory continued on page 419.



# Make Your Own Selection.

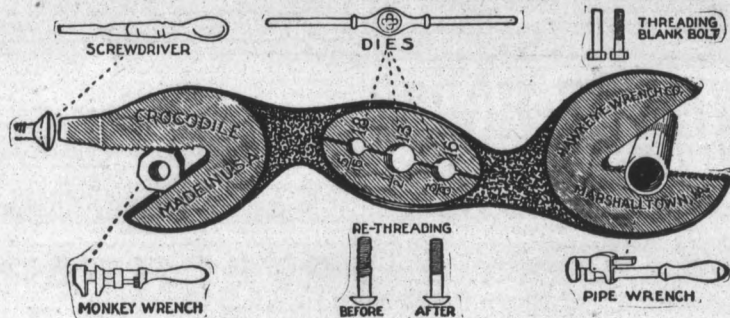
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This number deals with the actual progress of the war up to date. It consists of 120 pages of text, with many remarkable photographs of actual war scenes, maps and drawings. Here are some of the 25 articles:

The Men Behind the French Guns; The System of the German Army; The Day's Work of a Soldier; Campaigning with the Russians; the Three-Cornered War in Poland; "Tommy Atkins" in the Field; With a Prussian Dragoon Regiment; Turcos and the Foreign Legion; Kitchener in Action; The Rush to Paris; England's Indian Army; "Atrocities" in War; Kiao-Chau; Canada's Part in the War; England's Control of the Sea; What a Modern Sea Fight is Like.

We have been trying to find something that would give our subscribers a good idea about the war from a reliable source, and have found it in this WAR MANUAL. The Second Edition is quite up to date and would be cheap at \$1.00. We will Send it Free for Two Subscriptions to the Michigan Farmer at the special bargain price of three years for \$1.00, or 50c for one year. Cloth bound. Postage Paid.



### Farmers Ideal Combination Wrench

Six Handy Farm tools in one. A pipe wrench, nut wrench, a screw driver and three dies for cleaning up and rethreading rusted and battered threads. Dies fit all standard bolts used on standard farm machinery. Requires no adjustment, never slips. Will work in closer quarters than any other wrench. Every farmer should carry one of these handy little wrenches on a binder, reaper, mower, etc. They are light, strong, compact and easily carried in the hip pocket.

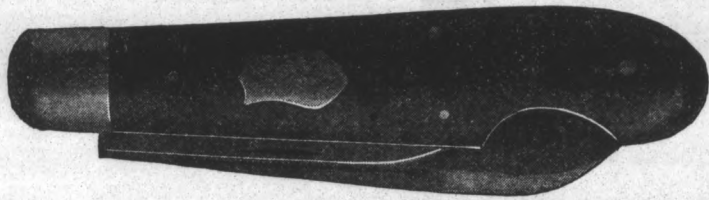
Given Free for 2 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.



### BOYS WATCH.

Every boy, young or old, would be proud to carry one of these watches. It is 16 size, with a nickel case. Stem set and wind. Regular watch movement with hair spring. Guaranteed by the makers and repaired free of charge for one year, if given ordinary care. Any boy who really wants a watch can easily earn one in one afternoon.

Given Free for 3 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1 or one year for 50c.



An easy opener. Open it with gloves on. Made of razor steel, fully guaranteed in every way; a fine ebony handle; brass lined; German silver tips; a dandy for man or boy.

Given Free for 3 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.



### Myers' "Awl for All"

LOCK STITCH SEWING AWL, with straight and curved needles. Makes a lock stitch with one thread and one operation. For harness, sacks, canvas or any heavy sewing. Regular price of this awl is \$1.00.

Given Free for 2 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.

### Ideal Sewing Companion

A Handsome little velvet lined, gold lettered, embossed leatherette case with patent button fastener containing two very much needed little requisites for the woman's sewing or work basket. A Thread Pick for the picking or removing of basting threads and a Ripping Knife for ripping seams of garments. They have heavily nickle plated, chased and highly burnished handles. The Ripping Knife has three interchangeable finest Sheffield steel razor-like blades. This little Set DeLuxe is new, novel, practical; fills a long felt want in its field and will surely appeal in a very strong degree to every woman to whose notice it is brought. List price \$1.00.

Given Free for 2 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.

## A CAMERA ALMOST FREE.

### The Kind it is:

First, it is guaranteed in every particular.

It makes a picture 2 1/4 x 3 1/4. It loads and unloads in daylight with the Premo Film pack of 12 exposures, both time and snapshot. Fitted with automatic shutter. Has two finders.

Is very simple to load and operate. Complete instructions with every camera.

We will send one of these remarkable cameras FREE, all charges paid, for a club of three subscribers to the Michigan Farmer, made up of either kind, the Great Special Offer, three years for \$1.00, or one year for 50 cents. The subscriber's own may be one.



## GIRL'S WATCH.

We have given away several thousand boys' watches free, but until now we were never able to get the small size watch which would please a girl and keep good time, at a price that would make it easily secured by a girl. At last we have been able to make arrangements with a manufacturer of high grade watches to furnish us with an attractive six size watch, with jeweled lever movement, quick train, a white enamel dial, with second-hand. Pull out stem set. Nickle case, beautifully engraved, as per illustration. This watch is the smallest genuine watch of its value to be secured and has all the improvements to be found in watches of a higher grade. Besides being attractive and fully guaranteed, it is a thoroughly satisfactory time-piece.

Given Free for 4 subscribers to the Michigan Farmer, either at the special bargain price, 3 years for \$1.00 or one year for 50c.



### A Genuine German Razor

Not a cheap razor, such as is generally used as a premium. It is made of best steel, black handle, hollow ground 5/8-in. concave blade; honed and stropped ready for use. Guaranteed to give satisfaction.

Given Free for 2 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.



### Farmers Extra Quality Pocket Knife

Made by the famous Valley Forge Cutlery Co. Two blades made of best razor steel. Ebony handle. Brass lined and well finished throughout. Guaranteed to give satisfaction.

Given Free for 2 subscribers to the Michigan Farmer, either at the special bargain price, three years for \$1.00 or one year for 50c.



### Six Rogers German Silver Tea Spoons

These spoons are made of the same metal throughout and are guaranteed to last a life time. They can be kept looking bright by cleaning them with a good cleanser. The design is beautiful and the spoons are good enough to use on all occasions.

Given Free for three subscribers to the Michigan Farmer, either at the special bargain price—three years for \$1.00 or one year for 50 cents.



### Silver Plated Carving Set

Consists of Knife 10 inches long, and Fork 7 1/4 inches long. The blade of knife and prongs of fork are made of best cutlery steel. The handles are silver plated and stamped with a beautiful design. The plating is on white metal, therefore it cannot wear through and show brassy. This set is easily worth \$2.00.

Given Free for four subscribers to the Michigan Farmer, either at the special bargain price—three years for \$1.00 or one year for 50 cents.



## VETERINARY.

(Continued from page 417).

There is a hard milker and in using milking tube, it is not much help. R. E. D., Marine City, Mich.—The lump in teat canal will have to be cut out and this is work for a Vet. Drugs will not dissolve and absorb tissue of this kind. Dilate teat canal with a polished steel probe; this is the only way to make milking easier.

Indigestion.—I have a mare nine years old which is very thin, but is fairly well fed and not worked much. She was bred May 4 and so far as I can tell is safely in foal. J. H. J. S., East Saugatuck, Mich.—Mix together one part powdered sulphate of iron, one part ground wormseed, one part ground nux vomica, one part ground fenugreek, four parts ground gentian and give her a tablespoonful at a dose in feed twice a day.

Nail Puncture.—I have a five-year-old mare that got a nail in her foot October 19, and although I have kept wound well syringed out, she is yet very lame. H. H. K., Smiths Creek, Mich.—The foot should be kept clean and apply one part iodoform and five parts boracic acid to wound daily, covering sore with oakum and a cloth. It is too soon to expect pain to leave foot, in case of a severe puncture.

Garget.—Five weeks ago one fore quarter of my cow's udder blocked up; since then she has given less milk than usual and only recently the bag has become inflamed. O. H., Utica, Mich.—Apply extract of phytolacca to inflamed portion of udder once a day and give her a tablespoonful of fluid extract phytolacca at a dose three times a day. If it is the result of a bruise try to ascertain the cause and remove it.

Cow Gives Bloody Milk.—Last June my cow gave bloody milk from one quarter, but seemed to recover in a few days; now lately she gives milk that is mixed with blood and I would like to know what to do for her. H. P., St. Clair, Mich.—Are you sure that your cow does not injure and bruise udder, causing this slight hemorrhage? Bed her well and apply the following lotion three times a day: Dissolve 1 oz. of acetate of lead in a quart of water and add 2 ozs tincture arnica.

Cattle Have Ringworm.—I wish you would tell me what to do for cattle that are troubled with ringworm. The sores appear to be on face as well as body. M. McC., Unionville, Mich.—Apply tincture of iodine occasionally and they will soon get well.

Warts on Teats.—Some of my cows are troubled with warts on teats. R. B. C., Woodbury, Mich.—The warts that have necks should be cut off and apply olive oil freely twice a day after milking her.

Contagious Catarrh.—Can you tell us what to do for our chickens, for both young and old; their heads turn black, matter coming from eyes and nose, cause wheezing, great emaciation, and death. Either one or both of the eyes swell considerably, but usually the left eye is affected. They also have a very offensive odor. I have separated most of the sick from the healthy, but I am inclined to believe that nearly all of my fowls are going to become diseased. Mrs. W. F. D., Richland, Mich.—I am inclined to believe that your poultry suffer from contagious catarrh and when in the advanced stages is incurable; besides, it will not prove profitable to treat diseased fowls that are likely to infect well ones. Contagious catarrh usually spreads rapidly through a flock, especially if contagion is virulent and the disease is not easily eradicated from the flock. Exclude the contagion by every means that can be devised. If the swelling contains a thick pus or cheesy matter, open with a sharp instrument and apply iodoform. If the eyes are sore apply an eye lotion made by dissolving 15 grs. of boracic acid in an ounce of water. There are many other antiseptic remedies that are equally as good, such as equal parts peroxide hydrogen and water; or dissolve 16 grs. of permanganate of potash in a pint of water. The chickens should be well fed, some ginger and gentian mixed with their feed.

Mange.—I have a fox terrier pup eight months old that I am told has mange and I would like to know how to cure it. W. W., Copemish, Mich.—Mix one quart of sulphur, one-half part carbonate potash and four parts lard to sore parts of body three times a week and give him 5 drops of Fowler's solution of arsenic at a dose twice a day.

The Chicago Live Stock Exchange has passed the proposed substitute for the telegraph and telephone rule. The rule now adopted prevents members from sending prepaid telegrams or telephone messages or receiving messages sent collect. The penalty provided for live stock commission men violating the rule is censure, fine, suspension or expulsion.

## 10 HOLSTEIN BULLS FROM 1 to 3 YEARS OLD

Ten Bull calves, two to ten months old. Ten cows, Your Choice from my entire herd. Don't let anybody make you believe he can sell you a better bull for less money than I can. Don't delay the purchase of bull until the other fellow gets the one you want. Write me or come at once.

L. E. CONNELL, Fayette, Ohio.

## FOR SALE

Ready for light service from a 30-lb sire,

## HOLSTEIN BULLS

rich in the blood of Hengerveld De Kol, Frit and Hengerveld De Kol Butter Boy, and Pontiac Korndyke. Three his sons, King of the Pontiacs, and Pontiac Aggie Korndyke. Pedigrees on application. ED. S. LEWIS, Marshall, Mich.

## HATCH HERD REGISTERED HOLSTEIN-FRIESIAN

YPSILANTI, MICH., offers HERD HEADERS from choice A. R. O. dams and King Pontiac Jewel Korndyke, 50 dams in his pedigree average 31.25 pounds in 7 days. Average per cent of fat of three nearest dams 4.37. Sires in first three generations in his pedigree have 500 A. R. O. daughters. Prices reasonable. Make your own selection at Ashmoor Farms, Tecumseh, Michigan, R. F. D. No. 2, or address HATCH HERD, YPSILANTI, MICHIGAN.

## MICHIGAN HOME AND TRAINING SCHOOL

LAPEER, MICHIGAN  
Breeder of High Grade Holstein Cattle. Lists and prices upon application.

IXI-ON FARMS offer choice bred young Holstein Bulls, \$75 to \$100 each, with all papers. S. O. RATHFON & SON, R. F. D. 5, Ypsilanti, Mich.

SPECIAL \$40 each buys 3 registered Holstein bulls, smooth old. Delivered free, safe arrival guaranteed. Good enough to use in grade herd. Quick sale only, worth more, need the milk. Hobart W. Fay, Mason, Mich.

First Draft for \$125 buys two unregistered 10 mos. old Holstein Heifers, crated 2, c. b. CHAS. S. RILEY, R. No. 1, Metamora, Mich.

## Lillie Farmstead Jerseys

Bulls ready for service, several from Register of Merit Cows. Four bred heifers, good ones. Herd Tuberculin tested. Prices reasonable. COLON C. LILLIE, Coopersville, Michigan.

## THE WILDWOOD HERD

REGISTERED JERSEYS, Herd headed by Majesty's Wonder 9077. For sale a Grand-son of Royal Majesty, and out of a cow that produced over 500 lbs. butter in one year. Born Oct. 24th 1913. Write for prices or come and see. ALVIN BALDEN, Opaac, Mich.

## The Jersey

comes into maturity early, is long-lived and is often found making records even to advanced age. She stands above all other breeds for economic production. Shall we mail you free a good book on the Jersey? THE AMERICAN JERSEY CATTLE CLUB, 324 W. 23d St., New York City.

## CROUSE'S OLD HOMESTEAD JERSEYS

All my surplus Full Blood Jerseys are sold. J. B. CROUSE, Hartland, Michigan.

Jerseys. Bulls ready for service, extra quality sired by Jacoba's Fairy Emanon. No. 10711, from high producing dams. SMITH & PARKER, Howell, Mich.

For Sale Jerseys.—Heifers from Register of Merit Ancestry, Raleigh—King and Exile of St. Lambert breeding. Also cows with Register of Merit records. Waterman & Waterman, Ann Arbor, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Assoc. records, also on semi-official test. C. B. Welner, R. 6, Allegan, Mich.

NOW IN SERVICE.—A Son of the \$50,000 sire King Segis Pontiac Alcartra, GREGORY & BORDEN, Howell, Michigan.

MAPLE Lane Register of Merit Jersey Herd—Tuberculin tested by U.S. Government. For sale, Register of Merit cows, also bulls, bull calves and heifer calves, having from 3 to 7 Register of Merit dams in their pedigrees. IRVIN FOX, Allegan, Michigan.

JERSEYS.—For list of stock for sale and Jersey facts write A. P. EDISON, Sec. M. J. C. C., 328 W. Bridge, Grand Rapids, Mich. It is a breeder and a member of M. J. C. C. send list of stock for sale to the above.

JERSEYS.—YEARLING BULL READY FOR SERVICE. Also bull calves. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

BUTTER BRED JERSEY BULLS  
CRYSTAL SPRING STOCK FARM,  
Silver Creek, Allegan County, Michigan.

Young Shorthorn Bulls And Oxford Down Yearling Rams for sale. H. B. PETERS, Burton, Michigan, R. R. Elsie.

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.

SHORTHORN BULLS FOR SALE.—Red and Roans, 10, 160 lbs. milk and 518 lbs. butter with first calf in one year. Reasonable price. Write, F. W. Johnson, Custer, Mich.

SHORTHORNS: 6 CHOICE YOUNG BULLS FOR SALE  
W. W. KNAPP, Howell, Michigan.

## SHEEP.

Rams and Ewes from the first prize flocks of Cotswolds, Leicesters, Lincoln and Oxford Downs; two years old rams and ewes; yearling rams and lambs, either sex. Some of these are unbeaten this year. Harry T. Crandell, Cass City, Mich.

Leicesters.—Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berkshire swine. Elmhurst Stock Farm, Almont, Mich.

RAMS—SHROPSHIRE OXFORDS AND HAMPSHIRE. Good strong well woolled fellows ready for business. Shipped to you without the money. Isn't that fair? If so write KOPE KON FARM, Kinderhook, Michigan.

POLLED DELAINE RAMS FOR SALE.—Big heavy shearers. F. L. BROKAW, Eagle, Michigan.

Ohio Delaines & Merinos.—Bred in line 40 years, size, quality, heavy shearers. Priced right. S. H. SANDERS, Ashtabula, Ohio.

Oxforddown Yearlings and Ram Lambs  
M. F. GANSSLEY, Lennon, Michigan.

OXFORD Down Ram and Ewe Lambs, and Reg. Berkshire, either sex. Priced to move quick. CHASE'S STOCK FARM, R. 1, Marietta, Michigan.

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS' The Sheepman of the East. I sell and ship everywhere and pay express charges. Write for club offer and price list. Oxford, Shropshire and Fokel-Delaine. PARSONS, Grand Ledge, Mich. R. 1.

Shropshire Yearling and Ram Lambs, large frames, Wool and Mutton type. Also O. I. C. swine. G. P. ANDREWS, Danville, Michigan.

INGLESIDE FARM offers fifteen choice recorded breeding ewes of good ages, also yearling and lamb rams. HERBERT E. POWELL, Ionia, Mich.

THOROUGHbred SHROP. Flock cheap, and 1 stock ram, \$8 each. 18 lambs (10 males) \$5. All choice. F. S. KENFIELD, Augusta, Michigan.

Registered Shropshire. Yearlings and Ram Lambs. C. G. HAWKINS, R. R. No. 2, Sutton's Bay, Mich.

MAPLESHADE FARM SHROPSHIRE. Ram Lambs of Choice Breeding. Ewes all sold. W. P. PULLING & SON, Parma, Michigan.

SHROPSHIRE.—Young rams and ewes of good quality, sired by imported rams. Prices right. WILLIS MEADE, R. 3, Lapeer, Mich.

Yearling Shropshire Rams at prices that are right. W. E. MORRISH, Flushing, Michigan.

REGISTERED OXFORD EWES—\$10 to \$15. Rams all sold. B. F. MILLER, Flint, Michigan.

SHROPSHIRE RAMS AND EWS FOR SALE  
DAN BOOHER, R. No. 1, Marion, Michigan.

REG. SHROPSHIRE.—Rams and ewes. Prices reasonable. HARRY POTTER, R. No. 5, Davison, Michigan.

THE MAPLES SHROPS.—We offer 20 extra yearling rams, a 2-year-old stock ram bred by Campbell, also ewes. E. E. Leland & Son, R. B. 9, Ann Arbor, Mich.

HOGS.

Berkshires.—Orders booked for sows to be bred for next spring farrowing. Fall pigs \$8 each now. B. B. REAVEY, Akron, Michigan.

ROYALTON BRED BERKSHIRES.—Fine April sows, with papers, \$20 to \$25 each. D. F. VALENTINE, Supt., Temperance, Michigan.

Berkshires.—Reg. Berkshire Boars ready for services also spring pigs either sex at farmer's prices. White Oak Farm, R. No. 4, Brown City, Mich.

BERKSHIRES.—Some Choice Gilts of May farrowing to let go at once. A. A. PATTULLO, Deckerville, Michigan.

Anything in Reg. Chester White Swine. 10 weeks old pigs \$10. Reg. Holstein Herd Bull cheap. RAY B. FARHAM, Bronson, Michigan.

CHESTER WHITES. August and September pigs, from Cakes as Chickasaw Bud, Modeler, Bronson King. Certificate of registry with each pig. John Gintling, Bronson, Michigan.

Hampshire Boars.—Bred from State Fair prize winners, March & Apr. farrow. Prices reasonable. John W. Snyder, R. No. 3, St. Johns, Mich.

HAMPSHIRE SWINE.—Breeding stock of all ages from most popular strains. Write for breeding. Inspection invited. Floyd Myers, R. 2, Decatur, Ind.

HAMPSHIRE SWINE.—Choice young stock for fall breeding, both sexes, prices reasonable. West Wind Farm, Pontiac, Mich. E. P. HAMMOND, Owner. N. A. WISER, Manager.

O. I. C. Swine.—1 stock boar, also 3 and 5 months old pigs from good thrifty stock. Prices reasonable. N. H. WEBER, Royal Oak, Mich.

O. I. C.—Bred sows and spring pigs, large and growthy. Pairs and trios, not akin. Write your wants. GLENWOOD STOCK FARM, Zeeland, Mich.

O. I. C's.—Large boned, shipped on approval, pairs not akin, registered free. J. W. HOWELL, Elsie, Michigan.

O. I. C's.—For 12 years I have been breeding Big Type O. I. C. swine and now have one of the best Big Type herds in the land, quality considered. Herd boar. Lengthy Prince No. 3812, vol. 13, I. C. record, a 700 lb. boar in breeding condition. White Monarch No. 42058, vol. 16, O. I. C. record, a 500 lb. Jr. yearling. Dams of equal size and merit. Young stock for sale at all times. Prices reasonable. Will ship C. O. D. NEWMAN'S STOCK FARM, R. No. 1, Marietta, Michigan.

O. I. C.—Service boars, fall pigs, pairs not akin. Holstein Bull Calves, CLOVER LEAF STOCK FARM, R. No. 1, Monroe, Mich.

O. I. C. March, April and May pigs; the big, growthy kind that always makes good. LEMUEL NICHOLS, R. F. D. No. 2, Lawrence, Mich.

O. I. C.—Choice spring boars of March and JOHN BERNER & SON, Grand Ledge, Michigan.

O. I. C. and Chester White Swine.

We won this year at Ill. State Fair, nine first prize second and five Champions including both Grand Champions; at Wis. we won twelve first prizes, five seconds and all Champions. We have over 700 pigs on hand of every age. All stock is shipped on their own merits. O. O. D. ROLLING VIEW STOCK FARM, R. No. 2, Cass City, Michigan.

O. I. C's.—We are still breeding and shipping the Big Bone, Long Bodies, Short Head and Straight Back O. I. C. Hogs. We have some dandy gilts and boars for sale, also Sept. pigs registered in your name. My hogs are Cholera immuned. J. W. WAY, Pompeii, Michigan.

O. I. C's.—Spring pigs, pairs and trios, no akin, from state fair winners. AVONDALE STOCK FARM, Wayne, Michigan.

O. I. C. Swine.—May I have the pleasure of receiving your order for a pair or trio, not akin, of April and May farrow. They are bred right. Satisfaction guaranteed. A. J. GORDEN, R. No. 2, Dorr, Mich.

O. I. C's.—I have extra fine lot of last spring boars and a lot of this fall pigs, either sex, not akin, will have a bred sow sale in Jan. 3/4 mile west of Denot. OTTO B. SCHULZE, Nashville, Mich.

O. I. C. Boars ready for service. Also spring gilts, stock recorded in Goshen Ind. H. W. MANN, Danville, Michigan.

O. I. C.—Choice boars ready for service, also open gilts and Aug. pigs. Pedigrees furnished. Meadowbrook Farm, East Jordan, Mich.

O. I. C. Choice Gilts for Spring Farrow. Not bred. May pigs. Choice serviceable boars the long bodied kind. ALVIN V. HATT, Grass Lake, Mich.

O. I. C. PIGS AND BRED GILTS.  
J. CARL JEWETT, Mason, Michigan.

O. I. C's.—Fine fall pigs either sex, service boars. Satisfaction guaranteed. A. R. GRAHAM, FLINT, MICHIGAN.

## Two O. I. C. Hogs Weigh 2806 lbs.

Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weigh 2806 lbs. Will ship you sample pair of these famous hogs on time and give agency to first applicant. We are originators, most extensive breeders and shippers of thoroughbred hogs in the world. All foreign shipments.

## U. S. Govt. Inspected

We have bred the O. I. C. Hogs for 51 years and have never lost a hog with cholera or any other contagious disease.

Write—Today—for Free Book, "The Hog from Birth to Sale"

THE L. B. SILVER CO.  
195 Vickers Bldg., Cleveland, O.

O. I. C's.—Serviceable boars weighing 150 to 300 lbs. Prices right to move them. I pay express. G. F. ANDREWS, Danville, Michigan.

O. I. C.—10 good boars, \$18 to \$25 each. One very choice boar \$30. Registered free. C. J. THOMPSON, Rockford, Michigan.

## Duroc Jersey Boars

From Prize-Winning Stock. Write, or better still, come.

Brookwater Farm, Ann Arbor, Mich., R. F. D. 7.

DUROC JERSEYS, Spring Pigs For Sale  
CAREY U. EDMONDS, Hastings, Michigan.

DUROC BOARS For Sale, breeding right about 115 lbs. April & May farrow \$25 while they last. H. G. KEESLER, R. R. No. 5, Cassopolis, Mich.

Duroc Jerseys.—Boars ready for service, some spring gilts and fall pigs. Satisfaction guaranteed or money refunded. Write or come and see. Wm. D. McMullen, 67 Madison St., Adrian, Mich.

Duroc Jerseys.—25 choice boars, some fine March gilts and a few bred sows for October farrow. W. O. TAYLOR, Milan, Michigan.

DUROC JERSEYS.—Fall pigs for sale either sex, also some fine April and May gilts. BERT SWEET, R. R. No. 1, Hudsonville, Mich.

Duroc Jerseys.—Aug. pigs, either sex. Also Holstein bull calf from tuberculin tested dam at reasonable price. E. H. Morris, R. 2, Monroe, Mich.

KORN-EL STOCK FARM now offer Duroc Jersey pigs of either sex at reasonable prices. E. R. CORNELL, Howell, Michigan.

DUROC JERSEYS.—Spring pigs of either sex at reasonable prices. Pairs not akin. W. J. BAUMAN, Burr Oak, Michigan.

DUROC JERSEYS.—Spring pigs either sex at reasonable prices. S. O. STAHLMAN, Cherry Lawn Farm, R. 2, Shepherd, Mich.

Duroc Jerseys.—For sale, of the heavy boned type. A few choice boars and gilts. M. A. BRAY, Okemos, Ingham Co., Michigan.

DUROC JERSEYS.—35 fancy boars and gilts of popular blood lines, good individual quality. Special prices for 30 days. JOHN McNICOLL, Sta. A. R. 4, Bay City, Michigan.

## POLAND CHINAS

The Large Prolific Kind  
We have a SPRING BOARS

nice lot of  
At Farmers' Prices.  
ALLEN BROS.

Paw Paw, Michigan.

POLAND CHINAS.—Spring pigs either sex. From growthy stock and large litters. L. W. BARNES & SON, Byron, Michigan.

LARGE TYPE P. C.—Either sex, pairs and trios, not bred gilts. W. J. HAGELESHAW, Augusta, Mich.

POLAND CHINA BOARS.—March and April farrow and some summer pigs. Prices right. G. W. HOLTON, R. No. 11, Kalamazoo, Mich.

BIG TYPE POLAND CHINAS For Sale.—Spring Gilts by that great 1000 lb. boar, Hillcrest Wonder. They make great brood sows. Have also some splendid fall pigs. HILLOREST FARM, Kalamazoo, Michigan.

Poland China Pigs.—March and April farrow, large and well grown. One yearling boar. H. H. CONRAD, R. 4, Lansing, Michigan.

FOR SALE.—A choice bunch of Poland Chinas, all ages, over fifty head to choose from. Prices right. OLYDE FISHER, St. Louis, Mich.

For Sale, Poland China Pigs.—April and Sept. farrow, point, Carson city, A. O. Shinabargar, Crystal, Mich.

Poland Chinas of the big type. March and April farrow. The kind that please our customers. A. A. WOOD & SON, Saline, Mich.

Poland Chinas, either sex, all ages. Something good at a low price. Bargains in boars ready for service. P. D. LONG, R. F. D. 8, Grand Rapids, Mich.

Plum Creek Stock Farm now offer choice heavy boned Duroc Jersey Boars ready for service. Fall pigs, pairs not akin. Also Shropshire Rams. F. J. Drott, R. No. 1, Mon. Co. Mich.

THE FARMER'S HOG.—Butler's Big Boned Prolific Poland Chinas grow big, keep easy, mature early, ready for market at 6 months. Why? Because we've bred them that way for more than 20 years. 50 big boned, long bodied, high class boars at farmers' prices. Buy one and make more money on your hogs. P. C. History Free. J. C. BUTLER, Portland, Michigan.

LARGE TYPE P. C.—Largest in Mich. Fall pigs all by the largest boar in the U. S., weight 900 lbs., 24 months old. Come and see. Expenses paid if not as represented. W. E. LIVINGSTON, Parma, Mich.

LARGE STYLE POLAND CHINA SPRING AND FALL PIGS. Dairy Breed Shorthorn Bulls and Oxford Buck Lambs. Prices right. Robert Neve, Pierston, Mich.

BIG TYPE POLAND CHINAS.—Boar pigs ready for new homes. They are corks and immuned. WM. WAFFLE, Coldwater, Michigan.

Mule Foot Bred sows, bred gilts and boar pigs, not related for sale. Satisfaction guaranteed. G. C. KREGLOW, Ada, Ohio.

Yorkshire Swine.—We have some nice May pigs, both sexes. Write for description and prices. OSTRANDER BROS., Morley, Michigan.

## YORKSHIRES

The large, long-bodied, prolific kind. Gilts bred for September and October farrow. A choice lot of spring boars and gilts. Prices reasonable.

W. C. COOK, R. 42, Ada, Michigan.

## Lillie Farmstead Yorkshires

Open gilts and gilts bred for September farrow. Spring pigs either sex, pairs and trios not akin. Satisfaction guaranteed.

COLON C. LILLIE, Coopersville, Michigan.





**"Not the Cure, But the Prevention, of Hog Diseases Is Your Big Problem."**

**GILBERT HESS,**  
Doctor of Veterinary Science. Doctor of Medicine.

You'd scarcely believe the figures if you knew the tremendous money losses that hog diseases are causing the farmers of America. It runs into millions of dollars. Swine epidemics are constantly playing havoc in different parts of the country. Be on your guard.

It's bad policy to wait until your hogs are stricken with disease—it's a mighty ex-

pensive job to *cure* a herd—it takes very little effort and trifling cost to keep a herd sound and healthy. My message to you is *Prevention*. And almost the whole secret of prevention lies in proper feeding and sanitation. Keep your hogs toned up and free from worms—keep the animals, pens, troughs and runs clean and disinfected and you'll have very little trouble raising healthy, weighty stock.

## DR. HESS STOCK TONIC

**Makes Stock Healthy and Expels Worms.**

## Dr. Hess Dip and Disinfectant

**Destroys Germs—Deodorizes—Cures Skin Diseases.**

These two preparations are the result of my life-time experience as a doctor of veterinary science, a doctor of medicine and a successful stock raiser. Dr. Hess Stock Tonic will put your animals in a thriving condition, make the ailing ones healthy and expel the worms. Contains *tonics* to aid digestion and appetite; *blood builders* to enrich and tone up the blood; *laxatives* for regulating the bowels and *vermifuges* to expel worms. My Stock Tonic will not only rid your stock of worms, but put your animals in such a clean, healthy, toned-up condition *as to make worm development impossible*. My Stock Tonic is good alike for hogs, horses, sheep and cattle.

want to insist, however, that sanitation is of prime importance in dealing with hog and general stock diseases. In this I am supported by the leading veterinarians, scientists and government experimental stations throughout the country. Sanitation has been my constant message to you for many, many years, through the agricultural

press, as being an absolute necessity for the prevention of disease.

Dr. Hess Dip and Disinfectant destroys disease germs, foul odors, and is an effective remedy for parasitic skin diseases. For prevention of hog diseases I certainly recommend the use of Dr. Hess Dip and Disinfectant. Sprinkle or spray around the premises, on the floors, bedding, feeding places and troughs. Put it in the hog wallow. Dip the hogs occasionally if possible. Where this cannot be done, sprinkle or spray them. It will not only kill the germs of disease, but the lice as well.

Bear this in mind: whenever an outbreak of disease strikes a locality only the fittest survive; the strong, healthy, toned-up animal housed in clean, germ-free quarters will weather the storm. The use of Dr. Hess Stock Tonic and Dr. Hess Dip and Disinfectant will put your stock in this class.

*Now read every word of this broad statement:*

So sure am I that Dr. Hess Stock Tonic will put your animals in a thriving condition, make the ailing ones healthy and expel the worms—that Dr. Hess Dip and Disinfectant will destroy foul odors and disease germs, prevent and cure skin ailments and keep your premises clean and sweet smelling—that I have authorized my dealer in your town to supply you with enough for your stock, and if these preparations do not do as I claim, return the empty packages and my dealer will refund your money

The above dependable and scientific preparations are never peddled—sold only by reputable dealers whom you know. I save you peddler's wagon, team and traveling expenses, as these prices prove: Dr. Hess Stock Tonic, 25-lb. pail \$1.60; 100-lb. sack \$5.00. Smaller packages as low as 50c. Except in Canada, the far West and the South. Dr. Hess Dip and Disinfectant is sold in pint bottles, quart and gallon cans, also in barrels.

*I have a book about Dr. Hess Stock Tonic and Dr. Hess Dip and Disinfectant that you may have for the asking.*

**DR. HESS & CLARK, Ashland, Ohio**

### Dr. Hess Poultry Pan-a-ce-a

A splendid poultry tonic that shortens the moulting period. It gives the moulting hen vitality to force out the old quills, grow new feathers and get back on the job laying eggs all winter. It tones up the dormant egg organs and makes hens lay. Also helps chicks grow. Economical to use—a penny's worth is enough for 30 fowl per day. 1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail \$2.50. Except in Canada and the far West. Guaranteed.

### Dr. Hess Instant Louse Killer

Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks and dust bath. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, etc., slugs on rose bushes, etc. Comes in handy sifting-top cans. 1 lb. 25c; 3 lbs. 60. Except in Canada and the far West. I guarantee it.